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TRANSFORMATION OF THE INTERMARIA CONCEPT IN THE GEOPOLITICAL STRATEGIES OF THE BALTIC-BLACK SEA REGION (XVI-XXI CENTURIES)

ТРАНСФОРМАЦІЯ КОНЦЕПЦІЇ ІНТЕРМАРІУМУ В ГЕОПОЛІТИЧНИХ СТРАТЕГІЯХ БАЛТО-ЧОРНОМОРСЬКОГО РЕГІОНУ (XVI–XXI СТОЛІТТЯ)

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***Abstract.** The article is dedicated to analyzing the transformation of the Intermarium concept in the geopolitical strategies of the Baltic-Black Sea region from the 16th to the 21st century. It examines the historical development of this concept, its adaptation to modern geopolitical conditions, and its potential impact on the future of regional cooperation. Given that most Central and Eastern European countries are situated between two powerful blocs—the European Union and NATO on one side and Russia on the other—the necessity of forming independent regional development strategies is explored.*

The relevance of the study is determined by the growing security challenges and the need to find effective mechanisms for interstate interaction. The Intermarium concept envisions the creation of a geopolitical alliance of countries spanning the Baltic, Black, and Adriatic seas, which would enhance regional security, promote economic growth, and strengthen political stability. Various historical models of the Intermarium, its implementation in different historical periods, and its modern prospects in the context of increasing military threats from Russia are analyzed.

The article highlights five key stages in the development of the Intermarium concept: its emergence in the 16th–17th centuries, the interwar period of 1918–1939, the Cold War era (1945–1991), the post-Soviet phase (1991–2004), and the modern period (2004–2021). Particular attention is paid to the contemporary stage of the concept's development, including initiatives related to the Three Seas Initiative, which serves as a tangible mechanism for regional cooperation.

As a result of the study, it is concluded that the Intermarium concept is not only a historical phenomenon but also an effective tool for ensuring regional security. It has evolved from a military alliance to economic, political, and cultural cooperation and is once again gaining relevance as a potential defense alliance. Special attention is given to Ukraine's role in this process and its strategic interests in developing regional cooperation.

Keywords: Intermarium, Baltic-Black Sea region, geopolitics, Three Seas Initiative, security, international relations, regional cooperation, Central Europe, strategic alliances, political stability.

Анотація. Стаття присвячена аналізу трансформації концепції Інтермаріуму в геополітичних стратегіях Балто-Чорноморського регіону від XVI до XXI століття. Досліджується історичний розвиток цієї концепції, її адаптація до сучасних геополітичних умов та її потенційний вплив на майбутнє регіональної співпраці. З огляду на те, що більшість країн Центральної та Східної Європи знаходяться між двома потужними блоками – Європейським Союзом і НАТО з одного боку та Росією з іншого – розглядається необхідність формування власних стратегій регіонального розвитку.

Актуальність дослідження зумовлена загостренням безпекових викликів та необхідністю пошуку ефективних механізмів міждержавної взаємодії. Концепція Інтермаріуму передбачає створення геополітичного союзу країн Балтійського, Чорного та Адріатичного морів, що дозволить посилити регіональну безпеку, сприяти економічному зростанню та зміцненню політичної стабільності. Аналізуються різні історичні моделі Інтермаріуму, його реалізація в різni періоди історії та сучасні перспективи в умовах зростаючої військової загрози з боку Росії.

У статті виділено п'ять ключових етапів розвитку концепції Інтермаріуму: її зародження у XVI–XVII століттях, міжвоєнний період 1918–1939 років, період Холодної війни (1945–1991), пострадянський етап (1991–2004) та сучасний період (2004–2021). Особлива увага приділяється сучасному етапу розвитку концепції, зокрема ініціативам, пов'язаним із Триморською ініціативою, яка є реальним механізмом співпраці держав регіону.

У результаті дослідження зроблено висновок, що концепція Інтермаріуму є не лише історичним феноменом, а її дієвим інструментом забезпечення регіональної безпеки. Вона пройшла довгий шлях від військового союзу до економічної, політичної та культурної співпраці, а нині знову набуває актуальності у вигляді можливого оборонного альянсу. Особливу увагу приділено ролі України у цьому процесі та її стратегічним інтересам у розвитку регіональної співпраці.

Ключові слова: Інтермаріум, Балто-Чорноморський регіон, geopolітика, Тримор'я, безпека, міжнародні відносини, регіональна співпраця, Центральна Європа, стратегічні альянси, політична стабільність.

Introduction. Most of the countries of Central Europe, including Ukraine, find themselves between two powerful blocks that can use them to protect and promote their own interests and ambitions. On the one hand, the western part of Europe is supported by the European Union and NATO and is the dominant force in the region. On the other hand, there is aggressive Russia, which is trying to restore its former power and geopolitical status as a superpower through military means. Therefore, this restrictive zone of the countries of Central and Eastern Europe, surrounded by more powerful neighbors, must satisfy its own interests and face all the economic and security challenges of modern times, as well as preserve its identity and build its own geopolitical strategy.

The relevance of the research lies in understanding the current geopolitical challenges and historical roots of cooperation and competition strategies in the Baltic-Black Sea region. Understanding the history of the Intermarium concept in the context of geopolitical strategies allows for a better reflect of current conflicts and development trends in the region. The research

includes an analysis of relations between countries in the region over a long historical period, taking into account their geopolitical strategies, ambitions, and interaction with other forces. Understanding the historical sources of geopolitical strategies in the region helps to forecast and respond to contemporary challenges, such as the influence of Russia, European integration, energy security, and others. The study of the development of the Intermarium concept indicates the possibilities and limitations of cooperation between countries in the region in the future. Analysis of historical interrelationships contributes to understanding common cultural aspects and forming internal unity in the region.

Thus, research on the concept of the Intermarium in the geopolitical strategies of the countries of the Baltic-Black Sea region is important for understanding the historical context and current trends in the development of this key geopolitical space. The problematic situation of our dissertation research is the need to form and implement an effective strategy for the geopolitical development of the states of the region, which would meet both the interests of Ukraine and the interests of European countries, in particular for the Baltic-Black Sea region, in the protection of their national interests, state sovereignty and subjectivity in the international arena. National interests must take into account the historical experience of the state's foreign policy, modern geopolitical processes and other features of the civilizational, historical and cultural development of the world, namely the entire range of political, economic, social, spiritual and intellectual aspects of public life.

Literature Review. The concept of Intermarium is examined from various historical, geopolitical, and political perspectives. M. J. Chodakiewicz (2017) studies historical and political processes in the region between the Black and Baltic Seas, analyzing the idea of Intermarium and its impact on contemporary geopolitics. P. Gotowiecki (2020) explores the contradictions and challenges associated with the implementation of the Intermarium concept, focusing on the political and security aspects of regional cooperation. O. Kushnir (2021) analyzes the historical and contemporary meanings of the Intermarium concept, examining Ukrainian and Polish academic and political thought on the organization of the space between the Baltic and Black Seas. O. Volovych examines the historical prerequisites and contemporary prospects for the creation of the Baltic-Black Sea Union, analyzing the opportunities and challenges for the countries of the region. T. Hrynevych (2008) investigates the representation of the Ukrainian issue in the Polish historical journal *Przegląd Historyczny* during the interwar period, helping to understand Polish-Ukrainian relations and their impact on the Intermarium concept. I. A. Zavadovskyi (2016) analyzes Ukrainian-Belarusian relations as a factor of security in the Baltic-Black Sea region, emphasizing their significance for the realization of the Intermarium concept. Yuriy Lypa develops a geopolitical concept in which Ukraine plays a key role in the Baltic-Black Sea region, justifying the necessity of close cooperation among the countries in this space to ensure their independence and prosperity. V. Poltorak (2020) explores the origins and development of the Baltic-Black Sea Union concept in Ukraine up to the 1920s, analyzing the historical and political prerequisites for its emergence.

These works provide a deep and multifaceted analysis of the development of the Intermarium concept, highlighting its historical roots, evolution, and contemporary prospects.

The purpose of the research is to develop a model of the evolution of the conceptual foundations of geopolitical strategies of the Intermarium in the historical discourse of the Eastern European region. Conclusions.

Summary of the main research material. This paper will focus mainly on the concept of the Intermarium ("Intermarium", Three Seas, Baltic-Black Sea Union (BBSU), a union of states "from sea to sea") as a potential direction of Ukraine's geopolitical strategy. This concept envisages the formation of a bloc of states from the Baltic to the Black and Adriatic Seas on the basis of partnerships. Also, in this context, the project of a kind of confederative formation is meant, which would include such countries as Poland, Ukraine, Belarus, Lithuania, Latvia, Estonia, Moldova, Hungary, Romania, Yugoslavia, Czech Republic, Slovakia, and possibly Finland and Georgia. This project was put forward by Józef Piłsudski after the First World War [4].

In the current geopolitical discourse, various models of unification of states based on the concept of the Intermarium are being considered. One of the options is the so-called "small" Intermarium, which consists of only six countries: Ukraine, Belarus, Poland, Lithuania, Latvia, and Estonia.

The ideas of the Intermarium concept are popular in most countries of the potential alliance, both at the scientific and political levels. At different times, the development of these concepts had its supporters and changed intensity depending on the dominant political forces.

Ostap Kushnir points out that "the inbred multi-layeredness of the Intermarium concept nurtured its diverse interpretations by different theorists and decision makers. One may even state that the Intermarium evolved into an all-embracing term in contemporary public and political discourses, a term equally suitable to define any international organization or framework of co-operation in central and eastern Europe" [3].

Based on the results of the analysis, we can distinguish five key periods of formation and development of the Intermarium concept, which has undergone a significant evolution from the idea of protection against external threats to modern forms of interregional cooperation, including economic, political and security integration:

1. The emergence of the Intermarium concept (XVI-XVII centuries).
2. The interwar period (1918-1939).
3. The Cold War (1945-1991).
4. Post-Soviet period (1991-2004).
5. The modern stage (2004-2021) - two sub-stages of development can be distinguished.

The emergence of the concept of the Intermarium (16-17 centuries)

The emergence of the idea of uniting the Baltic-Black Sea region has deep historical roots and is related to their geopolitical location. Back in the days of Ancient Rus, one of the largest transport and trade routes "from the Varangians to the Greeks" that connected the Baltic and Black Seas ran through the region. During the period of the Grand Duchy of Lithuania, this region was a rather powerful union, the territory of which was already being fought over between the European West and the Russian East. [6, c. 13-15].

The concept of the Intermarium dates back to the 16th and 17th centuries, when the Polish-Lithuanian Commonwealth tried to create a union of states between the Baltic and Black Seas. At that time, the idea of uniting the countries of the region was aimed at protecting them from the expansion of the Ottoman Empire, the Muscovy, and other threats. The Ottoman Empire was exerting considerable pressure on the southern borders of Europe, in particular on the territories of modern Hungary, Romania, and Ukraine. The security situation in the region was also exacerbated by the expansion of the Muscovy to the eastern territories and attempts to establish control over the Russian principalities, which threatened the countries of Central and Eastern Europe.

The main initiator of the concept of the Intermarium in the 16th century was the Polish-Lithuanian Commonwealth, which sought to create a federal union with Lithuania and other neighboring states, an attempt to create a strong political bloc capable of withstanding external threats from the Ottoman Empire and the Muscovy. The Union of Lublin of 1569 united the Kingdom of Poland and the Grand Duchy of Lithuania into a single state, the Polish-Lithuanian Commonwealth, which was the first step toward realizing the concept of the Intermarium. The Polish-Lithuanian Commonwealth also tried to establish allied relations with the Crimean Khanate to create a buffer zone against the Ottoman Empire.

As Paweł Gotowiecki notes: "from the Polish perspective, the natural reference to all federal concepts in Central and Eastern Europe was the so-called jagiellonian idea. In the Middle Ages, under the scepter of the Jagiellonian dynasty, it was possible to implement the geopolitical concept, which many historians compared to the Carolingian universum or the concept of Otto III. Thanks to the personal union, and then the real union between the Polish Kingdom and the Grand duchy of Lithuania, it was possible to create a state organism that became a real center of power, a late-medieval superpower capable of expanding north, east and south" [2].

In economic and political terms, one of the main goals was to ensure control over important trade routes between the Baltic and Black Seas. The creation of conditions for the development of economic ties between the countries of the region was aimed at increasing their economic stability. Formation of joint military forces to protect against external threats. Fortresses and other defensive structures were built to protect the territories from attacks by the Ottoman Empire and the Muscovy.

But in addition, the Polish-Lithuanian Commonwealth helped to preserve the cultural and religious identity of the peoples that made up the state. The development of the idea of religious tolerance within a multinational state contributed to political stability and internal peace.

In the 16th and 17th centuries, the concept of the Intermarium was implemented and developed through the efforts of the Polish-Lithuanian Commonwealth to create a union of states in the Baltic-Black Sea region. The main ideas were to strengthen military cooperation, ensure economic stability and development, and preserve cultural and religious identity. These efforts laid the groundwork for future initiatives for regional integration and cooperation.

The interwar period (1918-1939)

In a new sense, the theoretical concept of the region began to be developed after the collapse of the Austro-Hungarian and Russian empires and the formation of a number of countries in Central and Eastern Europe, as well as with political changes and the First World War, which gave rise to the search for new geopolitical doctrines [6, p. 13-15].

The beginning of the development and justification of the idea of creating an alliance of countries "from sea to sea" is associated with Józef Piłsudski, who was a Polish military, state and political figure who, after the First World War, pointed out the need for such an association. Representatives of the "eastern" orientation from J. Piłsudski's camp considered the period of the Jagiellonian monarchy to be the time of the greatest prosperity, and saw the main direction of Poland's political development in the eastern policy and the concept of federalism with the peoples of Central and Eastern Europe on the basis of the so-called "Jagiellonian idea", which had a great influence on the formation of the model of relations between the Poles and the states of this region [5, p. 160].

Proposed in the twenties of the last century by Polish Marshal Józef Piłsudski, the federation was supposed to revive the multinational Polish-Lithuanian Commonwealth in order to avoid domination in Eastern Europe by Germany and Russia. He began to actively promote the concept of the Intermarium after the First World War, which pointed to the need to unite the states of this zone to protect their interests and security. The federation was to include such nations as Polish, Ukrainian, Lithuanian, and Jewish. Thus, Piłsudski's first plan united Poland, Belarus, Ukraine, and Lithuania.

Because the member states were primarily afraid of their dependent position and the usurpation of their sovereignty by Poland, they did not support such a union. Józef Piłsudski and his followers saw the ordering of the old Polish-Lithuanian Commonwealth in the form of a federation of Poland, Ukraine, Belarus, and Lithuania, which formed the Intermarium. The second plan already included a project of a confederation of states, which was to include the independent countries of Poland, Ukraine, Belarus, Lithuania, Latvia, Estonia, Moldova, Hungary, Romania, Yugoslavia, Czechoslovakia, and possibly Finland.

Józef Piłsudski never managed to realize his plan, but he gained many followers who continued to develop the concept of the Intermarium. Polish Foreign Minister Józef Beck, General Władysław Sikorski, leader of the right-wing nationalist party, the Confederation of Independent Poland, Leszek Mochulski, and others were also involved in the development of the BBSU project to varying degrees. The plan of Polish Foreign Minister Józef Beck was to reduce the Intermarium to a union of Poland, Romania, and Hungary, based on realities.

In Ukrainian geopolitical thought, the idea of the Intermarium dates back to the late nineteenth and early twentieth centuries, when Ukrainian politicians and public figures Yuriy Bachynskyi (1895), Mykhailo Mikhnovskyi (1900), and Sergiy Rudnytskyi (1923) tried to develop the Baltic-Black Sea geopolitical concept. During the Ukrainian People's Republic, Ukrainian historian and head of the Central Rada M. Hrushevsky outlined the idea of creating a Baltic-Black

Sea alliance in his work "Black Sea Orientation" (1918). The public figure, writer, publicist and ideologist of Ukrainian nationalism Yuriy Lypa (1900-1944) created his own original geopolitical doctrine, in which he pointed to the historical commonality of the peoples inhabiting the coasts of the Baltic and Black Seas, as described in the monographic trilogy "The Destiny of Ukraine" (1938), "The Black Sea Doctrine" (1940) and "The Division of Russia" (1941) [7, 8].

After the First World War, the German, Austro-Hungarian, Russian, and Ottoman empires collapsed, leading to the formation of new independent states in Central and Eastern Europe. At this time, such independent states as Poland, Lithuania, Latvia, Estonia, Finland, and the Ukrainian People's Republic (UPR) were formed, although the latter failed to maintain its independence due to Soviet aggression. In 1934, Lithuania, Latvia, and Estonia established the Baltic Entente to coordinate foreign policy and provide mutual support in the event of external aggression. Poland also entered into an alliance with Romania to jointly confront the Soviet threat and support the independence of states in the region.

At that time, the initiators of the concept planned to create joint military forces to protect the borders and prevent aggression from large neighbors. Joint military exercises and exchange of experience between the armies of the Baltic-Black Sea region were organized.

Economic cooperation was marked by the development of trade agreements between the countries of the region to stimulate economic development and reduce dependence on foreign markets, and investments in the development of transport infrastructure to improve ties between the countries of the region.

In the international arena, support and recognition of the idea of the Intermarium was sought, in particular from the League of Nations and major Western powers. Diplomatic efforts were aimed at protecting the independence of the newly created states and preventing their annexation by aggressive neighbors.

In the interwar period, the concept of the Intermarium developed as a response to threats from Germany and the Soviet Union. The main ideas included the creation of a federation or confederation of states in the Baltic-Black Sea region, ensuring collective security, economic cooperation, and support for national identity.

The Cold War (1945-1991)

After the Second World War, the Baltic-Black Sea region came under the control of the Soviet Union, and the idea of the Intermarium was postponed. The countries of the region were looking for ways to preserve their national identity and cooperation under Soviet control. The Cold War period (1945-1991) was characterized by a sharp confrontation between the Western bloc led by the United States and the USSR, which affected the geopolitical situation in the Baltic-Black Sea region. At that time, the concept of the Intermarium took on new forms, as the countries were divided between two ideological blocs. The idea of uniting the countries of the region to ensure independence and security became especially important in the context of the rivalry between the two world systems.

Governments in exile and anti-Communist movements in the Baltic-Black Sea countries actively supported the idea of unification to counter Soviet influence. In turn, Western countries, in particular the United States and the United Kingdom, supported these movements through funding and political assistance aimed at weakening Soviet control. Various possibilities for creating regional alliances to counter the Soviet threat were considered. The ideas of military cooperation and coordination were important for security. Western countries conducted joint exercises with troops from the region, and facilitated the exchange of intelligence information to improve defense capabilities.

The West actively supported the spread of the ideas of democracy, human rights and independence among the countries of the region through radio, the press and other media. There was support for anti-Soviet movements, such as Polish Solidarity, Lithuanian Sayudis and others, which sought to restore the independence of their countries. Polish Solidarity in the 1980s became a powerful opposition force that contributed to the fall of the communist regime in Poland. Similar movements in other countries of the Baltic-Black Sea region received both material and moral support from Western powers.

The countries that were not part of the Soviet bloc also received economic assistance from Western partners, which helped to restore their economies and strengthen their independence. Economic sanctions were imposed on the USSR and its allies, weakening their economic base. Exchange programs for students, scientists, and artists contributed to the spread of democratic values and ideas of independence.

After the Second World War, the governments of Lithuania, Latvia, Estonia, and other countries in exile in the region continued to work actively to appeal to the international community to support their independence. The programs and initiatives of the governments in exile were aimed at informing the international community about the situation in their countries and seeking support for the restoration of independence.

Although the Baltic states and Eastern Europe could not formally join NATO because of Soviet control, cooperation with the alliance in informal forms helped strengthen their defense capabilities. Western countries used international organizations such as the UN to raise the issue of the Soviet occupation of the Baltic states and other human rights violations.

The United States and other Western countries provided economic and humanitarian assistance to countries seeking independence from the USSR, helping to restore their economies and strengthen social stability. International conferences and forums discussed the independence and security of the Baltic-Black Sea region, which helped to draw the world's attention to their problems and aspirations.

In general, the Cold War period (1945-1991) was difficult for the countries of the Baltic-Black Sea region, which sought to maintain their independence and security under Soviet domination. The ideas of the Intermarium concept gained new meaning as the countries of the region sought support from Western allies and developed strategies to counter Soviet influence. Security cooperation, economic assistance, cultural diplomacy, and people-to-people diplomacy became important elements of these efforts, which ultimately contributed to the restoration of the region's independence after the end of the Cold War.

Post-Soviet period (1991-2004)

After the collapse of the Soviet Union, the countries of the Baltic-Black Sea region gained independence and began to actively seek new forms of cooperation. Many countries in the region focused on integration with the European Union and NATO as a strategic direction of development. In 1991, the Baltic-Black Sea countries faced the need to develop new geopolitical strategies to ensure their own security and economic development. The revival of the Intermarium concept was one of the directions of such strategies, which aimed to unite the countries of the region to jointly counter threats and strengthen independence.

With growing concerns about the possible resurgence of Russian influence in the post-Soviet space, the countries of the Baltic-Black Sea region have sought ways to strengthen their defense capabilities through regional cooperation. Increased military cooperation, joint exercises, and intelligence sharing have become important elements of regional security.

Many countries in the region saw membership in NATO and the EU as a guarantee of stability and security. Poland, Hungary, and the Czech Republic joined NATO in 1999, and the Baltic states in 2004. The countries actively reformed their armed forces, legal systems, and economies to meet EU and NATO requirements. Reducing dependence on Russian energy resources by developing alternative energy supply routes, including LNG terminals and new gas pipelines. Joint energy infrastructure projects, such as the construction of pipelines and power grids, have contributed to strengthening energy independence. Projects aimed at improving transport links between the countries of the region, including the creation of transport corridors to improve trade and logistics. Increasing the level of economic integration through the signing of trade agreements and stimulating foreign direct investment.

Establishment and activation of regional forums, such as the Visegrad Group (Poland, Czech Republic, Slovakia, Hungary) and the Baltic Assembly, to coordinate political and economic efforts. Joint statements and diplomatic efforts to promote the interests of the region's countries in the international arena.

Key events and initiatives (1991-2004):

1. *The Visegrad Group*

Founded in 1991 by Poland, Czechoslovakia (later the Czech Republic and Slovakia), and Hungary to promote Euro-Atlantic integration and economic cooperation. The group was focused on joint projects to reform the economy and security, and prepare for accession to NATO and the EU.

2. *The Baltic Assembly*

Established in 1991 by Estonia, Latvia, and Lithuania to coordinate efforts in the security, economic, and cultural spheres. The main goal is to actively cooperate with the Nordic countries and support the process of joining NATO and the EU.

3. *NATO enlargement (1999, 2004)*

Poland, Hungary, and the Czech Republic joined NATO in 1999, which strengthened the military potential of the region. Estonia, Latvia, and Lithuania joined NATO in 2004, which strengthened the security of the Baltic region.

4. *EU enlargement (2004)*

The accession of Poland, Hungary, the Czech Republic, Slovakia, Estonia, Latvia, Lithuania, and Slovenia to the EU in 2004 was an important step for the economic integration and political stability of the region.

The concept of the Intermarium in the post-Soviet period (1991-2004) has gained new meaning in the context of strengthening security, economic cooperation and Euro-Atlantic integration of the Baltic-Black Sea region. Through the creation of regional organizations, cooperation in the field of security and energy independence, as well as active integration into Euro-Atlantic structures, the countries of the region were able to strengthen their independence and increase the level of stability.

The current stage (2004-2021)

In the 21st century, the concept of the Intermarium is taking on new forms in response to current geopolitical challenges. The current period of development of the concept can be divided into two stages - 2004-2014 and 2014-present.

The first stage of 2004-2014 was characterized by the following features and events. Russia, under the leadership of Vladimir Putin, sought to restore its influence in the post-Soviet space, which became especially evident after the invasion of Georgia in 2008 and the annexation of Crimea in 2014. This has had a significant impact on attitudes toward security policy in the region.

One of the key ideas was to reduce dependence on Russian energy resources. In this context, projects were developed to diversify gas and oil supplies, including the construction of LNG terminals and new pipelines. Initiatives to create new transport corridors connecting the Baltic and Black Seas were aimed at improving economic ties between the countries of the region and reducing Russia's influence.

The countries of the Baltic-Black Sea region actively supported democratic reforms and movements in the Eastern Partnership countries, such as Ukraine, Moldova, and Georgia. Joint diplomatic strategies were developed to counter Russian influence and protect national interests in the international arena.

Poland was actively involved in the Visegrad Group, which promoted policy coordination and joint projects between Poland, the Czech Republic, Slovakia, and Hungary. Although the Three Seas Initiative was formally established later, the ideas of regional cooperation began to be discussed during this period, which laid the groundwork for future projects in the energy, infrastructure, and security sectors.

Projects to create new transportation and logistics routes, including highways, railways, and ports connecting the Baltic and Black Seas, were actively developed. Stimulating investment and expanding trade ties between the countries of the region for economic development and growth.

Strengthening military cooperation between the countries of the region, including joint exercises, information exchange and coordination of defense policies to counter the Russian threat.

Active support for Ukraine during the 2014 crisis, including diplomatic, economic and military assistance in response to Russian aggression.

In 2004-2014, the ideas of the Intermarium concept were reflected in the geopolitical strategies of the Baltic-Black Sea region. The main directions included ensuring energy security, developing transport corridors, strengthening military cooperation, and supporting democratic reforms. This period laid the foundation for further integration and cooperation of the countries of the region in the face of the growing Russian threat and strengthening of Euro-Atlantic integration.

The period since 2014

The annexation of Crimea and the war in Donbas in 2014, as well as Russia's full-scale invasion of Ukraine in 2022, were key events that affected the security situation in the region. An important factor in the development of the concept was also the strengthening of the region's integration with the European Union and NATO, in particular the signing of Association Agreements with Ukraine, Georgia, and Moldova.

In 2015, the Three Seas Initiative was founded by Poland and Croatia. It now includes 12 countries between the Baltic, Adriatic, and Black Seas and aims to strengthen infrastructure, energy security, and economic cooperation. Currently, projects such as Via Carpatia and Rail Baltica are being implemented to improve transport links between the countries of the region, as well as to develop alternative energy sources, build LNG terminals (for example, in Poland and Lithuania), and expand energy corridors to reduce dependence on Russian energy resources.

The military aspect of this period is characterized by the expansion of NATO's presence in the region, including the establishment of military bases and strengthening of the defense capabilities of member states. Regular joint military exercises, such as Saber Strike and Anaconda, are held to increase the interoperability and readiness of the armed forces of the region.

Joint diplomatic initiatives are characterized by coordination of diplomatic efforts to counter Russian aggression and support for international sanctions against Russia.

In the period 2014-2024, the Intermarium concept gained new relevance in response to the intensification of Russian aggression and the need to strengthen regional security. The Three Seas Initiative has become a key tool for implementing ideas for cooperation in infrastructure, energy security, economy, and defense. Joint military efforts, the development of alternative energy sources, and cultural cooperation have become important aspects. These initiatives helped to strengthen ties between the countries of the Baltic-Black Sea region and increase their resilience to external threats.

Conclusions. The Intermarium concept has significant potential to strengthen security, economic development and political stability in the Baltic-Black Sea region. The implementation of this concept through the Three Seas Initiative and other regional projects will contribute to the growth of the role of the countries of the region in the international arena and their resilience to external threats.

The development of the Intermarium concept is intensifying as the security situation in the region deteriorates. The idea itself originated a long time ago, but its development has an undulating character and peaks during periods of external threat to the Baltic-Black Sea countries. The transformation of the concept has gone a long way from a defense alliance to cultural, economic and diplomatic cooperation, returning and taking the form of a security alliance again. Thus, the concept of the Intermarium has undergone a significant evolution from the idea of protection against external threats to modern forms of interregional cooperation, which includes economic, political and security integration.

This research will help to clearly define the main actors of influence in the region, identify and characterize the geopolitical technologies that are currently used and can be effectively applied in the future. Ukraine's strategic interests in cooperation with its neighbors are covered very generally in official documents. Outlining the opportunities for Ukraine from cooperation with the countries of the region in the context of the Intermarium will also allow for a more precise definition of the state's strategic interests.

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THE INSTITUTIONALIZATION OF THE NON-ALIGNED MOVEMENT AND ITS EXEMPLARY ROLE IN INTERNATIONAL POLITICS

ІНСТИТУЦІАЛІЗАЦІЯ РУХУ НЕПРИЄДНАННЯ ТА ЙОГО ЗРАЗКОВА РОЛЬ У МІЖНАРОДНІЙ ПОЛІТИЦІ

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Abstract. This article examines the formation and institutionalization of the Non-Aligned Movement (NAM), as well as its role in promoting peace, legal principles, diplomacy, and cooperation in the international political arena. The study primarily focuses on NAM's approach to conflicts, climate change, terrorism, the maintenance of balance in international politics, imperialism, colonialism, dependency policies, the protection of state sovereignty, non-interference in domestic affairs, and, more broadly, its alternative solutions to regional and global challenges.

The research highlights the solidarity among smaller actors within NAM, its commitment to a balanced foreign policy, and its impartial mediation role in conflict resolution. It explores NAM's historical and contemporary contributions to addressing global crises, including conflicts, environmental challenges, and health emergencies. The study emphasizes NAM's proposed solutions to these issues and assesses its potential role and exemplary influence in future geopolitical processes.

While numerous international organizations exist in the field of global relations, this research delves into what differentiates NAM from others by analyzing its unique principles and strategic actions. The paper provides an analytical perspective on the movement's past, present, and future, incorporating predictive methodologies to anticipate its trajectory in global affairs.

A key aspect of this study is NAM's commitment to maintaining inter-state balance within the international system, upholding the principles of international law, and advocating for peace as the foremost resolution strategy in diplomatic platforms. Given the current global landscape, NAM emerges as one of the most viable organizations in fostering international stability. By adopting a neutral stance in mediation efforts, the movement actively contributes to the globalization of peace.

Keywords: Non-Aligned Movement, institutionalization, international law, diplomacy, mediation, balance policy.

Анотація. У цій статті розглядається формування та інституціоналізація Руху неприєднання, його роль у міжнародних відносинах, політичній арені у контексті просування миру, права, дипломатії та співробітництва. Основний пріоритет дослідження – вивчення підходів Руху неприєднання до врегулювання конфліктів, змін клімату, боротьби з тероризмом, збереження політики балансування, протидії імперіалізму, колоніалізму, політиці залежності, захисту суверенітету держав, невтручання у внутрішні справи, а також, загалом, до пошуку альтернативних рішень регіональних і глобальних проблем.

Дослідження охоплює питання солідарності малих акторів у межах Руху неприєднання, політики балансування, неупередженого посередництва у конфліктах. У роботі аналізується роль Руху неприєднання у подоланні сучасних конфліктів, екологічних криз та епідемій, а також підкреслюється його підходи до розв'язання проблем і запропоновані виходи з них. Визначається потенційна роль та зразковість руху у майбутніх міжнародних процесах.

Міжнародні відносини охоплюють численні організації. У дослідженні проводиться порівняльний аналіз Руху неприєднання з іншими міжнародними організаціями, окреслюються його унікальні принципи та особливості діяльності. окрема увага приділяється ретроспективному аналізу діяльності організації – її минулому, сучасному стану та прогнозуванню майбутнього розвитку на основі методів передбачення.

Одним із ключових аспектів дослідження є роль Руху неприєднання у підтримці міждержавного балансу в міжнародній системі, дотриманні принципів міжнародного права, пріоритетному сприянні миру як головному засоабу вирішення конфліктів і активному просуванню цієї ідеї на міжнародних майданчиках. На сьогодні Рух неприєднання є однією з найоптимальніших міжнародних організацій, що займає неупереджену позицію у конфліктах та сприяє глобалізації миру.

Ключові слова: Рух неприєднання, інституціоналізація, міжнародне право, дипломатія, посередництво, політика балансування.

Introduction. The world is currently confronted with a system referred to as the "new world order." The collapse of the Soviet Union and the subsequent victory of the United States—more precisely, the triumph of capitalism over communism—led to the formation of a unipolar world. In response to the ideological struggle between communism and capitalism, the Non-Aligned Movement (NAM) emerged to ensure that its member states did not become victims of great-power rivalries. By uniting smaller actors, NAM prioritized cooperation, peace, and the rule of law, aiming to maintain independence from globalist influences.

The movement has underscored the importance of resolving the Russia-Ukraine conflict through diplomatic means and has expressed its potential role as a mediator between the parties. This study highlights how NAM's mediation efforts differ from those of other intermediaries in this conflict.

As in the past, new centers of power continue to emerge in the global political arena. The world is witnessing a struggle between multipolarity and unipolarity, with the primary dominant forces being the United States and China. Using comparative, historical, and modeling methodologies, this research examines how NAM can maintain its position and political trajectory without succumbing to the influence of global powers.

During Azerbaijan's chairmanship of NAM, the world experienced the COVID-19 pandemic. At that time, the movement demonstrated solidarity by providing humanitarian assistance to economically disadvantaged nations. Additionally, this article explores NAM's role in addressing both regional and global challenges, evaluating its initiatives and alternative solutions to various crises.

A key focus of this research is the movement's potential as a mediator in conflicts. Unlike other mediators, NAM does not prioritize its own interests but rather upholds the principles of international law, peace, and diplomatic negotiations. Through historical analysis, this study provides case-based evidence of NAM's approach, illustrating its relevance for both contemporary and future conflicts.

The purpose of this article is to develop strategies that enable smaller actors to maintain their stability within the new world order, to explore conflict resolution through the principles and frameworks of the Non-Aligned Movement (NAM), and to emphasize the fundamental role of international law and peace.

The key objectives of the study are as follows:

- To identify the principles guiding NAM's domestic and foreign policies.
- To examine the significance of NAM's political vectors within the international relations system.
- To analyze NAM's initiatives and effectiveness in addressing regional and global challenges.
- To assess NAM's past, present, and future roles in the global political arena through various political methodologies.

Literature review. Azerbaijan's foreign policy is shaped by key official documents such as the Constitution of the Republic of Azerbaijan, the National Security Concept, and the Foreign Policy Concept. These foundational texts outline the country's strategic priorities and international engagements, making them essential references for this study. In addition to official state documents, various analytical reports and expert opinions contribute to understanding Azerbaijan's diplomatic stance. The Ministry of Foreign Affairs of Azerbaijan provides valuable insights into the country's involvement in international organizations, including the Non-Aligned Movement (NAM). Research works by scholars like Dinkel (2018), McDougall (1997), and Deth (2018) offer historical context and analytical perspectives on NAM, which Azerbaijan has actively engaged with in recent years.

Furthermore, reports from international organizations, including the United Nations and the World Bank, help assess global trends that influence Azerbaijan's foreign policy. Media sources such as The Guardian and El País also provide perspectives on contemporary geopolitical events that may impact the country's diplomatic approach.

Main results of the research. To begin, it is essential to examine the essence of the term institutionalization. Derived from the Latin word "institutio", meaning organization or structure, the term has been adopted into various languages and has come to encompass multiple aspects of society. In his seminal work, *Political Order in Changing Societies* (1968), Samuel P. Huntington emphasized the critical role of institutions in the process of institutionalization. Like Huntington, many scholars have contributed to the discourse on this subject.

Institutionalization can be viewed from a slightly different perspective. Regardless of the governing structure, institutions are indispensable in every society. Institutionalization is a dynamic process that manifests across economic, political, and social spheres, ultimately leading to the formation of various institutions within society. When this process unfolds among interest groups, it shapes the state; when it occurs among states, it results in the creation of international organizations. One such organization is the Non-Aligned Movement, which was established as a platform for various interest groups to unite in pursuit of shared objectives.

The emergence of NAM in the political arena was largely driven by the Cold War (1947–1991). During this period, a fierce struggle for global dominance took place, characterized by two major political blocs: the Soviet Union and the United States. This geopolitical rivalry had profound consequences, particularly for three continents—Europe, Asia, and Africa—where nations experienced significant economic, political, and environmental upheavals.

Historical events illustrate the devastating impact of this ideological confrontation. The U.S.-backed coup in Iran, which led to the overthrow of Mohammad Mossadegh, and the 1973 coup in Chile, supported by the U.S., which resulted in the ousting of Salvador Allende and the rise of Augusto Pinochet, exemplify external interference in national sovereignty. Similarly, the Soviet military interventions in Hungary (1956) and Czechoslovakia (1968) destabilized political order in these countries.

Beyond political and economic turmoil, the Cold War also posed severe environmental threats. The nuclear arms race between the two superpowers heightened ecological risks. A striking example is the 1986 Chernobyl nuclear disaster, a direct consequence of the Soviet Union's nuclear policies, which triggered an unprecedented environmental crisis.

For over four decades, the two blocs engaged in intense geopolitical rivalry. Throughout this period, both sides had an immense need for economic resources. Meanwhile, actors that had already established a certain degree of political influence—some emerging and others facing existential threats—became viable alternatives to fill the economic void left by the competing superpowers.

These actors, seeking to minimize further losses, made rational decisions to remain outside the influence of either bloc. The significance of these decisions remains relevant even today.

The Non-Aligned Movement played a pivotal role in the decolonization process. As part of efforts to preserve international peace and maintain political balance, a historic conference was held in Bandung, Indonesia, from April 18 to April 24, 1955. This conference was a crucial initiative aimed at strengthening Afro-Asian economic and political cooperation.

The meeting was organized by several prominent leaders, including President Ahmed Sukarno of Indonesia, Prime Minister Sir John Kotelawala of Ceylon (now Sri Lanka), Prime Minister Jawaharlal Nehru of India, Premier Zhou Enlai of the People's Republic of China, and Prime Minister U Nu of Burma (now Myanmar) (Khudori, D., 2018). These leaders came together to assert the sovereignty of Asian and African nations, promote anti-imperialism, and protect their resources from being exploited in the Cold War power struggle. As a result, they collectively decided to refrain from aligning with any major bloc. The conference hosted representatives from 29 countries (U.S. Department of State, n.d.).

The Bandung Conference was the foundational step toward the official establishment of the Non-Aligned Movement. It continues to serve as an inspirational event in contemporary international relations. The conference remains a historical reference point for nations seeking to assert their political identity, resist imperialism and colonialism, prioritize diplomatic solutions, and uphold the principles of international law.

To safeguard neutrality and provide an alternative to the growing global polarization, the states that convened the Bandung Conference officially laid the institutional foundation of the Non-Aligned Movement in Belgrade, Yugoslavia, from September 1 to September 6, 1961 (Ministry of Foreign Affairs of the Republic of Azerbaijan, n.d.). From that point onward, NAM emerged as an institution dedicated to diplomatic engagement, advocating for cooperation, global peace, and human rights as fundamental principles in international relations. Over time, this institution evolved and expanded its influence.

However, the United States and the Soviet Union viewed these developments with concern. They feared that the rise of the Non-Aligned Movement and its principles would undermine their respective geopolitical interests and long-term strategic objectives. At the time, both superpowers were deeply entrenched in the Cold War, with communism and capitalism competing for ideological dominance on a global scale. Smaller states were often subjected to the pressures of aligning with either bloc.

The Non-Aligned Movement, however, sought to remain outside these power struggles, preserving its neutral stance and refusing to become a tool of any geopolitical alliance. This objective directly contradicted the strategic calculations of both superpowers. Despite these challenges, NAM persevered, expanded, and demonstrated that peace, law, and cooperation are indispensable factors in global governance—a principle it continues to uphold today.

Preservation of Independence and Positive Impulses. During this period, the Non-Aligned Movement (NAM) played a crucial role in supporting African and Asian nations still fighting for independence. By advocating for the abolition of imperialism and colonialism, the movement actively sought to safeguard the political and economic freedoms of newly independent states. A significant aspect of NAM's efforts was its stance against apartheid in South Africa and Namibia, where racial discrimination was institutionalized, subjecting individuals to unequal treatment based on their economic, legal, and political status. The movement undertook substantial initiatives to dismantle these systems of racial segregation.

In South Africa, apartheid became an official state policy in 1948, resulting in the systemic exclusion of Black South Africans from fundamental human rights. To counter this injustice, NAM actively supported United Nations resolutions against racial discrimination, repeatedly issuing statements condemning apartheid. The movement also extended support to anti-apartheid activists, particularly Nelson Mandela, who emerged as a key figure in the struggle. As a result of sustained domestic and international pressure, apartheid was officially abolished in 1994, with Nelson Mandela becoming the first Black president of South Africa (The Guardian, 2013).

NAM pursued a similar political strategy in Namibia, where apartheid had also taken root. The movement consistently supported liberation efforts, ultimately contributing to the abolition of apartheid in Namibia in 1990. Today, traces of apartheid-era inequalities can still be observed in certain regions, including the United States, demonstrating the enduring relevance of NAM's advocacy for human rights, global peace, and cooperation.

Against the backdrop of the Cold War confrontation between the United States and the Soviet Union, NAM provided an essential alternative platform for developing nations, particularly those in the Third World. While the movement maintained a neutral stance, it did not hesitate to criticize the policies of global superpowers when they threatened the interests of sovereign states. NAM championed non-alignment, political balance, decolonization, racial equality, and the promotion of peace.

Adopting a neutral foreign policy was particularly critical for the survival of smaller states during this turbulent period. For instance, Gamal Abdel Nasser, one of NAM's founding leaders, refrained from aligning with any geopolitical bloc, thereby securing Egypt's strategic autonomy. Likewise, Jawaharlal Nehru, through his neutral policies, actively promoted peace and international cooperation (Deth, 2018).

Exemplary Role in International Peace. The Non-Aligned Movement was established with the fundamental goal of contributing to international peace. As a platform that included smaller states, the movement consistently emphasized that peace must remain a primary global priority. This highlights an important reality in international politics: small actors can sometimes play crucial roles in global affairs. Moreover, their mediation efforts are often more impartial and selfless compared to those of major powers, which frequently prioritize their own strategic interests in conflicts.

For instance, during the Russia-Ukraine conflict, several states sought to act as mediators, yet major powers, particularly the United States, attempted to pursue their own geopolitical and economic interests under the guise of diplomacy. A case in point is the February 28, 2025, meeting between U.S. President Donald Trump and Ukrainian President Volodymyr Zelensky at the White House in Washington, D.C. (El País, 2025). While the U.S. had initially positioned itself as a neutral intermediary, the meeting ultimately revealed a shift towards asserting American dominance in the negotiations. This demonstrates a crucial distinction in global mediation efforts: mediators can generally be categorized into two groups—those driven by material, political, and strategic interests, and those genuinely committed to stabilizing international peace. NAM firmly belongs to the latter category, consistently advocating for peaceful resolutions without seeking self-serving advantages.

Mediation in Conflicts. NAM actively promotes dialogue-based conflict resolution by encouraging warring parties to engage in negotiations. For example, in 2020, NAM issued a statement in support of Azerbaijan's territorial integrity during the Armenia-Azerbaijan conflict, urging a peaceful resolution through diplomatic channels.

Defending State Sovereignty. The movement upholds the principle that major powers should not interfere in the internal affairs of smaller nations, reinforcing each country's right to determine its own political path. In 2019, NAM opposed foreign interventions in Venezuela, demanding respect for the nation's sovereignty (Azerbaijan Ministry of Foreign Affairs, n.d.).

Combating Terrorism. NAM actively condemns terrorism and supports international cooperation to counter destabilizing forces. Following the 2001 global surge in terrorism, NAM member states collaborated with the United Nations (UN) to formulate a global counterterrorism strategy and develop programs to combat radicalization.

Commitment to disarmament and global stability. The Non-Aligned Movement has consistently advocated for disarmament, emphasizing the principle that "more weapons lead to more problems." As part of its commitment to nuclear non-proliferation, NAM supported the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) adopted by the United Nations (UN) (United Nations Office for Disarmament Affairs, n.d.). This endorsement highlights the movement's

dedication to reducing global military tensions and preventing the spread of weapons of mass destruction.

NAM also supports UN peacekeeping missions, recognizing their shared objective of maintaining international stability. Member states such as Bangladesh, India, and Pakistan are among the largest contributors to UN peacekeeping forces deployed in Africa and the Middle East.

Humanitarian efforts and sustainable development. Beyond political and military concerns, NAM actively engages in humanitarian aid initiatives, particularly in conflict-affected regions. Rather than offering only rhetorical support, the movement has taken concrete actions to assist vulnerable populations. In 2020, during Azerbaijan's chairmanship of NAM, the organization launched a humanitarian assistance initiative in response to the COVID-19 pandemic, delivering medical supplies to numerous countries (Azerbaijan Ministry of Foreign Affairs, n.d.).

Furthermore, NAM prioritizes sustainable development and poverty eradication, recognizing that peace is not merely the absence of war but also the ability of individuals to lead dignified lives. Within this framework, the movement has supported various educational and healthcare projects in African nations, addressing water scarcity, hunger, and inadequate medical infrastructure.

NAM's role in conflict resolution. Throughout history, NAM has actively participated in diplomatic efforts to resolve international conflicts. During the Iran-Iraq War (1980–1988), NAM urged both parties—both of whom were member states—to engage in peaceful negotiations rather than military confrontation. Given its neutral stance, the movement facilitated political discussions within the UN framework. In 1982, several NAM countries took part in UN-sponsored negotiations, proposing diplomatic solutions to end the war. The UN Security Council Resolution 598, adopted in 1987, called for an immediate ceasefire, which NAM strongly endorsed, emphasizing the necessity of compliance (UN Security Council, 1987).

Azerbaijan's contributions to the Non-Aligned Movement. Azerbaijan became a member of the Non-Aligned Movement (NAM) during the organization's conference held in Bali, Indonesia, in 2011 (President of the Republic of Azerbaijan, 2019). The decision to join was based on NAM's core principles, including adherence to international law, respect for sovereignty, non-interference in internal affairs, and fostering cooperation. At the time, Azerbaijan was engaged in a conflict with Armenia over the Nagorno-Karabakh region. The Azerbaijani government consistently advocated for a diplomatic resolution to the conflict in international forums. Given NAM's commitment to resolving disputes through diplomatic means, Azerbaijan regarded membership as a strategic and appropriate step.

From 2019 to 2023, Azerbaijan assumed the chairmanship of NAM, during which the organization actively addressed global peace, environmental issues, healthcare, and international cooperation (Republic of Azerbaijan, n.d.). As a member of NAM, Azerbaijan participated in various summits where numerous member states expressed their support for a peaceful resolution to the Nagorno-Karabakh conflict. One notable event was the meeting of NAM's Coordinating Bureau held at the ministerial level in Sharm El-Sheikh, Egypt, in May 2012. The discussions included the Armenia-Azerbaijan conflict, emphasizing key principles such as respect for sovereignty, territorial integrity, and international peace.

Another crucial ministerial meeting took place in May 2014 in Algeria. The final document of this meeting, specifically in Paragraph 421, expressed regret that despite the existence of relevant United Nations Security Council resolutions, the Armenia-Azerbaijan conflict remained unresolved. The document reaffirmed NAM's support for resolving the conflict within the framework of Azerbaijan's territorial integrity.

Azerbaijan's pivotal role in NAM became even more evident in 2020, during the global outbreak of the COVID-19 pandemic. The crisis severely impacted the global economy, reduced GDP, disrupted the tourism sector, and significantly affected living standards (World Bank, 2022). In response to these challenges, Azerbaijani President Ilham Aliyev initiated a special NAM summit on COVID-19 in May 2020. The meeting, held in an online format, was of critical importance as it aimed to strengthen solidarity, mutual assistance, and cooperation among member states.

During its NAM chairmanship, Azerbaijan provided substantial humanitarian and financial aid to member countries affected by the pandemic. The country allocated a total of \$10 million to the World Health Organization (WHO), with \$5 million specifically designated for NAM member states. Additionally, Azerbaijan supplied medical equipment, pharmaceuticals, and vaccines to several countries, contributing significantly to global efforts in combating the pandemic (Trend News Agency, n.d.).

Vectors of the Non-Aligned Movement's influence on contemporary political dynamics. Numerous international organizations play a crucial role in shaping global affairs, including the United Nations, NATO, the Shanghai Cooperation Organization (SCO), BRICS, and the European Union. Each of these entities was established with distinct objectives and has contributed significantly to international relations. However, their founding motivations differ, reflecting specific geopolitical and strategic interests. NATO emerged as a response to the perceived threat of Soviet communism. The EU was designed to enhance Western cooperation and reduce dependence on external powers. Meanwhile, the SCO and BRICS were formed as counterweights to Western influence, aiming to establish alternative power centers.

Unlike these alliances, the Non-Aligned Movement was founded on principles of neutrality, prioritizing international peace, cooperation, non-interference in domestic affairs, respect for sovereignty, and opposition to occupation policies. NAM upholds the fundamental right of all ethnic groups and nations to live without external pressure or coercion. Since its inception, the organization has remained steadfast in adhering to these principles, actively voicing them in international forums.

Throughout its history, the world has witnessed numerous conflicts, economic crises, and health emergencies. NAM has not remained passive in the face of these challenges. Instead, it has proposed alternative solutions and extended humanitarian assistance. However, its approach does not align with the interests of globalist and imperialist forces or economic interest groups. The persistence of conflicts serves the agenda of arms dealers and other actors who benefit from instability.

Today, the world faces pressing challenges such as armed conflicts, environmental degradation, food insecurity, water shortages, and human casualties resulting from wars. Addressing these crises requires viable alternatives, and NAM's foundational principles offer a pathway to resolution. If these principles are effectively implemented, many of these problems could find sustainable solutions.

NAM advocates for diplomacy as the primary means of conflict resolution, emphasizing direct negotiations between the parties involved, free from external coercion. When bilateral dialogue is not feasible, NAM supports mediation by a neutral third party that does not pursue its own interests but instead assumes responsibility as an impartial facilitator.

In addressing environmental concerns, NAM has underscored the need for waste reduction, the promotion of hybrid technologies, the adoption of renewable energy sources, and enhanced global cooperation. Regarding water scarcity, the movement has put forward several proposals, including providing comprehensive assistance to water-stressed nations, identifying new freshwater sources, and fostering international cooperation in water resource management (United Nations, 2024).

Influential vectors of the Non-Aligned Movement. In the contemporary geopolitical landscape, the Non-Aligned Movement has the potential to serve as both an exemplary model and a transformative force. Amid the ongoing competition between the United States and China, NAM could play a pivotal role in shaping a multipolar world order. Today, the global arena is witnessing a struggle between unipolarity and multipolarity. The United States seeks to reestablish its unchallenged dominance, yet it no longer stands alone in this ambition. Other emerging powers, most notably China, are also pursuing hegemonic influence. While the Cold War (1947–1991) was defined by a bipolar rivalry between the U.S. and the Soviet Union, the 21st century has given rise to a similar power struggle, now between the U.S. and China. Economic competition has become

the primary battleground, with smaller and developing nations often suffering collateral damage, facing increasing economic dependency and external pressures.

In this context, NAM can assume a crucial role in preventing past patterns of dominance from repeating. Strengthening economic cooperation among its member states should be a priority to reduce vulnerability to external pressures. Many nations lack sufficient economic resources, making them susceptible to dependency on major powers like the U.S. and China, which exploit this reliance through debt-driven economic influence. Africa, in particular, has become a focal point for economic exploitation, with multiple interest groups advancing their strategic agendas in the region. NAM has the potential to counterbalance these efforts by advocating for economic alternatives, fostering self-sufficiency among developing nations, and promoting independent decision-making free from external coercion.

Recognizing these challenges, NAM consistently upholds the right of nations to self-determination and emphasizes the inviolability of territorial sovereignty. The movement actively calls for adherence to international legal principles and resists attempts by major powers to divide the world into new spheres of influence.

Additionally, NAM can establish alternative platforms for cooperation, providing smaller nations with avenues to enhance their strategic independence. Beyond these geopolitical vectors, the movement also has the capacity to contribute significantly in areas such as environmental sustainability, economic stability, conflict resolution, and energy security. While NAM has historically lagged in the energy sector, investing in renewable and alternative energy sources could allow it to play a more prominent role in global energy discussions. By prioritizing sustainable energy development, NAM could reduce dependency on traditional energy markets and foster a more equitable distribution of energy resources.

Conclusion. Political processes have always unfolded in different forms and at different times. The key challenge has been the ability to maintain stability amid these evolving dynamics. One such entity that has successfully navigated this complex landscape is the Non-Aligned Movement. From its inception, NAM has played a distinct role in global politics, advocating for balance, neutrality, the supremacy of international law, and the fundamental importance of peace and cooperation. These principles have shaped its evolution, gradually transforming it into a unique and influential institution within the international arena. Over time, NAM has solidified its structure, increasing its impact as a diplomatic force. Unlike many other political actors, NAM has consistently prioritized diplomacy as its primary tool and continues to do so. It has repeatedly emphasized that peace and legal frameworks should be the guiding forces in global affairs.

Within the United Nations, NAM has adopted a fair and balanced stance on critical issues, contributing to global security by fostering equilibrium among competing interests. Its institutional framework has allowed it to emerge as a model platform within the international system. Throughout its existence, NAM has actively engaged with global challenges, offering solutions and constructive contributions rather than remaining indifferent. By staying outside military alliances, the movement has positioned itself as a diplomatic bridge between the West and the East, while also serving as a beacon of hope for developing nations seeking independent pathways in the international order.

In today's geopolitical landscape, NAM remains the most viable alternative to traditional power blocs. Its principles provide a clear roadmap for preventing conflicts, protecting human rights, and avoiding large-scale humanitarian tragedies. The movement is not merely a product of the past or present—it stands as a forward-looking institution, well-positioned to shape the future of global governance.

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UNDERSTANDING CONFLICTS IN AFRICA: A REVIEW OF GEOPOLITICAL INSTABILITY AND ITS ROOT CAUSES

РОЗУМІННЯ КОНФЛІКТІВ В АФРИЦІ: ОГЛЯД ГЕОПОЛІТИЧНОЇ НЕСТАБІЛЬНОСТІ ТА ЇЇ ОСНОВНИХ ПРИЧИН

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Abstract. Currently, Africa remains a specific region characterized by high tensions stemming from various intra-state uprisings and inter-state conflicts. The roots of this situation lie in political instability, economic inequality, and the social fragmentation of the population, which has a long history. The diversity of ethnicities, religious movements, and colonial experiences on this continent have often served as a basis for deepening social divisions and the passage of violent clashes.

In recent decades, the conflict situation has been further complicated by the growing influence of non-state actors on the continent, external intervention by economically developed states, and the intensification of competition for natural resources at the global level. These factors have become drivers of the intensification of existing tensions in the region.

By examining the main drivers of instability - from governance deficits and economic isolation to ethnic resentments and environmental problems, this study aims to develop a holistic understanding of the specifics of conflicts in Africa. Particular attention is paid to how contemporary challenges, such as international geopolitical rivalry and resource scarcity, intersect with traditional sources of tension, making conventional conflict resolution mechanisms increasingly ineffective.

The study found that resolving African conflicts requires a paradigm shift from isolated sectoral interventions to comprehensive, synergistic strategies that simultaneously address the root causes in political, economic and social aspects. For example, the joint infrastructure program of the European Union and the African Union worth €750 million demonstrates how infrastructure and economic integration can function as tools for building peace and stability.

There are a large number of similar initiatives, such as the African Union Agenda 2063, which envisages the development of African countries to transform the region into a peaceful and prosperous one, but their implementation is hampered by insufficient investment and protracted conflicts.

Keywords: African conflict, resource-based conflicts, governance in Africa, regional integration, security-development nexus, post-colonial Africa, geopolitical instability.

Анотація. В теперішній час Африка залишається специфічним регіоном, який характеризується високою напруженностю, яка походить із різноманітних внутрішньодержавних повстань та міждержавних конфліктів. Коріння такої ситуації походить з політичної нестабільності, економічної нерівності та соціальної фрагментації населення, що має багатовікову історію. Розмаїття етнічних приналежностей, релігійних течій і колоніального досвіду на цьому континенті часто слугувало основою для поглиблення соціальних розбіжностей і проходження насильницьких зіткнень.

В останні десятиліття конфліктна ситуація ще більше ускладнилася зростанням впливу недержавних акторів на країни континенту, зовнішнім втручанням економічно розвинених держав і загостренням конкуренції за природні ресурси на світовому рівні. Зазначені фактори стали драйверами посилення існуючої напруженності в регіоні.

Вивчаючи основні чинники нестабільності - від дефіциту управління та економічної ізоляції до етнічних образів і екологічних проблем це дослідження спрямоване на формування цілісного розуміння особливостей конфліктів в Африці. Особлива увага приділяється тому, як сучасні виклики, такі як міжнародне геополітичне суперництво та ресурсна нестача, перетинаються з традиційними джерелами напруги, роблячи звичайні механізми вирішення конфліктів дедалі неефективними.

В рамках проведенного дослідження було встановлено, що розв'язання африканських конфліктів потребує зміни парадигми від ізольованих секторальних втручань до комплексних синергетичних стратегій, які одночасно усувають першопричини в політичному, економічному та соціальному аспектах. Наприклад, спільна інфраструктурна програма Європейського Союзу та Африканського Союзу вартістю 750 мільйонів євро демонструє, як інфраструктурна та економічна інтеграція можуть функціонувати в якості інструментів для розбудови миру та стабільності. Існує велика кількість схожих ініціатив, наприклад Порядок денний Африканського Союзу на період до 2063 року, який передбачає розвиток африканських країн для перетворення регіону в мирний і процвітаючий, але їх реалізації заважають недостатність інвестицій та тривали конфлікти.

Ключові слова: африканські конфлікти, ресурсні конфлікти, регіональна інтеграція, зв'язок безпеки та розвитку, постколоніальна Африка, geopolітична нестабільність.

Introduction. Africa is the most conflict-prone geopolitical region in the world, plagued with recurring patterns of violent conflicts encompassing both intrastate insurgencies and interstate conflicts. Such broad insecurity is an entrenched state shaped by an interaction of historical, political, economic, as well as social determinants. Africa is marked with an immensely complex mosaic of religions, ethnic groups, and colonial history, often used as fault lines for conflict. In modern times, the rise of non-state actors, pursuit of natural resources, as well as intervention by international great powers, have acted as additional drivers of region-wide tensions.

These conflicts have far-reaching impacts on state-building and internal development within African countries while at the same time presenting global peace and security with existential challenges. Humanitarian crises, mass displacement, and armed groups as well as extremist ideologies are inherent threats that compromise national borders. Examining conflicts in Africa in this regard becomes pertinent as well as imperative. By understanding the causes and dynamics of

conflicts as well as the means of resolving them, useful insights can be derived for the challenges as well as possibilities for peace in Africa.

Purpose of the study. The objective of this study was to examine the underlying causes of conflict in Africa.

Literature review. The question of the roots of Africa's conflict has been the subject of research by various scholars. Many studies point to the colonial past as a major source of modern instability, notably the creation of arbitrary borders and institutional frameworks that still define political and social problems today. Shola Lawal draws attention to the Berlin Conference of 1884–1885, where European powers arbitrarily divided the continent, disregarding ethnic and cultural realities – thereby laying the groundwork for enduring political fragmentation (Lawal, 2025). Similarly, Adedotun Oyeniyi explores how colonial-era borders continue to fuel tensions, particularly by institutionalizing divisions that still manifest in modern governance struggles (Oyeniyi & Oyeniyi, 2024).

Governance and institutional fragility are consistent themes in the literature. The African Development Bank's African Development Institute identifies limited institutional capacity as a persistent barrier to inclusive development and effective conflict resolution, especially in the post-COVID context (African Development Bank & African Development Bank Group, 2021). Ambassador Professor Bitange Ndemo extends this critique by tracing the roots of poor governance and social inequality back to colonial rule, arguing that structural injustices were inherited and perpetuated in post-independence governance systems (Ndemo, 2024).

Security-focused literature highlights the regionalization and escalation of violence, especially in areas where state authority is weak or contested. Clionadh Raleigh documents the increasingly complex nature of African conflict, involving state and non-state actors across interlinked theatres of violence (Raleigh, n.d.).

The Sahel is also quite a transnational extremism hotbed, and the Sahel region alone will be responsible for over half of all terrorism-related fatalities in 2024, a worrisome trend, according to Sheriff Bojang Jnr (Jnr, 2025).

This protracted security crisis has generated questions about whether international military interventions can yield results. The Economist explains that French counterterrorism in the Sahel won prestigious victories in the short term, but in the long run, has not achieved sustainable security (The Economist, 2022). Like Yuan Zhu and Wanni Gao, they question the strategic logic of U.S. military engagement, positing that external actors have too frequently failed to align themselves with local socio-political contexts or establish sustainable conditions (Zhu & Gao, 2024). In contrast, other analysts call for redirecting efforts to bottom-up peacebuilding strategies, relegating top-down imposition to a secondary status behind bottom-up outreach.

Natural resources are another critical factor in conflict dynamics. Jean-Yves Kamale and Mark Banchereau describe how mineral wealth in the Democratic Republic of Congo has become deeply entangled in violence and international competition (Kamale & Banchereau, 2025).

The Panzi Foundation emphasizes the devastating human toll of resource-fuelled conflict – particularly for women – highlighting the need for regulatory frameworks that prioritize human security over-extraction (Panzi Foundation, 2025).

Environmental drivers are increasingly viewed as conflict magnifiers. According to Melinda Jones, when in the Sahel environmental deterioration and overcrowding lead to resource shortages and relocation, and the potential for violence increases (Dlewis, 2024). These environmental pressures are often compounded by socioeconomic vulnerabilities – illustrating the multidimensional nature of instability.

In establishing legal and institutional frameworks to facilitate continental integration as well as conflict avoidance, legal and institutional structures such as the African Union's Peace and Security Council and the Agenda 2063 are sought. Yet, implementation remains uneven and many programs lack adequate support and accountability at local levels (The Peace & Security, n.d.; African Union, n.d.).

While these systems have massive sources of information, it is full of holes and contradictions in it. Global interventions are being cited as stabilizing measures, albeit their value in the long term has been questioned.

While these operations might dismantle the networks of extremists, they fail to deal with most of the causes of the conflict – poor institutions, inequality, and exclusion. In the same vein, as development aid is advocated on all sides, concerns are raised about whether such efforts empower domestic institutions or rather entrench dependency and elite capture.

Moreover, many studies isolate individual conflict drivers, be it colonial legacies, economic disparity, or climate stress, without examining how these drivers intersect. There is also a notable lack of empirical input from conflict-affected communities themselves, which limits the relevance and applicability of many high-level policy assessments. These constraints mirror a compartmentalized perception of African conflict processes, emphasizing the need for more holistic, context-specific, and community-focused approaches to research.

Considered collectively, these findings highlight the necessity for an overall understanding of violence in Africa, one that not only diagnoses its aetiology but also shapes locally generated paths to peace and stability. This study aims to contribute to these efforts.

Results. The continent's rich African cultural and ethnic diversity was not taken into account when European powers divided Africa in the late 19th century. The best example of such a strategy was the Berlin Conference of 1884-1885 during which colonial borders were mapped out to further imperial aims, generally separating together unifocal ethnic groups and joining diverse areas. As an example, the Somalis have been cut off from Somalia, Djibouti, Kenya, and Ethiopia, sowing seeds of future conflict. Random boundaries have also promoted ethnic strife and separatist movements in sub-independence Africa (Oyeniyi & Oyeniyi, 2024).

Colonial governments promoted the extraction of Africa's natural resources to fund non-public commercial growth, establishing financial structures that were heavily reliant on raw material exports. This emphasis on positive resource extraction has impeded the growth of various African economies, leaving many countries in the region subject to global market volatility and perpetuating monetary dependencies that persist to the present day.

Africa's rapid transition to independence in the mid-20th century sometimes resulted in unstable political systems. The inherited colonial structures were unprepared to deal with the problems of governing in varied communities, making it difficult to construct efficient and inclusive national apparatuses. This institutional weak point has frequently manifested in political instability and governance crises (Ndemo, 2024).

In the submit-independence generation, many African nations experienced prolonged authoritarian rule and navy interventions (Table 1).

Table 1. Authoritarian regimes in post-independence Africa

Country	Leader(s) of authoritarian regimes	Time period
Ghana	Kwame Nkrumah	1960-1966
Nigeria	Yakubu Gowon, Murtala Mohammed	1966-1976
Uganda	Idi Amin	1971-1979
Zaire (DRC)	Mobutu Sese Seko	1965-1997
Ethiopia	Mengistu Haile Mariam	1987-1991
Libya	Muammar Muhammad Abu Minyar al-Gaddafi	1969-2011
Sudan	Gaafar Nimeiry	1969-1985
Somalia	Siad Barre	1969-1991
Zimbabwe	Robert Mugabe	1987-2017

Created by the authors based on (The editors of Encyclopaedia Britannica 1998a), (The editors of Encyclopaedia Britannica 1998b), (The editors of Encyclopaedia Britannica 2025a), (The editors of Encyclopaedia Britannica 2025b), (The editors of Encyclopaedia Britannica 2025c), (The editors of Encyclopaedia Britannica 2025d), (The editors of Encyclopaedia Britannica 2025e), (The editors of Encyclopaedia Britannica 2025f), (The editors of Encyclopaedia Britannica 2025g) and (Central Bank of Nigeria, n.d)

The absence of well-established democratic norms, coupled with the difficulties of establishing cohesive nations within states created arbitrarily, helped bring about governments that often focused on maintaining authority rather than on democratic rule. This pattern has significantly impacted political progress and civil liberties throughout the region (Lawal, 2025).

Over the last few decades, African wars have gained a massive scale nature, encompassing various regions of the continent and having various reasons – ethnic, religious, political, and resource-based (Table. 2).

Table. 2. Major contemporary conflicts in Africa: causes, actors, and countries

Country	Cause of Conflict	Time Period	Main Actors
Nigeria	Ethnic & Religious conflict	Ongoing (2024)	Boko Haram, Islamic State in West Africa Province, Christian communities
Mali, Guinea, Burkina Faso, Niger	Political unrest & military coups	2020s–Present	Military juntas, ECOWAS, civil society groups
Democratic Republic of the Congo	Resource struggle, armed factions	Ongoing	Over 100 armed groups, local militias
Mali, Burkina Faso, Niger	Jihadist insurgency, ethnic polarization	Intensified 2024	Jihadist groups, local ethnic militias
Ethiopia	Ethnopolitical conflict, post-war instability	Post-2018	Ethnic militias, federal government, other regional actors
Somalia	Extremism, clan disintegration, weak political institutions	Ongoing	Al-Shabaab, clan-based factions, political institutions
Central African Region (DRC focus)	Resource-based conflict, international mining interests	Ongoing	Armed groups, U.S. partners, mining firms

Created by the authors based on (Brooke-Holland, 2025), (Panzi Foundation, 2025), (Jnr, 2025), (Lewis, Donati, & Kang, 2024), (Center for Preventive Action, 2025), (Minority Rights Group, 2025), (Kamale, & Banchereau, 2025)

Ethnic and religious conflicts serve as regular generators of violence – in Nigeria, terrorist organizations such as Boko Haram and Islamic State in West Africa Province carry out selective strikes against Christian populations leading to conditions of mass displacement and humanitarian crises (Fox News, 2024). Political unrest tends to result in civil war and military coup d'etats, as seen primarily in West Africa, in particular, Mali, Guinea, Burkina Faso, and Niger. This has compromised democratic institutions and regional equilibrium, prompting ECOWAS to sanction

and resort to diplomatic action (Brooke-Holland, 2025). Another prevalent kind of conflict is resource struggle land, water, minerals. The retention by some groups of armed factions in the Democratic Republic of the Congo adds a further complication by the lack of resources in using them as a means to finance their operations, which is eventually working against fulfilling national stability (Panzi Foundation, 2025).

The destabilization in some areas is particularly severe. Jihadist organizations are very active in Mali, Burkina Faso, and Niger, and interethnic conflict is getting worse. 51% of all terrorism-related fatalities worldwide occurred in this region in 2024. The proliferation of transnational jihadist ideologies, security force abuses, and ethnic polarization have all contributed to the conflict (Jnr, 2025). Militant organizations quickly filled the security void left by the exit of Western military forces, especially the French (Lewis et al., 2024).

Most of the Horn of Africa conflicts are ethnopolitical. There is a conflict from within in Ethiopia where various ethnic groups vie to grab power and authority. Despite the fact that the war with Eritrea was announced as concluded in 2018, the effects can be experienced within the region up to this moment (Center for Preventive Action, 2025). Al-Shabaab and such extremist groups have spread within Somalia because of clan disintegration and weak political institutions (Minority Rights Group, 2025).

Central Africa is wracked by conflicts stemming largely from competition for natural resources. There are over 100 armed groups active in the Democratic Republic of the Congo, primarily in the eastern parts of the country. International initiatives, including talks with the United States over the development of cobalt and gold reserves, have not stabilized the security situation, which remains very volatile (Kamale & Banchereau, 2025).

For a deeper understanding of the nature of these conflicts, it is worth paying attention to their drivers (Fig.3).

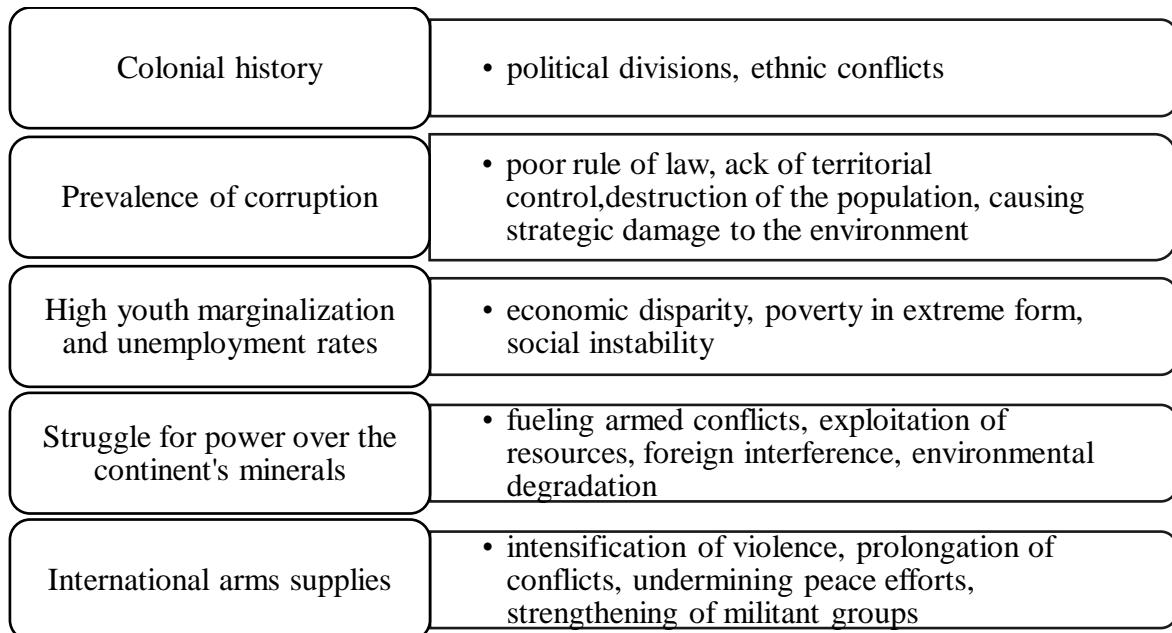


Fig. 3. Main drivers of conflict development in Africa. *Created by the authors based on (Bariyo, 2025), (Tumanjon, 2024), (U4 Anti-Corruption Resource Centre, n.d.), (Businessamlive, 2019), (Aduku A. Akubo, & Benjamin Ikani Okolo, 2019), (World Bank Open Data, n.d.), (Ecofin Agency, n.d.), (Ward, & Dawsey, 2025), (Zhu, & Gao, 2024)*

As pointed out above the colonial history of Africa created multinational states that included various ethnic and religious groups within arbitrary borders. This fracturing has all too often resulted in tension and violence, as in South Sudan, where political divisions between President Salva Kiir and his deputy, Riek Machar, have morphed into ethnic slaughter between the Dinka and Nuer peoples (Bariyo & Bol/Reuters, 2025).

The prevalence of corruption, poor rule of law, and lack of territorial control undermine governance and foster public distrust. Corruption in Mali, for example, affects several domains, including defence and resource extraction (Tumanjong, 2024). Scandals involving misuse of military funds and bribery for mining rights underscore the extent of corruption, which fuels instability and impedes progress toward development goals (U4 Anti-Corruption Resource Centre n.d.).

High youth marginalization and unemployment rates are threats for the aggravated tensions inside the society. Since one of Africa's top economies, some 35% of its people reside in miserable poverty (Businessamlive, 2019). Groups like Boko Haram are exploiting the economic disparity to recruit disillusioned youths and despond the region (Aduku A. Akubo, Benjamin Ikani Okolo, 2019, December 5.). The rapid rise in population, combined with the limited resources, increases competition for the essentials. The Democratic Republic of the Congo is a case in point, with large segments of its population suffering from poverty in extreme form. This means that the demand for resources causes social instability and stagnates progress. And it is not only internal dynamics that matter, major global players have ramped up their activities within Africa (World Bank, 2024; World Bank Open Data, n.d.).

As major arms providers, Russian Federation and China continue to supply numerous African nations with military equipment. Both Russian Federation and China have emerged as large-scale suppliers of arms to most African countries. In combination, they provided 39% of the arms imported into Africa from 2020-2024, with each Russian Federation and China supplying 21% and 18%, respectively (Ecofin Agency, n.d.). These are facts that only point to increased geopolitical stakes both these countries presently hold in the continent. What's more is the United States' fervent efforts at getting hold of essential minerals that remain integral to the requirements of the military and industrial spheres. Washington has been conducting diplomacy with a view to securing mining concessions. This has included the provision of financial and military aid to states like the Democratic Republic of Congo, in exchange for favorable resource terms (Ward & Dawsey, 2025).

In 2014, France began Operation Barkhane to tackle Islamist insurgency in the Sahel (The Economist, 2022). However, it began removing soldiers from Mali, Burkina Faso, and Niger in 2022, citing a wave of military coups and growing public hostility to French participation (BBC News, 2023). The United States has persisted meanwhile with counterterror operations like operation Juniper Shield, which attacks terror groups in the Sahara and Sahel (Zhu & Gao, 2024). In spite of the reverses, including the ouster of US Marines from Niger, Washington has relocated its military resources from coastal West African countries such as Benin and Ivory Coast to reinforce its counterterror operations (Phillips et al., 2024).

Russian Federation has deepened its engagement by providing military aid to Sahelian military juntas-ruled nations. In April 2025, it proposed assisting Mali, Burkina Faso, and Niger in establishing a shared army to fight Islamist insurgencies, such as the provision of contemporary kit and training (Reuters, 2025 b). The European Union has also maintained a presence, with missions like as EUCLAP Somalia focused at improving marine security and the rule of law (European External Action Service, 2025). The mandate of EUCLAP was extended in December 2024 to February 2027 (Council of the European Union, 2024).

Despite a 44% decrease in Africa's overall arms imports from 2020 to 2024 compared to the previous five-year period, the international arms trade – both through formal channels and illicit markets – also continues to fuel conflict and instability across various regions of the continent (defenceWeb, 2025). The consequences of long-term conflicts in Africa are presented in Fig. 4.

Long-term conflicts throughout Africa have created dire food shortages, mass displacement and humanitarian crises. By September 2024 there were more than 378,000 internally displaced people in Mali, 86% of them women and children escaping the violence (Mali, 2024). The conflicts in South Sudan and Sudan have led to their food systems being extremely destabilized, with very high levels of food insecurity in both nations, which are “hunger hotspots”. The humanitarian crisis is added to by outbreaks of disease that have broken out in areas of conflict (Zampano, 2024).

Besides, prolonged conflicts led to the degradation of basic infrastructure, deterred investment, and slowed down economic development. The overall investment rate in Africa has been steadily declining since 1975, indicating that the generalized slump in investment has bitten hard into economic development (Artadi & Sala-I-Martin, 2003). Conflicts led to environmental degradation, inducing desertification and land degradation. Burkina Faso has lost over nine million hectares of once fertile land in the Sahel, and further degradation is imminent (Dlewis, 2024). Environmental changes push forward a vicious cycle of hardship by creating food insecurity and forcing people to leave their homes (Ahmadnia, Christien, Spencer, Hart, & De Araujo Barbosa, 2022).

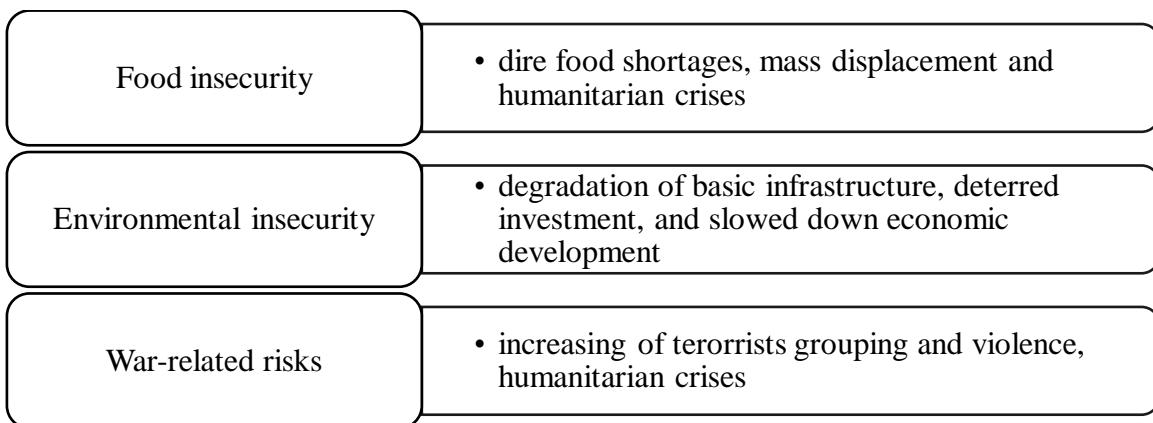


Fig.4. The consequences of long-term conflicts in Africa. *Created by the authors based on (defenceWeb, 2025) (Mali, 2024), (Zampano, 2024), (Artadi & Sala-i-Martin, 2003) (Ahmadnia, et. al.2022), (Lederer, 2023) (Lewis, Donati, & Kang, 2024), (Center for Preventive Action, 2024)*

War-related environmental damage through natural resource depletion obstructs recovery initiatives and simultaneously creates conditions for continued conflict. Moreover, the recent period has seen a rapid expansion of violent extremist groups. In Mali, the Islamic State nearly doubled its territorial control within a year, capitalizing on stalled peace processes and ongoing violence (Lederer, 2023).

West Africa is now a hotspot for terrorism with al-Qaeda and Islamic State-affiliated jihadist movements having increased their presence, resulting in additional displacement and fatalities (Lewis et al., 2024). Humanitarian crises have intensified throughout the continent, and whole regions have been destabilised because of the persistence of extremist networks, primarily within the Sahel. The breakdown of global counterterrorism initiatives and the collapse of regional countermovements created a power vacuum that violent extremism has since occupied (Center for Preventive Action, 2024).

African Union Peace and Security Council has been at the forefront of conflict prevention and resolution in the African region (The Peace & Security, n.d.; African Union, n.d.). Good evidence for successful mediation in action in April of 2025 would have seen the involvement of AU mediators such as former Burundi president Domitien Ndayizeye, as well as Kenyan judge Effie Owuor, traveling to South Sudan's capital, Juba, in an effort at mediating talks aimed at preventing renewed civil war following the house arrest of First Vice-President Riek Machar. In the Democratic Republic of Congo, the region's bodies were quick in acting as well (Reuters, 2025 a). Southern African Development Community as well as the East African Community widened their list of mediators in March of 2025 in an effort at ending the growing crisis of the M23 insurgency and appointed five ex-presidents such as Olusegun Obasanjo as well as Kgalema Motlanthe as mediators in peace talks (Reuters, 2025 c).

These are complemented by the United Nations support in processes such as disarmament, demobilization, as well as reintegration where the ex-fighting forces can be reintegrated in civilian life but at the same time avoid the recurrence of conflict as well (United Nations Peacekeeping,

n.d.). Somalia saw the UN Security Council authorizing the African Union Support and Stabilization Mission in Somalia in December of 2024 with an upper limit of 12,626 troops so that Somalia can hold al-Shabaab in check as well as stabilize the region as a whole (Ali, 2025).

Beyond security, there has been a strong post-COVID-19 focus on strengthening institutional capacity across Africa. Development partners, philanthropy, and African stakeholders have organised webinars and policy dialogues to learn from each other and generate proposals for strengthening African led institutions (African Development Bank & African Development Bank Group, 2021).

One prominent example of this type of approach is the work of Connected Development in Nigeria. Through initiatives such as “Follow the money”, CODE has enabled local communities to pursue accountability and transparency from their governments. These space to ensure that the voices of historically excluded populations are heard and, importantly, reflected in national policy and action (Follow the Money, n.d.).

Conclusion. The nature of African conflicts is characterized by complexity and multilevelness, shaped by factors such as political instability, socio-economic inequality, ethnic conflicts and competition for natural resources. Analysis of current trends confirms the views of previous researchers that traditional approaches to conflict resolution are insufficient due to their inability to capture the full complexity of the interaction of these factors.

Effective conflict resolution requires comprehensive, systemic solutions that combine political, economic and social strategies. It is important to take into account not only the national, but also the local context. Coordinated infrastructure and integration initiatives can contribute to reducing tensions and strengthening peace, but their effectiveness is limited by insufficient funding and the long-term consequences of past conflicts.

Ensuring stability in the region is possible only if conflict-sensitive approaches are integrated into public policy, developing effective governance and strengthening institutional resilience. Further efforts should be directed at interrelated solutions to the issues of peacebuilding, adaptation to change, and regional integration, which will create the prerequisites for sustainable development throughout the African continent.

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E-GOVERNANCE: A PATHWAY TO DEMOCRACY OR TOTALITARIANISM?

ЕЛЕКТРОННЕ УРЯДУВАННЯ: ШЛЯХ ДО ДЕМОКРАТІЇ ЧИ ТОТАЛІТАРИЗМУ?

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Abstract. The article explores e-governance as a tool for transforming modern governance idea, which can both promote the deepening of democracy and create prerequisites for strengthening totalitarian control. It analyzes the advantages of implementing digital technologies in public administration, particularly in terms of transparency, accessibility, and efficiency. At the same time, it outlines the risks of excessive data centralization, digital surveillance, and abuse of power. Special attention is given to the concept of "digital dictatorship" and examples of e-governance practices across different political regimes. Particular focus is placed on the issues of digital authoritarianism and the mechanisms of digital dictatorship, manifested through the centralization of data control, mass surveillance, algorithmic discrimination, and information manipulation. Based on international experience, the article formulates recommendations for ensuring the democratic nature of digital transformation: respect for human rights, transparency of digital solutions, and the creation of institutional safeguards for the protection of digital rights. The study emphasizes the importance of legal, ethical, and technological support for e-governance processes to prevent the risks of digital dictatorship. Conclusions are drawn regarding the conditions under which e-governance promotes democratization and warnings are provided about potential challenges in the field of human rights.

Keywords: e-governance, democracy, totalitarianism, digital technologies, state, human rights, digital sovereignty, cybersecurity, digital dictatorship, data privacy.

Анотація. У статті розглядається електронне урядування як інструмент трансформації сучасного управління, що може як сприяти поглибленню демократії, так і створювати передумови для посилення тоталітарного контролю. Проаналізовано переваги впровадження цифрових технологій у державне управління, зокрема щодо прозорості, доступності та ефективності. Водночас окреслено ризики надмірної централізації даних, цифрового нагляду та зловживання владою. Особливу увагу приділено поняттю «цифрової диктатури» та прикладам використання електронного урядування в різних політичних режимах. окрема увага приділяється проблематиці цифрового авторитаризму та механізмам цифрової диктатури, які проявляються у централізації контролю над даними, масовому нагляді, алгоритмічній дискримінації та маніпуляції інформацією. На основі міжнародного досвіду сформульовано рекомендації щодо забезпечення демократичності

цифрової трансформації: дотримання прав людини, прозорості цифрових рішень, створення інституційних гарантій захисту цифрових прав. Робота підкреслює важливість правового, етичного та технологічного супроводу процесів електронного урядування для запобігання ризикам цифрової диктатури. Зроблено висновки щодо умов, за яких електронне урядування сприяє демократизації, та застереження щодо потенційних викликів у сфері прав людини.

Ключові слова: електронне урядування, демократія, томалітаризм, цифрові технології, держава, права людини, цифровий суверенітет, кібербезпека, цифрова диктатура, приватність даних.

Introduction. In the context of globalization and the rapid development of information and communication technologies (ICT), public governance is undergoing significant transformations. These changes are driven, on the one hand, by the need to enhance the efficiency, transparency, and openness of government institutions, and on the other hand, by citizens' expectations for improved service delivery in public institutions. One of the key factors behind these transformations is e-governance, which is becoming an integral part of the modern public administration system. E-governance serves as a tool for transitioning from a traditional bureaucratic model to a more flexible, service-oriented, and interactive model of interaction between the state and its citizens (UN E-Government Survey, 2022).

The digitalization of public administration has become a global trend in the 21st century. Through the implementation of innovative technologies, governments can improve the efficiency of public service delivery, ensure transparency, and engage citizens in governance processes. However, alongside these advantages, new risks are emerging — the intensification of digital control, data manipulation, and cyber surveillance. This raises a dilemma: is e-governance truly a step towards democracy, or is it becoming a tool for strengthening authoritarian power?

The purpose (the aim) of the scientific article is to provide a comprehensive analysis of e-governance as a factor in the modernization of public administration and to address the issue of the dual nature of digitalization — as both a means of democratization and a potential instrument of digital authoritarianism.

Main results of the research. E-governance is an interdisciplinary phenomenon that encompasses the fields of public administration, information technology, law and social communication. The theoretical foundation of the concept of e-governance lies in the idea of modernizing public administration through the implementation of information and communication technologies (ICT) to enhance the efficiency, transparency and accountability of government. E-governance is defined as the use of information and communication technologies by government agencies to improve the quality of public services, ensure effective interaction with citizens, businesses and other stakeholders and enhance the decision-making process (Heeks, 2006).

Several key principles underlie e-governance, including: (a) citizen-centricity, which involves simplifying access to administrative services and reducing barriers to interaction with the state; (b) interoperability, or the ability of different government information systems to interact with one another; (c) open data, which creates conditions for public oversight; and (d) digital inclusiveness, which ensures the accessibility of services for all segments of the population (Bannister & Connolly, 2012).

Conceptually, e-governance is seen as part of the broader process of digital transformation of public administration, which includes e-democracy, e-participation and the development of electronic services (UN E-Government Survey, 2022).

In this context, e-governance is not merely a technical innovation but also a tool of institutional modernization that impacts all levels of government — from local to national. The application of the e-governance concept contributes to the simplification of administrative procedures, the automatization of document management, the development of digital services, and the provision of real-time access to public information. In particular, the introduction of government service portals helps to reduce corruption risks, improve service quality and lower administrative

costs (Gil-García & Helbig, 2006). At the same time, digital platforms open new opportunities for citizen participation in decision-making processes, including through electronic petitions, online consultations, and e-voting (Bannister & Connolly, 2012).

The development of service-oriented platforms, which integrate service delivery based on the "one-stop shop" principle, is becoming especially relevant. This approach ensures a seamless citizen experience and minimizes physical interactions with government representatives, which is particularly important in the context of pandemics, emergencies, military conflicts or temporary occupations.

However, there are also challenges. Among them are unequal access to digital technologies, insufficient levels of digital literacy, cybersecurity threats, and the risks of excessive data centralization and citizen control (Brown, Fishenden, & Thompson, 2014).

In countries with established democratic traditions, e-governance functions as a tool for enhancing government transparency, accountability, and citizen engagement. In countries with transitional democracies or authoritarian tendencies, its application may be more formalistic or controlling, preserving centralized governance models (Welch, Hinnant, & Moon, 2005). Thus, the effectiveness of e-governance largely depends on the political and institutional context, the level of digital literacy among the population, and the existence of legal and technical mechanisms for ensuring digital rights.

At the same time, in countries with authoritarian regimes, e-governance can be used as a tool for mass surveillance, behavioral control of citizens and restriction of rights and freedoms. Examples include China's "social credit system," as well as the use of facial recognition and artificial intelligence technologies for population monitoring.

In the process of deploying e-governance systems, vast amounts of citizens' personal data are accumulated, which, in the absence of appropriate control mechanisms, may lead to their use for mass surveillance, discrimination, or political persecution (Bosch Stiftung, 2022). Big data analytics tools, artificial intelligence, and automated decision-making systems can be employed not only to optimize services but also to build systems of social scoring for citizens, as observed, for example in China (Creemers, 2018). Similar trends are also recorded in other countries with non-democratic regimes, where electronic services are transformed into tools of digital censorship and political control (Feldstein, 2019).

The main totalitarian risks traditionally associated with e-governance include: (-) the centralization of control over information flows; (-) the expansion of digital surveillance capabilities; (-) the restriction of privacy and digital rights; (-) the strengthening of manipulative influence on public opinion through digital algorithms; (-) the increase in inequality regarding access to digital resources and legal protection (Bosch Stiftung, 2022).

Although e-governance holds significant potential for promoting open and democratic governance, without proper regulatory, ethical and technological safeguards, it may evolve into an instrument of digital authoritarianism. Awareness of these risks is crucial for building a safe and inclusive digital society. Table 1 visually presents the most common totalitarian risks in the digitalization era along with countermeasures.

Digital Risks of E-Governance

Totalitarian Risks	Risk Description	Countermeasures
<i>Centralization of data control</i>	Concentration of large volumes of personal information in the hands of the state	Establishment of independent data protection bodies; legislative limits on data collection
<i>Digital surveillance and mass monitoring</i>	Use of ICT for continuous monitoring of citizens	Implementation of "privacy by design" principles; public oversight
<i>Violation of privacy</i>	Uncontrolled circulation and use of personal data	Strict regulation of data collection and use; sanctions for violations
<i>Algorithmic</i>	Automated decision-making	Ensuring algorithmic transparency;

<i>discrimination</i>	systems lacking transparency and fairness	mechanisms for appealing digital decisions
<i>Information manipulation</i>	Use of algorithms to manipulate public opinion	Openness of recommendation algorithms; promotion of citizens' digital literacy
<i>Social stratification through digitalization</i>	Deepening inequality in access to digital services and protection of citizens' rights	Digital inclusion programs; investment in digital education

E-governance was originally conceived as a tool for democratizing government and enhancing its transparency. However, in the practice of some states, an inversion of this process can be observed: instead of expanding civil liberties, digital technologies are increasingly used as mechanisms of restriction. This phenomenon has been termed the "digital dictatorship" (Feldstein, 2019).

Digital dictatorship is a form of authoritarian governance in which digital technologies are employed for mass data collection, citizen surveillance, information manipulation and the restriction of human rights and freedoms. Unlike traditional authoritarianism, which relied on physical coercion, digital dictatorship operates through control over information flows, personal data and the digital behavior of citizens.

Under conditions of digital dictatorship, rights to privacy, freedom of speech and freedom of assembly are severely restricted. Technologies that could serve as instruments of democratization and emancipation instead become mechanisms of repression. The lack of transparency in data governance further deepens distrust toward institutions and undermines the potential for civic participation (see Table 2).

Mechanisms of Digital Dictatorship

Mechanism	Description
<i>Surveillance</i>	Continuous monitoring of the population through biometrics, big data analysis, and AI algorithms.
<i>Censorship</i>	Filtering and blocking of undesirable content.
<i>Information operations</i>	Use of trolls, bots, and manipulation of information flows.
<i>Internet isolation</i>	Creation of internal networks that reduce or block access to global information.
<i>Repression through data</i>	Use of digital footprints to selectively persecute opposition members.

Digital technologies are not inherently good or evil. Their impact depends on the political context, legal culture and the level of institutional democracy. For example, the use of biometric identification systems in India (Aadhaar) has sparked both praise from international experts and criticism over privacy violations.

The key question is: who controls the data and how are the rules for their use established?

In authoritarian regimes, e-government is often used to strengthen control over the population.

China is the most striking example of a digital dictatorship. The social credit system evaluates citizens' loyalty based on their behavior: payments, posts on social media and even associations with "untrustworthy" individuals. A low score can restrict access to travel, credit and education. Mass digital surveillance is carried out through widespread use of facial recognition cameras (Skynet project), analysis of online activity and banking operations and restrictions on the use of cryptocurrencies — for example, China has banned Bitcoin and other decentralized payment systems, while promoting its state-controlled digital yuan (e-CNY) (Creemers, 2018).

russia has implemented a facial recognition surveillance system, which was actively used to identify protest participants. Additionally, systems for operational investigative measures (SOIM) provide the government with full access to citizens' electronic communications. The state also has the capability to isolate the russian segment of the Internet from the global network, block access to independent media, restrict VPN services and ban foreign social media platforms (Human Rights Watch, 2017).

Internet isolation in Iran became evident during the mass protests of 2019, when the Iranian government completely disconnected the country from the global Internet, creating a localized alternative — the "national Internet." This allowed for strict control of information flows and suppression of protest coordination. Additionally, cyberattacks against opposition members and journalists have been reported (Freedom House, 2022).

Thus, the digitalization of public governance is not automatically democratic or secure. In order for electronic technologies to serve the goals of strengthening human rights, promoting democratic governance, and ensuring national security, a set of principles and institutional safeguards must be observed. Based on current research in the field of e-government (UNESCO, 2021; World Bank, 2022), the following key conditions can be identified:

Primacy of human rights. All digital processes must be carried out with full respect for fundamental human rights and freedoms, including the right to privacy, freedom of expression, and the protection of personal data. The development and implementation of digital services should be accompanied by a human rights impact assessment.

Transparency and accountability of digital decisions. A key safeguard against digital dictatorship is ensuring transparency of algorithms and procedures used in e-governance: open-source code for state digital platforms, audits of artificial intelligence algorithms and independent public oversight of data processing practices. Information about data use must be made available to citizens in a simple and understandable form (European Union Agency for Fundamental Rights, 2021).

Institutional safeguards for controlling digital power. It is necessary to establish and strengthen independent institutional mechanisms, such as digital rights ombudsmen, data protection regulatory bodies, and specialized parliamentary committees on digital security. These bodies must have real powers to prevent abuses by governments or private companies.

Cybersecurity and protection of critical infrastructure. Democratic digital governance cannot exist without guaranteed cybersecurity. Data security breaches threaten privacy, democracy and even national sovereignty. Essential measures include mandatory encryption of communications, multilayered data protection, and international cooperation in the field of cybersecurity.

Ensuring pluralism in the information space. Digital democracy is only possible with an open information environment. It is necessary to prevent the monopolization of digital platforms, ensure citizens' access to a variety of information sources, and support the development of independent media. Control over the spread of disinformation must be exercised without suppression on freedom of speech, involving independent expert institutions.

Conclusions. E-government is not only a tool for optimizing public administration but also a factor in shaping a new model of interaction between the state, civil society and business. Its effective implementation requires a comprehensive approach that combines regulatory, institutional and technological frameworks, while also taking into account the social context of digital transformations.

Digital governance has the potential both to strengthen democracy and to reinforce authoritarianism. Its impact depends on the political context, the level of transparency and accountability of the authorities and the existence of mechanisms for protecting citizens' rights. To ensure democratic development, e-government must be implemented based on the principles of openness, participation and the protection of human rights. However, without adequate safeguards for citizens' rights, it can devolve into a form of digital dictatorship. Therefore, the future of e-government will depend on maintaining a balance between innovation and democratic guarantees.

Secure and democratic digitalization requires a systemic approach founded on the values of human rights, the rule of law and political accountability. Only by adhering to these principles can e-government become a tool for strengthening democracy rather than a catalyst for digital authoritarianism.

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CROSS-BORDER RELATIONS IN THE CONTEXT OF ARTIFICIAL INTELLIGENCE DEVELOPMENT: CHALLENGES AND PROSPECTS

ТРАНСКОРДОННІ ВІДНОСИНИ В КОНТЕКСТІ РОЗВИТКУ ШТУЧНОГО ІНТЕЛЕКТУ: ВИКЛИКИ ТА ПЕРСПЕКТИВИ

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Abstract. *The aim of this article is to explore the impact of artificial intelligence (AI) development on the nature of cross-border relations in the context of global digitalization. Special attention is given to the analysis of challenges related to the integration of AI into international interactions, including ethical dilemmas, information security threats, regulatory issues, and socio-economic transformations driven by emerging technologies. The article examines key opportunities for utilizing AI to optimize cross-border cooperation, such as automating communications, processing large data volumes, and supporting decision-making in crisis situations. Using methods of theoretical analysis, comparison, and case study examination, the study investigates AI's influence on the dynamics of interstate relations. Particular emphasis is placed on preserving state sovereignty and ensuring equal access to innovation in the digital age. The paper analyzes national approaches to integrating AI into foreign policy, as well as examples of cooperation between tech companies and governments. It concludes that effective governance of AI development in the cross-border dimension requires a comprehensive approach combining technical solutions with political, legal, and ethical mechanisms. Recommendations are proposed for building a resilient model of international coexistence in the age of artificial intelligence.*

Keywords: *artificial intelligence, cross-border relations, international cooperation, international relations, arms race, AI regulation.*

Анотація. Метою статті є дослідження впливу розвитку штучного інтелекту (ШІ) на характер транскордонних відносин у контексті глобальної цифровізації. Особливу увагу приділено аналізу викликів, пов'язаних з інтеграцією ШІ в міжнародну взаємодію, зокрема етичним дилемам, загрозам інформаційній безпеці, проблемам регулювання та соціально-економічним трансформаціям, що виникають під впливом новітніх технологій. У статті розглядаються ключові можливості використання ШІ для оптимізації транскордонного співробітництва, включаючи автоматизацію комунікацій, обробку великих обсягів даних та підтримку прийняття рішень у кризових ситуаціях. Методами теоретичного аналізу, порівняння та вивчення прикладних кейсів досліджено вплив ШІ на динаміку міждержавних відносин. Особливий акцент зроблено на питанні збереження суверенітету держав та забезпечення рівного доступу до інновацій у цифрову епоху. Проаналізовано підходи окремих країн до впровадження ШІ у зовнішню політику, а також приклади співпраці між технологічними компаніями та державами. Зроблено висновок, що ефективне управління розвитком ШІ у транскордонному вимірі вимагає комплексного підходу, який поєднує технічні рішення з політичними, правовими та етичними механізмами. Запропоновано рекомендації щодо формування стійкої моделі міжнародного співіснування у добу штучного інтелекту.

Ключові слова: штучний інтелект, транскордонні відносини, міжнародне співробітництво, міжнародні відносини, гонка озброєнь, регулювання ШІ.

Introduction. Introduction In the modern world, the rapid development of artificial intelligence (AI) significantly impacts all spheres of human activity, including cross-border relations. The growing volume of digital interactions between states, corporations, and citizens creates new opportunities but also poses significant challenges. The use of AI in international communications, economic transactions, and data management raises questions about security, ethical standards, and legal regulation. For instance, the automation of cross-border processes may lead to a loss of control over information flows, while diverse approaches to AI regulation in different countries complicate cooperation. The problem lies in how to effectively integrate AI into cross-border relations while maintaining a balance between technological progress, state sovereignty, and global stability. The absence of unified standards and strategies in this area threatens to exacerbate inequality, conflicts, and human rights violations, necessitating urgent reflection and solutions.

The purpose of the study. The article aims to investigate the impact of artificial intelligence (AI) on cross-border relations, focusing on identifying key challenges and prospects arising from their interaction. The article seeks to analyze how AI can be utilized to optimize international cooperation and to identify strategies that would harmonize technological innovations with the needs for security, ethics, and regulation in a global context.

Literature review. Recent studies and publications dedicated to the impact of artificial intelligence (AI) on cross-border relations cover a wide range of aspects, with authors emphasizing technological, economic, ethical, and legal issues. For example, authors Sun R. and Trefler D. (Sun, Trefler, 2023) focus on how AI algorithms and the regulation of cross-border data shape digital services trade. They highlight the importance of access to global data for AI development and analyze how restrictions on data flows affect economic efficiency and the competitiveness of countries. Another actively researched aspect is the ethical and security challenges associated with integrating AI into international relations. Scholars such as Pipchenko N. (Pipchenko, Okopov, 2024), Onishchenko M., Gidenko Ye., Kalman M., Demyanchuk Yu. (Anishenko, Gidenko, Kalman, Polyvaniuk, Demianchuk, 2023), and others address these issues. Marwala T. (Marwala, 2023) draws attention to risks such as disinformation, manipulation of public opinion, and the erosion of traditional diplomatic practices due to AI. They emphasize the need to create global ethical frameworks for regulating technologies to avoid threats to international stability and peace. This direction underscores the complexity of balancing innovation and security. A third important

focus is legal regulation and international cooperation. In their article, Schweitzer F. and Sacomanno I. (White & Case LLP, 2024) analyze how modern trade agreements adapt to the needs of AI, particularly through commitments to the free flow of data. The authors specifically highlight the challenge of harmonizing national legislations and the need for flexible rules that account for both economic benefits and national interests, including the protection of personal data. Finally, some authors, such as Zhyvko Z., Shepelyuk V., and Holovach T. (Zhyvko, Shepeliuk, Holovach, 2024), focus on the socio-economic aspects of artificial intelligence. In their article, Marwala T., Tombz E., and Stinkvich S. (Marwala, Fournier-Tombs, Stribckwich, 2023) emphasize socio-economic prospects. They explore how AI can promote inclusive development through cross-border data exchange but also warn about the danger of a digital divide between countries. These studies underscore the importance of collective efforts to create a fair system for using AI in cross-border relations that considers the interests of all stakeholders.

Methods. The research methods are based on general principles of systematization, analysis, and synthesis, which ensure the objectivity and comprehensiveness of the scientific approach. Specifically, systemic and dialectical methods enabled the examination of cross-border relations in the context of artificial intelligence development as a complex, dynamic phenomenon influenced by numerous internal and external factors. The logical method served as the foundation for a consistent analysis of the key aspects of the topic, while its combination with the critical analysis of scientific and applied sources allowed for the formulation of authorial conclusions regarding the transformation of interstate interactions under the influence of cutting-edge technologies.

Main results of research. Artificial intelligence (AI) is fundamentally transforming cross-border relations, impacting the economic, social, political, and security aspects of international interactions. Its ability to process vast amounts of data, predict trends, and automate complex processes opens new opportunities for cooperation between states but also creates challenges that require thorough analysis and regulation. The impact of AI on cross-border relations is multifaceted, contributing to globalization, reshaping traditional approaches to governance, and necessitating adaptation to the new realities of the digital era. One of the key areas where AI is actively applied is international trade and logistics. Machine learning algorithms are used to optimize supply chains, forecast demand, and manage operations in real time. For example, Amazon employs AI to analyze global trade flows, enabling reduced delivery times across borders and lower costs. Cross-border e-commerce platforms, such as Alibaba, also rely on AI for personalized offerings, automatic translation, and processing payments in various currencies. These technologies not only accelerate economic transactions but also foster market integration, making them more accessible to small and medium-sized enterprises. Another significant area of AI application is the management of migration processes and border control. In many countries, AI systems are utilized for analyzing biometric data, automated facial recognition, and predicting migration flows. For instance, in the European Union, AI-based systems are used to process visa applications and detect potential border violations. Such technologies enhance the efficiency of border services but also raise concerns about the protection of personal data and potential biases in algorithmic decisions, which may affect the rights of migrants and refugees (Macedo, Barbosa, 2022). In the political sphere, AI influences cross-border relations through the analysis of big data and the prediction of geopolitical events. Diplomatic services and international organizations use AI to monitor social media, detect disinformation, and assess public opinion in different countries. For example, AI tools can analyze millions of messages in real time to predict social unrest or evaluate reactions to international agreements. However, this also creates risks of manipulation, as AI can be used to spread propaganda or create “deep fakes,” which undermines trust between states and affects the stability of international relations.

Economic competition and the struggle for technological superiority represent another dimension of AI’s impact. Developed countries, such as the United States, China, and EU member states, are investing in AI to strengthen their positions in the global economy, often leading to “technological races.” Cross-border data exchange, which serves as the foundation for training AI models, has become a strategic resource since the 20th century. However, developing countries

often lack sufficient resources or infrastructure to compete, which exacerbates the digital divide. For example, the African continent, despite its significant potential, faces limited access to data and technologies, hindering its integration into global AI ecosystems. Security is another domain where AI plays a dual role. On the one hand, it is used to combat cross-border crime, such as human trafficking or smuggling, through the analysis of data from satellites, drones, and financial transactions. On the other hand, AI can be a tool for cyberattacks targeting critical infrastructure, such as energy grids, banks, or communication systems. Thus, AI influences cross-border relations through automation, increased efficiency, and the creation of new forms of interaction, but it also generates ethical, security, and socio-economic challenges. Its applications span trade, logistics, migration, diplomacy, cybersecurity, and crime prevention, demonstrating both its positive potential and the need for global regulation. To maximize benefits and minimize risks, coordinated international efforts are required, including the development of standards, knowledge sharing, and support for countries with fewer resources. The integration of AI into cross-border relations deepens inequality between countries with varying levels of technological development. Developed nations, such as the United States or China, have access to vast amounts of data, powerful computational infrastructure, and skilled personnel, while less developed countries, including Ukraine, often rely on foreign support. This creates an asymmetry in the benefits derived from AI, with wealthier nations gaining competitive advantages in economics and security, while less developed ones risk becoming dependent or being sidelined in global processes. The use of AI in cross-border relations can undermine national sovereignty, particularly when countries rely on foreign AI systems or platforms. For example, if Ukraine uses American or European technologies for intelligence analysis or cybersecurity, it may create dependence on external providers who control access to updates or data. In the long term, this poses risks to control over critical sectors, such as defense or the economy, where rapid response is vital. In the context of cross-border relations, AI can act as a catalyst for conflicts, especially in conditions of hybrid warfare. The use of AI for creating “deep fakes,” cyberattacks, or autonomous weapons increases the risk of escalation, as such technologies can be deployed without a clear understanding of their consequences. For instance, cross-border disinformation powered by AI can destabilize countries, undermining trust and cooperation.

The integration of AI requires a high level of trust and coordination between countries, which is a challenging task in the modern world. For example, the joint use of AI to combat cross-border crime or cyber threats necessitates data sharing, but countries may hesitate due to concerns about espionage or misuse. For Ukraine, this is particularly relevant, as cooperation with NATO or the EU in the field of AI must be balanced with its own security interests (Stoltz, 2024). Thus, the integration of AI into cross-border relations is accompanied by challenges related to security, ethics, law, inequality, sovereignty, economics, conflicts, and trust. In the context of Ukraine, these issues take on special significance due to the ongoing war, which requires not only technological but also strategic solutions to ensure the effective use of AI in international interactions. The issue of inequality among European states in the use of artificial intelligence (AI) in cross-border relations is one of the key challenges hindering the harmonious development of digital integration on the continent. This inequality stems from differing levels of economic development, technological infrastructure, access to data, workforce qualifications, and the political will of states to implement AI. These disparities create an asymmetry in benefits and opportunities, deepening the divide between Western, Central, and Eastern European countries (European Comission, 2024). Western European countries, such as Germany, France, and the Netherlands, have a developed technological base and significant investments in AI, enabling them to actively utilize these technologies in cross-border relations. In contrast, Eastern European countries, such as Romania or Bulgaria, have limited AI infrastructure—fewer data centers, weaker access to high-speed internet, and smaller funding volumes. This complicates their integration into cross-border digital systems, relegating them to the role of technology consumers rather than developers. The European Union is striving to harmonize approaches to AI through initiatives like the AI Act, but countries have different priorities and capabilities for its implementation. Germany and France are actively promoting the creation of a European “cloud infrastructure” (GAIA-X) to reduce dependence on American or Chinese AI

platforms in cross-border relations. This project aims to facilitate secure data exchange between EU countries, but Eastern European countries, such as Poland or the Czech Republic, often cannot fully participate due to a lack of resources for integration into such systems. For example, Poland, despite its ambitions in the AI field, was lagging behind in implementing GAIA-X in 2024 due to insufficient funding and weaker coordination with European partners (Zerniz, 2024).

This inequality results in Western European countries becoming leaders in the use of AI for cross-border relations, gaining economic, security, and political advantages, while Eastern European countries often play a supporting role or remain on the periphery. Thus, the inequality among European states in the use of AI in cross-border relations is driven by technological, economic, human resource, and political factors. The development of artificial intelligence (AI) platforms is carried out by various countries, each of which inherently embeds certain norms, values, and strategic goals into their technologies, reflecting their national interests, cultural characteristics, or political ambitions. This creates a potential threat to cross-border relations, as the use of such platforms by other countries may lead to the imposition of foreign standards, biases, or even tools of influence. Let us consider examples of well-known AI platforms and the countries of their origin. The ChatGPT platform, developed by OpenAI in the United States, is one of the most famous generative AI models. OpenAI, founded in 2015 with the involvement of Elon Musk, Sam Altman, and others, reflects the American approach to technology, emphasizing market competition, freedom of speech, and commercial orientation. ChatGPT incorporates norms aligned with Western ethical views, such as tolerance for diversity, avoidance of overt censorship, and support for individualism. However, this can pose a threat to countries with more authoritarian regimes, where such values conflict with state ideology. For example, the use of ChatGPT in China or Russia may be perceived as an attempt to promote American narratives, leading to distrust and restrictions on access. Grok, created by xAI, also developed in the USA, is another example of an American development focused on maximum transparency and “usefulness” for users. The Chinese platform WuDao, developed by the Beijing Academy of Artificial Intelligence (BAAI), is a response to Western AI models like GPT. It incorporates norms aligned with the policies of the Communist Party of China, including control over information, support for state interests, and avoidance of content that contradicts official ideology. WuDao promotes the Chinese model of a “harmonious society” and digital sovereignty, which can pose a threat to other countries. For instance, European or African countries using WuDao may inadvertently fall under the influence of Chinese censorship or data monitoring standards, which conflict with their principles of freedom (Midfa, 2025). DeepMind, although based in the United Kingdom, is significantly tied to Google (USA), combining a British scientific approach with an American commercial model. This platform promotes norms of efficiency, innovation, and globalization, reflecting a Western capitalist perspective. Its achievements, such as in chess or medicine, demonstrate a focus on technological leadership. However, for countries with less developed economies, such as Ukraine or Balkan states, using DeepMind may mean dependence on Western corporations and a loss of technological autonomy, threatening their sovereignty (Krishna, 2024). The Russian company Yandex develops AI platforms, such as the voice assistant “Alissa,” taking into account national interests and the specifics of the Russian information space. These systems embed norms that support state control, restrict “undesirable” content, and promote the Russian language and culture. For countries neighboring Russia, such as Ukraine or the Baltic states, using such platforms may pose a threat due to the risk of informational influence or espionage. In cross-border relations, this may be perceived as an attempt at soft power or even hybrid aggression. All these platforms carry a certain threat because their developers, consciously or unconsciously, embed their own values and goals into them. For example, American platforms may promote liberal ideas that conflict with totalitarian societies, while Chinese or Russian models may foster authoritarianism or censorship. In cross-border relations, this leads to conflicts of standards, as a country importing AI may unwittingly adopt foreign norms, losing its own identity or security. For Ukraine, for instance, using Russian platforms risks informational dependence, while American or European systems may impose economic subordination.

Thus, various AI platforms developed by the USA (ChatGPT, Grok, DeepMind), China (WuDao), or Russia (Yandex AI) embed norms that reflect the interests of their countries of origin. This poses a threat to cross-border relations, as the use of such technologies can lead to cultural, political, or economic domination, undermining the sovereignty and identity of user countries. The use of artificial intelligence (AI) in military cross-border cooperation, while enhancing defense capabilities and coordination between countries, poses a threat of an uncontrolled arms race. This threat arises due to the rapid development of autonomous systems, competition among states for technological superiority, the absence of global regulatory mechanisms, and potential ethical and security risks associated with AI. AI in military cross-border cooperation is actively employed for the development of autonomous systems, such as drones, robotic combat platforms, and missile defense systems. For example, within the framework of NATO cooperation, countries like the USA and the United Kingdom integrate AI into drones capable of independently identifying targets and coordinating actions across borders. This technology increases efficiency but simultaneously encourages other countries, such as Russia or China, to accelerate their own developments. Each side strives to outpace potential rivals, triggering an uncontrolled race to create increasingly advanced and lethal weapons, which is difficult to halt without international agreements. Unlike nuclear or chemical weapons, the use of AI for military purposes is not subject to clear international agreements. Cross-border cooperation, for instance, within NATO, involves the exchange of AI technologies but does not guarantee that these developments will not be used to escalate conflicts. For example, an error in an autonomous system that makes a decision to attack across a border could provoke a war without human oversight.

AI in military cross-border cooperation, such as in early warning systems or automated targeting, reduces decision-making time, making conflicts more likely. For example, Israel uses the AI-based “Lavender” system for automatic target identification in the Gaza Strip, enabling rapid responses to threats but also increasing the risk of errors. In a cross-border context, if allied countries synchronize such systems (e.g., in the framework of U.S.-Poland cooperation near Russia’s borders), this could lead to instantaneous reactions to false signals, triggering a chain of escalation. This automation reduces human control and fuels the arms race, as each side strives to develop faster and more accurate systems. The development of AI weaponry in cross-border cooperation requires enormous resources, forcing countries to spend increasingly more on defense, even when it is economically disadvantageous. For instance, the Baltic states, collaborating with NATO, invest in AI for cybersecurity and intelligence to counter Russia, but their budgets are significantly smaller than those of the U.S. or Germany. This creates pressure on less developed countries to join the race to avoid remaining vulnerable, even if it depletes their economies. As a result, countries are compelled to increase spending on AI weaponry, which fuels global instability. AI in military cross-border cooperation can lead to unpredictable outcomes due to the complexity and autonomy of algorithms. For example, in 2022, a U.S. drone with AI mistakenly attacked allied forces during exercises due to incorrect target identification. In a cross-border context where systems from different countries interact (e.g., in joint NATO operations), such incidents could provoke a crisis of trust or even an open conflict. This unpredictability encourages countries to develop increasingly “defensive” AI systems, which only exacerbates the arms race (Kovalenko, Smith, 2025).

Thus, the use of AI in military cross-border cooperation poses a threat of an uncontrolled arms race due to the accelerated development of autonomous weapons, competition for superiority, lack of regulation, lowered thresholds for conflicts, economic pressure, and the risk of unpredictable consequences.

Conclusions. Based on the conducted analysis of the impact of artificial intelligence (AI) on cross-border relations, it can be concluded that this technology is a powerful tool for optimizing international cooperation but simultaneously creates significant challenges that require urgent resolution. AI facilitates the automation of economic, logistical, and security processes in areas such as trade, border control, and the fight against cross-border crime, thereby strengthening global connections. However, its integration is accompanied by issues related to data security,

ethical dilemmas, inequality between countries, and the risk of an uncontrolled arms race in the military sphere. The issue of inequality among states, particularly in Europe, is one of the key barriers to the harmonious use of AI in cross-border relations. In military cross-border cooperation, AI opens new opportunities but also poses serious dangers. The development of autonomous systems and their integration into defense strategies, as evidenced by Ukraine's cooperation with NATO, enhances the effectiveness of countering aggressors but simultaneously fuels a global arms race. The absence of international agreements regulating AI weaponry, the rapid pace of technological development, and the potential for unpredictable errors make this area particularly risky. Without proper control, this could lead to the escalation of conflicts and the loss of human control over military decisions.

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NEGOTIATIONS AS AN INSTRUMENT OF GLOBAL GOVERNANCE: THEORETICAL APPROACHES AND PRACTICAL IMPLICATIONS

ПЕРЕГОВОРИ ЯК ІНСТРУМЕНТ ГЛОБАЛЬНОГО ВРЯДУВАННЯ: ТЕОРЕТИЧНІ ПІДХОДИ ТА ПРАКТИЧНІ ІМПЛІКАЦІЇ

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***Abstract.** The article examines negotiations as a key instrument of global governance in the context of the transformation of the international political system. The author analyzes theoretical approaches to understanding negotiations: liberal institutionalism, realism, constructivism and game theory. It is analyzed that negotiations in the modern global environment go beyond traditional interstate diplomacy, covering multilevel interactions involving states, international organizations, corporations and civil society. A comparative analysis of practical cases of negotiations on vaccine distribution (COVAX/TRIPS Waiver), climate change (COP26-COP28), regulation of artificial intelligence and cybersecurity, global taxation and migration agreements is presented. The author identifies the main challenges to the effectiveness of negotiations: power asymmetry, populism, disinformation campaigns, and fragmentation of global governance. Particular attention is paid to the prospects of digitalization of negotiation processes, in particular, the use of virtual platforms, blockchain technologies and artificial intelligence tools. The article offers recommendations for strengthening the inclusiveness, transparency and adaptability of negotiation practices in global governance. The results of the study emphasize the need for an interdisciplinary approach and innovative strategies to effectively address global challenges in the twenty-first century.*

Keywords: global governance, negotiations, multilateral diplomacy, power asymmetry, digital tools, blockchain diplomacy, information security, intercultural communication, global challenges, international relations.

Анотація. У статті досліджено переговори як ключовий інструмент глобального врядування в умовах трансформації міжнародної політичної системи. Проаналізовано теоретичні підходи до розуміння переговорів: ліберальний інституціоналізм, реалізм, конструктивізм та теорію ігор. Проаналізовано, що переговори в сучасному глобальному середовищі виходять за межі традиційної міждержавної дипломатії, охоплюючи багаторівневі взаємодії з участию держав, міжнародних організацій, корпорацій і громадянського суспільства. Представлено порівняльний аналіз практичних кейсів переговорів щодо розподілу вакцин (COVAX/TRIPS Waiver), боротьби зі зміною клімату (COP26–COP28), регулювання штучного інтелекту й кібербезпеки, глобального оподаткування та міграційних угод. Визначено основні виклики ефективності переговорів:

асиметрія влади, популізм, дезінформаційні кампанії та фрагментація глобального врядування. Особливу увагу приділено перспективам цифровізації переговорних процесів, зокрема використанню віртуальних платформ, блокчайн-технологій та інструментів штучного інтелекту. В статті запропоновані рекомендації щодо змінення інклюзивності, прозорості та адаптивності переговорних практик у глобальному врядуванні. Результати дослідження підкреслюють необхідність міждисциплінарного підходу та інноваційних стратегій для ефективного врегулювання глобальних викликів у ХХІ столітті.

Ключові слова: глобальне врядування, переговори, багатостороння дипломатія, асиметрія влади, цифрові інструменти, блокчайн-дипломатія, інформаційна безпека, міжкультурна комунікація, глобальні виклики, міжнародні відносини.

Introduction. In today's world, negotiations have become one of the central mechanisms of global governance, which ensures coordination of actions of various actors in response to transnational challenges. Climate change, pandemics, cybersecurity threats, mass migration and digital transformation have created conditions under which no country can effectively address global issues on its own. Negotiations are a key tool for developing collective solutions, aligning interests, and reaching legitimate compromises. At the same time, multilateral negotiation processes are becoming increasingly complicated due to the asymmetry of resources between participants, the rise of populism and nationalism, the intensification of information wars, and the challenges of the digital age.

Therefore, the need for a theoretical rethinking of the role of negotiations in global governance and a practical analysis of their effectiveness in the current environment is becoming increasingly important. The article aims at analyzing negotiations as a phenomenon of global politics, identifying key challenges for modern negotiation processes, assessing the impact of digital technologies on the dynamics of negotiations, and offering recommendations for their optimization. The interdisciplinary approach allows us to consider negotiations not only as a process of reaching agreements, but also as a space for constructing new norms, identities and strategies of global interaction.

The purpose of the study is to provide a comprehensive theoretical and practical understanding of negotiations as an instrument of global governance in the context of the transformation of the international political system; to analyze key theoretical approaches to the negotiation process; to identify the main challenges facing modern negotiation practices; and to formulate recommendations for improving the effectiveness of multilateral negotiations in the context of digitalization, growing power asymmetries and the evolution of global challenges.

Literature review. The issue of negotiations in global governance has long been in the focus of international relations researchers, especially in the context of the changing nature of the international system in the post-bipolar period. The classic works of R. O. Keohane (1984) and J. S. Nye (2001) laid the foundation for understanding negotiation as an important element of the institutional order that helps stabilize cooperation between states even in the absence of centralized authority. They emphasized that international organizations and regimes are a kind of "catalyst for negotiations" because they provide transparency, information exchange and coercive mechanisms.

At the current stage of globalization, studies of the legitimacy of negotiation processes and governance mechanisms are of particular importance. In this context, M. Zürn (2021) proposes the concept of "contextualized legitimacy", which reveals the contradictions between global norms and the growing desire of states to preserve sovereignty. Zürn emphasizes that the success of negotiations depends not only on the achievement of formal agreement, but also on the level of recognition of their results by various stakeholders.

In the field of analyzing negotiation strategies in complex multilateral environments, the works of G. O. Faure and I. W. Zartman (2021). They propose models for managing the multidimensional complexity of negotiations, pointing to the need for adaptability, flexibility, and

multi-level communication in achieving results in a global context. Their approach is particularly relevant in negotiations related to climate change, digital security, or global health.

Another important topic is the impact of technology on negotiation processes. The works of R. Adler-Nissen and A. Drieschova (2021) have shown that digital technologies not only change the form of negotiations (for example, the spread of “track-change diplomacy”), but also transform the very logic of reaching agreements, requiring participants to develop new skills in manipulating digital platforms and responding quickly to information challenges.

A separate set of studies, presented by W. L. Bennett and S. Livingston (2020), examines negotiations through the prism of information security and disinformation campaigns. They emphasize that negotiations in the digitalization era are becoming vulnerable to manipulation, erosion of trust, and targeted erosion of legitimacy through the use of information technology. This calls for new approaches to protecting negotiation processes and enhancing transparency.

Authors	Main input	Research focus	Relevance for modern negotiations
Keohane (1984), Nye (2001)	Institutionalism and the role of international organizations	Cooperation in the absence of centralized authority	Ensuring predictability and stability of negotiation processes
Zürn (2021)	The legitimacy of global governance is tested	Legitimization of decisions and contradictions of sovereignty	Addressing the crisis of confidence in negotiation mechanisms
Faure & Zartman (2021)	Complexity management models	Multilateral negotiations in conditions of high uncertainty	Strategic management of diversity of participants and interests
Adler-Nissen & Drieschova (2021)	Digitalization of negotiation processes	The impact of technology on the structure and dynamics of negotiations	Innovative negotiation formats and new challenges for diplomacy
Bennett & Livingston (2020)	Information security of negotiations	Disinformation, deep fakes, information wars	Protecting the legitimacy and transparency of the negotiation process

The table provides a consolidated analysis of current views on the negotiation process. Thus, we can summarize that the modern scientific literature forms a multidimensional vision of negotiations in global governance: from institutional strengthening of cooperation and legitimization of decisions to complexity management, technological adaptation and countering information threats.

Main results of research. Global governance is a comprehensive system of norms, mechanisms, institutions, and procedures that coordinate the behavior of various actors at the international level to respond to cross-border challenges (Zürn, 2021). In the twenty-first century, the problems of security, climate change, global pandemics, migration flows, and digital transformation have become so large and complex that they have gone beyond the sovereign capabilities of individual states, creating the need to develop joint solutions through mechanisms of international cooperation, compromise, and coordination.

One of the key features of modern global governance is the growing role of non-state actors, including transnational corporations, international organizations, academic institutions, regional associations, social movements, and non-governmental organizations (Young, 2020). Their participation in negotiation processes contributes to the multimodality and flexibility of the global system, but at the same time makes it difficult to reconcile interests due to asymmetries in resources, legitimacy, and political influence. The negotiation process is no longer exclusively a sphere of interstate relations: it is increasingly becoming a networked process, where decisions are formed at the intersection of different levels of interaction - global, regional, national and local.

Negotiations in global governance are not only a technical tool for reconciling positions, but also a key mechanism for the evolution of the international order. According to Fischer and Ury (1991), negotiations are a basic form of peaceful settlement of differences in situations of divergent interests, where there is a desire to avoid escalation of the conflict. Negotiations perform a number of critical functions in the system of global governance:

- Consensus - facilitating the agreement of common policies and strategies in a multilateral environment (Zürn, 2021).
- Institutional - the creation and transformation of international regimes and norms governing specific areas of global interaction (Young, 2020).
- Communicative - maintaining an ongoing dialogue between public, private, and civil society actors to develop a common vision of global issues.
- Preventive - preventing conflicts through early detection of threats and development of collective response mechanisms.
- Legitimizing - ensuring recognition and support for decisions through inclusive and transparent decision-making procedures.

Thus, negotiations in global governance serve not only as a tool for reaching short-term agreements, but also as an important factor in shaping long-term architectures of international norms and rules. They allow the international system to adapt to new challenges, strengthen mutual trust between actors, and contribute to the stability of the global order.

In the context of the growing complexity and interdependence of the modern world, negotiations are increasingly acting as a factor of constructive governance through diversity, which is becoming crucial for the sustainable development of the international community in the twenty-first century.

The analysis of negotiations in global governance requires an interdisciplinary approach that combines the concepts of international relations, political philosophy, sociology and psychology. The main theoretical paradigms can be summarized as follows:

- Liberal institutionalism argues that international institutions reduce transaction costs, promote predictability, and create conditions for repeated negotiations, which creates an environment of trust (Keohane, 1984; Moravcsik, 1997).
- Realism emphasizes that negotiations reflect the existing balance of power. The outcome of negotiations is a function of the parties' power, not just arguments or morality (Mearsheimer, 2018).
- Constructivism sees negotiations as a process of social construction of reality, where identities, narratives, norms, and discourses play an important role. Negotiations become a tool for building collective understanding (Wendt, 1999; Adler, 2005).
- Game theory is used to model negotiation situations, especially in conditions of uncertainty and strategic confrontation. Classical models such as the Prisoner's Dilemma, the Chicken Game, and the Coordination Game allow analyzing the behavior of actors and seeking equilibrium in the face of conflicting interests (Axelrod, 1984).

The synthesis of these approaches allows us not only to describe but also to critically reflect on the role of negotiations in the modern global order, where the process of reaching an agreement is no less important than its content.

Negotiations in the practice of global governance: cases, mechanisms, limitations

The COVID-19 pandemic has demonstrated both the potential and the limits of negotiation mechanisms in global governance. Despite multilateral diplomacy under the auspices of the WHO, negotiations on vaccine distribution, patent protection, and access to medical technologies have shown significant asymmetries of influence and interests (Hale, Held, & Young, 2021). In particular, the COVAX initiative, which was supposed to ensure equitable access to vaccines, was limited by insufficient funding and the dominance of national strategies (Zürn, 2021).

In the World Trade Organization (WTO) negotiations on the temporary abolition of intellectual property rights (TRIPS Waiver), a conflict arose between the countries of the Global North and the Global South. This case illustrates the difficulty of balancing economic interests with the global ethical dimension (Adler-Nissen & Drieschova, 2021). The negotiations not only

reveal a conflict of interest, but also demonstrate the competition of narratives: “global solidarity” versus ‘economic pragmatism’.

Climate negotiations, in particular within the framework of the Conference of the Parties to the UN Framework Convention (COP), have become a symbol of the complex architecture of global governance. Agreements, such as the Paris Agreement (2015) or the COP26-COP28 agreements, reflect the need for long-term, multi-level negotiations involving not only governments but also cities, corporations, and civil society organizations (Young, 2020).

The peculiarity of these negotiations is that they are increasingly moving into the realm of “track-change diplomacy” - flexible, digitally supported discussion formats, where even editorial changes act as political signals (Adler-Nissen & Drieschova, 2021). In this way, the text of the agreement becomes a space of struggle for meaning, not just a subject of agreement.

The participation of countries with different levels of responsibility for emissions, different vulnerabilities to climate change, and different financial capacities makes a “perfect compromise” impossible. However, it is negotiations that ensure the legitimacy of agreements, even when the results are compromised or postponed (Faure & Zartman, 2021).

У глобальному політичному середовищі, що дедалі більше набуває конфронтаційного характеру, переговори стають інструментом не лише вирішення, а й управління конфліктами. Зокрема, новий виток переговорів щодо контролю над штучним інтелектом, кібербезпекою чи енергетичним переходом демонструє посилення елементів стратегічного протистояння (Kydd, 2021).

In the G7, G20, or security conferences, negotiations are increasingly becoming a tool for demonstrating positions rather than reaching agreements. This is the phenomenon of the so-called “signaling diplomacy,” where symbols, sequencing of arguments, and positioning in the information field become more important.

Despite the importance of negotiations, their effectiveness is limited by a number of factors:

- Unequal access to the negotiation process (especially for low-income countries);
- Lack of mechanisms for implementing the agreements reached;
- High level of politicization of multilateral institutions;
- Fragmentation of the global order and competition between universal and regional formats (Zürn, 2021; Coleman & Ferguson, 2021).

In particular, negotiations in the UN or WTO often face institutional “paralysis” due to the principle of consensus and veto. Thus, there is a shift towards alternative, more flexible formats: “coalitions of the willing”, networking platforms, or informal clubs (Hale et al., 2021).

Comparative analysis of negotiation cases in global governance

Case	Participants	Subject of negotiation s	Negotiation format	Result	Key restrictions
COVAX / TRIPS Waiver (2020–2022)	WHO, WTO, countries of the Global South, G7, pharmaceutical corporations	Distribution of vaccines, temporary abolition of patents	Intergovernmental negotiations within WHO and WTO	Partial access to vaccines, delayed decision on TRIPS Resource	Asymmetry, economic nationalism, corporate influence
Climate negotiations (COP26–28)	UN, member states, EU, China, USA, environmental NGOs	Emission caps, green finance, climate justice	Multilateral negotiations, networking platforms, public consultations	Gradual updating of commitments, support for vulnerable countries	Lack of enforcement mechanisms, North-South divide, fossil energy lobby

Case	Participants	Subject of negotiations	Negotiation format	Result	Key restrictions
Negotiation about AI/cybersecurity (2021–2024)	US, EU, China, India, transnational corporations	Regulation of artificial intelligence, cyber, digital standards	Expert groups, informal coalitions, “club diplomacy”	Partial codes of ethics, framework agreements	Geopolitical competition, blurred legal norms, technological gap
G20 negotiations on global taxation (2021)	G20, OECD, low-tax countries, multinationals	Setting a global minimum tax	OECD groups, expert policy summits	Agreeing on a global tax minimum (15%)	Opposition to tax havens, uncertainty of implementation
EU-Tunisia/Turkey migration agreements (2020–2023)	EU, Tunisia, Turkey, UN agencies, human rights organizations	Controlling migration flows, supporting refugees	Bilateral negotiations, hybrid diplomacy	Financial agreements, flow restrictions, criticized for ethical violations	Power inequality, limited transparency, conflict of legal norms

Having analyzed the negotiations presented in the table, we can conclude that most cases demonstrate asymmetry between the participants (resource, political, technological), negotiations are becoming multi-actor - including governments, corporations, international organizations and NGOs, and the role of flexible and informal negotiation formats (the so-called “track II diplomacy” or “club diplomacy”) is growing. Negotiations acquire certain peculiarities depending on the context in which they are taking place. Environmental and tax negotiations are more focused on long-term framework agreements, while negotiations on migration or cybersecurity are more fragmented and ad hoc. Participants in the negotiation process face a number of constraints: lack of enforcement mechanisms, competition of norms and regimes (between national, regional and global levels), politicization and fragmentation of global governance.

One of the main obstacles to fair and effective negotiations in global governance remains the asymmetry of power between countries, actors and regions. Developed countries, large transnational corporations, and international organizations have significantly more resources, institutional influence, and communication capabilities than countries in the Global South or local communities (Zürn, 2020). This inequality is manifested not only in the formal representation of interests in international negotiations, but also in the processes of agenda setting, access to expertise, funding for delegations, and the ability to ensure compliance with agreements reached. Structural inequality means that negotiations often reproduce existing hierarchies in the global system rather than becoming a tool for real democratization of global governance. This leads to a crisis of confidence in multilateral negotiating institutions, which are increasingly perceived as serving the interests of a limited number of the most influential actors.

An additional factor complicating the negotiation process is the rise of populism, nationalism, and the erosion of multilateralism. Over the past decade, the political rhetoric of “sovereignty first,” which has become particularly popular among political elites in the United States, the United Kingdom, Brazil, and some Central and Eastern European countries, has led to a decline in the effectiveness of multilateral negotiation mechanisms. Striking examples of this were the US withdrawal from the Paris Climate Agreement in 2025, the Brexit process, and criticism of the WHO during the COVID-19 pandemic (Lake, 2021). Populist diplomacy often reduces multilateral negotiations to a tool for domestic political positioning, where the desire for instant popularity prevails over long-term global interests. This creates a domino effect of disintegration of global solidarity and contributes to the spread of isolationism in international relations.

The information security of negotiation processes is becoming a particularly acute problem in the context of the spread of disinformation, fake narratives, and deep fake technologies. Modern negotiations are no longer confined to closed conference rooms: much of the battle for legitimacy and influence takes place in the public information space. Undermining trust in information through the deliberate dissemination of false materials or manipulation of the content of negotiations contributes to political polarization, discrediting negotiating platforms, and delaying decision-making (Bennett & Livingston, 2020). In such an environment, even successfully reached agreements can be called into question, and negotiations can turn into an arena of information attacks and counterattacks.

Despite these challenges, the digitalization of negotiation processes opens up new opportunities to improve the efficiency of global governance. The use of virtual platforms for negotiations (Zoom diplomacy), digital document management technologies, electronic signatures, and blockchain solutions for registering agreements creates the prospect of transparency, accessibility, and efficiency in the negotiation process. Blockchain technologies can ensure the immutability of the text of agreements, track their implementation, and protect them from unauthorized interference (Bjola & Pamment, 2021). At the same time, the analytical capabilities of artificial intelligence open up new horizons for predicting negotiation behavior, modeling scenarios, and optimizing communication strategies.

The prospects for the successful development of negotiations in global governance depend on the ability of the international community to integrate digital tools without losing the basic principles of democracy, inclusiveness, and trust. Effective digital diplomacy should combine innovative technologies with ethical standards and ensure equal access to negotiation platforms for all participants, regardless of their economic power or technological level of development.

Conclusions. The analysis of case studies of negotiation processes in the field of global governance shows that negotiations are not only a technical tool for reaching agreements, but also a political process that reflects the configuration of power, interests, and normative ideas about justice, solidarity, and responsibility. Negotiations serve as an arena where new rules of engagement are formed, and at the same time as a field of struggle for the meaning, legitimacy, and future of the global order.

Modern negotiation processes are becoming increasingly complex, multilevel and hybrid, requiring new approaches to their analysis and practical implementation. They increasingly go beyond classical diplomacy, including digital platforms, network structures and innovative communication formats.

Defining trends in the evolution of negotiations

1. Multi-actor and polycentricity. Negotiations are no longer the exclusive prerogative of states - the influence of non-governmental actors, corporations, municipalities, and international expert communities is growing (Young, 2020).
2. Digitalization of negotiation processes. The use of remote communication platforms (Zoom, e-deliberation tools) changes the dynamics of influence, pace and transparency of negotiations (Adler-Nissen & Drieschova, 2021).
3. Symbolic and narrative component. Negotiations are increasingly becoming a platform for symbolic actions, where it is not only what is agreed, but also how the arguments are presented, by whom and when (Kydd, 2021).
4. Shift to “club diplomacy” and flexible formats. In the context of growing distrust of the UN or WTO institutional structures, informal coalitions and mini-lateral forums are playing an increasingly important role (Hale et al., 2021).

Recommendations for improving the effectiveness of negotiations in global governance:

Recommendation	Justification
Strengthening the institutional memory of the negotiations	Creating open archives of the negotiations will increase transparency, trust and allow for the learning of previous experiences.

Recommendation	Justification
Inclusion of different actors	Involving representatives of the Global South, local communities and youth organizations will make the negotiations more legitimate and relevant.
Humanizing negotiations	Recognizing emotional, cultural and ethical issues as a legitimate part of the negotiation process can reduce conflict and promote cooperation.
Preparing the next generation of negotiators	Investing in training programs in negotiation theory, intercultural communication, and digital diplomacy will be key to shaping effective strategies for the future.
Hybrid Diplomacy	Combining traditional diplomacy with digital tools, data analytics, and artificial intelligence will create new formats for effective complexity management.

In a world where global challenges - environmental, security, migration, technological and humanitarian - increasingly require collective action in the absence of a centralized global authority, negotiations are becoming critical as a universal mechanism for reaching agreement. In the context of polycentrism and fragmentation of the global system, negotiations are becoming not just a technical tool for coordinating interests, but a true art of managing across differences, taking into account the diverse national strategies, cultural codes, economic capabilities, and value orientations of actors. In this context, negotiations allow not only to avoid escalation of conflicts, but also to create platforms for long-term partnerships, consolidation of efforts in solving global problems, and formation of new norms of international interaction.

Negotiations of the 21st century have the potential to become the basis for constructive political co-creation of a new global order based on the principles of cooperation, inclusiveness and shared responsibility. They are the key to overcoming structural inequalities, restoring trust between actors, and adapting international institutions to the new challenges of the digitalization and post-truth era. That is why the study, development and improvement of negotiation practices is of strategic importance for the future of international relations, where the ability to negotiate in a diverse environment will determine stability, security and prosperity on a global scale.

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SHAPING THE IMAGE OF THE STATE AS A POLITICAL AND LEGAL STRATEGY: A COMPARATIVE ANALYSIS OF SOFT POWER INSTRUMENTS IN THE ATR, EU AND MIDDLE EAST REGIONS

ФОРМУВАННЯ ІМІДЖУ ДЕРЖАВИ ЯК ПОЛІТИКО-ПРАВОВА СТРАТЕГІЯ: ПОРІВНЯЛЬНИЙ АНАЛІЗ ІНСТРУМЕНТІВ М'ЯКОЇ СИЛИ В РЕГІОНАХ АТР, ЄС ТА БЛИЗЬКОГО СХОДУ

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Abstract. The article explores the formation of a positive international image of states as an element of political and legal strategy in the context of global competition and transformations in the international information environment. A comparative analysis of soft power tools used by countries in the states in three key regions of the world: Asia-Pacific Region (APR), the European Union (EU), and the Middle East to construct a positive international image, enhance national influence, and legitimize political and legal narratives on the global stage was conducted. Particular attention is given to instruments such as cultural diplomacy, international broadcasting, educational exchange programs, digital presence, legal rhetoric in international forums, and humanitarian initiatives. The comparative approach reveals the regional specifics of soft power models: the EU's value-driven approach, the pragmatic influence policies of APR countries (particularly China, Japan, and South Korea), and the hybrid model of Middle Eastern states combining religious, media, and economic levers. Attention is drawn to the challenges and limitations in the use of soft power as part of a legal strategy, including narrative competition, information wars, crises of trust in state actors, and ethical dilemmas. Examples of successful practices (South Korea, Japan, France, UAE) are analyzed and conclusions are drawn regarding the prospects for the use of soft power as a tool of influence in a global context. The final part of the article provides practical recommendations for Ukraine on the adaptation of successful models. The study concludes that the effective construction of a state's image requires a systematic combination of political, legal, and informational tools within a coherent public diplomacy strategy.

Keywords: soft power, state image, Asia-Pacific region, EU, Middle East. international relations, public diplomacy, regional specificity, strategy.

Анотація. У статті досліджується формування іміджу держави як елементу політико-правової стратегії в контексті глобальної конкуренції та трансформацій у міжнародному інформаційному середовищі. Здійснено порівняльний аналіз інструментів м'якої сили, які використовуються державами в країнах трьох ключових регіонів світу Азійсько-Тихоокеанському регіоні (АТР), Європейському Союзі (ЄС) та країнах Близького Сходу для створення позитивного міжнародного іміджу, посилення національного впливу та легітимації політичних і правових наративів на світовій арені. Особливу увагу приділено таким інструментам, як культурна дипломатія, міжнародне мовлення, освітні програми, цифрова присутність, правова риторика в міжнародних форумах та гуманітарні ініціативи. Порівняльний підхід дозволяє виявити специфіку регіональних моделей м'якої сили: ціннісно-орієнтований підхід ЄС, прагматична політика впливу країн АТР (зокрема Китаю, Японії, Південної Кореї) та комбінована модель держав Близького Сходу, що поєднує релігійні, медіа та економічні важелі. Звертається увага на виклики й обмеження у застосуванні м'якої сили як частини правової стратегії: конкуренцію наративів, інформаційні війни, кризи довіри до державних акторів та етичні дилеми. Проаналізовано приклади успішних практик (Південна Корея, Японія, Франція, ОАЕ) та зроблено висновки щодо перспектив застосування м'якої сили як інструменту впливу у глобальному контексті. У фінальній частині статті наведено практичні рекомендації для України щодо адаптації успішних моделей. Зроблено висновок, що ефективне формування іміджу держави потребує системного поєднання політичних, правових та інформаційних інструментів у межах цілісної стратегії публічної дипломатії.

Ключові слова: м'яка сила, імідж держави, АТР, ЄС, Близький Схід. міжнародні відносини, публічна дипломатія, регіональна специфіка, стратегія.

Introduction. In the twenty-first century, geopolitical realities are shaped not only by military strength or economic power, but also by the ability of regions to create an attractive image, promote their own norms, values, institutional models, and influence other countries through political and legal strategies and mechanisms. In the modern system of international relations, the image of a state plays a crucial role as a factor of political influence, economic attractiveness and legitimacy of international activities. Building a positive image is becoming an integral part of the state strategy, especially in the context of growing information competition, disinformation and hybrid threats. The Asia-Pacific, EU, and Middle East regions are illustrative of this process. Each of them has specific strategies that define their role in modern international relations. Studying them allows us to better understand the logic of modern regional influence, demonstrates different approaches to shaping the global image and implementing strategic priorities, and develops recommendations for countries seeking to expand their international subjectivity, including Ukraine.

The concept of soft power, proposed by Joseph Nye, provides states with an alternative to hard (military or economic) levers of influence. Soft power is based on the attractiveness of culture, political values and foreign policy. At the same time, the realisation of soft power potential requires an effective political and legal strategy and consideration of regional peculiarities.

The purpose of the article is to carry out a comparative analysis of the instruments of shaping the image of the State as a political and legal strategy of soft power in the regions of the Asia-Pacific, the EU and the Middle East.

Objectives of the study:

- to reveal the conceptual foundations of soft power and the image of the state;
- to study regional peculiarities of soft power implementation;
- analyse examples of effective state image building;

- identify prospects for Ukraine in the context of global soft power strategies.

Literature review. The issues of soft power and state image are widely studied in the works of leading international researchers. Thus, J. Nye substantiated three sources of soft power - culture, political values and foreign policy (Nye, 2004) [18]. According to J. Nye, soft power is the ability of a state to achieve what it wants through attraction rather than coercion. It is based on: cultural attractiveness; political and legal values; foreign policy practices that are recognised as legitimate [18].

The image of a state is shaped in the global consciousness through diplomatic, cultural, informational, humanitarian, educational, sporting and legal instruments. According to cultural worker M. Lebedeva, an image is "a stable perception of the international community about the role and nature of the actions of a particular state".

Jan Melissen emphasised the "new public diplomacy" as a channel for the spread of soft power (Melissen, 2005) [16]. Domestic researchers, in particular O. Sharpaty [22] and N. Shevchenko [24], analyse the strategies of Ukraine's cultural diplomacy and the role of international image in foreign policy. Oleksandr Sushko [26], Oleksandr Dergachov, Viktor Konstantinov, Valerii Manzhos (Ukraine) [4; 14] are domestic researchers who study foreign policy communications, public diplomacy of Ukraine, soft power in the context of hybrid warfare and global competition. Among the leading researchers on this topic are Oleksandr Sushko, who analyses the transformation of soft power in the post-industrial conflict; Hanna Shelest [23], who actively studies the instruments of Ukraine's external communication; Olena Lisnychenko, who highlights the use of European experience in the Ukrainian context of public diplomacy. According to M. V. Lazarev, the image of the state is becoming one of the key factors of competitiveness in the globalised world (Lazarev, 2020). Building a positive image requires an integrated approach that includes public diplomacy, cultural initiatives, strategic communications, and legal instruments. Inna Slyusarenko focuses on shaping the image of the state in the global environment, while Yuriy Shaygorodsky and Serhiy Teleshun [21; 27] analyse the philosophical and political foundations of image policy. These studies create a basis for the formation of a systemic model of soft power in Ukraine that could integrate elements of cultural diplomacy, digital communications and legal support for the international image of the state. Despite the growing academic interest, the legal framework for soft power in Ukraine requires further development, in particular in terms of institutionalising public diplomacy, protecting the national narrative and ensuring a coherent image strategy. The issue of shaping the image of the state and the use of soft power is becoming increasingly relevant in the national scientific community, especially in the context of hybrid challenges and information warfare. Since 2014, Ukraine has intensified the study of strategic communications, public diplomacy, cultural policy and foreign policy branding.

In the regional dimension, considerable attention has been paid to the study of public diplomacy instruments in the European Union (Pamment, 2013) [18], Asia-Pacific countries (Kim, 2011) [9], and in the context of the specifics of the Gulf States (Zayani, 2015) [33].

Main results of research. The process of forming the image of the State has a distinct regional specificity, which is determined by historical experience, geopolitical conditions, legal traditions, value orientations and peculiarities of political culture. Within the three regions under comparison - the Asia-Pacific region (APR), the European Union (EU) and the Middle East - different soft power strategies are being implemented, which influence the formation of the international image of states.

Asia-Pacific Region (APR). The Asia-Pacific region is positioned as a dynamic centre of global growth, innovation and technological breakthroughs. It covers the countries of East, Southeast, and partly South Asia, Oceania, and the coastal states of North America that have access to the Pacific Ocean. The key geopolitical actors in the region include China, Japan, South Korea, India, Australia, and the ASEAN countries. The region's image is based on its economic openness, flexible integration models (e.g., the ASEAN Way), dynamic urbanisation processes, and strategic importance for global supply chains.

This region is a powerful centre of global economic growth, providing a significant share of global GDP, trade and innovative technologies. The institutional structure of the Asia-Pacific region is heterogeneous and includes multi-level integration formats, such as ASEAN, APEC, and RCEP, which demonstrate a desire for economic cooperation despite deep political contradictions.

The security situation in the region remains tense due to territorial disputes (in particular, in the South China Sea), China's growing military potential, the Taiwan issue, and threats from the DPRK. The region is characterised by competitive interaction between the United States and China, which largely determines its strategic balance.

In the Asia-Pacific region, the image of a state is formed mainly on the basis of economic dynamics, technological progress and cultural exports. A special feature is the synthesis of traditionalism and innovation, which creates a kind of attractiveness for the outside world. China, Japan, South Korea, and India are shaping their national images as high-tech states with competitive economies and growing geopolitical influence.

Japan actively uses anime culture, Zen philosophy, and gastronomy as tools of soft power (Cool Japan strategy). The state institutionally supports branding through organisations such as the Japan Foundation.

South Korea has developed a unique model of the "Korean wave" (Hallyu), which includes music (K-pop), cinema, TV series, and fashion. This allowed it to form an image of a modern, innovative, dynamic country.

China combines economic expansion with cultural diplomacy - Confucius Institutes, the Belt and Road programme with CGTN's "foreign broadcasting". At the same time, the authoritarian political regime limits the effect of soft power in democratic countries.

In Singapore, soft power is based on: global distribution of cultural products (k-dramas, anime, pop culture); educational programmes (university exchanges); and legal protection of intellectual property.

Let's look at the political and legal strategy of the region:

- economic pragmatism prevails over ideology (the exception is China, which promotes the model of "socialism with Chinese characteristics");
- the model of flexible multilateral cooperation - from APEC to RCEP - is used, without rigid legal institutionalism;
- the digital, environmental and infrastructure development strategy (the Belt and Road Initiative) is being actively shaped;
- there is the use of soft power (culture, education, technology) as an element of image building (in particular, Japan and South Korea).

Thus, global centres of growth (China, Japan, South Korea, India) and geopolitical rivalry are concentrated in the Asia-Pacific region. China is implementing the One Belt, One Road project, which combines infrastructure financing, trade, and diplomatic influence. This strategy aims to create a projection of Chinese influence in Asia, Africa, Europe, and Latin America.

On the other hand, countries such as Japan, Australia, and South Korea are strengthening regional integration through trade agreements (CPTPP, RCEP) and security cooperation (Quad, AUKUS), creating a balance against China.

Thus, the region's political and legal strategies are characterised by geo-economic confrontation with elements of strategic partnership. In the Asia-Pacific region, soft power is often a component of the state development strategy and geopolitical influence, with an emphasis on branding of high technologies, education and creative industries, and institutionalised public diplomacy (Korea Foundation, Japan House). For example: In the 2010s, South Korea developed the "Global Korea" strategy aimed at strengthening its cultural image through K-pop, cooking, and cinema.

European Union. The European Union is a unique supranational entity that unites 27 European states on the basis of common political, economic and legal principles. Its institutional architecture ensures democratic governance, internal market regulation, human rights protection, and the implementation of a common foreign and security policy. For decades, the EU has been

building its political and legal strategy around the concept of "normative power". Its image is based on promoting the values of democracy, human rights, sustainable development and the rule of law. Enlargement and Eastern Partnership policies allow the EU to export its standards to neighbouring regions.

The EU has one of the most developed economies in the world, with a high level of internal integration, including through the Eurozone, the Schengen area and the Digital Single Market policy.

In the context of current challenges, such as the war in Ukraine, the energy crisis, migration flows and hybrid threats, the European Union is strengthening its strategic autonomy, which means reducing dependence on third countries in critical areas such as security, energy and digital technologies. The EU's strengthening role in defence (in particular through the European Defence Fund and PESCO initiatives) indicates its desire to be not only an economic but also a geopolitical player, investing in digital and defence transformation. In the field of cybersecurity and critical infrastructure protection, institutions such as *ENISA*, *CERT-EU*, and legislative initiatives such as *NIS2* and the *Cybersecurity Act* play a key role.

EU policy is also marked by an active search for global partnerships, especially within the framework of the Eastern Partnership, the Indo-Pacific Strategy and the global digital agenda.

The EU consistently promotes an image of the Union based on the values of democracy, human rights, the rule of law and sustainable development. The image is shaped through:

- Institutional diplomacy (European External Action Service, Erasmus+ programmes, European External Action Service, assistance projects);

- legal expansion - the concept of the EU's "normative power Europe" is to promote European standards as the basis for global influence (*Manners, 2002*) [13];

- legal regulation of external information campaigns;

- humanitarian aid and environmental leadership, which form the image of a "moral leader".

For example, during the COVID-19 pandemic, the EU conducted vaccination campaigns in the Global South, demonstrating leadership in global welfare. At the same time, critics point out that the EU needs more active tools of emotional influence, as in the United States or South Korea. France also actively uses the Institut français network to promote language and culture, including legal norms for the protection of cultural heritage.

The Middle East - an image of stability, modernisation and security. The Middle East is in a state of deep transformation and remains one of the most unstable and conflict-prone regions in the world, encompassing countries in West Asia and partly North Africa. Its geostrategic position, significant oil and gas reserves, and historical, religious and political contradictions create a complex regional (ins)security architecture.

The region demonstrates a wide range of political regimes - from authoritarian monarchies (Saudi Arabia, Qatar, UAE) to unstable democratic or military regime structures (Iraq, Syria, Lebanon, Libya). Protracted conflicts, including the Israeli-Palestinian conflict, the Syrian civil war, and the struggle for influence between Iran and Saudi Arabia, remain a determining factor. There is a high level of threats from terrorism (ISIS, al-Qaeda), military conflicts, cyber warfare, and political instability. At the same time, regional security integration is intensifying (e.g., the Alliance of Arab States against Terrorism). However, in the 21st century, some countries (UAE, Saudi Arabia, Qatar) are actively investing in transforming their image - from an oil monarchy to an innovative, digital and tourist hub.

The economic model of most countries in the region is based on hydrocarbon exports, but there is a gradual shift towards economic diversification (for example, through the Vision 2030 strategies of Saudi Arabia and the UAE).

In the security sphere, challenges are growing due to the presence of terrorist organisations, hybrid wars, cyber attacks and external interference by major powers (the US, Russia, Turkey, Israel). Despite this, there are attempts at regional consolidation, in particular within the Gulf Cooperation Council (GCC).

In the Middle East, the image is formed through a combination of religious identity, strategic positioning and image investment. A conditional feature of the region is the desire of some states to overcome stereotypes associated with conflicts by means of:

- large-scale cultural and sports sponsorship - Qatar and the UAE are actively investing in global events (e.g., the FIFA World Cup 2022 in Qatar, Formula 1) and the creation of international cultural institutions (e.g., the Louvre Abu Dhabi);
- creation of "global city brands" - Dubai, Doha, Riyadh are transforming into hubs of culture, technology and finance;
- digital broadcasting platforms - Al Jazeera, Al Arabiya, Sky News Arabia, which are not only information resources but also tools of media and geopolitical influence;
- promoting the image of a safe tourist and business location;
- establishing centres for religious and educational dialogue.

However, the image of these states remains ambiguous due to human rights abuses, authoritarian forms of government and involvement in regional conflicts. Example: Dubai as a brand - a vision of a modern, safe, innovative metropolis through Expo 2020, cultural projects and institutions, such as the Dubai Future Foundation.

The political and legal strategies of these regions have a significant impact on the global system. Let us make a practical analysis of the impact of these strategies on international relations. Let us note that:

- The EU continues to expand its regulatory influence through the Association Agreements, the Digital Single Market (GDPR) and the Green Deal, transforming the rules of the game in the international economy.

- The Asia-Pacific region is creating new global centres of power based on economics, innovation and alternative institutions (RCEP, AIIB).

- The Middle East has an ambiguous image: on the one hand, stable modernisation processes, on the other hand, political fragmentation and conflicts. The political and legal strategy is formed through:

- dualism of traditional and modernised management models (Islamic law + elements of Western management);

- preservation of authoritarian verticals of power, which makes legal harmonisation difficult;

- the desire for institutional modernisation through visions of transformation (e.g., Saudi Arabia's Vision 2030);

- geopolitical competition (Iran vs. Saudi Arabia), hybrid conflicts and the struggle for influence through military and energy levers;

- active use of economic diplomacy, sports and culture to rebrand their image. By investing heavily in sports (world championships, tennis tournaments), education (branches of leading universities) and the media, the region's states are building a positive image and soft power, trying to go beyond the role of an "energy donor".

For Ukraine, this experience is important in the context of forming its own foreign policy model, participating in regional initiatives and building a positive international image. Ukraine needs to implement the European experience in regulatory, digitalisation, and environmental issues, and it is recommended to: intensify cooperation with the Asia-Pacific region through diplomatic missions, participation in regional forums, and investment attraction; study the Middle East's soft power models, especially in terms of investment in culture, education, and branding; and systematise Ukraine's image strategy in the world, with a focus on innovation, heroic resistance, and democracy.

In the context of the growing role of soft power in global geopolitical rivalry, Ukraine should formulate a comprehensive strategy of public diplomacy and information influence, based on the best practices of such regions as the European Union, Asia-Pacific and the Middle East. The successful experience of the EU in creating a positive image through the values of democracy and human rights, China's active promotion of education and culture (in particular through Confucius Institutes), or Turkey's "serial diplomacy" demonstrate the potential of soft power as a real

instrument of influence. Ukraine already possesses important elements of this power - in particular, a high level of social solidarity, cultural wealth, an active diaspora, digital infrastructure, and international support in the war against Russian aggression.

Firstly, Ukraine needs to develop a state soft power strategy that would integrate foreign policy, cultural, educational, information and humanitarian areas. Such a strategy should include the creation of a strategic communications institution (e.g., under the MFA or the NSDC) capable of coordinating the state's image policy at the global level.

Secondly, it is important to support the development of educational diplomacy by creating international educational programmes for foreigners, Ukrainian studies courses abroad, and international cultural and educational centres in Ukraine, following the example of the Goethe-Institut or the British Council. Cooperation with the world's leading universities and integration into global research platforms will serve as a tool for "soft engagement" of the intellectual community with Ukrainian realities.

Thirdly, cultural diplomacy needs active support: promotion of Ukrainian art, cinema, music, gastronomy, participation in international forums, festivals, and book fairs. Ukraine's branding should be based on the values of openness, innovation, courage and dignity.

Fourth, Ukraine should invest in strategic communications and public diplomacy. Establishing analytical hubs, developing the digital presence of Ukrainian positions in global media, and engaging influential representatives of the diaspora and civil society in promoting Ukrainian narratives are key in the international information field.

It is also important to engage other channels of soft power, such as sports, tourism, and volunteering, which can become effective communicators of Ukrainian values and potential. For example, the participation of Ukrainian athletes in international tournaments, the development of cultural and ecological tourism, and the participation of Ukrainian volunteers in global humanitarian initiatives can enhance the country's positive image.

Finally, it is strategically important for Ukraine to actively engage in the activities of international organisations, in particular in the context of soft power - UNESCO, the Council of Europe, the UN, the EU, the G7, etc. - to strengthen its own subjectivity and form new partnership formats.

Thus, the adaptation of successful regional soft power models to Ukrainian specifics can significantly strengthen Ukraine's international position. In the context of global transformations, hybrid warfare and the struggle for the attention of the international audience, soft power is not an auxiliary, but a strategic resource that should be developed in a systematic, creative and innovative way.

International broadcasting has long been a vital instrument of soft power, enabling states to shape their global image, promote national narratives, and influence foreign audiences beyond the scope of traditional diplomacy. It merges the domains of information policy, cultural diplomacy, and strategic communication.

Historically, prominent international broadcasters such as BBC World Service, Voice of America, Deutsche Welle, France 24 and China Global Television Network (CGTN) have operated as tools of geopolitical influence, where media content is crafted to convey values, legal norms, political ideologies, or governance models of the sponsoring state (*Thussu, 2013*).

In the European context, BBC World Service and Deutsche Welle exemplify a model of "public diplomacy through broadcasting," grounded in journalistic standards, media freedom, and factual credibility. These features contribute not only to media trust but also to the normative legitimacy of democratic legal and political systems (*Cull, 2009*).

In contrast, broadcasters CGTN pursue counter-narrative strategies, actively challenging Western discourses by promoting alternative visions of international order. Their messaging often emphasizes themes of multipolarity, critique of international institutions, and the perceived crisis of liberal democratic values (*Gorfinkel & Joffe, 2019; Zhao, 2015*). As a result, they have become central in discussions around disinformation, propaganda, and information sovereignty.

In the Middle East, Al Jazeera plays a unique role by combining high journalistic output with the projection of Qatar's foreign policy positions. Its influence extends beyond the Arab world, shaping alternative narratives on global conflicts, international law, human rights, and the role of the Global South (Miles, 2005).

In the digital age, international broadcasting has rapidly adapted to new media platforms—YouTube, TikTok, podcasts, and streaming services—turning global attention into a matter of “information ecosystems” rather than mere television or radio access. Consequently, international broadcasting must be viewed not only as a media function but as a core component of national political-legal strategies aimed at strengthening international subjectivity and legitimacy.

Conclusions. The study has confirmed that the political and legal strategies of the key regions of the world - the Asia-Pacific region (APR), the European Union (EU) and the Middle East - implement different, but strategically coordinated political and legal models of influence that shape their international image and determine the nature of international relations in the twenty-first century, and have a significant impact on the current configuration of international relations. Each of the regions uses a unique set of tools to shape a positive international image, assert its own normative or power advantage, and secure strategic interests. The Asia-Pacific region is characterised by the rapid dynamics of institutional development and growing geo-economic rivalry, the EU by normative influence through regulatory standards and human rights, and the Middle East by a combination of resource potential and soft power and regional ambitions.

For example, the Asia-Pacific region is characterised by a combination of economic pragmatism and geopolitical rivalry, with countries such as China and Japan seeking to increase their influence through infrastructure initiatives (such as the Belt and Road Initiative) and new formats of security cooperation. At the same time, the European Union is an example of normative power focused on exporting standards, human rights and digital regulation, as evidenced by the phenomenon of the "Brussels effect".

The Middle East, despite the conflicts, demonstrates the intensification of soft power strategies, in particular through cultural, sports and investment initiatives. At the same time, the region remains the epicentre of competition between external actors and resource geopolitics, which affects the stability of the international system.

In the 21st century, the international system faces a profound crisis of trust in state actors, driven by information warfare, fragmentation of the global order, digital disinformation challenges, and the politicization of international institutions. According to the Edelman Trust Barometer 2024, trust in governments continues to decline in most countries, falling behind trust in NGOs, the scientific community, and the private sector (Edelman, 2024) [5].

This dynamic reshapes the role of soft power—not only as a tool of foreign policy, but also as a mechanism for repositioning states within the global legal and political order. Building a positive international image becomes a key means for legitimizing political and legal narratives, particularly through cultural diplomacy, educational programs, digital communication, and participation in international legal forums. As Joseph Nye emphasizes, soft power is the ability of a state to “get the outcomes it wants through attraction rather than coercion” (Nye, 2004) [18], a concept increasingly relevant as traditional diplomatic and military tools lose effectiveness.

The European Union exemplifies a stable promotion of a value-based discourse centered on the rule of law, human rights, and democratic governance, which serves as a legitimizing framework in its foreign policy (Manners, 2002) [13]. Meanwhile, China and other Asia-Pacific countries emphasize an “alternative modernity” through initiatives like the Belt and Road Initiative and digital sovereignty strategies (Zeng, 2020) [34], establishing new legal frameworks of cooperation based on economic interdependence and geostrategic pragmatism.

In the Middle East, countries such as Qatar and the UAE actively promote their international image using global media platforms (e.g., Al Jazeera) and by crafting legal narratives through participation in peacekeeping and humanitarian initiatives (Ulrichsen, 2016) [28]. These efforts not only mitigate reputational risks but also assert political legitimacy in a volatile regional context.

Overall, in the era of information saturation and hybrid threats, strategic communication, legal rhetoric, and cultural diplomacy have become essential tools for asserting a state's international agency. The image of the state is no longer merely a visual or media construct but a fundamental component of political subjectivity that determines its effectiveness in participating in global processes, including the formation of international legal norms.

Practical analysis has shown that image-building strategies are closely linked to security, economic and regulatory factors. The EU acts through regulatory power and institutional mechanisms, the Asia-Pacific region is focused on economic benefits and regional multi-vectorism, and the Middle East balances between tradition, modernisation and internal contradictions. At the same time, image and legal strategy are becoming instruments of global influence in the context of global polarisation.

Regarding international broadcasting as a strategic communication and political and legal resource, which is an instrument of soft power:

- International broadcasters play a central role in advancing national interests through attraction and narrative framing, embodying soft power as defined by Nye.

- These platforms not only inform but also implicitly promote legal norms, political ideologies, and values, effectively becoming actors in the normative regulation of international affairs.

- The modern information space is fragmented, with Western, authoritarian, and hybrid regimes using broadcasting to contest dominant discourses on democracy, sovereignty, and rights.

- The rise of non-traditional channels (e.g., TikTok, YouTube, streaming apps) has democratized influence but also blurred the line between public diplomacy and propaganda.

- In an era of disinformation and hybrid threats, credibility and perceived legitimacy of broadcasters are more critical than ever; public broadcasters tied to democratic accountability retain relative trust advantage.

- Strategic Legal Relevance: International broadcasting must be analyzed not only in political or media terms but also as a mechanism of international legal legitimization, influencing global public opinion, norm diffusion, and soft norm-setting.

Thus, Humanitarian broadcasting strengthens state legitimacy by projecting values and solidarity rather than direct political messaging, humanitarian media initiatives are a powerful mechanism of legitimization, as they not only communicate the state's position, but also demonstrate its values in practice; public trust in humanitarian media is significantly higher than in overtly geopolitical or propagandistic outlets; such initiatives serve a preventive function—building societal resilience to disinformation and hostile narratives; during the war in Ukraine, broadcasters such as VOA, BBC, Deutsche Welle, and France 24 launched special platforms with real-time information, legal advice, and emotional support—constituting a new model of civil information protection; integrating humanitarian communication into national information policies represents a strategic soft power response to hybrid threats and reinforces democratic subjectivity in the global media sphere.

In the context of global multipolarity, none of the regions has a universal model of influence, but each one forms its own niche in the international order. Therefore, understanding the specifics of these strategies is critical for adapting the foreign policy of states, including Ukraine, in the modern world.

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GEOPOLITICAL DETERMINANTS OF EU ENLARGEMENT POLICY TRANSFORMATION

GEOPOLITICAL DETERMINANTS OF EU ENLARGEMENT POLICY TRANSFORMATION

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***Abstract.** The article examines the influence of geopolitical factors on changes in the European Union's enlargement policy through the prism of structural realism. The Russian Federation's full-scale aggression against Ukraine has brought the issue of security in the European region to the fore and demonstrated fundamental changes in its structure, which, in particular, has led to intensified discussion about the transformation of the EU's role in today's conflict-ridden world.*

The main postulates of structural realism (neorealism) theory, which was applied to study the transformation of the European Union's enlargement policy after 2022 under the influence of geopolitical factors, were analysed. In particular, the theory of neorealism was used to demonstrate the correlation between security threats and the acceleration of European integration processes, which had been stagnating for a long time due to the lack of political will on the part of EU member states. Particular attention was paid to the principle of balance of power, which can be seen in the European Union's relations with candidate countries such as Serbia and Georgia. Also, based on a neo-realist approach, the motivation for the enlargement of international institutions and its connection with the desire of states to protect their own national interests as well as increase their international political weight was outlined.

Thus, the study found that the current policy of European Union enlargement is increasingly determined by geopolitical factors and security challenges. The theory of structural realism provides a deeper understanding of the mechanisms of the EU political leadership's response to

fundamental changes in the international system and allows to trace the causal links between the reformatting of the balance of power and the intensification of integration processes.

Keywords: EU enlargement, geopolitical factors, structural realism, neorealism, balance of power, Russian-Ukrainian war, European Union, European integration, Ukraine, Russian Federation.

Анотація. У статті досліджено вплив геополітичних чинників на зміну політики розширення Європейського Союзу крізь призму структурного реалізму. Повномасштабна агресія Російської Федерації проти України актуалізувала проблему безпеки в європейському регіоні та засвідчила докорінні зрушенні у її структурі, що, зокрема, призвело до активізації дискусії щодо трансформації ролі ЄС у сучасному конфліктогенному світі.

Проаналізовано основні постулати теорії структурного реалізму (неореалізму), яку застосовано для дослідження трансформації політики розширення Європейського Союзу після 2022 року під впливом геополітичних факторів. Зокрема, завдяки теорії неореалізму було продемонстровано кореляцію між безпековими загрозами та прискоренням євроінтеграційних процесів, що тривалий час перебували в процесі стагнації через брак політичної волі держав-членів ЄС. Особливу увагу було приділено принципу балансу сил, дія якого простежується на прикладі відносин Європейського Союзу з такими країнами-кандидатами, як Сербія та Грузія. Також на основі неореалістичного підходу було окреслено мотивацію розширення міжнародних інституцій та її зв'язок із прагненням держав захистити власні національні інтереси, а також збільшити свою міжнародно-політичну вагу.

Таким чином, у дослідженні було встановлено, що сучасна політика розширення Європейського Союзу дедалі більше визначається геополітичними факторами та безпековими викликами. Теорія структурного реалізму дає змогу глибше зрозуміти механізми реагування політичного керівництва ЄС на фундаментальні зміни в міжнародній системі та прослідкувати причинно-наслідкові зв'язки між переформатуванням балансу сил і активізацією інтеграційних процесів.

Ключові слова: розширення ЄС геополітичні фактори, структурний реалізм, неореалізм, баланс сил, російсько-українська війна, Європейський Союз, європейська інтеграція, Україна, Російська Федерація.

Introduction. Over the past decades, the European Union's enlargement policy has been viewed primarily shaped by an institutional approach. In line with this framework, the Copenhagen criteria include requirements for stable institutions guaranteeing democracy, the rule of law, respect for human rights and the protection of minorities, a functioning market economy and the ability to withstand competitive pressure within the EU, the capacity to assume the obligations of membership, and the alignment of national law with EU *acquis* (European Council, 1993). However, the escalation of geopolitical tensions, culminating in the full-scale invasion of Ukraine by the Russian Federation on 24 February 2022, led to a transformation of the EU's foreign policy and security priorities. At the same time, there have been precedents for the European Union's political establishment to take decisions on granting candidate status or opening negotiations on EU membership not only on the basis of a candidate country's compliance with formal criteria, but also in response to geopolitical challenges.

In this context, neo-realism – a theoretical paradigm in the field of international relations that interprets the behaviour of states and supranational actors, in particular the European Union, in terms of the anarchic structure of the international system, the distribution of power and the imperative of ensuring survival in conditions of global turbulence – takes on particular significance.

The purpose of the study is to demonstrate the influence of geopolitical factors on the transformation of the EU enlargement policy through the lens of structural realism.

Literature review. The founder of structural realism (neorealism), Kenneth Waltz, in his work “Theory of International Politics” emphasised the anarchic nature of the international system, which leads states to prioritise survival amid complex security conditions. According to Waltz, it is the structure of the international system that primarily influences the behaviour of states. Accordingly, states and, in the context of this study, supranational actors in international relations make strategic decisions based on the structural constraints of the international system, in particular the distribution of national capabilities and the balance of power (Waltz, 1979).

Within the framework of this theory, the concepts of defensive and offensive realism have developed, which also stem from the idea of the influence of the international system on actors in international relations. In his work “Myths of Empire. Domestic Politics and International Ambition”, Jack Snyder was the first to use the terms “aggressive” and “defensive” realism. Snyder believes that defensive realism implies that the structure of the international system generally creates unfavourable conditions for state expansion. Therefore, a primary rational purpose of states is to ensure security in order to preserve their independence. Therefore, actors in international relations who think in terms of defensive realism realise that the costs of expansionist policies outweigh the benefits, and instead accumulate their power to create a balance of power and maintain a status quo. After all, given the limited resources available, it is more advantageous for a state to focus on defence rather than attacking. It suggests that expansion and the pursuit of hegemony are the result of the foreign policy aspirations of an individual actor, rather than structural imperative (Snyder, 1991).

In contrast, John Mearsheimer outlined his own vision of the key differences between offensive and defensive realism in his work “The tragedy of great power politics”. According to Mearsheimer, the core idea of offensive realism is that states do not seek to maintain the status quo, as the international system encourages them to gain greater power at the expense of their rivals. And the ultimate goal of a state is to achieve hegemony within the international system (Mearsheimer, 2001, p. 11).

An analysis of the relevance of structural realism to the transformation of the European Union’s enlargement policy requires a thorough review of academic literature focusing on the international political role of the EU and the dynamics of European integration processes.

Frank Schimmelfennig’s contributions to the study of EU enlargement deserve special recognition. His recent works, including the article “The advent of geopolitical enlargement and its credibility dilemma”, highlight the growing relevance of geopolitical factors in rethinking EU enlargement policy after 2022 (Schimmelfennig, 2023). His research also addresses the issue of differentiated European integration of candidate countries, exploring its causes, consequences and main models of differentiation (Schimmelfennig, Leuffen, & De Vries, 2023).

American scholar Milada Anna Vachudova is also known for her work on EU enlargement. In particular, her seminal study, “Europe Undivided: Democracy, Leverage, and Integration after Communism”, analyses how the prospect of EU enlargement influenced domestic political transformations in the post-communist countries of Central and Eastern Europe. This, in turn, demonstrates how the European Union’s enlargement policy functions as a mechanism for extending its influence and strengthening its leverage on the international stage (Vachudova, 2005).

In his numerous works, Daniel S. Hamilton explores European politics and the reformatting of the roles of the EU and NATO in the so-called “age of disruption”, characterised by high levels of competition between major powers, a global redistribution of power, and rapid technological change (Binnendijk, Hamilton, & Vershbow, 2022).

Main results of research. Since structural realism focuses on the influence of the international system, geopolitical factors are considered structural imperatives that shape the political decisions of actors in international relations. In analysing the transformation of the European Union’s enlargement policy, **security threats at the EU’s borders** should be emphasized as key geopolitical determinants. In this case, full-scale aggression by the Russian Federation is perceived as undermining the balance of power in the international system, forcing actors in

international relations, in particular the European Union, to change their behaviour in line with geopolitical realities.

A striking example supporting this argument is the granting of EU candidate status to Ukraine and Moldova in 2022. The outbreak of the large-scale Russian-Ukrainian war served as a turning point at which the political leaders of the EU member states realised the real threat to the existence of Europe. The European Union countries most at risk due to their shared border with Russia are Estonia, Latvia, Lithuania, Finland and Poland. Therefore, the security of European states directly depends on Ukraine's resilience.

With the outbreak of full-scale war on the European continent, EU leaders have come to the conclusion that they can no longer afford to delay Ukraine and the Western Balkans. This, in turn, led to the formation of a renewed enlargement strategy. At the beginning of Ursula von der Leyen's first term as President of the European Commission, she announced her desire to lead a so-called "geopolitical Commission" with the aim of supporting neighbouring countries, accelerating the enlargement process and focusing on multilateral relations when presenting her programme in 2019 (von der Leyen, 2019). However, since the Balkan countries have not made significant progress towards European integration, and accession negotiations with Turkey have been frozen since 2018, it was clear that enlargement would remain a matter of debate during Ursula von der Leyen's term. Instead, the full-scale invasion forced the EU to abandon its policy of strategic ambiguity regarding the European future of Ukraine and Moldova, granting them candidate status on 23 June 2022 and giving the long-stagnant enlargement process a "geopolitical momentum" (Stanicek, Przetacznik, & Albaladejo Roman, 2023).

Further evidence supporting this thesis is the acceleration of the European integration process for the countries of the Western Balkans, which for a long time lacked political will from the EU. However, following Ukraine's candidacy, which became the catalyst for a new wave of enlargement, the first intergovernmental conferences on accession negotiations with North Macedonia and Albania took place on 19 July 2022 (European Council, 2022). Simultaneously, the Commission immediately initiated the official screening to assess these countries' compliance of their national legislation with the EU acquis. These decisions marked a fundamentally new phase in the Western Balkans' path towards European integration.

The enlargement of the EU also serves as a crucial tool for **consolidation of the European space**. This has a direct impact on the **balance of power**, which remains the foundational concept in neorealist theory. In this way, the European Union seeks to strengthen its power by projecting its influence onto other states via its enlargement policy. This is especially relevant for countries situated at a geopolitical crossroads that face the risk of coming under the influence of the Russian Federation.

Considering the increased threats to Europe resulting from Russian aggression, EU member states are particularly concerned about Serbia's behaviour. Serbia has been a candidate country for EU membership since 2012, but has shown significant fluctuations in its progress towards European integration during this time. Seeking to balance its strategic goal of joining the EU with maintaining relations with Russia, the Serbian government has not imposed sanctions on Russia in connection with its invasion of Ukraine. This decision fundamentally contradicts Serbia's obligation to adhere to the Common Foreign and Security Policy of the European Union (CFSP). In particular, the European Parliament resolution of 7 May 2025 on the 2023 and 2024 Commission reports on Serbia (2025/2022(INI)) states that, given that Serbia has not imposed sanctions on the Russian Federation in response to Russia's full-scale invasion of Ukraine, the level of alignment with the CFSP has been steadily declining since 2021, reaching 51% in 2024. Meanwhile, other candidate countries in the Western Balkans region have 100% alignment (European Parliament, 2025).

This position is unacceptable for a candidate country, so under these circumstances, the further development of negotiations with Serbia is unclear. Although the European Union consistently employs a carrot and stick approach in its relations with the Serbian government, truly stringent sanctions against Serbia, such as a complete freeze on EU membership negotiations or even revocation of candidate status, would result in the country falling entirely within the sphere of

influence of the Russian Federation. Consequently, the European Union is resorting to more measured rhetoric in its relations with Serbia.

A similar motivation can be observed in the European Union's relations with Georgia, which, inspired by the examples of Ukraine and Moldova, applied for EU membership in March 2022. However, its progress was not as rapid as that of these countries, because when Ukraine and Moldova received candidate status, Georgia was given a so-called "European perspective" and twelve priorities that it had to fulfil in order to make progress on the path to European integration (European Commission, 2022, pp. 17-18). After implementing the recommendations of the European Commission, Georgia finally received the status of a candidate country for EU membership on 14 December 2023 (European Council, 2023).

However, as a result of the parliamentary elections, the Georgian Dream party came to power, whose political course is causing concern among the international community due to its ties with Russia and its tendency towards centralisation of power, which may negatively impact Georgia's prospects for European integration. The most telling evidence of this was the Georgian parliament's adoption of the Foreign Agents Registration Act and Law on Broadcasting, both of which restrict media independence and civil society participation. The European Union strongly condemned these political decisions. In particular, in a joint statement by the High Representative of the European Union for Foreign Affairs and Security Policy, Vice-President of the European Commission Kaja Kallas and Commissioner for Enlargement Marta Kos, the legislation was described as undermining the foundations of democracy in Georgia and categorically incompatible with the fundamental values of the EU (Directorate-General for Enlargement and Eastern Neighbourhood, 2025).

Thus, although these candidate countries do not meet the fundamental requirements of the European Union, the EU political establishment cannot apply radical measures to Serbia and Georgia, as this could cause them to drift definitively towards Russia. As a result, the EU will lose opportunities to strengthen its geopolitical position in the region and will be forced to deal with the consequences of instability in these countries, which will only mean the failure of the Union's strategy in the struggle for global power distribution.

In his work "Structural Realism after the Cold War", Kenneth Waltz put forward another interesting hypothesis within the framework of neorealism, which he then applied to the issue of NATO expansion (Waltz, 2000, pp. 21-22). In this study, he emphasises that, despite criticism of the inability of international institutions to resolve important international political issues, the nature of these organisations is such that they exist not to advance the interests of the international community, but rather to promote national interests. Neorealism demonstrates that **state investment in the expansion of international institutions serves as an investment in their behavioural power**. This hypothesis can be extrapolated to the current EU enlargement policy within the framework of structural realism.

A neorealist approach to modification of the EU's enlargement policy after Russia's invasion of Ukraine is emphasizing security considerations, balance of power, and great power's interplay within international system transformations.

The latter are pivotal. The shift of power capabilities on a global level is transforming the structure of the international system towards bipolarity (Lind, 2024). China's steady economic growth has been converted into military and political advantages, enhancing the country's global role to the point where it is capable of challenging weakening American hegemony. China's rise to power is accompanied by ideological rivalry, geopolitical tensions, and involvement of the two superpowers into the competition for allies. Bipolarity, thus, is becoming a key structural parameter of international politics, defining, *inter alia*, foreign and security preferences of the EU.

From a neorealist perspective, a bipolar structure will make the EU either take sides with one of the poles or balance. On the other hand, growing tensions and deteriorating security institutions will increase demand for enhancing hard security capabilities. These are two primary factors shaping the Union's security strategy – and these are also factors behind security strategies of the EU's most powerful member states: Germany and France.

The EU enlargement has traditionally been seen through the lenses of functionalism/neofunctionalism. The logic of the process was perceived as primarily economically driven: rational agents have been better off with different sorts of barriers between states lifted and supranational institutions becoming stronger. However, geopolitical factors should not be excluded.

A shift in security paradigm, triggered by Russia's invasion of Ukraine, is likely to make those factors much more important. Within neorealism, success of an actor's foreign and security policy is largely defined by its ability to make sense of the structural limitations, carefully assess the balance of power – and adapt to it.

In the context of the behavioural power of the state, we can look to France as an example. It is using the renewed EU enlargement policy to assert its status as the architect of a united Europe. Back in 2017, French president Macron shook up the EU with his statement on revising the European project and the need to reform the European Union (Élysée, 2017), which was then largely met with cautious scepticism (Erlanger, 2017). During his first term from 2017 to 2022, Macron promoted a strategic vision for Europe that included integrating the Russian Federation into the European security architecture. This is confirmed by the fact that, in June 2021, the French president and German chancellor submitted a proposal to the European Council for the first EU-Russia summit since 2014, with the aim of engaging in a “demanding dialogue” with Putin, which they deemed “necessary for the stability of the European continent” (FRANCE 24 with AFP, 2021). While this proposal was supported by Austrian chancellor Sebastian Kurz and Italian prime minister Mario Draghi at the time, it was met with resistance by the leaders of Lithuania, Latvia, Estonia and Poland. Consequently, the dialogue initiated by Macron never took place (Yevropeiska Pravda, 2021).

Yet, the outbreak of a full-scale invasion forced the French president to reconsider his attitude towards relations with the Russian Federation and the role of the European Union in the modern system of international relations. Given the urgent need to review the security dimension of the European Union's activities, Russian aggression also intensified discussions about the European project as a whole, initiated by Macron himself, who has repeatedly promoted the concept of Europe's “strategic autonomy” in a multipolar system of international relations. In his speech at the Conference on the Future of Europe, held on May 9, 2022, in Strasbourg, the President of France proposed the idea of creating a “European Political Community” – a pan-European platform based on the principles of a united Europe, which would include not only EU member states but also its main partners, countries aspiring to join the EU, and the United Kingdom (Macron, 2022). The main goal was France's desire to revive the idea of a “united Europe” by involving all European states in cooperation within the European Union and beyond. Macron separately noted Ukraine's role in the future European political community, because even though Ukraine is already “a member of our Europe”, it will take more time for it to become a full member of the Union. One of the key tasks of this forum is to develop collective cooperation mechanisms to overcome common security challenges and threats (Moyer, 2022).

In addition, on 31 May 2023, at the GLOBSEC forum in Slovakia, Macron stated that there should no longer be a division between “old” and “new” Europe, as differences within the Union had made the EU unable to counter the threat posed by the Russian Federation (Macron, 2023). The French president also emphasised that he considers EU enlargement to be a process that meets the strategic needs of the Union, which should increase its security potential by strengthening its capabilities in the military, energy and industrial spheres.

Amid strategic uncertainty surrounding US security support for Europe, the need in developing the EU's strategic autonomy is growing stronger. As one of the most proactive advocates of this concept, France is seeking new ways to strengthen the EU's security capabilities, particularly through enhanced cooperation with other member states. One manifestation of this was the signing of an agreement to enhance cooperation between France and Poland in the fields of defence, nuclear energy and other areas on the symbolic Europe Day, 9 May 2025 (FRANCE 24 with AFP, 2025). Following similar strategic partnership agreements with Germany in 2017, Italy in 2021 and Spain in 2023, France has decided to deepen its bilateral relations with a country that

plays a key role on Europe's eastern flank. After all, Poland is particularly vulnerable due to its geographical proximity to the Russian Federation. Under such geopolitical conditions, this prompts the Polish authorities to spend more on defending their country. According to the Press Release of the NATO's Public Diplomacy Division, based on the indicator "Defence expenditure as a share of GDP" (based on 2015 prices and exchange rates), Poland spent 4.12% of its gross domestic product on defence in 2024, which is the highest indicator among all member states of the North Atlantic Alliance (NATO Public Diplomacy Division, 2024, p. 4). Accordingly, Poland is one of the most proactive countries advocating for the enlargement of the European Union in order to strengthen its eastern flank.

Since 2022, France has consistently supported EU enlargement and promoted the idea of an autonomous Europe. It has used this approach to strengthen its ties with Poland and increase its influence in Central Europe. The new agreement includes joint investments in the defence industry and arms purchases, effectively giving France additional opportunities to promote its military and industrial products in Poland (Pineau, 2025). In this way, France has reinforced its presence in a region that has historically been influenced by the United States and Germany, while at the same time opening up additional opportunities to promote French initiatives and products in the fields of defence procurement and nuclear energy. Thus, the enlargement of the European Union can serve as a framework for promoting national interests and increasing the political weight of the state, particularly by strengthening defence sector cooperation in the context of growing security threats.

Conclusions. The theory of neorealism allows us to interpret security threats, in this case the Russian-Ukrainian war, as a structural imperative that has significantly influenced the political priorities of the European Union. The geopolitical challenges caused by the largest war on the European continent in the 21st century have prompted the EU's political leadership to rethink the Union's international political role and weight, while also leading to the formation of a renewed enlargement strategy. The strategic uncertainty of the future of countries seeking to join the Union has been replaced by rapid political decisions, such as granting Ukraine and Moldova candidate status. Russia's full-scale aggression gave a "geopolitical impetus" and intensified the negotiation process with North Macedonia and Albania, which demonstrated a change in the EU establishment's attitude towards the Western Balkans region as an area for a new wave of enlargement. Thus, the outbreak of the Russian-Ukrainian war has been a catalyst for fundamental transformations in European Union policy.

The updated EU enlargement policy is also linked to the concept of balance of power, as the Union's eastward expansion will strengthen the institution's position in the international political arena and contain the Russian Federation, which seeks to extend its influence to other countries. The cases of Serbia and Georgia illustrate a certain dilemma for the European Union. On the one hand, these states openly demonstrate a departure from the traditional values of democracy and the rule of law, which are mandatory for strict compliance by both member states and candidate countries. On the other hand, in the context of countries standing at the crossroads between the EU and Russia, the European Union has to compromise its pragmatism and build a special type of relationship in order to keep these states within its sphere of influence. After all, the final geopolitical shift of Serbia and Georgia towards the Russian Federation will have negative consequences that could further weaken the European Union on the global stage.

In addition, the example of France, which until 2022 considered it expedient to settle Europe's relations with Russia and not rush to expand eastward, demonstrates the interest of EU member states in intensifying the enlargement process. It is precisely in the context of an acute security crisis in the region that France is actively strengthening its influence in Central and Eastern Europe by deepening bilateral cooperation with Poland, a major state on the EU's eastern flank. This, in turn, serves as evidence that states interested in the EU's geopolitical stability and advocating its "strategic autonomy" perceive enlargement as a necessary step to strengthen the Union's institutional capacity, given that the EU is one of the key platforms for promoting national interests. In other words, a strong, enlarged European Union provides its members far greater opportunities to ensure security, realise their interests and achieve political influence in the international system.

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СУЧАСНА СИСТЕМА МІЖНАРОДНОГО ПРАВА

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CLIMATE NEUTRALITY IN THE EUROPEAN UNION: LEGAL CHALLENGES AND NATIONAL STRATEGIES

КЛІМАТИЧНА НЕЙТРАЛЬНІСТЬ У ЄВРОПЕЙСЬКОМУ СОЮЗІ: ПРАВОВІ ВИКЛИКИ ТА НАЦІОНАЛЬНІ СТРАТЕГІЇ

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Abstract. The article analyzes the climate policy of the European Union and its members, in particular in the context of the goal of achieving climate neutrality by 2050, enshrined in the European Climate Law. Based on a comparative analysis of the legal strategies of the EU states, national approaches to the implementation of obligations to achieve climate neutrality, the level of their legal certainty, as well as the ambition of the established time horizons are outlined. the nature of the goal of climate neutrality as a normative category, as well as the issues of the effectiveness of the implementation of international obligations. An interdisciplinary assessment of the potential of legal instruments in the context of a just energy transition is proposed.

Keywords: International Environmental Law, Climate change, Paris Agreement, European Climate Law, climate neutrality.

Анотація. У статті проаналізовано кліматичну політику Європейського Союзу та його членів, зокрема у контексті цілі досягнення кліматичної нейтральності до 2050 року, закріпленої в Європейському законі про клімат. На основі порівняльного аналізу правових стратегій держав ЄС описано національні підходи до імплементації зобов'язань щодо досягнення кліматичної нейтральності, рівень їх юридичної визначеності, а також амбітність встановлених часових горизонтів. У дослідженні приділено увагу правовій природі цілі кліматичної нейтральності як нормативній категорії, а також питанням ефективності виконання міжнародних зобов'язань. Запропоновано міждисципліновану оцінку потенціалу правових інструментів у контексті справедливого енергетичного переходу.

Ключові слова: міжнародне екологічне право, зміна клімату, Паризька угода, Європейський закон про клімат, кліматична нейтральність.

Relevance of topic. Achieving climate neutrality is a central goal of the European Union's modern climate policy and the global agenda for sustainable development. Legal support for this

goal is of particular importance in the context of the intensifying climate crisis, energy transformation and the need for coordination between states with different levels of economic development. Taking into account the obligations enshrined in the European Climate Law, as well as significant differences in national approaches to the implementation of net zero goals, there is a need for a systematic analysis of the legal mechanisms applied by the EU Member States. The relevance of the topic is also enhanced by the need to strengthen regulatory coherence, transparency of implementation and interstate climate solidarity, which is a prerequisite for achieving a single EU climate vector by 2050.

Recent Literature Review. Recent studies highlight the EU's strategic positioning as a global climate leader. Olesia Tkachuk (2024) emphasizes the legal and institutional foundations of the EU's climate neutrality agenda, while Delbeke J. (Ed.) (2024) presents an interdisciplinary analysis of regulatory tools in Delivering a Climate Neutral Europe. Bruneckienė J., Zykienė I., and Mičiulienė I. explore how national competitiveness intersects with climate goals, revealing diverse approaches among EU countries. Legal perspectives are advanced by Aryanpour M. (2024), who examines the integration of climate ambition into resource governance, and Henckens T. (2021), who underscores sustainability constraints linked to mineral use. Anderson-Samways B. and Hobby J. (2022) critique the weakness of voluntary frameworks like the Paris Agreement, highlighting the need for enforceable commitments. Further comparative insights are drawn from Medvedieva M., Yedeliev R., Reznikova N., Nanavov A., and Grydasova G. (2024), who analyze national legal discrepancies in EU member states. These findings are contextualized using legislative sources and reports such as the European Climate Law, Climate Action Tracker (2023), and the EEA Trends and Projections Report (2023).

The purpose of the paper. The purpose of this paper is to analyze the legal obligations to achieve climate neutrality by the European Union and its members, considering international obligations, internal strategic documents of the Member States and the degree of legal specification of climate goals.

Main research results. The international role of the European Union as a leader in the field of climate policy has been formed gradually, starting from the 1990s, in the context of the formation of the global regime to combat climate change. From the very beginning, the EU played a leading role within the framework of the United Nations Framework Convention on Climate Change (UNFCCC), through its active participation in the development and implementation of the Kyoto Protocol (1997), and later in the formation and promotion of the Paris Agreement (2015) (Tkachuk, 2024). By announcing the ambitious goal of achieving climate neutrality by 2050, the EU enshrined it in the European Green Deal and the European Climate Law, which made this goal legally binding, however, despite the unified framework, national approaches to the implementation of climate commitments differ significantly, which creates challenges for the coordinated achievement of a common goal in the context of political fragmentation, asymmetry of resources and varying degrees of readiness for energy transformation.

The declared goal of achieving climate neutrality has been legally enshrined in the European Climate Law (Regulation (EU) 2021/1119), which establishes that the EU must achieve a balance between anthropogenic greenhouse gas emissions and their absorption within the Union by 2050 (European Union, 2021). The legislator defines climate neutrality as net zero emissions, i.e. a state where residual emissions that cannot be eliminated are offset by natural sinks, through forests, soils, oceans, or carbon capture and storage technologies.

According to the Climate Action Tracker methodology, climate neutrality or net zero is not just a balance between emission sources and sinks, but a systemic obligation to reduce all emissions as much as possible, followed by science-based compensation for residual emissions, which should be enshrined in the national legal framework (Climate Action Tracker, 2023).

The modern European understanding of climate neutrality is not only an environmental but also a legal construct that requires the mandatory integration of environmental, economic and technological instruments into the regulatory and political system of the Union. In the national

legislation of the EU countries, climate neutrality is usually enshrined as "net zero greenhouse gas emissions", which provides for minimizing emissions to a possible level with their subsequent absorption or elimination. For example, Greek Law No. 4936/2022, according to the Article 2, para. 3, defines climate neutrality as "the balance between anthropogenic greenhouse gas emissions from sources and their absorption by sinks" (Government of Greece).

The European Union has identified achieving climate neutrality by 2050 as a strategic goal in line with the European Green Deal. To gradually approach this goal, the EU has committed to reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. The rejection of compromise between environment and development is enshrined in both political and scientific strategies. Despite common commitments, there are significant differences in results between EU countries due to income levels, infrastructure and scientific potential (Bruneckienė, Zykienė, & Mičiulienė, 2023).

In response to the growing need for ambitious climate policies, most countries in the European Union have declared their intention to achieve climate neutrality by 2050. In some cases, even more ambitious time horizons have been established. For example, Finland plans to become climate neutral by 2035, and Sweden and Germany by 2045, anticipating the achievement of negative emissions after that. Iceland, although not a member of the EU, intends to achieve carbon neutrality by 2040.

Among the countries that have declared goals until 2050 are France, Ireland, Greece, the Netherlands, Portugal, Spain, Luxembourg, Denmark and others. However, it should be noted that in several states — such as Belgium, Bulgaria, Croatia, Lithuania, Malta, Latvia, Romania, Slovakia, Slovenia — the relevant obligations are not yet fixed in national legislation.

In addition to long-term goals, considerable attention is paid to intermediate commitments. For example, Denmark aims to reduce greenhouse gas emissions by 70% by 2030 (compared to 1990), France by 40%, Portugal by 55%, and Germany by 65%.

It is worth noting that some countries, including Germany, are also setting targets for greenhouse gas removal within the Land Use, Land Use Change and Forestry (LULUCF) sector, with plans to achieve a negative balance in 2045.

Despite the overall vector of climate neutrality, progress and legislative specification vary greatly between countries. This poses challenges to the coherent achievement of the pan-European goal of neutrality by 2050, which is a fundamental goal of the European Green Deal. As Lithuanian researchers Brunetskienė, Zikienė, and Mičiulienė (2024) rightly point out, despite the unity of goals, in particular in achieving climate neutrality, EU countries implement these tasks in different national contexts — taking into account differences in socio-economic systems, institutional models, level of infrastructure development and resource base, which significantly affects the dynamics of the transition and creates structural challenges for policy coherence.

Examples of lawmaking of EU countries on the implementation of requirements for achieving climate neutrality in national legal orders are discussed below.

Finland has one of the highest levels of climate policy ambition among the countries of the European Union. The country has legislatively enshrined the goal of achieving climate neutrality by 2035, as well as the transition to negative emissions after this period. According to the climate law adopted in 2015, the primary goal was to reduce greenhouse gas emissions by 80% by 2050 compared to 1990 levels. climate commitments. The law clearly states that the reduction targets cover both sectors covered by the EU Emissions Trading System and sectors covered by the Joint Commitments Regulation, demonstrating Finland's comprehensive approach to achieving climate neutrality (Ministry of the Environment of Finland, 2022).

Austria has set itself one of the most ambitious climate goals among the countries of the European Union — achieving climate neutrality by 2040 (Climate Change Laws of the World, n.d.). This commitment was first enshrined in the government's coalition agreement for 2020-2024 between the Austrian People's Party and the Green Party, which positioned the country as a

potential EU leader in the field of climate protection, emphasizing the interconnectedness of climate justice, innovative development and economic transformation. Although the current climate legislation in Austria was focused only on the period up to 2020, the process of updating the national climate law is currently underway. The new version is expected to formalize the goal of achieving climate neutrality by 2040, which is already mentioned in the National Long-Term Strategy (LTS) and was proclaimed as a political commitment by the previous government. This goal is ahead of the pan-European commitment to achieve neutrality by 2050 and demonstrates Austria's commitment to play a leading role in climate governance within the EU. The expected legislative consolidation of this goal should ensure that it is binding and contribute to the coherence of national policies with European climate commitments.

Sweden has set an ambitious goal of achieving climate neutrality by 2045, after which it is expected to achieve negative emissions. This is one of the most ambitious climate goals among EU countries. The statutory commitment provides for a reduction in greenhouse gas emissions by 85% by 2045 compared to 1990 levels, while interim targets include emission reductions of 63% by 2030 and 75% by 2040, excluding absorptions in the LULUCF sector (European Climate Neutrality Observatory, 2024). Sweden is an example of a country that combines science-based approaches with political will for long-term climate transformation.

Germany has set a legally binding goal of achieving climate neutrality by 2045, followed by a transition to negative emissions. The law allows the use of international offset to achieve climate goals, but at the same time calls on the federal government to refrain from using the flexible mechanisms provided for by the EU Effort-Sharing Regulation, with a particular focus on the land use, land-use change and forestry sector, which sets a commitment to set carbon sink targets for 2035, 2040 and 2045 in accordance with government executive orders (Climate Action Tracker, 2024).

France consistently pursues a policy of reducing greenhouse gas emissions enshrined in legislation. The 2015 version of the climate law set a commitment to reduce emissions by 40% by 2030 (compared to 1990 levels) and by 75% by 2050. As part of the updated climate strategy, the country aims to achieve climate neutrality by 2050, which corresponds to at least 83.3% emission reductions and a maximum of 16.7% carbon absorptions (relative to the volume of emissions of 1990) (Ministry for the Ecological Transition, 2023). Importantly, France legally excludes the use of international offsetting to achieve these goals, which underscores its emphasis on domestic efforts to reduce emissions.

Greece has committed to achieving climate neutrality by 2050 and has implemented a mechanism for monitoring and revising interim targets, with legally enshrined benchmarks providing for a reduction in greenhouse gas emissions by 55% by 2030 and by 80% by 2040 compared to 1990 levels (Climate Change Laws of the World, n.d.). In addition, the country has pledged to completely phase out coal by 2028, an important milestone in the process of decarbonizing the energy sector.

As of 2024, Cyprus has not yet enshrined a legally binding goal of achieving climate neutrality in national legislation, at the same time, the country has declared its intention to achieve climate neutrality by 2050 in accordance with pan-European commitments, in particular, it is expected that this goal will be officially included in the future long-term strategy to reduce greenhouse gas emissions (Grantham Research Institute on Climate Change and the Environment, 2023). Despite of the lack of legally defined intermediate benchmarks, Cyprus adheres to the goals of the European Climate Law, which provides for 2050 as a key benchmark for achieving carbon neutrality.

Ireland has committed to achieving climate neutrality by 2050 at the latest, which is defined as a long-term strategic goal in the field of climate policy. As an interim benchmark, the country has set a binding target to reduce greenhouse gas emissions by 51% by 2030 compared to 2018 levels (European Climate Neutrality Observatory, 2024). Although this obligation is not enshrined in

national legislation as a separate legal act, it is a key component of the state's political course in response to pan-European obligations and the Paris Agreement.

Luxembourg has declared its intention to achieve climate neutrality by 2050 at the latest, which is in line with the pan-European strategic course. Although this goal has not yet been enshrined at the legislative level, it is reflected in the national climate policy, in the medium term, the country has committed to reducing greenhouse gas emissions by 55% by 2030 compared to 2005 levels (European Climate Neutrality Observatory, 2024). The achievement of these goals involves the implementation of numerous measures in the fields of transport, construction, energy and waste management, which are key sources of emissions in Luxembourg.

The Netherlands has declared the achievement of climate neutrality by 2050 at the latest, with the possibility of achieving negative emissions after this date. Although this goal is not currently enshrined at the legislative level, it is recognized in the state's strategic documents. In the medium term, the Netherlands has committed to reducing greenhouse gas emissions by 55% by 2030 compared to 1990 levels (European Climate Neutrality Observatory, 2024). The implementation of this goal is carried out through a comprehensive approach to the transformation of the energy sector, transport and industry, as well as active support for renewable energy sources.

Denmark has set a clear goal of achieving climate neutrality by 2050, which was enshrined in the 2014 law on the transition to a "low-emission economy". In 2020, quantitative long-term targets were added to this law, including a commitment to reduce greenhouse gas emissions by 70% by 2030 compared to 1990 levels. that these national targets are achieved through "real internal reductions", avoiding carbon leakage, as well as enshrines sectoral targets within the Energy Agreement. An important development was the adoption by the parliament in October 2021 of a mandatory target for reducing emissions in agriculture by 55-65% by 2030, taking into account land use, land use change and forestry (Finance, 2021). Greenland, as an autonomous territory within the Kingdom of Denmark, participates in the international climate process through a joint delegation with Denmark and the Faroe Islands. Although it is not formally part of the EU and is not subject to its climate legislation, Greenland supports climate cooperation and develops its own environmental approaches, in particular in the areas of energy and environmental protection in the Arctic region. sea rise levels are currently limited, with scientific projections suggesting that the complete melting of Greenland's ice sheet – even if it lasts for centuries – could cause sea level rise of up to seven meters, with catastrophic consequences for the world's coastal regions (IPCC, 2021).

Croatia currently does not have a goal to achieve climate neutrality enshrined in its national legislation, but the main long-term guidelines are defined in the National Long-Term Development Strategy with Low Greenhouse Gas Emissions until 2050. The document provides for a reduction in greenhouse gas emissions in the range from -56.8% to -73.1% by 2050 compared to the level of 1990, excluding absorption (European Environment Agency, 2023). While the long-term one itself does not contain clearly expressed quantitative commitments to achieve climate neutrality, it forms the basis for the gradual decarbonization of the country's economy, in particular in the energy sector. Also, according to the National Energy and Climate Plan (NECP), Croatia has identified sectoral targets, primarily in the field of energy, which are key to achieving overall climate goals, although they remain indicative. Despite the availability of strategic documents, the lack of legally binding goals makes it difficult to assess the country's commitments in the context of the pan-European course towards climate neutrality by 2050.

Bulgaria currently does not have climate goals enshrined in legislation to achieve climate neutrality, but the country is gradually moving in this direction: in July 2024, the Climate Neutrality Roadmap was updated, which is based on the scenario report and recommendations prepared by the Energy Transition Commission in September 2023 (Grantham Research Institute on Climate Change and the Environment, 2023). This document outlines a long-term decarbonization strategy, but provides for the preservation of coal generation without restrictions until at least 2038. In addition, Bulgaria has not yet implemented the provisions of the "Fit for 55" package in its legislation (Reznikova, Grydasova, Medvedieva, & Matiushyna, 2024). There is also no mechanism

to guarantee the alignment of policy development with the achievement of national targets for 2030 and 2050, as well as tools for retrospective policy review of compliance with long-term climate targets.

Portugal has set a goal of achieving climate neutrality by 2050, with the possibility of accelerating this deadline by 2045. In the long term, the country plans to reduce greenhouse gas emissions by 90% compared to 2005 levels. To achieve these goals, intermediate targets have also been set: a reduction in emissions by 55% by 2030 and by 65-75% by 2040, excluding changes in land use and forestry (European Climate Neutrality Observatory, 2024). This approach demonstrates the country's strategic vision for sustainable development and the country's efforts to comply with the European Union's common climate commitments.

Spain has declared its intention to achieve climate neutrality by 2050. The current interim target calls for a 23% reduction in greenhouse gas emissions by 2030 compared to 1990 levels, but this commitment is not enshrined in climate law, it is part of the overall national climate strategy (European Climate Neutrality Observatory, 2024). The definition of the goal for 2040 is planned in the Decarbonization Strategy until 2050, which should become a long-term benchmark for ensuring a sustainable transition to a climate-neutral economy.

In today's conditions of climate instability and political fragmentation, an effective resource policy should not only meet the challenges of the energy transition, but also create a basis for strengthening interstate cooperation and solidarity, Dr. Mehrnoush Aryanpour, a researcher in the field of environmental law, rightly emphasizes (Aryanpour, 2024, p. 36). In this context, as Dr. Thomas Henkens and researchers Bill Anderson-Samways and John Hobby emphasize, traditional legal approaches to natural resources have largely focused on their conservation and management, however, in the context of achieving climate neutrality, these approaches must be transformed towards actively contributing to overcoming the climate crisis by introducing targeted legal mechanisms that ensure both sustainable development and rational use of natural resources, especially those that are limited in the context of the energy transition (Henkens, 2021; Anderson-Samways & Hobby, 2022).

According to the well-known Ukrainian scientists Maryna Medvedieva, Roman Yedeleev, Natalia Reznikova, Anton Nanavov and Hanna Gridasova, the study of climate neutrality on the European continent by analyzing the key areas of implementation of this goal in the national practices of the EU Member States has revealed the need to update the European climate strategy and legal instruments for its implementation, which is especially relevant in view of the growth of negative environmental trends, caused by anthropogenic impact, as well as due to the complexity of coordination of efforts between EU countries, due to differences in political and economic systems (Medvedieva, Yedeleev, Reznikova, Nanavov, & Grydasova, 2024).

Achieving the goals of climate neutrality requires not only an ambitious and rigorous implementation of the principles of a just energy transition by increasing the level of commitments in natural resources legislation, but also a rethinking of models of compliance with international obligations, since the current approach, based on self-determined goals and an optional control mechanism, as in the Paris Agreement, has proven to be insufficiently effective compared to agreements such as the Montreal Protocol or the Convention on international trade in endangered species of wild fauna and flora, which demonstrates higher efficiency due to the combination of soft support instruments with tough sanctions measures, in particular, the possibility of suspending trade privileges in case of violation of the terms of the treaty (Aryanpour, 2024, p. 37).

Professor Jos Delbeke, Honorary Director of the European Commission's Directorate-General for Climate Action and one of the architects of the European Green Deal, rightly points out: agreeing on goals alone does not guarantee their implementation, since the main challenge remains effective policy development and implementation in all sectors of the economy, including energy, transport and industry (Delbeke, 2024).

Conclusions. The European Union continues to play a leading role in global climate governance, forming a model of a normative and policy approach to achieving climate neutrality.

The enshrinement of the net zero goal by 2050 in the European Climate Law has been a key step in transforming climate goals from political declarations into legally binding commitments. However, despite the unity of the strategic benchmark, national approaches to achieving this goal remain fragmented both in content and in the level of legal specification.

Comparative analysis shows that EU member states show varying degrees of ambition, legislative detail and pace of decarbonization. Some states (including Finland, Sweden, Germany, Austria) have already set stricter time horizons for achieving climate neutrality, while others have not yet enshrined such obligations in national legislation. This creates risks of unevenness in achieving the pan-European goal.

From a systemic perspective, the attainment of climate neutrality in the European Union requires more than political commitment — it calls for ongoing regulatory transformation, enhanced interstate cooperation, equitable distribution of responsibilities, and robust compliance mechanisms, all underpinned by science-based, legally binding, and technologically feasible approaches.

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THE ROLE OF MEDIATION AND CONCILIATION IN THE INTERNATIONAL INVESTOR STATE DISPUTE SETTLEMENT

РОЛЬ МЕДІАЦІЇ ТА ПРИМИРЕННЯ У МІЖНАРОДНОМУ ВИРІШЕННІ СПОРІВ МІЖ ІНВЕСТОРАМИ І ДЕРЖАВАМИ

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Abstract: The rising role of the alternative dispute resolution, including mediation and conciliation, in commercial arbitrations had long been considered less prominent in the field of investor state dispute settlement. However, this attitude is gradually changing as all stakeholders show more interest towards alternative dispute resolution to overcome systematic challenges of the ISDS, including excessive costs and duration of investment arbitration. This article argues that this change is evidenced, *inter alia*, by adoption of the ICSID Mediation Rules in 2022. This article further tests the hypothesis of alternative dispute resolution's cost and time efficiency by analyzing available data on ICSID conciliation proceedings. It then reviews to which extent mediation and conciliation are envisaged in modern investment practice of Ukraine through a comprehensive review of all 65 bilateral investment treaties in force for Ukraine. Finally, it compares Ukrainian treaty practice against Ukraine's track-record of disputes with foreign investors to assess the practical role of alternative dispute resolution and establish potential obstacles to its wider use.

Keywords: ISDS, mediation, conciliation, investment arbitration, alternative dispute resolution, Singapore Convention, ICSID, ICSID Convention, ICSID Mediation Rules, ICSID Conciliation Rules, settlement agreement.

Анотація: Зростаюча роль альтернативного вирішення спорів, зокрема медіації та примирення, у комерційному арбітражі тривалий час вважалася менш помітною у сфері врегулювання інвестиційних спорів між державами та інвесторами. Однак ця позиція

поступово змінюється, оскільки всі зацікавлені сторони виявляють дедалі більший інтерес до альтернативного вирішення спорів з метою подолання системних викликів ISDS, включаючи надмірні витрати та тривалість інвестиційного арбітражу. У цій статті стверджується, що така зміна, зокрема, підтверджується прийняттям Правил медіації ICSID у 2022 році. Далі в статті перевіряється гіпотеза щодо ефективності альтернативного вирішення спорів з погляду витрат і часу шляхом аналізу наявних даних про процедури примирення ICSID. Також розглядається роль медіації та примирення у міжнародних угодах про захист інвестицій, шляхом всебічного аналізу всіх 65 чинних двосторонніх інвестиційних договорів України. Нарешті, українська договірна практика порівнюється з практикою вирішення спорів України з іноземними інвесторами для оцінки практичної ролі альтернативного вирішення спорів і визначення потенційних перешкод для його ширшого застосування.

Ключові слова: ISDS, медіація, примирення, інвестиційний арбітраж, альтернативне вирішення спорів, Сінгапурська Конвенція, Вашингтонська Конвенція, Правила Медіації ICSID, правила Примирення ICSID, угода про мирне врегулювання.

Introduction. Mediation, along with negotiations, conciliation and good services, is often contrasted with formal ‘judicial’ or ‘arbitral’ means of settling a dispute. These means of dispute settlement are often grouped together as Alternative or Non-Adjudicative Dispute Resolution (ADR) procedures. Unlike the former, ADR does not seek to resolve a dispute through binding judgement or award, but rather to bridge the gap between parties through facilitating a settlement agreement between them.

Mediation and conciliation have long been recognised among established means for peaceful settlement of international disputes in public international law, appearing in international treaties from the second half of 19th century (*Vicuña, F., Mediation, 2010*). Throughout 20th century, mediation and conciliation played an increasingly prominent role in the field of commercial and civil disputes before national courts. This trend spilled into arbitration of international commercial disputes. At the same time, ADR is often perceived as less common in investor state dispute settlement (ISDS). Yet, the developments of the past decade attest to a growing awareness and acceptance of ADR by arbitral institutions, governments and scholars in the field of the ISDS.

The purpose of this article is to analyse the recent change of perception towards mediation and conciliation in the ISDS with reference to available procedural options and ISDS reform discussed within UNCITRAL Working Group III. The article further focuses specifically on mediation and conciliation within the framework of ICSID. It then seeks to establish whether there is a reliable dataset to assess effectiveness of ADR as compared to investment arbitration, focusing primarily on ICSID Conciliation. Finally, it seeks to establish the role of ADR in Ukraine’s international investment treaty and international investment dispute resolution practice and analyse whether there is a room for its more active use.

Literature review. Mediation and conciliation of disputes between investors and states has not been specifically addressed in the Ukrainian scientific literature. On international level, there have been several studies reviewing alternative dispute resolution as part of investor state dispute settlement, most notably by Titi, C., Fach Goméz K., Dumanova, M., Neuburger, P., and Ubilava, A., which have been considered for this article. The issue of alternative dispute resolution, including mediation, has also figured in the work of UNCITRAL Working Group III, a leading international task force for potential ISDS reform. The authors have not encountered other studies addressing ADR under Ukrainian bilateral investment treaties specifically.

Main results of the research. In the realm of international commercial arbitration, mediation has for some time been recognized among the most popular and successful ADR methods. A recent report by a Task Force of the International Chamber of Commerce acknowledged a significant shift in the conceptual view on ADR’s and, particularly, mediation’s role in dispute settlement, stating that “the debate has now moved from whether arbitrators (and arbitral institutions) should take steps

to facilitate settlement, to how that should be done" (*ICC Report* (2023), p. 4). This transition is evident in the arbitration rules of major international arbitral institutions, with more and more of them mentioning some form of mediation, adopting separate mediation rules or even directly mandating parties to seek to settle their dispute through mediation while the arbitration is ongoing (*ICDR AAA Rules 2021, Article 6*). According to the recent study conducted by a task force of scholars, this shift largely coincides with the shift of expectations from commercial arbitration, where parties expect arbitrators to be more active in facilitating settlement (*Sussman E. (2021), Arbitrator Techniques*).

Another indication of the rising importance of dispute settlement is the United Nations Convention on International Settlement Agreements Resulting from Mediation (the Singapore Convention), which was adopted in 2018 and entered into force in 2020. The Convention was developed under the auspices of the UNCITRAL II Working Group. It seeks to promote mediation by creating an obligation for state parties to enforce settlement agreements resulting from mediation. The structure of the Singapore Convention echoes somewhat the structure and essence of the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the New York Convention). Like the New York Convention, the Singapore Convention seeks to promote internationally the binding nature of the outcome of the relevant procedure, namely an arbitral award in case of arbitration and settlement agreement in case of mediation (*Redfern, 2022*).

An interesting aspect of the Convention is that it defines mediation as "a process, irrespective of the expression used". This phrase hints to the initial name of the Singapore Convention, which used the term 'conciliation' instead of 'mediation'. For instance, UNCITRAL II Working Group initially used the term 'international commercial conciliation' in its working documents (*UNCITRAL WG II Note, 2015*). Thus, the terms conciliation and mediation may be viewed as interchangeable, which is further supported by modern academic writings (*Titi, 2019*). At the same time, as this article explains below, there is a significant difference between the terms in the context of ICSID dispute settlement infrastructure.

But can this increased interest to mediation in the context of commercial arbitration can also be registered in the field of the ISDS?

Returning to the Singapore Convention, it is quite telling that there are differing views about the Convention's applicability to mediation of investment disputes. The core of this controversy lies in the use of the term 'commercial' by the Convention, which, according to some commentators, may not cover the whole range of matters that come into play in investor state disputes. For instance, where regulatory measures of a state are challenged as discriminatory (*Kapoor, 2019*). This debate perfectly illustrates a somewhat less registerable familiarity of investment dispute settlement with mediation as opposed to commercial arbitration between business entities.

To better understand whether there is a visible trend for more interest to ADR in the ISDS, the authors have reviewed recent rules and recommendations on ADR adopted by various bodies. Thus, since as early as 2012 various arbitral institutions and professional groups, including the ICSID, UNCITRAL and International Bar Association, have published at least five different guides and sets of rules for mediation of disputes between investors and foreign states (*Dumanova, 2022*).

Further, UNCITRAL Working Group III, a leading scientific and policy task force for reforming the global ISDS regime, in 2020 noted a growing interest of the states to explore ADR, including mediation and conciliation, as an addition or substitute to arbitration and national courts in resolving investment disputes (*UNCITRAL WG III, Note on ADR, 2020*). Among the perceived benefits of mediation, the note included its cost and time effectiveness compared to arbitration. It further noted that mediation may be better suited for preserving ongoing relations between states and investors while disputes are decided through mediation. These benefits conform with those argued in the scientific literature, which further emphasizes mediation's higher flexibility, allowing parties to retain more control over the process and, accordingly, its costs and duration (*Ubilova, pp. 99-101*).

At the same time, the same UNCITRAL policy paper noted that publicly available data showed only anecdotal evidence of the use of mediation or conciliation in the ISDS, with most data

points coming from the conciliation cases administered by the International Centre for Settlement of Investment Disputes (ICSID). This is not surprising, given confidential nature of mediation. Since the ICSID maintains one of the most comprehensive datasets on ISDS, the article will primarily focus on the review of ADR's role within ICSID's framework.

The ICSID was established under the Convention on the Settlement of Investment Disputes between States and Nationals of the Other States (the ICSID Convention). One of the most important multilateral instruments in the field of ISDS, the ICSID Convention is predominantly known for creating the ICSID, establishing its jurisdiction, setting out the framework of arbitral proceedings and establishing a specific regime for enforcement of ICSID arbitral awards. A less well-known feature of the ICSID Convention is that it also provides, in its Chapter III, for a conciliation procedure.

Conciliation under Chapter III of the ICSID Convention is performed by an *ad hoc* Conciliation Commission, which is constituted in a way very similar to an arbitral tribunal, namely with one member or uneven number of members and each party having a right to appoint its conciliator (Article 29). The Conciliation Commission is expected to take a quite active role in the procedure, by *inter alia* deciding the issue of its own competence (Article 32) and performing its duty to clarify the issues in dispute between the parties (Article 34). At the end of the conciliation procedure the Commission draws up a report either recording that the parties have reached an agreement or have failed to do so (Article 34). These functions are not necessarily intrinsic to mediation procedure and are distinctive to the ICSID conciliation (Nitschke, 2021).

Despite being in place since 1969, the ICSID conciliation procedure has not obtained the same level of popularity as ICSID arbitration. According to the ICSID case statistics, there have been only 15 conciliation proceedings registered with the ICSID as opposed to 1,058 arbitration proceedings (data as of 1 May 2025).

In part because of this, and as further indication of a growing appetite for ADR in the ISDS, in 2022 the ICSID adopted a set of brand-new Mediation Rules, which exist in parallel with the Conciliation Rules and provide for a more flexible and informal procedure. The Mediation Rules do not require the mediators to clarify the issues in dispute or recommend terms of settlement. They further allow parties to withdraw from mediation at any time. In addition, the Mediation Rules present much less stringent applicability requirements both in terms of parties – they are open to parties regardless of an ICSID member state being party to a dispute, – and the nature of the dispute submitted (Titi, 2025).

Importantly, it is not mandatory for mediation to be mentioned in the relevant bilateral investment treaty or a contract between the state and investor – the investor and the state would be free to agree on mediation under the ICSID Mediation Rules on an *ad hoc* basis. On balance, an analysis of the ICSID Mediation Rules, as well as other comparable rules for mediation of investment dispute, e.g. UNCITRAL Guidelines on Mediation of International Investment Disputes, confirm that they provide for a very flexible, informal procedure, that, unlike arbitration, depends primarily on the will of the parties to find a compromise and encourage them to do so (UNCITRAL Mediation Guidelines, 2024).

Thus, with the ICSID Mediation Rules the ICSID created a separate ADR procedure, which is not directly envisaged under the ICSID Convention. It can be included by the states into their international treaties on protections of investments or agreed by the parties to the dispute, namely a foreign investor and a host state, on an *ad hoc* basis.

Returning to the ICSID Conciliation, this article further reviews data on ICSID Conciliation cases as one of the best available datasets on use of ADR in the ISDS. To better understand the abovementioned discrepancy in numbers between ICSID arbitration (1,000+) and conciliation (15), this article reviews publicly available case details for 10 conciliation proceedings that ended with the issuance of a Conciliation Commission's report under Article 34 of the ICSID Convention (Table 1).

Table 1

No.	ICSID Case No.	Respondent party	Instrument invoked	Duration, days
1.	No. CONC/23/1	Guatemala	Bilateral investment treaty	364
2.	No. CONC/20/1	Papua New Guinea	Contract	261
3.	No. CONC/19/1	Cameroon	Contract	781
4.	No. CONC/18/1	Gabonese Republic	Contract	173
5.	No. CONC(AF)/12/2	CMS Energy Corporation	Contract	1,047
6.	No. CONC/11/1	Cameroon	Contract	631
7.	No. CONC/07/1	Central African Republic	Contract	366
8.	No. CONC/05/1	Republic of Togo	Contract	321
9.	No. CONC/94/1	Madagascar	Contract	767
10.	No. CONC/83/1	Trinidad and Tobago	Contract	824

An important caveat before reviewing this data is that one should keep in mind the differences between the ICSID Conciliation and Mediation explained above. Unfortunately, there is no publicly available data on the number, duration or other procedural details of ICSID Mediation proceedings, although it is clear from publicly available information – e.g. press releases of law firms and state authorities, – as well as from scholars in the field, that there has been some number of investor-state mediation proceedings (*Titi, 2025, p. 167*). With respect to the ICSID Mediation Rules, given that these were adopted only in 2022, even if the statistics were published by the ICSID, they might have been inconclusive due to short term of Rules' operation.

With this said, the authors can note the following points with respect to the statistics above.

First, in all cases but one the states acted as respondents and only in one the state acted as a claimant. Further, in all cases the respondent states were developing countries from Africa or Latin America. Both points are generally in line with the popular criticism of the ISDS as predominantly targeting developing states as respondents (*Beaumont, Future of ISDS, 2024*) (*UNCITRAL WG III, 2018*). This is in general not surprising to the authors, since it could be expected that investors predominantly come from developed, capital-exporting states.

The second point is quite a significant length of the proceedings. As the table above indicates, most cases lasted for more than a year, with an average duration of approximately 1.5 years (554 days), while at least three cases lasted for more than two years. This duration may be viewed as going against a common perception mentioned above that the ADR provides a “fast-track” dispute resolution. Still, the duration is considerably shorter than the average duration of investment arbitration, which according to a recent comprehensive study counts at above four years (*Hodgson, Empirical Study, 2021*). Furthermore, one must keep in mind that ICSID Conciliation proceedings are more rigid and formal than mediation, which may also contribute to somewhat longer duration.

The third point, or rather an observation, is that the reviewed ICSID Conciliation proceedings quite often involved prominent arbitrators acting as conciliators, thus further blurring the line between arbitration and conciliation. A notable example is Case No. CONC/23/1 *APM Terminals Management Barcelona, S.L.U. v. Republic of Guatemala* where Yves Derains acted as the head of the Conciliation Commission (*ICSID Case No. CONC/23/1*). This could have been expected, given that states often nominate the same individuals as arbitrators and conciliators to the respective lists of arbitrators and conciliators maintained by the ICSID. Furthermore, in most cases the parties

engaged major international law firms to represent them, implying that the conciliation proceedings might have resulted in significant legal costs.

Another important consideration from the data reviewed is the link between ADR procedures and the provisions of international treaties on protection of investment. ICSID conciliation data demonstrates that all but one of the cases reviewed arose out of an investment contract, and not under a bilateral investment treaty (BIT). This corresponds to an established doctrinal view that most ‘old-generation’ BITs did not provide for mediation or conciliation at all. Rather, the alternative dispute resolution options in them were limited to obligatory pre-arbitration negotiations during cooling-off period (*Ubilava, 2023, p. 5*). This leads to the next topic the authors seek to explore in this article, namely the place of the ADR procedures in the treaty and ISDS practice of Ukraine.

For the purposes of this article the authors conducted a survey of 65 BITs currently in force for Ukraine to establish to which extent ADR – be it mediation or conciliation – figures in the treaty practice of Ukraine. The findings are as follows.

First, none of the BITs reviewed directly exclude the possibility of or prohibit an investor and state from agreeing to submit their dispute to an amicable settlement procedure, including through mediation or conciliation.

Second, all Ukrainian BITs provide for a cooling-off period, most frequently of three or six months. Most BITs require investors and states to conduct ‘negotiations’ or ‘consultations’ during this period. At the same time, several BITs provide, instead, for ‘amicable settlement’ during this period, including BITs with Spain (1998), Panama (2003), United Arab Emirates (2003), Albania (2002), Saudi Arabia (2008), Oman (2002), Kuwait (2002) and Quatar (2018). The term ‘amicable settlement’ is broader than ‘negotiations’ and ‘consultations’ and can be construed to include ADR procedures involving neutrals, such as mediation and conciliation. The BIT with Belgium and Luxembourg (1996) goes even further and provides that during the cooling-off period the investor and the state “shall endeavour to settle the dispute through negotiations, if necessary, by seeking expert advice from a third party”. Quite curiously, the BIT with Egypt (1992) also provides for amicable settlement of investment disputes, but not between investor and the state, but between state parties to the BIT.

Third, several BITs directly provide for conciliation as one of the dispute settlement options. This category of BITs either refers to the ICSID Conciliation – BITs with Indonesia (1996), Jordan (2005) and Singapore (2006), – or to conciliation in general without reference to ICSID Conciliation – BITs with Israel (2010) and Belgium and Luxembourg (1996). Finally, only one BIT requires conciliation as a mandatory pre-condition to arbitration, namely the BIT with Brunei Darussalam (2004).

Fourth and finally, several BITs directly provide that an investor and the state may choose to start an amicable settlement procedure – which can be interpreted to include mediation or conciliation, – at any point in time, including after the dispute is submitted to arbitration. This category includes BITs with the Netherlands (1994), Denmark (1992), Uzbekistan (1993) and Vietnam (1994).

Several conclusions can be drawn from this analysis. Although no BIT contains a direct reference to mediation, neither does any BIT directly prohibit it or make it incompatible with the general dispute settlement regime under it. Parties still could agree on mediation in line with their general autonomy. Further, a limited number of BITs envisage amicable settlement, including potentially mediation and conciliation, during the cooling off period or at any time during the dispute. The latter category is closest to contemporaneous BIT practice, which often directly refers to amicable settlement at any time during a dispute. For instance, the Netherlands Model BIT provides at Article 17(1): “Any dispute should, as far as possible, be settled amicably through negotiations, conciliation or mediation. Such settlement may be agreed at any time, including after

proceedings under this Section have been commenced”. Finally, only one BIT provides for mandatory conciliation as a pre-condition to adjudicative dispute resolution.

This can be compared to the categories proposed by recent study conducted by the ICSID and covering more than 900 BITs, free trade agreements and other relevant international treaties covering investor protections (*ICSID 2021 Study*). The study proposed five categories of dispute resolution clauses: directing to seek amicable settlement during cooling-off period; encouraging mediation during cooling-off period, expressly permitting mediation prior to arbitration; expressly permitting mediation at any point in time; and clauses mandating mediation prior to arbitration. It can be concluded that only several Ukrainian BITs fall into any of the categories proposed in the ICSID study.

Thus, Ukrainian BITs in general do not prohibit or, in limited instances, encourage mediation and conciliation. This approach seems expected given that most of the BITs reviewed were signed before 2010s and thus represent ‘old generation’ treaties, concluded when there was no upward trend on the use of mediation in the ISDS. Our review also emphasized a lack of consistent treaty practice by Ukraine, which has never developed or adopted a Model BIT, resulting in the variety of different substantive and procedural provisions across its BITs.

While modernisation of Ukrainian BITs is certainly an important policy objective, their current state in itself does not create serious obstacles to the ADR, including mediation. At the same time, the lack or positive provisions requiring or suggesting mediation means that mediation proceedings would be possible only based on an *ad hoc* agreement between an investor and a host state.

It is further of interest to see how this neutral stance towards amicable settlement procedures in treaty practice correlates with Ukraine’s track record in disputes with foreign investors. According to UNCTAD, out of 33 recorded investment disputes against Ukraine (the actual number is most likely higher, since due to confidentiality some proceedings may not have been publicly recorded) four ended with settlements. One of them (*Gazprom v. Ukraine*) was part of a global settlement between Gazprom and Naftogaz. Three others were achieved in cases of *Laskaridis Shipping v. Ukraine*, *Lemire v. Ukraine (I)* and *Wetern NIS v. Ukraine (UNCTAD ISDS database)*. All three settlements were concluded during pending arbitral proceedings, with the latest of them in 2007. Interestingly, all three cases arose under two BITs – two under the BIT with the USA and one with Greece – neither of which provides for mediation or conciliation. While it cannot be ascertained from public domain whether any of these settlements was reached after mediation / conciliation, or following negotiations, the authors have not found any public reference of Ukraine’s participation in such proceedings.

Thus, mediation does not seem to be a common practice in resolution of disputes with foreign investors by Ukraine. This situation can be attributed to the provisions of Ukraine’s BITs only to a certain extent. Since they are often neutral on mediation and do not prohibit it, the lack of mediation in practice may rather signify parties – investors’ and or state’s – reluctance to submit dispute to mediation or conciliation. One also cannot exclude that reluctance to mediate may be caused by extra-legal circumstances, for instance political position with respect to certain investors, especially if they are from states conducting armed aggression against Ukraine.

While it is hard to gauge foreign investors’ views on mediation, this aligns with a shared view of scholars that states are often reluctant to actively adopt mediation. First, mediation requires a higher degree of flexibility and commercial sensibility than arbitration. Reaching a settlement with foreign investor may have negative public perception and even lead to further investigations, especially after changes in political establishment. Second, in many states there is no single state body authorised to mediate with investors, or its authority to mediate may be significantly limited (*Titi, 2025, 167-168*).

However, at least the second perceived obstacle is not fully applicable to Ukraine. Presidential Decree No. 581/2002 is the main legal source setting out the rules for representing Ukraine before ‘foreign’ forums, which covers also disputes with foreign investors under the BITs. Apart from clearly establishing competent body – the Ministry of Justice of Ukraine, – the Decree clearly

establishes the Ministry's authority to participate in amicable settlement, pay the fees of a conciliator and sign (subject to the approval of the Cabinet of Ministers of Ukraine) a settlement agreement. One potential drawback of the Decree is that it seems to treat the conciliation or other amicable settlement as available only before the commencement of the formal arbitral or judicial proceedings. At the same time, it does not prohibit signing settlement agreement at any other point in time (as is confirmed by settlements achieved by Ukraine and referred to above).

In case of Ukraine, further factor that may influence the way Ukraine approaches disputes with foreign investors is the general lack of strong legal tradition of mediation in Ukraine, with Ukraine's first ever Law on Mediation being adopted only in 2021. In the authors' opinion, the development of state authorities' understanding of relevant amicable procedures and capacity to implement them seems to be a more achievable goal than amendment of Ukraine's BITs. Thus, based on the conclusions above (namely that Ukrainian BITs do not prohibit mediation) Ukrainian authorities could proactively propose to agree mediation to a foreign investment either during or after the cooling off period under a BIT. This could potentially increase the use of mediation and help manage state's exposure to costly arbitrations with the risk of unfavorable monetary awards.

Conclusions: Recent adoption of several ISDS mediation rules, including, most prominently, the 2022 ICSID Mediation Rules, attests to a growing interest for the ADR in the ISDS from relevant stakeholder, including states. This interest is expressed *inter alia* through the work of UNCITRAL Working Group III. In a similar way, leading sentiment in academia also favours wider adoption of ADR, including mediation and conciliation, as a solution against perceived drawbacks of the ISDS, including its costs and duration. This trend can further be traced in recent BITs, often providing for mandatory or voluntary mediation. Limited and anecdotal evidence of mediation, due to its confidential nature, does not allow for the same degree of empirical statistical studies as are available for investment arbitration to clearly assess mediations' benefits. However, even a small dataset of ICSID Conciliation cases reviewed in this article, despite the rigidity of this procedure, shows its shorter duration compared to arbitration.

Ukrainian BITs, while predominantly remaining ambivalent to the ADR, do not exclude it subject to an agreement between the parties to the dispute. Ukrainian authorities are specifically authorized to enter into ADR proceedings with foreign investors and conclude settlement agreements with them. However, Ukraine's track-record in investment disputes shows that ADR remains a *de jure* possible, but *de facto* neglected option. Changing this trend would require a more pro-active and commercially oriented approach from both investors and the state, without necessarily changing the existing network of Ukraine's BITs (a daunting task for a state in the middle of a war).

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ОСОБЛИВОСТІ РОЗВИТКУ СВІТОВОГО ГОСПОДАРСТВА ТА МЕВ

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MODERN FINTECH BUSINESS MODELS OF INDUSTRY 4.0

СУЧАСНІ ФІНТЕХ БІЗНЕС-МОДЕЛІ ІНДУСТРІЇ 4.0

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Abstract. This article is devoted to the current aspects of the development of global payment systems and mechanisms based on artificial intelligence, blockchain, BigData, etc. The article analyzes the relevance of implementing alternative payment models not only due to convenience for consumers, but also due to the possibility of reducing payment processing costs for business structures. The study examines innovations related to the use of robo-advisors, which are part of a broader approach to digitization in the fintech industry, which today makes access to asset management much more efficient and less costly. It is emphasized that the significantly lower commissions provided by robo-advisors in their offers contribute to greater accessibility of investment services for a wide range of market agents. The article establishes that the advantages of crowdfunding models are the democratization of finance, the rapid involvement of millions of users in financing specific projects, and the ability to provide small investors with access to opportunities that were previously unavailable to the startup and real estate sectors. It has been researched that if crowdfunding campaigns and their platforms want to compete with banks, venture capitalists, and other reputable financial institutions, they must implement a robust infrastructure and ongoing monitoring, effective credit scoring methods, or rigorous verification tools.

Key words: fintech, business model, digital payment solutions, alternative payment systems, robo-advisor, crowdfunding, credit algorithm, artificial intelligence.

Анотація. Стаття присвячена актуальним аспектам розвитку глобальних платіжних систем і механізмів на основі штучного інтелекту, блокчейну, BigData тощо. У статті аналізується актуальність впровадження альтернативних платіжних моделей не лише

через зручність для споживачів, а й через можливість зменшити витрати на обробку платежів для бізнес-структур. У досліджені розглядаються інновації, пов'язані із використанням роботів-консультантів, які є частиною більш широкого підходу до оцифрування у фінтех-галузі, що сьогодні робить доступ до управління активами значно ефективнішим і менш витратним. Акцентується, що значно нижчі комісії, що надають у своїх пропозиціях роботи-консультанти, сприяють більшій доступності інвестиційних послуг для широкого спектру ринкових агентів. У статті встановлено, що перевагами краудфандингових моделей є демократизація фінансів, швидке залучення мільйонів користувачів до фінансування конкретних проектів і здатність надавати дрібним інвесторам доступ до можливостей, які раніше були недоступні сферам стартапів і нерухомості. Досліджено, що якщо краудфандингові кампанії та їх платформи хочуть конкурувати з банками, венчурними інвесторами та іншими авторитетними фінансовими організаціями, вони повинні впроваджувати міцну інфраструктуру та постійний контроль, ефективні методи кредитного скорингу або суворі інструменти перевірки.

Ключові слова: фінтех, бізнес-модель, цифрові платіжні рішення, альтернативні платіжні системи, робот-консультант, краудфандинг, кредитний алгоритм, штучний інтелект.

Introduction. Over the past decade, the global FinTech sector has emerged as a powerful transformative force in financial services, driven by digital innovation and unique platform services and content. The global FinTech market is projected to grow from \$215.3 billion in 2022 to approximately \$751.5 billion by 2032, at a compound annual growth rate (CAGR) of 18.5% from 2023 to 2032 [CMI Consulting LLC, 2024]. The global FinTech investment market is projected to grow at an average annual growth rate of 13.11% (2023 to 2027) to reach a total value of \$5.27 trillion by 2027 [McKinsey & Company, 2023]. The development of cognitive automation technologies and the ever-growing set of online and application-based services are currently the most important factors contributing to the development of the global fintech industry market. It is characterized by high scalability and focus on digital interfaces (primarily mobile applications) in contrast to traditional banking platforms, and its individual areas of development include, in particular, alternative payment systems, social trading, fintech lending, personal finance management, factoring, crowdfunding, robo-consultants, BigData/AI/ML/blockchain technologies, venture financing, cryptocurrencies, and others. In these areas, on the one hand, fintech companies are constantly improving their business models in the context of simplicity and accessibility for real and potential consumers, and actively attracting customers to alternative payment methods for services. This contributes to reducing costs and increasing market monetization and liquidity, profitability based on innovative fintech solutions and increasing competitiveness. On the other hand, there is a growing combination of related technologies and financial services, which leads to a gradual blurring of traditional boundaries between market sectors and even individual industries, modification of the financial environment due to changing approaches to interaction with traditional and new financial products. That is, by introducing innovative fintech business models into various segments of the financial market, companies are adapting to the high-tech markets of modern Industry 4.0.

The purpose of the article is to study the features of the transformation of business models of the modern fintech industry in the context of the digitalization of the global ecosystem and the formation of new concepts of business development.

Literature review. In recent years, the number of works by foreign economists devoted to the issues of the fintech industry in general and its individual segments in particular has increased [Rubini, 2019; Brown, 2020; Chishti *et al.*, 2020; Sieber & Guibaud, 2022]. The relevance of fintech problems has led to a high interest in this topic among Ukrainian scientists in recent years. Thus, the authors study the theoretical aspects of fintech, its advantages and risks [Smahlo, 2023; Babenko, Vovk & Marchenko, 2024], current trends in the fintech industry and the volume of global

investments in various fintech sectors [*Stavers'ka, Lysak & Prykhod'ko, 2023*], and also analyze the domestic fintech ecosystem in the context of its insufficient development and propose a number of measures to improve its condition [*Obushnyy, Arabadzhyy & Kostikova, 2023*]. However, the dynamism, versatility and globality of the development of modern fintech technologies necessitates further research in this area in the context of the transformation of business models, hybrid approaches, platform thinking and algorithmic management based on BigData, AI and ML.

Main results of the research.

1. Alternative payment models of the modern fintech industry.

Alternative payment models (APM) play a key role in the modern financial industry, transforming the way financial transactions are made and providing consumers with more convenient and secure payment options. In fact, they are new financial tools and technologies that allow payments to be made outside of traditional banking channels and credit cards. These include digital wallets, mobile payment applications, biometric payment systems, online lending, mobile banking, as well as platforms that allow money transfers via *QR* codes or contactless technologies. They have become an important part of the modern financial environment, providing consumers with convenient and flexible payment options that meet the requirements of the digital age. For example, *Worldpay* reports a projected growth in the use of digital wallets from 15% in 2023 to 31% by 2027, while debit transactions at points of sale are expected to decline from 28% in 2023 to 23% in 2027 [*Imarc, 2024*]. In 2024 alone, the global financial market processed digital payments worth \$11.55 trillion (China has the highest cumulative transaction value – \$3.74 trillion) [*Duarte, 2024*].

The relevance of implementing APM is due not only to convenience for consumers, but also to the possibility of reducing payment processing costs for business structures. First, they significantly reduce transaction times and simplify access to financial services, especially for those who do not have bank accounts. Second, they often offer lower or no fees compared to banking systems. Third, such solutions provide better integration with other digital services, such as e-commerce and mobile applications. At the same time, although traditional banks remain important due to their reliability, regulatory mechanisms and the ability to provide a wide range of financial services, these innovations lead to the loss of market share, as more and more customers prefer fast and affordable payment solutions without the involvement of traditional financial institutions. This forces them to review their business models and implement new technologies in order to remain competitive in a rapidly changing financial environment. According to *Ginger research*, in 2024, 51.7% (2020 – 44.5%) of all payment transactions were made via alternative payment methods in physical retail outlets and in the online environment, which is a significant challenge for traditional banking institutions. Given these statistics, alternative payment methods have now become a traditional choice for both consumers and companies, which has a positive impact on conversion and sales [*Interkassa, 2024*].

The APM market is currently represented by a number of powerful players that use innovative business models to provide financial services. *PayPal*, as one of the most well-known in the online payments industry, offers solutions for both e-commerce and interpersonal transfers thanks to its development strategy through strategic partnerships. Having created a powerful team of specialists (*Elon Musk's X.com*, *Peter Thiel's Confinity* and *Roelof Botha's Sequoia Capital*), the company moved from using the main payment service on the eBay platform to its own independent business model. Today, it operates on the basis of payment solutions for mobile applications, e-commerce websites, electronic money transfer services and cross-border transfers through international platforms. The key advantages of *PayPal* are, firstly, the implementation of protection for buyers and sellers, which has ensured a high level of user trust; secondly, the linking of consumer accounts to a bank account or credit card, which allows for direct transactions; third, the availability of alternative payment methods, including using a *PayPal* debit card for purchases or withdrawing cash from ATMs; fourth, compensation for the full purchase price along with shipping costs if the product has not been delivered or is significantly different from the seller's description; fifth, access to the standard functionality of the platform, however, each of the three main categories of users

(private customers, business customers and partners and developers) has specific capabilities and limitations. *PayPal* currently accounts for 59% of the total number of alternative payments, followed by *MyBank* with 25%, and *Klarna's Sofort* occupies 3% of the total number of charges using methods other than credit cards [Rolle, 2023].

Another market leader is *AntFinancial* (a subsidiary of *Alibaba*), which operates the *Alipay* platform and offers users not only the ability to make payments, but also a wide range of financial services, such as investments, asset management and lending. *Alipay* is integrated with *Alibaba*'s e-commerce platform, which provides the platform with a stable flow of users through mobile payments, which is especially important for businesses that sometimes cannot invest in expensive *POS* terminals and have only accepted cash. For example, in China, with a population of \$1.37 billion, more than half of the population has access to the Internet, and more than 99% use mobile devices. Taking advantage of this, *Alipay* uses a wide range of financial services in its *Alipay Wallet* mobile application. All transactions between consumers and entrepreneurs are carried out on a *P2P* basis without additional fees, and small and medium-sized businesses in China use a simple payment mechanism by printing unique *QR* codes leading to their electronic wallet and showing them to customers [Celestin & Sujatha, 2024]. The *WeChat Pay* payment service of the Chinese technology company *Tencent* combines a messenger (messaging), a social network and many services, including mobile payments (payment for purchases and travel in transport, money transfers) with differentiation of services for users under 18 and over 60 [Abis, Pia & Limbu, 2025].

The business model of the Dutch fintech company *Adyen* is based on a single global payment platform that provides all stages of transaction processing: from payment initiation to its authorization and settlements. It provides the capabilities of comprehensive payment solutions, changing the traditional model of payment processing services, offering services for both online businesses and physical points of sale, which allows companies to easily integrate mobile and contactless payments. Its main functions are: a) organization of customer-oriented workflows that combine product development, technical support and sales, helping the company to constantly improve its platform; b) cooperation with large international companies, in particular through a partnership with *Microsoft Dynamics 365*, which allows it to provide payment services to a wide range of customers; c) risk management to prevent fraud, process payments, communicate between customers' and merchants' banks, and conduct final settlements [Harris, Douglas & James, 2022].

PayPal, *Adyen* and *Alipay* systems objectively change, on the one hand, traditional banking models related to account management, payments and financial advice. On the other hand, making important financial decisions and Personal Finance Management (PFM) services, which help users better understand their financial habits, analyze expenses and plan their budget more effectively. The business model of the Swedish company *Klarna* is based on: 1) providing consumers with flexible financial options that allow them to buy goods now and pay for them later (deferred payments in e-commerce), 2) the absence of interest or commissions for standard payment options (only the seller pays them for the transaction, and it consists of a fixed and variable part), 3) methods of purchasing in installments and forms of crediting. Its model has become especially popular among young people who appreciate the possibility of flexible financial solutions without traditional banking services, increasing the conversion rate of visitors to buyers in online stores by 30% when using *Klarna* payment services [Dragt, 2018].

A key trend in the fintech sector is the use of AI and BigData analytics in payment solutions, which allows financial companies to more effectively assess user behavior, predict their needs, and offer personalized financial services. For example, *Alipay* uses big data-based algorithms to ensure transaction security and analyze user creditworthiness. AI is also used to detect fraudulent transactions in real time and optimize payment processing processes. Platforms such as *Klarna* use machine learning (ML) algorithms to assess risks and provide flexible credit solutions to consumers during online shopping. This not only meets the modern needs of consumers, but also provides a significant increase in the efficiency and security of financial transactions, opening up new opportunities for businesses to create competitive financial services that meet the requirements of

the modern digital market [Cao, Yang & Yu, 2021; Alcazar, Leyton-Ortega & Perdomo-Ortiz, 2020].

Financing startups in the payments industry largely depends on the support of venture capital, which plays a key role in the development of fintech companies. Investors see significant potential in the APM sector due to the rapid growth of e-commerce, the spread of mobile technologies and changing consumer habits. Venture capital allows startups to raise funds to develop innovative solutions, expand their customer base, enter new markets and integrate advanced technologies such as AI and BigData. Since traditional banking institutions are often constrained by regulatory requirements and conservative approaches to financing, venture funds are becoming the main sources of financing for fintech companies. Examples of large investments in the APM sector demonstrate the active interest of venture investors in this segment. One of the most notable examples is *AntFinancial*, which raised over \$14 billion in a single financing round, which became a record for the fintech sector. Western companies are also demonstrating similar successes. *PayPal*, still in its early stages of development, raised over \$200 million in five rounds of funding before going public. *Stripe*, one of the most successful payment processing companies, raised \$600 million in venture capital in a single funding round in 2020, giving it a multi-billion dollar market valuation.

An important aspect of attracting venture capital is the ability of startups to demonstrate innovative business models and the prospect of scaling. For example, according to *Market Data Forecast*, in 2024, about 30,000 fintech startups were launched in the global fintech industry and digital payments totaling \$11.55 trillion were made. [*Market Data Forecast*, 2024] Companies such as *Klarna*, which specializes in deferred payments, and *Adyen*, which offers a single platform for processing electronic payments, have received significant support from investors due to their unique solutions and growing demand for their services. Active financing of fintech companies highlights the importance of innovation in the payments sector and their ability to transform traditional financial services. However, despite the fact that fintech companies attract billions in venture capital, their funding is still relatively small compared to the multi-billion dollar technology budgets of traditional banks. While big banks have the theoretical ability to replicate, acquire, or outperform fintech companies, in practice many fintech companies have established innovation leadership that makes them difficult to replace. *PayPal* is an example of how you can consolidate your market position without letting banks regain lost share.

Innovative solutions to modern payment technologies often face three important challenges. First, there is a lack of appropriate infrastructure, which slows down the pace of new innovations. Many new payment methods require additional hardware or software that may not yet be widely available to both consumers and merchants. Second, there is trust and acceptance by consumers – they need to feel confident with any new technology before they trust it enough to use it regularly. If there are security or privacy issues associated with using a particular service (e-commerce site hacking; data leaks), then consumer adoption of the new service will also suffer. Third, there is technological integration – if one company develops an innovative product and another cannot integrate it into its existing systems easily enough (or at all), then there will be little incentive to adopt that product [*Payomatix*, 2023]. These problems need to be addressed, especially in the context of the fact that, according to the forecast, the total value of transactions in the global digital payments market in 2025 will reach \$20.37 trillion US dollars and will grow annually (CAGR 2025-2029) by 15.90%, which will lead to a projected total of \$36.75 trillion US dollars by 2029. At the same time, the largest segment of the market is mobile POS payments with a projected total value of transactions of \$12.56 trillion US dollars in 2025 [*Statista*, 2025].

Indeed, APMs have significantly transformed the financial industry, offering consumers and businesses convenient and secure options for making transactions through mobile technology, e-commerce, and biometrics. Payment platforms (such as *PayPal*, *Alipay*, *WeChat Pay*, *Adyen*, and *Klarna*) are actively using innovative business models and technologies that allow both to ensure a high level of transaction efficiency and security, and to facilitate the integration of financial services with other digital services (reducing costs, increasing the speed of payment processing, and

increasing the availability of financial services to a wider range of consumers). Mobile payments, peer-to-peer payments, digital wallets, blockchain-based payments, contactless payments, and biometric authentication are just some of the fintech innovations that have revolutionized the payments industry. Fintech companies will play an increasingly important role in the payments industry as consumers continue to demand more seamless and integrated payments. As the payments landscape evolves, fintech firms will become increasingly important in driving innovation and shaping the future of payments. While these innovations carry risks, the benefits they bring are too significant to ignore [Chaklader, Gupta & Panigrahi, 2023].

2.Robo-Advisors as a model of cognitive automation of fintech services

Innovations related to the use of robo-advisors (RAs) are indeed part of a broader approach to digitization in the fintech industry, which today makes access to asset management much more efficient and less expensive. First of all, we are talking about significantly lower commissions provided by robo-advisors in their offers, which contributes to greater accessibility of investment services for a wide range of market agents. In addition, traditional financial advice is associated with high minimum investment requirements and costs, which makes it impossible to work with small and medium-sized businesses and investors operating with small amounts of capital. The growth of interest in robo-advisors occurs in parallel with the ongoing transformation of the financial ecosystem through financial technologies. Thus, the global robo-consulting market is projected to grow at a 19.2% CAGR from 2021 to 2028 due to the increasing demand for low-cost investment solutions and the development of digital wealth management [CEO Review, 2023]. Until now, there have been a number of traditional asset management strategies, each of which has its own advantages and certain disadvantages. Thus, the most commonly used model was the “natural” model, when financial analysts make decisions about various investments based on their own experience, market research, individual outsourced consultations, active portfolio management and personalized strategies for each client. However, access to such “traditional” services is very limited due to their high cost and minimum capital requirements for many potential investors. Today, in contrast to the traditional approach, automated RAs have appeared, which completely replace human analytics with algorithmic models. Services such as *Betterment* or *Wealthfront* provide clients with ready-made investment solutions based on mathematical models, risk analysis and historical data. They offer low commissions, minimum initial capital requirements and ease of use, which makes them attractive to a wide range of users. Therefore, currently fully automated platforms are suitable for passive investing, where the main goal is stable long-term growth without constant investor intervention.

A separate category is hybrid models that combine algorithmic asset management with human advice – a balance between the efficiency offered by technology and automation and the experience that most investors prefer. For example, the Vanguard Personal Advisor Services model uses algorithms to generate basic investment strategies and personal financial advisors for clients who can help with more complex issues such as tax planning or managing retirement savings. A variation of this model is the “self-service model for experienced investors”, whose services provide a platform for asset management, but without automated recommendations or advice. At the same time, it is attractive to those investors who have enough knowledge and want to have full control over their investments without additional consulting or management costs [Vanguard Personal Advisor Review, 2025]. That is, users can make decisions independently, using available analytical tools and dashboards.

Thus, the modern RA market, on the one hand, is heterogeneous and offers different options for different investors with different experience, financial capabilities and expectations from asset management. Some models rely on full automation and accessibility, others retain elements of personalized service, and some offer the platform only as a tool for independent work. Regardless of which approach is considered, all of the above models indicate the growing role of technology in providing financial advice and a slow but sure revision of traditional ways of managing one's own capital. On the other hand, it is represented by companies with quite different business models and

strategic focuses: some are focused on full automation of the investment process, others combine algorithmic solutions with human management, and still others try to find a balance between efficiency and an individual approach.

The most prominent representatives in this segment are *Betterment* and *Wealthfront*, which were among the first to offer fully automated investment management. Today, their services include: a) situational analysis of the client's financial situation, which combines robo-advice with personal financial planning b) assessment of the acceptable level of risk, c) portfolio formation based on passive investment strategies (minimizing costs and automatic portfolio balancing), d) intuitive interfaces that allow their clients to easily monitor their assets without in-depth knowledge of financial markets. *Betterment* and *Wealthfront* use optimization models based on modern portfolio theory, developed by Harry Markowitz, which minimizes risks at a certain level of profitability that investors expect. At the same time, RAs automatically perform operations related to finding the optimal balance of assets and portfolio rebalancing, which eliminates human errors and emotional decisions, which often do a disservice to long-term investments [Suknanan, 2023]. Other companies, such as *Personal Capital* and *Scalable Capital*, not only help clients build an investment portfolio, but also provide comprehensive financial advice, including retirement planning, taxes, and cost optimization. Complex risk management algorithms are used to create more adaptive portfolios depending on market conditions (dynamic asset allocation, which adjusts depending on the volatility of financial markets). This allows clients not only to minimize risks, but also to obtain more stable results in the long term, and also makes these platforms attractive to those who plan to take advantage of the technological advantages of automated solutions, but at the same time do not abandon the traditional approach to financial management. *Schwab Intelligent Portfolios* positions itself as the “lowest cost of service company”, offering clients free portfolio management without additional traditional fees. It receives income from other financial mechanisms, such as margin accounts and interest income from held monetary assets, which makes it attractive to investors looking for affordable ways to manage their finances without additional costs [Yakal, 2022].

Thus, the RA market is represented by companies with quite different business models and approaches to organizing work - some focus on full automation of processes, others combine algorithmic solutions with human participation, and still others offer special models focused either on risk management or on cost reduction. That is, automated investment management can no longer be considered a homogeneous sphere, but is developing in different directions, based on the needs of different categories of investors.

Analysis of financial data using a system of complex BigData, AI and ML algorithms forms investment portfolios and, finally, issues recommendations that were previously carried out directly by financial consultants-staff of companies. In addition to financial accessibility, the advantage of RA is also the speed and efficiency of data processing (in the case of human consultants, there are limitations in their cognitive abilities and the number of clients they can serve). Human advisors, like investors themselves, can be guided by emotions, be prone to making unreasonable financial decisions due to feelings of panic, greed and other psychological states. An automated investment advisor based on AI and ML, firstly, works according to logical algorithms that allow you to adhere to an investment strategy without emotional pressure, which contributes to reducing risks and stable growth of assets in the long term. Secondly, it quickly analyzes significant amounts of financial information in real time and makes adjustments to the corporate portfolio in accordance with changes in the market. This is very important in the conditions of high dynamics and unpredictability of the modern financial market. Thirdly, it performs a powerful function - personalization of investment approaches based on analysis of user behavior, risk level, financial goals and other parameters. That is, a personalized investment portfolio is created, according to which each client receives the most relevant recommendations, which increases the efficiency of asset management. Therefore, their convenience and efficiency at a relatively low cost create demand from almost all segments of consumers and segments of the population, especially young people who are accustomed to digital technologies.

Indeed, RAs use complex algorithms that analyze macroeconomic indicators, the client's risk level and his financial goals to create an optimal portfolio. By their nature, most RAs invest passively in a diversified portfolio – they do not try to outperform the market through active management, but instead seek to replicate its dynamics, reducing the influence of the human factor on decision-making. However, an important question remains – how can the algorithm respond to non-standard market situations, since in traditional financial markets there are periods of crisis, high volatility or turbulence, when historical data and mathematical models may not be effective enough. In such cases, human advisors can be flexible, changing their strategy in accordance with changed circumstances, while RAs are limited by algorithmic frameworks. For example, during the COVID-19 pandemic, many human advisors changed their clients' portfolios to prevent massive losses, while some algorithmic systems continued to implement their original strategy, resulting in colossal losses for investors.

Based on AI data analysis algorithms, robo-advisors a) analyze and manage huge amounts of client data, b) adapt to a changing environment faster than human advisors, identifying human errors, and c) provide investors with suggestions for management strategies and the best investment alternatives to achieve their goals [Una, Verma, et al., 2023]. At the same time, robotic process automation is especially in demand among novice investors who do not have access to traditional advice, as alternative investment tools have significantly reduced the input load for investors and allowed almost anyone to earn money, even with little money. By collecting and processing data on clients' cash accounts, credit accounts, and investments, AI allows fintech companies using robo-advisors to monitor the financial condition of their clients and offer them more effective individualized services. By interacting with clients directly through chatbots and self-learning applications, AI-based robo-advisors generate context-sensitive content to help users navigate investment opportunities and make complex financial decisions. It is no surprise that the global AI market in fintech is a rapidly growing industry today, with a total value forecast to reach \$26.7 billion by 2026, maintaining a compound annual growth rate (CAGR) of 23.17% from 2021 to 2026 [Grinberg, 2024]. In addition, modern chatbots retain the context of previous interactions with users, synthesizing the most effective and useful responses based on past input. In turn, ML models learn various factors to identify potential fraudsters, which significantly reduces the investigation workload.

Thus, the effectiveness of RAs largely depends on their ability to adhere to systematic, logically based investment strategies. That is, they work effectively in stable market conditions, ensuring low commissions and reducing the risk associated with the human factor. However, in times of instability, they may be less effective than experienced financial advisors who are able to adapt strategies to changing conditions. However, AI and ML contribute to the growth of their adaptability at such a pace that they determine them even more competitive than traditional asset management.

In general, in modern conditions, the methodology [Barile, Secundo & Bussoli, 2024] is often used to analyze the business models of fintech companies, which, firstly, covers the key aspects of their activities, main types of operations, resources, value proposition, relationships with customers and partners, sales channels, audience segments, cost structure and sources of income. A deep understanding of these components allows for a systematic assessment of fintech companies, predict their growth potential and ensure sustainable development. Global technology giants such as *Google, Apple, Facebook* and *Amazon* (GAFA), as well as their Chinese counterparts *Alibaba, Baidu* and *Tencent*, are actively expanding their presence in the financial services sector. Using huge user bases, powerful analytical capabilities and digital platforms, they offer payment services, digital wallets and credit solutions. For example, *Amazon* is actively operating in the financial sector through *Amazon Pay, Amazon Cash* and *Amazon Lending*, offering customers convenient financial services integrated into the e-commerce ecosystem.

Secondly, it allows you to systematize the key elements of their activities and understand how they create, deliver and monetize their value proposition. Among the key elements of such a business model, the main component is the value proposition - automated, accessible, inexpensive

investment management. The client is provided with an algorithmic approach to investing, reducing costs by eliminating the human factor and allowing even entities without deep knowledge of financial markets and with minimal investments to receive quality service.

The channels of interaction with clients are mobile applications and web platforms - an intuitive interface and ease of use, and RAs are integrated with bank accounts and other financial services for convenient balance replenishment, portfolio status review, real-time reports, and provision of additional personalized recommendations based on the client's financial goals, which increases his involvement and trust in the service. The key resources for RAs are BigData, AI and ML algorithms, on which their activities are based and thanks to which market data is analyzed, calculations necessary for optimal asset allocation strategies are performed, and portfolio rebalancing is carried out automatically [Khanna, Jha, 2024]. As for sources of income, most RAs rely on monthly and annual commissions in the amount of 0.25-0.50% of the amount of assets under management, auxiliary financial products, premium consulting, lending secured by an investment portfolio, or tax optimization services.

Thus, the *Business Model Canvas* methodology based on the use of RAs, thanks to an advanced combination of technologies, innovative pricing and process automation, allows companies to attract new categories of investors and effectively compete with traditional financial advisors. But this requires significant investments in technological infrastructure, constant improvement of algorithms that meet user expectations, and adaptation to the requirements of financial regulators regarding the transparency of investment decisions, protection of personal data of their clients and liability in case of market losses. The latter is due to the peculiarities of regulation of the RA market in different countries: in the USA, RAs are registered by the Securities and Exchange Commission and fall under the Investment Advisers Act, and in the EU they are governed by the Markets in Financial Instruments Directive and MiFID II (there are also additional requirements: mandatory insurance of investment accounts, transparency standards for decision-making algorithms, etc.) [Martins, Ashofteh, 2023]. Therefore, changes in financial regulation, further development of artificial intelligence and new customer expectations will be crucial elements for the success of the RA market in the coming years.

Most fintech companies developing and implementing RA are technology startups that use venture capital (venture funds, private investors and strategic partners) and require significant investments at the initial stages of development and further scaling. Thus, investments in the RA market in the US are currently several times higher than in the EU, due to a better structured venture capital market and greater openness of investors to fintech startups. This is typical, for example, for *Betterment* and *Wealthfront*, two leading automated platforms from the US, which have raised hundreds of millions of dollars in numerous rounds of financing from venture capital funds such as *Benchmark Capital* and *Greylock Partners*. The advantage of financing this area in the US is that there are no serious "gaps" (time gaps) between different rounds in which investments were made at the early stages of the companies' development, which allows for accelerated building of the platform, attracting the first customers and, finally, testing its business model. Thus, American startups attract new investments every 12-18 months, which allows them to scale faster and enter new markets (currently in the EU it sometimes takes 2-3 years), which allows US fintech companies to stay ahead of Europe in the competition [Piehlmaier, 2022].

Evaluating the business models of AI-based RAs and the integration of new technologies into robo-advisory services is an important condition for investors who determine how profitable and, ultimately, sustainable this business model will be. The main indicator for fintech companies is the ratio of the value of the enterprise to assets under management, and since the activities of RAs depend solely on the number of clients and relevant investments, this ratio allows us to assess the effectiveness of the business model and provides an idea of its growth potential. The profit models of fintech companies are directly related to, firstly, the total amount of assets under management (higher market value due to a more stable income stream), unlike traditional financial companies, where the amount of income can be higher due to advisory services, premium products and higher-quality financial instruments. Secondly, by scaling the customer base, customer retention rates,

service differentiation, platform value, and diversification of revenue sources, which reduces business risks.

Over the past decade, RAs have demonstrated dynamic growth rates and have become a significant part of the modern financial market, but whether they have become a full-fledged replacement for a real financial advisor is still an unanswered question. On the one hand, the advantages are absolutely obvious: very low commission, accessibility for a really wide range of investors, automatic portfolio management, absolute absence of an emotional component in making any decisions. On the other hand, traditional financial advisors will not be completely replaced by RAs despite all the advantages - automated advisors are not an ideal solution. The transformation of their role includes some auxiliary support of the human factor, which adds expert judgment and analytics to automated processes. Automated RAs have certain limitations, especially in cases where the client needs a comprehensive financial plan or a personalized strategy that takes into account specific life circumstances, tax planning or inheritance law (in some situations, a human advisor can offer a more flexible approach than an algorithm that operates according to certain parameters) [Aw, Leong *et al.*, 2023]. Today, the financial market is getting used to a new reality - automation of fintech processes using RA and human experience complement each other, providing clients with greater choice and flexibility in choosing investment approaches. The medium-term future of the market is likely to be the coexistence and integration of both approaches and meeting the needs of both categories of clients, and in the long term, achievements in the field of BigData, AI and ML will increase the adaptability of RA to increasingly complex financial tasks, which will expand their impact on the market. Successful business models will be those that can attract customers as much as possible at minimal costs, automate and personalize offers and financial solutions, and offer more services to maximize profitability.

3. The crowdfunding model as a modern alternative to traditional lending methods.

Crowdfunding, as an alternative to traditional lending methods for personal and commercial purposes, helps to balance supply and demand by connecting investors and project organizers through online platforms. It replaces the need for a single large investor, spreading risks over a larger base by mobilizing a large number of participants, each of whom contributes small amounts. Today, the concept of crowdfunding is developing in different areas based on different models and platforms, stimulating technological innovations in the context of: a) creating channels for communication; b) competitive selection and creditworthiness verification; c) reducing information asymmetry and risks for all parties to financial transactions. This has led to the emergence of five main models: crowd investment, crowd lending, crowd real estate financing, crowd rewards and crowd philanthropy. Each of them uses different operational and regulatory approaches, but they all have a common idea - attracting a large number of market actors who support a particular project or business.

The size of the crowdfunding market has been growing rapidly in recent years. In the period 2024-2025 alone, it will grow from \$17.7 billion USD to \$20.4 billion USD at a compound annual growth rate (CAGR) of 15.5%, driven by the need to finance startups and small businesses, easier access to global capital, support for creative projects, and the development of crowdfunding for social purposes [BRC, 2025]. Overall, in 2024, out of the \$67 billion USD raised through digital models, market lending accounted for \$32.5 billion USD, and crowdlending accounted for \$32.3 billion USD [Belley, 2025]. The crowdfunding market is segmented by type (equity crowdfunding, debt crowdfunding, others) and service platform type (open, managed), as well as by sub-segments (startup crowdfunding, real estate crowdfunding, venture capital crowdfunding, peer-to-peer lending (P2P), invoice financing, real estate debt crowdfunding, reward-based crowdfunding, donation-based crowdfunding, hybrid crowdfunding).

Review of the most important segments and subsegments that are developing most intensively in modern conditions is provided below.

Equity-based crowdfunding (crowdinvesting) is particularly popular among startups, as crowdfunding platforms are seen as a way to reach private and institutional backers, as these companies are often overlooked by venture capitalists or unable to obtain financing through

traditional means. Investors typically provide loans with a profit-sharing or equity interest, but often do not have ownership or access to the profits from capital growth. Neighborhood platforms use a selection process that requires assessment and analysis, as well as business plans, with legal agreements being signed and capital being committed to the project once an investment threshold is reached. Overhead costs are lower than in traditional venture capital raising channels, as this strategy focuses on online trading. In addition, the most well-known crowdfunding platforms often have a wide network and robust verification mechanisms [Cerpentier, Vanacker, Paeleman & Bringmann, 2022].

AngelList, which has raised over \$1 billion for thousands of startups since its inception in 2010, is a great example of equity-based crowdfunding. After starting out as a site to make the venture capital market more open, AngelList has evolved into a platform that provides a variety of services, such as job searching and product discovery through Product Hunt (acquired company). Its unique features include, first, allowing accredited investors to create or join marketplace syndicates led by qualified “business angels” with minimal management costs. Second, it earns mainly from a percentage of funded projects rather than collecting large fees, meaning that the software processes that ensure the platform’s scalability reduce the impact of unsuccessful startups. Third, it does not suffer significant losses if certain projects fail, as the main income comes from successful projects. This suggests that platforms focused on technology development may employ different risk and revenue models than traditional venture capital firms, which receive management and performance fees [Halim, 2024].

Lending-based crowdfunding operates as a digital lending marketplace, typically connecting borrowers and lenders seeking financing on the condition that the bank is excluded from the lending scheme. This often results in lower costs and better interest rates for each party. In some cases, crowdlending platforms often bring in a partner bank to comply with regulatory requirements – while the platform does not bear the direct risk of default, it does not hold the loan on its balance sheet (instead, it receives a fee for managing payments and matching lenders and borrowers). While banks retain the strong position of traditional lenders (especially in terms of risk management expertise and large borrowers who receive cheaper loans), crowdlending platforms typically have lower funding costs and balance supply and demand in the financial market. Whether crowdlending platforms can improve their risk management systems enough to significantly reduce interest rates and default losses depends on when crowd-lending dominates traditional banking services [Moysidou & Hausberg, 2020; Vrontis, Christofi, Battisti & Graziano, 2021].

Donation-based crowdfunding is a model used by charities and other non-profit organizations to implement social projects (funding without the expectation of profit). Because the donation-based model is largely based on an emotional connection between the donor and the campaign goal, it is sometimes called fan funding. Platforms that use this model often charge low transaction fees, which are partially covered by voluntary contributions from donors. Because donors often look for evidence that their spending (money) is being used ethically and effectively, charitable sites (such as betterplace.org) prioritize trust, transparency, and a sense of community [Tafesse, 2021].

Reward-based crowdfunding is a model that offers individuals who contribute to projects (from artworks to technological developments) monetary or material rewards. Participants benefit from early access to the product, exclusive editions of works, or personal thanks from the project authors, and the success of platforms based on this basis largely depends on convincing storytelling, as well as the ability of the project author to attract sponsors. This model allows creative people and small teams to test ideas and determine the level of interest in advance. For example, the principle of the Kickstarter platform is “all or nothing”, that is, the project must receive the necessary funds within a certain period of time or receive nothing. At the same time, the platform itself plans and finances effective marketing, receiving payment only if the campaign reaches its goal, carries out verification procedures, rejecting a significant part of potential campaigns to maintain quality and user trust [Hoque, 2024].

Real estate crowdfunding model combines the principles of crowdfunding with real estate investments, modifying the activities of traditional real estate entities/companies, which in most cases are based on a combination of equity, subordinated and senior debt. The ability to invest in real estate online allows individuals to participate in projects that were previously owned by institutional companies, creating special platforms for consolidating financial resources from different investors, without granting ownership of the real estate itself, in order to reduce legal and financial problems. In the US and EU member states, the share of the real estate crowdfunding market is still insignificant compared to the overall real estate financing market, but investors are attracted by low entry barriers, openness and the opportunity to benefit from undervalued or small real estate assets that institutional players may not notice. For example, Fundrise selects only a small number of projects and uses marketing based on “*Modern Portfolio Theory 2.0*” to help bring private real estate into the asset allocation of the average investor. For both accredited and non-accredited investors, the platform has created *eREITs* and *eFunds* to keep entry costs manageable. However, its success has been based on so-called niche real estate deals worth up to a million dollars, where large funds and institutional investors tend not to compete [Coakley, Lazos & Liñares-Zegarra, 2021].

Although the crowdfunding model based on lending and equity has the potential to have a greater impact on traditional financial systems (than one based on donations and rewards), its competitive advantages over traditional banks remain low maintenance costs, customer relationships through platforms, and greater underwriting capabilities. As for the real estate crowdfunding model as part of a wide range of real estate financing, it demonstrates effectiveness in certain markets due to: a) the interest of private investors in low-cost real estate investments; b) ensuring transparency and careful monitoring of projects; c) rapid adaptation to changes in legislation. Platforms corresponding to these models are already becoming a powerful player in segments of the financial market, which were historically dominated by banks, large institutional investors, and specialized funds [Galkiewicz & Galkiewicz, 2024].

In general, crowdfunding is considered one of the first segments to gain popularity in the modern fintech ecosystem, but it does not attract the same interest from venture capital as alternative payment systems, RA or other advanced fintech solutions. The growth dynamics of this segment of the fintech market depends on, firstly, the level of maturity and competitiveness of platforms and the efficiency of their monetization; secondly, the successful use of technological advantages and digital tools such as BigData algorithms, AI, ML and investor interest in financing new crowdfunding projects. The advantages of crowdfunding models include the democratization of finance, the creation of communities (attracting millions of users in a matter of days to collaborate on specific projects) and the ability to provide small investors with access to opportunities that were previously unavailable to the startup and real estate sectors. Today, if crowdfunding campaigns and their platforms want to compete with banks, venture capitalists, and other reputable financial institutions, they must implement a robust infrastructure and ongoing oversight (in addition to public trust), effective credit scoring methods, or rigorous verification tools. While crowdfunding will not replace bank loans in the near future, these approaches demonstrate how creative and adaptable the crowdfunding alternative financing model can be, provided it meets demand, technological capabilities, and a favorable regulatory environment [Baber & Fanea-Ivanovici, 2024].

Conclusion. Today, a fundamental change in the relationship between traditional banks and fintech companies is taking place in the modern financial market. The banking sector, in the context of increased regulatory control and saturation with dominant players, faces three strategic options: cooperation with fintech companies, their acquisition or development of their own solutions. As the analysis shows, banks more often choose cooperation or independent development of fintech products. Fintech companies, working according to the same rules as traditional banks, demonstrate a stable growth in the number of transactions, and the volume of financing and acquisitions in the fintech industry remained quite high, sometimes indicating unstable business models. Consolidation of the fintech sector in the segment of alternative ways of offering financial services remains an

effective tool for expanding the client base even in conditions of high market competition. This is due to the synergistic effect of the strategic advantages of fintech companies due to, firstly, their deeper integration into financial ecosystems; secondly, the effectiveness of using business models based on the latest BigData, AI and ML technologies; thirdly, the growing interest from venture investors, which only strengthens the role of fintech in the transformation of the financial industry. At the same time, areas such as social trading and crowdfunding may remain niche, and blockchain-based fintech projects still need time to establish themselves in the market, other fintech segments (alternative fintech lending, RC, crowdfunding, cryptocurrencies) have shown obvious success and met the initial expectations of investors and clients/consumers.

The future development of the fintech industry will depend on the balance between technological innovation, demand for financial services, and financial regulation, which will determine how fintech companies will integrate into the global financial ecosystem. Even against the backdrop of the rapid growth of the global fintech sector within the modern global financial market (currently led by China, followed by the US and Europe) and the active development of financial technologies, the scale of integration of large technology corporations (such as *Amazon*, *Google*, and *Facebook*) into the banking sector remains uncertain. However, despite progress in understanding the business models of fintech industries, it remains difficult to determine which companies will become market leaders. In the long term, the financial industry is likely to evolve into a hybrid ecosystem, where fintech companies and traditional banks will coexist and complement each other. Each of these sectors will play an important role in the evolution of the global financial market, ensuring a balance between innovation and stability.

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TOWARDS A THEORETICAL UNDERSTANDING OF THE GREEN TRANSFORMATION OF THE FINANCIAL SYSTEM AS A TOOL FOR ACHIEVING SUSTAINABLE DEVELOPMENT AND REDUCING FINANCIAL RISKS ASSOCIATED WITH ENVIRONMENTAL PROBLEMS

НА ШЛЯХУ ДО ТЕОРЕТИЧНОГО ОСМИСЛЕННЯ ЗЕЛЕНОЇ ТРАНСФОРМАЦІЇ ФІНАНСОВОЇ СИСТЕМИ ЯК ІНСТРУМЕНТА ДОСЯГНЕННЯ СТАЛОГО РОЗВИТКУ І ЗНИЖЕННЯ ФІНАНСОВИХ РИЗИКІВ, ПОВ'ЯЗАНИХ З ЕКОЛОГІЧНИМИ ПРОБЛЕМАМИ

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***Abstract.** The purpose of the article is to analyze conceptual and theoretical approaches to the study of the financial system in the context of its imperative greening against the background of developing institutional tools to combat climate change and environmental crises that affect the riskiness of the international trade and international finance system. The ambiguity of the category of "green finance" is confirmed by the fact of the existence of disparate and uncoordinated taxonomies of sustainability, which complicates the interaction of green initiatives on an international scale. The need for a revision of economic theories based on the concept of ultimate growth without taking into account the qualitative characteristics of the latter becomes obvious. The alternative is the concept of degrowth, which forces us to rethink the balance of economic, environmental and social interests of many stakeholders. It has been established that in the professional literature on degrowth models, the phenomenon of finance is either ignored or demonized. At the same time, at the meta-level of international economic policy, the climate agenda is being institutionalized, which aims to form a consolidated approach to recognizing the need for greening the financial system, which requires a clear definition of the potential and boundaries of greening its structural links. We identify institutional, financial, technical, and psychological obstacles to the implementation of a sustainable and green agenda, while, depending on the focus of the analysis, the risks inherent in the green and energy transition are modified - physical risks, transition risks, and liability risks. The risk-oriented approach on which the modern financial supervision system is based distinguishes liquidity risk, credit risk, market risk, and operational risk. Climate change puts pressure on the outlined risks, which complicates the attraction of financial resources. The lack of unified approaches to identifying the "green attribute" of the financial market leads to manipulation of the green agenda in order to accumulate financial resources that will be directed for other purposes. The demand for the formation of a new perception of the economy in the context of sustainable development becomes obvious, which is served by the concepts of the blue economy, green economy, bioeconomy, degrowth economy, circular economy, low-carbon economy and green growth economy. The article identifies the subjects of green financing. The role of the state in financial support of green initiatives is noted. The impact of climate change on the sectors of the financial market is emphasized - the insurance*

market, the banking services market, the collective investment market, the foreign exchange market, the payment services market, the precious metals market, which will adapt green instruments to their work. The special role of the carbon market and system of trading quotas for greenhouse gas emissions in the functioning of the global climate agenda system and in encouraging the development of the green segment of the financial system is substantiated. Green finance is considered as a complex of economic relations, which involved the analysis of economic theories that appeal to sustainability. This allowed establishing the leading role of financial institutions in the fight against environmental crises. Investment projects that involve financing sustainable and responsible climate development are recognized as a source of reducing financial risks associated with the destructive consequences of climate change.

Keywords: global market for green financial instruments, international green financial system, financial instruments, financial institutions, financial market, institutional investor, green economy, bioeconomy, responsible investment, green banking, green insurance, energy efficiency, system of trading quotas for greenhouse gas emissions, crisis, risks, financial-climate risks, ESG regulation, economic theories, degrowth theory, green finance theories.

Анотація. Мета статті полягає в аналізі концептуальних і теоретичних підходів до дослідження фінансової системи в контексті її імперативного озеленення на тлі вироблення інституційного інструментарію протидії кліматичним змінам і екологічним кризам, що впливають на ризикогенність системи міжнародної торгівлі і міжнародних фінансів. Неоднозначність категорії «зелені фінанси» підтверджується фактом існування розрізнених і декоординованих між собою таxonомій сталості, що ускладнює взаємодію зелених ініціатив у міжнародному масштабі. Став очевидним затребуваність ревізії економічних теорій, що базуються на концепції ультимативного зростання без врахування якісних характеристик останнього. Альтернативою виступає концепція антиросту, що змушує переосмислити баланс економічних, екологічних та соціальних інтересів багатьох стейкхолдерів. Встановлено, що у фаховій літературі про моделі антизростання феномен фінансів або ігнорується, або демонізується. При цьому на метарівні міжнародної економічної політики відбувається інституціоналізація кліматичної адженди, що ставить за мету формування консолідованого підходу до визнання затребуваності озеленення фінансової системи, що вимагає чіткого визначення потенціалу і меж озеленення її структурних ланок. Ми виокремлюємо інституційні, фінансові, технічні, психологічні переїзди на шляху реалізації сталої зеленої адженди, при цьому, залежно від фокусу аналізу, модифікуються іманентні зеленому і енергетичному переходу ризики – фізичні ризики, ризики переходного періоду, ризики відповідальності. Ризик-орієнтований підхід, на якому базується сучасна система фінансового нагляду, виокремлює ризик ліквідності, кредитний ризик, ринковий ризик, операційний ризик. Кліматичні зміни чинять тиск на окреслені ризики, що ускладнює застосування фінансових ресурсів. Відсутність єдиних підходів до виокремлення «зеленого атрибуту» фінансового ринку призводить до маніпуляції зеленою аджендою задля акумулювання фінансових ресурсів, що спрямовуватимуться не за призначенням. Очевидним стає запит на формування нового сприйняття економіки в контексті сталого розвитку, чому слугують концепції синьої економіки, зеленої економіки, біоекономіки, економіки антиросту, циркулярної економіки, низьковуглецевої економіки, економіки зеленого росту. В статті виокремлено суб'єкти зеленого фінансування. Відзначена роль держави в фінансовому супроводі зелених ініціатив. Наголошено на впливі кліматичних змін на сектори фінансового ринку – страховий ринок, ринок банківських послуг, ринок колективних інвестицій, валютний ринок, ринок платіжних послуг, ринок дорогоцінних металів, що адаптуватимуть зелені інструменти в свою роботу. Обґрунтовано особливу роль вуглецевого ринку і системи торгівлі квотами у функціонуванні світової системи кліматичної адженди і в заохоченні розвитку зеленого сегменту фінансової системи. Зелені фінанси розглянуті як комплекс економічних відносин, що

передбачало аналіз економічних теорій, що апелюють до сталості. Це дозволило встановити провідну роль фінансових інститутів у боротьбі з екологічними кризами. Інвестиційні проєкти, що передбачають фінансування стального і відповідального кліматичного розвитку, визнані джерелом скорочення фінансових ризиків, пов'язаних із руйнівними наслідками кліматичних змін.

Ключові слова: глобальний ринок зелених фінансових інструментів, міжнародна зелена фінансова система, фінансові інструменти, фінансові інститути, фінансовий ринок, інституційний інвестор, зелена економіка, біоекономіка, відповідальне інвестування, зелений банкінг, зелене страхування, енергоефективність, торгівля квотами, торгівля викидами, криза, ризики, фінансово-кліматичні ризики, ESG-регулювання, економічні теорії, теорія антиросту, теорії зелених фінансів.

Introduction. The global green finance market is currently characterized by a growing interest of private financial institutions in sustainable development issues. Global financial centers are showing particular interest in environmental programs. Stock exchanges are launching their sustainable finance initiatives. Cooperation between the largest financial centers is expected to facilitate the exchange of best practices and ensure convergence of key principles and dimensions in the direction of sustainable development. The role of non-profit organizations aimed at disseminating environmental practices in the business environment is increasing. Financing climate initiatives is an integral and key driving force in achieving the goals set by the Paris Agreement. Two main components: financing measures to prevent the effects of climate change (use of renewable energy, application of new equipment and technologies, such as electric vehicles, adjust existing norms and habits of people), financing adaptation measures (construction of flood protection structures, creation of early warning systems for cyclones, transition to the cultivation of drought-resistant crops, repurposing of communication systems, commercial activities and public administration).

The development of green financial instruments is directly related to the strengthening of "green" challenges (natural resource, climate, ecological), which include: the creation of a new useful quality in the form of environmentally friendly goods, services and programs for maintaining the environment (for example, "green" products and materials, construction and transport, forest plantations, etc.); increasing the efficiency of using renewable and non-renewable energy sources; reducing the negative impact of human activity on the environment (mitigation); supervision and management of hydrocarbon emissions; recycling and disposal of waste; control and regulation of industrial pollution; water supply, sanitation and hygiene; climate change adaptation.

The Global Risks Report in 2023 uses a new term: polycrisis. A polycrisis is a situation where various risks intersect and their interdependence is felt very acutely. A polycrisis is a cluster of related global risks with compounding effects, such that the overall impact exceeds the sum of each part" (*World economic forum*, 2023). "Traditional" risks – inflation, cost of living crisis, trade wars, large-scale social unrest, geopolitical confrontation and the threat of nuclear war – have been supplemented by relatively new risks – high levels of public debt, a new era of low growth, low investment and deglobalization, a slowdown in human development after decades of progress, rapid and unlimited development of dual-use technologies, growing pressure from the consequences of climate change with an ever-narrowing window of opportunity to mitigate these changes. All these risks are converging in the coming decade, making it unique in its level of uncertainty and turbulence – a decade of polycrisis.

Despite the existing body of work by authors who reveal the essence of the finance, the ambiguity of the category of "green finance", which is confirmed by many taxonomies of sustainability, complicates the coordination of green initiatives on an international scale (*Melnyk, T., Reznikova, N., & Ivashchenko, O.*, 2020). It becomes obvious that there is a need to revise

economic theories based on the concept of economic growth, the alternative to which is the concept of degrowth, which forces us to rethink the balance of economic, environmental and social interests of many stakeholders.

The purpose of the article. The purpose of the article is to analyze conceptual and theoretical approaches to the study of the financial system in the context of its imperative greening against the background of developing institutional tools to combat climate change and environmental crises that affect the riskiness of the system of international trade and international finance.

Literature review. The state of the global climate and environment has a direct impact on ensuring continuous economic development. In the proposed "integrated assessment model" W. D. Nordhaus actually combined the models of economic growth and climate change (*Nordhaus, W.D., 1977*). The essence of the model of W. D. Nordhaus is that the total volume of use of natural resources corresponds to a certain volume of greenhouse gas emissions, which affect the average air temperature. In turn, the air temperature determines the multiplier corresponding to environmental damage. As a result, the total productivity of production factors falls due to environmental damage, which ultimately worsens the well-being of the population, suppresses economic growth and the development of human capital. These consequences can be avoided only by ensuring conditions for sustainable economic development and the transition to a "green economy" (*Khoshnava, S. M., Rostami, R., Zin, R. M., Štreimikiene, D., Yousefpour, A., Strielkowski, W., et al., 2019*). The imperative greening of financial system has found itself in the research perspective of Ukrainian scientists (*Grod, M., & Reznikova, N., 2023; Zablotska, R. O., & Rusak, D. M., 2024; Orlovska, Yu. V., Chala, V. S., & Varlamova, O. A., 2016; Ptashchenko, O. V., & Arkhipova, D. Ye., 2020; Ptashchenko, O., 2024; Reznikova, N. V., & Grod, M. I., 2023; Farenyuk, N. V., 2024; Tsybuliak, A. H., 2015; Tsybuliak, A. H., 2016; Tsybuliak, A. H., 2017*). The ambiguous consequences of climate change on economic relations are highlighted in the works of V. Chala (*Chala, V., 2022*), Yu. Orlovska (*Chala V., & Orlovska, Yu. 2022*), B. Dalal-Clayton, S. Bass (*Dalal-Clayton, B., & Bass, S., 2009*), M. Medvedieva, R. Yedeliev, A. Nanavov, G. Grydasova (*Medvedieva, M., Yedeliev, R., Reznikova, N., Nanavov, A., & Grydasova, G., 2024*), N. Reznikova, M. Rubtsova (*Reznikova, N., Ivashchenko, O., Rubtsova, M., 2020*), V. Panchenko V. Karp, S. Stakhurska (*Reznikova, N., Panchenko, V., Karp, V., Grod, M., Stakhurska, S., 2024*), M. Grod (*Grod, M., & Reznikova, N., 2023a; Grod, M., & Reznikova, N., 2023b*), O. Ptashchenko (*Ptashchenko, O. V., & Arkhipova, D. Ye., 2020; Ptashchenko O.V., 2018; Ptashchenko, O. V., Shersheniuk, O. M., 2023*). Financing green initiatives is related to the problem of targeted finance. As international financial markets expand and international trade volumes increase, as noted by S. Murau, A. Haas, A. Guter-Sandu (*Murau, S., Haas, A. & Guter-Sandu, A., 2024*), R.L. Wray (*Wray, R.L., 2012*), O.E. Wright (*Wright, O.E., 2013*), they require more and more money to ensure their financing, which makes modern finance a key mechanism for implementing the green and energy transition. Scholars agree with the thesis that finance has now become an autonomous market with its own interests. Due to its scale, finance has become a risk for the economy as a whole with potentially catastrophic social (the global financial crisis of 2007-2008) and environmental consequences. In the literature on degrowth models, the phenomenon of finance is either ignored or demonized. At the same time, at the level of international organizations, at the meta-level of international economic policy, the climate agenda is being institutionalized, which aims to form a consolidated approach to recognizing the need for greening the financial system (*United Nations Framework Convention on Climate Change, 2018; United Nations Environment Programme, 2023; UNFCCC, 2021*).

The main material of the article. According to existing approaches to identifying financial and climate risks that affect the global financial system, physical risks, transition risks, and liability risks are determined. Physical risks correlate with the physical consequences of climate change. Physical risks are divided into acute and chronic. Acute risks arise from serious one-time cataclysms, including hurricanes, floods, volcanic eruptions, etc. Chronic risks include risks caused by climate change over a long period of time. These include drought, lack of water and food, etc. Physical risks have a negative impact on the condition and activities of households. For

example, damage to assets may be caused and indirect consequences of destabilization of supply chains may be observed. Transition risks are associated with the transition to a more sustainable economy and may affect the value of various assets in financial markets. Transition risks are associated with regulatory and technological changes. For example, greening of consumption may lead to an increase in prices for raw materials. Medium-term risks can have financial implications for organizations, such as asset shortages and high operating costs.

Liability risks are closely intertwined with the threats of the above-mentioned risks. A situation is developing where individuals and legal entities are trying to compensate for their losses through lawsuits. In doing so, they also express dissatisfaction with innovative standards for reducing the impact of climate change. The risk that the global financial sector will become a field for litigation is becoming too great. The modern system of regulation and supervision in the financial market is based on a risk-oriented approach, the essence of which is that the frequency and intensity of supervisory measures depend on the identified risks of financial institutions. The activities of financial market entities are associated with credit, market and operational risks, liquidity risks, reputational risks, etc. Climate risks are increasingly being singled out in this series. It should be borne in mind that climate risks, on the one hand, form an independent type of risk in the financial market, and on the other, they affect other types of risks.

Climate change affects the main risks of financial institutions:

– **credit risk** – the risk of losses that a financial institution may incur due to the untimely or incomplete fulfillment of financial obligations by a counterparty due to climate-related emergencies;

– **market risk** – the risk of loss associated with a change in the market price of financial instruments (a decrease in the exchange rate and the value of securities of countries in which major environmental disasters of a natural or man-made nature have occurred can be expected);

– **operational risk** – the risk of losses arising as a result of non-compliance with the nature and scale of the financial institution's activities and (or) the requirements of current legislation of internal procedures and procedures for conducting financial transactions and other transactions, their violation by employees of the financial institution and (or) other persons, disproportion (insufficiency) of the functional capabilities (characteristics) of the information, technological and other systems used by the financial institution and (or) their failures (malfunctions), as well as as a result of the impact of external events.

– **risk of loss of business reputation** – risk of losses due to the creation of an unfavorable image (lack of "green" financial instruments in the arsenal of a financial institution, provision of financial services (insurance, lending) to persons representing non-ecological sectors of the economy, as well as the presence of such persons among the founders or shareholders of a financial institution may lead to the formation of a negative attitude towards the relevant financial institution among potential clients and a refusal to further cooperate with it (*Recommendations of the Task Force on Climate-related Financial Disclosures*, 2017).

Investments in green equity are mainly carried out through index investing or investing in equity funds. New green financial instruments are being formed, including: ETF funds (public investment funds, Exchange Traded Fund), which seek and acquire shares of companies aimed at solving climate, social issues, or implementing environmentally friendly products; green crowdfunding, collective investments of three persons to finance environmental projects; more specific lending products, such as green mortgages. Green bonds can be considered the most widely used instrument for stimulating investment in climate projects. The European Commission in a report devoted to the study of the content of the concept of "green" in the context of "green" finance, identified the following instruments for its formulation in official documents (*European Commission*, 2017):

1. Objectives. The basic approach to defining green is to specify the outcomes (e.g. climate change mitigation, sustainability, pollution prevention, etc.) that an activity must achieve in order to be considered green. This is followed by a case-by-case assessment of whether specific investments contribute to achieving such objectives.

2. Taxonomy. Green taxonomies are classifications of areas and investment objects (technologies, sectors, etc.) that are considered green. Taxonomies can have different levels, with each level serving to describe, in increasing detail, the elements that make up the top category.

3. Exclusion criteria. These are used to exclude certain sectors, companies, activities, etc. from the definition of green. Often, exclusion criteria identify specific technologies, such as nuclear power. Other forms of exclusion can be norm-based (i.e. excluding all investments that do not meet existing norms and standards).

4. Indicators. These are values used to indicate environmental performance or the impact of an activity (energy/water savings, greenhouse gas emissions reduction, etc.). Indicators may be set with thresholds or minimum acceptable performance levels and/or with targets illustrating the desired level of performance. Indicators may provide a retrospective or prospective measurement of performance (e.g. measuring overall water consumption).

5. Ratings. Allows an assessment of the degree of "greenness" of a firm, technology or financial product according to predetermined criteria.

"Green finance" in the relevant financial literature is considered in three main aspects: (1) a set of various methods of financing technological processes and projects in the field of greening economic activity; (2) a set of financial institutions (banks, insurance companies, etc.) involved in financing environmental programs and projects; (3) financial products and services with an environmental component. "Green" financing can be ranked: by source (private or public); by goals; by principles; by instruments ("green" bonds, "green" lending, index insurance, green crowdfunding, ETF funds); by decision-making levels. The OECD links "green" finance and instruments with "green development", meaning achieving economic growth while reducing pollution and greenhouse gas emissions, as well as minimizing waste and increasing the efficiency of natural resource use (*Finance and investment for environmental goals*).

The new vision of the economy in the context of sustainable development has given rise to such concepts as the blue economy, the green economy, the green growth economy, the bioeconomy, the circular economy, the low-carbon economy and the degrowth economy. Within the framework of the blue economy, the basis for sustainable development is also the infrastructure serving the fisheries and shipping, marine tourism, offshore hydrocarbon production, marine biotechnology, renewable energy sources, including tidal energy. According to the degrowth theory, in order to achieve sustainability, it is necessary to reduce the growth rate of both the global economy and specific countries. Achieving this goal is planned by reducing the level of GDP and resource consumption, reducing working hours and the capacity of the economy itself, as well as changing social values, from ethics to the role of money in the economy.

The concept of "green" growth is very close to the concept of the "green" economy and is widely used in the countries of the Organization for Economic Cooperation and Development. In this model, "green" growth is understood as economic growth that is efficient in terms of the use of natural resources, clean in terms of environmental impact and resilient in terms of natural disasters. A "green" economy is understood as a resource- and energy-efficient economy, the integral features of which are decarbonization, diversification and an inclusive social environment. As a result of the rapid development of biotechnology, the concept of bioeconomy has emerged, where renewable biological resources and materials are the basis for sustainable development (EU, 2007; EC, 2012; Glatzel, K., Virchow, D., Musaazi, S. Nakitto, A., Niyonsenga, S., Babu, S., Srivastava, N., & Kashandula, P, 2024; Lopes, C. L., Corleto, A. F., & Chiavari, J., 2024).

The widest scope of application of biotechnology gives this concept enormous potential to ensure not only economic benefits, but also a decent quality of life for people. World experience shows that the implementation of a strategic program for the development of the bioeconomy concept along with the green economy, which would take into account its specifics, significantly increases the chances of success in achieving sustainable growth. Even recognizing the potential of the bioeconomy in relation to the growth of environmental sustainability of modern economic systems, many doubt the success of its implementation. Green finance includes efforts to

internalize environmental externalities and adjust risk perception in order to increase environmentally friendly investments and reduce environmentally harmful investments. Green finance covers a wide range of financial institutions and asset classes and includes both public and private finance (Murau, S., Haas, A. & Guter-Sandu, A., 2024). Green finance includes effective management of environmental risks in the financial system. Green finance instruments within the framework of the green economy itself are presented in the form of 4 classes of individual areas: 1) green retail finance; 2) green investment finance; 3) green asset management; 4) environmental insurance.

We consider the following entities to be subjects of the green financing system: regulatory bodies in the financial and credit sphere, economic development and environmental protection; banks, insurance and leasing companies, funds (national, specialized); financial market participants (financial companies, issue organizers, issuers, recipients and consumers of financial products, financing organizations, borrowers, investors, asset managers, etc.); infrastructure and service organizations (trade organizers, exchanges, rating agencies, certifying, verifiers, etc.); professional analytical, expert and research organizations; project companies, legal and technical consultants.

The globalization of green finance often implies the goal of greening the international financial system. This assumes that appropriate green institutions will be built into each component of the system, and the necessary infrastructure facilities will be created. Green transformation of the financial system is a necessary tool for achieving sustainable development and reducing financial risks associated with climate change and environmental issues (Murau, S., Haas, A. & Guter-Sandu, A., 2024). This will require the introduction of new instruments and regulations, as well as changes in risk assessment and management methodologies.

The state plays a leading role in the development and implementation of green policy, and the budget system is the main source of financing for environmental and climate projects. The development of standards, including benchmarks for determining permissible values of CO₂ emissions into the atmosphere, the so-called "carbon footprint", is extremely important for classifying certain projects as "green". For several years now, the international community has been discussing the possibility of including projects using so-called "clean coal" (with minimal CO₂ emissions) in the "green" category. From the very beginning, the EU took a tough stance on fossil fuels, primarily coal, believing that coal is a "pollutant" by nature and must be immediately and completely excluded from "green" projects.

Climate change has a specific refraction in relation to individual sectors of the financial market. At the same time, climate change contributes to the formation of new green instruments to serve these markets (Murau, S., Haas, A. & Guter-Sandu, A., 2024):

(1) Insurance market. The concept of the "green" insurance institute is based on the Principles for Sustainable Insurance, which were formulated at the initiative of the UN in 2012:

1. *We will embed in our decision-making environmental, social and governance issues relevant to our insurance business.*

2. *We will work together with our clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.*

3. *We will work together with governments, regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues (UNEP Finance Initiative).*

(2) Banking services market (borrowers may experience financial problems due to a reduction in production, sales of services. In addition, the loss due to default on loans secured, for example, by real estate, may increase if the value of the real estate is negatively affected by events related to climate change). A green bank operates like a regular bank while taking into account social and environmental factors of protecting natural resources. Green banking is an increase in the efficiency of internal banking processes, physical infrastructure, information technology and professional activities within the framework of the implementation of banking products in relation to the environment by reducing the negative impact (of these factors) on the environment to a

minimum level. Green banking includes taking into account the following issues: the introduction of environmental responsibility into the daily activities of the bank, such as reasonable use of paper, energy saving, etc.; taking into account sustainable development factors in the development of products and strategy of the bank, such as "green" lending, assessment of projects for environmental friendliness (environmental assessment), i.e. impact on the environment; is aimed at improving operations and technologies, as well as making customer habits in the banking business environmentally friendly.

The phenomenon of preventive banking is being formed – the process of integrating environmental issues and increasing risk management activities into their daily business activities as a result of increased pressure from the government, non-governmental organizations, and pressure from society to accelerate the greening of economic relations. "Green" deposits and "green" savings are of limited interest to both individuals and legal entities, respectively. For an investor, the concept of a "green" deposit and/or "green" savings usually has an exclusively moral meaning. For a bank, the fact of using the funds raised to finance "green" projects is quite difficult to prove due to the specificity of identifying funds. At the same time, the limitations in the practice of "green" deposits are that legal entities, unlike individuals, place temporarily available funds, as a rule, for a short period, which significantly complicates their targeted use for financing green projects (*Murau, S., Haas, A. & Guter-Sandu, A., 2024*).

In the process of investment activities of the insurer as an institutional investor, taking into account compliance with the principles of responsible investment, significant risks associated with environmental factors of sustainable development should be determined when selecting investment objects and their subsequent management. In this regard, there is no talk of "narrowing" investment objects, the emphasis is on reducing risks and, consequently, increasing the return on investment in the long term. Among the environmental factors of sustainable development and associated risks when selecting an investment object, it is recommended to take into account data on greenhouse gas emissions, energy consumption, water consumption, waste generation, information on water consumption management and waste management, etc., for example, ongoing environmental projects.

(3) Collective investment market (the level of financial burden of pension funds will depend on climate migration of the population). Currently, programs in the field of low-carbon financing (carbon finance) for adaptation to climate change are being actively implemented, providing for the following mechanisms: trading in greenhouse gas emission quotas, in which the state or its individual economic entities can sell / buy quotas for greenhouse gas emissions on national, regional or international markets; joint projects to reduce greenhouse gas emissions; clean development mechanisms, which provide for projects to reduce greenhouse gas emissions implemented in the territory of one of the countries (usually developing countries) that have signed the UN Framework Convention on Climate Change (*Konradt, M., Mauro, B. W. di (2021)*). Weather derivatives are a financial product that ensures the management of the risks of losses caused by changes in climate conditions.

(4) Foreign exchange market (an outflow of investments from countries with energy-inefficient economies can be expected, which will also lead to a fall in the value of their currency on the international market).

(5) Payment services market (physical climate risks are associated with the possibility of disrupting the integrity of the payment infrastructure and, as a consequence, disrupting the smooth functioning of payment systems, reducing the level of efficiency and availability of money transfer services).

(6) Precious metals market (to complicate or facilitate (due to melting glaciers or drying up of reservoirs) access to deposits, the development of which was previously unprofitable or physically impossible), which will lead to a change in the market price of resources.

It is fair to talk about the emergence of a global market of "green" financial instruments as a new component of the international financial system at the stage of systemic transformation. A feature of this global financial market is its dual connecting quality (*Murau, S., Haas, A. & Guter-*

Sandu, A., 2024):

1) ensuring interpenetration between all components of the international financial system (the global market of "green" financial instruments unites various types of financial instruments); 2) close interaction of the financial and real sectors of the global economy through the implementation of "green" projects and programs. The transformation costs of the transition to the global use of "green" finance are assessed as low, since we are not talking about the creation of fundamentally new financial instruments and institutions in technical terms, but about adding a "green" component to the structure of the issued financial product, through which its new quality is produced. Green bonds occupy an important place in the greening of the financial market. Green bonds are defined as important green financial instruments that are marketable securities that are issued in accordance with established procedures and pay principal and interest as agreed, including but not limited to green financial bonds, green corporate bonds, green corporate bonds, green debt instruments and green asset-backed securities, and are used to raise funds specifically to support green industries, green projects or green economic activities that meet specified conditions. The implications of the greening of the international financial system are complex and the following actual and potential threats and challenges related to the globalization of green finance exist.

1. Financial. The process of greening the international financial system must be balanced. Universal definitions, principles, accounting and reporting standards must be developed and implemented. This will help in solving global financial, economic and "green" problems. At the same time, there is a risk of a new source of global financial instability in the global market of "green" financial instruments, where financial "bubbles" may also arise.

2. Technical. Definitions and identification mechanisms are necessary not only from the financial side, but also from the technical and technological side. For example, difficulties arise in assessing the "green" component in projects in various spheres and sectors of the economy. The International Finance Corporation applied its measurement methodology and found that 100% of the "green" component is contained in "clean" energy projects; 0% - in oil and gas, petrochemical and coal; 17% - in construction; 13% - related to food, agriculture, timber processing and forestry; 10% in infrastructure and transport projects and 0.1% in automobile projects (*Green Finance: A Bottom-up Approach to Track Existing Flows*, 2016).

3. Institutional. New institutions have a number of significant drawbacks, such as high management costs, a gap between liquidity and the underlying asset, and a tendency to operate with a high level of leverage. All of the above features of the analyzed structures increase the risks of their functioning. Thus, the need for control, regulation, and regulatory support for the activities of these investors increases.

4. Psychological. Since "green" projects require large investments and the sphere of "green" finance is relatively new to the international financial system, various entities of financial and economic activity may be quite cautious about working with the relevant financial instruments. Consequently, it is necessary to stimulate the green activity of economic agents.

Conclusions and prospects for further research. Improving the concept of sustainable development necessitates placing new emphasis on well-known and well-studied phenomena, focusing researchers' attention on issues of financing environmental protection, ecology, combating climate change and transition to an energy-efficient economy from the point of view of the ESG approach.

In international practice, the following sources of motivation for the implementation of ESG strategies of green finance have been recorded: allocation of a new segment of the financial market for quoting shares of ESG ranking businesses (USA); shortage of long-term capital for financing infrastructure and environmental projects (USA, EU); attracting attention to environmental issues by civil society (EU); tightening environmental standards of international trade (UK, EU); the need to comply with international norms and conventions, the pressure of sanctions

A significant element of the functioning of the global climate agenda system, which

influences the global financial system and allows reducing greenhouse gas emissions, is the carbon market and the Emissions Trading System (ETS), which plays the role of a market mechanism based on the cap-and-trade principle. The mechanism consists of the establishment by governments of an upper limit on the total volume of emissions, usually for a certain industry, and the introduction of an obligation for companies in this industry to obtain a permit for each unit of their emissions with the possibility of purchasing units on the open market. The main reference point here is the cost of a carbon unit (tons of CO₂ equivalent). The state has both a direct impact (through financing measures to transition to a low-carbon and energy-efficient economy) and an indirect impact, stimulating economic entities to environmentally and climate-responsible behavior.

We propose to consider green finance as a whole complex of economic relations related to the financing of environmental protection measures, combating climate change, transition to a low-carbon and energy-efficient economy, effective management of environmental and climate risks, and implementation of financial control in many areas of public relations. Financial institutions are the most important drivers of climate projects. An energy-efficient economy will ultimately be implemented only to the extent that it is financially beneficial and profitable. Consequently, the financial market and climate influence each other on the basis of direct and feedback links. Projects in the field of sustainable and responsible climate development are in themselves a source of profit for financial market participants. Thus, the demand for support of green projects has led to the emergence of new types of financial services and financial instruments, the issue and circulation of which contributes not only to the financial support of relevant projects, but also to the development of the financial market. Traditional criteria for selecting sources of financing are: compliance of demand and supply of financial resources for a specific project, compliance of supply with the time frame of the project, cost of attraction, systematic and non-systematic risks, efficiency of reproduction of own funds, assessment of compliance of sources of financing with the structure of investments in the project, etc. As separate criteria for choosing between traditional and "green" financing, it is necessary to indicate institutional and infrastructural provision, availability of state support in the form of state programs, projects, incentive instruments, the degree of development of the financial and credit market.

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DIGITAL GENTRIFICATION AS A SIGN OF NEW INEQUALITY IN THE CONDITIONS OF SOCIO-SPICIAL TRANSFORMATIONS

ЦИФРОВА ДЖЕНТРИФІКАЦІЯ ЯК ОЗНАКА НОВОЇ НЕРІВНОСТІ В УМОВАХ СОЦІАЛЬНО-ПРОСТОРОВИХ ТРАНСФОРМАЦІЙ

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***Abstract.** The scientific hypothesis of the article assumes that inequality in access to digital infrastructure, inequality in digital skills and digital literacy, inequality in the use of digital technologies are new forms of social stratification and forms of manifestation of various digital divides. We argue that digital inequality objectively acquires new forms of manifestation. Digital and spatial inequality coexist in at least two forms of manifestation – digital periphery and digital gentrification. Digital periphery is the result of the formation of territories with limited access to digital infrastructure, which in the context of digitalization of economic processes inevitably leads to economic marginalization. An analysis of the literature has shown that digital gentrification is considered as a consequence of the increase in the cost of housing in areas with developed digital infrastructure due to the internal migration of digital workers. We believe that this approach to defining digital gentrification requires further study, because in the era of digitalization, digital technologies not only change the physical space of cities, but also create new forms of spaces – digital environments, digital platforms, digital communities. This allows us to develop the concept of "digital gentrification" as a phenomenon that describes the processes of displacement, exclusion and transformation in digital space. The purpose of the study is to determine the essence of digital gentrification and its typology, which will allow us to characterize the positive and negative consequences of gentrification processes for inequality from the perspective of socio-spatial transformation. We define the digital environment as the communication environment of digital devices and the environment of digital inequality. By considering the digital environment as the basis of a complex network of digital interactions, we can better understand the differences that arise in access to technologies, their use, and technology-related skills. In the context of spatial inequality, the household is a key entity, since its socio-economic situation directly depends on spatial opportunities: access to infrastructure, jobs, social services, environmental conditions, etc. The spatial localization of the household determines its inclusion in socio-economic processes and*

opportunities for development. In the context of digitalization, the concept of "household" is significantly modified. Under the conditions of digital transformation, traditional households are being modified into "digital communities" (groups of individuals united by common interests or goals in the digital space, who carry out economic activities) or "virtual collectives" (temporary associations of individuals for the implementation of short-term projects such as crowdsourcing initiatives) or into decentralized autonomous organizations (forms of collective economic activity based on blockchain technologies and smart contracts). Hybrid households are being formed – distributed households. We propose to consider digital gentrification as a process of transformation of digital interaction spaces and digital platforms, which is characterized by a change in the nature and intermediary functions of the digital environment, accompanied by a revaluation of digital assets in the interests of new user groups or data-driven companies, marginalization or displacement of initial users, forced simplification of digital specialization due to the development of ICT, which allowed us to distinguish platform gentrification, spatial digital gentrification, infrastructure digital gentrification, algorithmic gentrification, cultural digital gentrification, informational gentrification, economic digital gentrification, professional digital gentrification, virtual-spatial gentrification.

Keywords: transformation, digitalization, automation, stratification, gentrification, smart city, urbanization, inequality, competition, productivity, innovation, technology, technological development, innovative development, digital development, digital economy, platform economy, ecosystem, Industry 4.0, AI, ICT, R&D, demand, supply, migration, highly skilled workforce, labor market.

Анотація. Наукова гіпотеза статті базується на припущені, що нерівність у доступі до цифрової інфраструктури, нерівність у цифрових навичках і цифровій грамотності, нерівність у використанні цифрових технологій є новими формами соціальної стратифікації і формами прояву різних цифрових розривів. Ми стверджуємо, що цифрова нерівність об'єктивно набуває нових форм прояву. Цифрова і просторова нерівність співіснують у щонайменше двох формах прояву – цифрової периферії і цифрової джентрифікації. Цифрова периферія є результатом формування територій з обмеженим доступом до цифрової інфраструктури, що в умовах цифровізації економічних процесів неминуче призводить до економічної маргіналізації. Аналіз літератури довів, що цифрову джентрифікацію розглядають як наслідок зростання вартості житла в районах з розвиненою цифровою інфраструктурою внаслідок внутрішньої міграції цифрових працівників. Ми вважаємо, що такий підхід до визначення цифрової джентрифікації вимагає поглиблення, адже в епоху цифровізації цифрові технології не лише змінюють фізичний простір міст, але й створюють нові форми просторів – цифрові середовища, цифрові платформи, цифрові спільноти. Це дозволяє нам розвинути концепцію «цифрової джентрифікації» як феномену, що описує процеси витіснення, ексклюзії та трансформації в цифровому просторі. Мета дослідження полягає у визначенні сутності цифрової джентрифікації і її типологізації, що дозволить охарактеризувати позитивні та негативні наслідки процесів джентрифікації для нерівності з позицій соціально-просторової трансформації.

Цифрове середовище визначено нами як комунікаційне середовище цифрових пристрій та середовище формування цифрової нерівності. Розглядаючи цифрове середовище як основу складної мережі цифровых взаимодій, ми можемо краще зрозуміти відмінності, що виникають у доступі до технологій, їх використання та навички, пов'язані з технологіями. У контексті просторової нерівності домогосподарство виступає ключовим суб'єктом, оскільки його соціально-економічне становище безпосередньо залежить від просторових можливостей: доступу до інфраструктури, робочих місць, соціальних послуг, екологічних умов тощо. Просторова локалізація домогосподарства визначає його включеність у соціально-економічні процеси та можливості для розвитку. В умовах цифровізації поняття «домогосподарство» істотно модифікується. Відбувається розмивання просторових меж,

індивідуалізація економічної поведінки, віртуалізація споживання, змінюються моделі розподілу ролей та прийняття рішень всередині домогосподарств, що пов'язано із новими можливостями для самореалізації, які надає цифрова економіка. Ці трансформації ставлять під сумнів адекватність традиційного розуміння домогосподарства як єдиного, просторово локалізованого суб'єкта економічної діяльності. По суті, в умовах цифрової трансформації відбувається модифікація традиційних домогосподарств у «цифрові спільноти» (групи індивідів, об'єднані спільними інтересами або цілями в цифровому просторі, які здійснюють економічну діяльність) або «віртуальні колективи» (тимчасові об'єднання індивідів для реалізації короткострокових проектів на кшталт краудсорсингових ініціатив) або у децентралізовані автономні організації (форми колективної економічної діяльності, засновані на блокчайн-технологіях та смарт-контрактах). Формуються гібридні домогосподарства – розподілені домогосподарства. Ми пропонуємо розглядати цифрову джентрифікацію як процес трансформації просторів цифрової взаємодії та цифрових платформ, який характеризується зміною характеру та посередницьких функцій цифрового середовища, що супроводжується переоцінкою цифрових активів в інтересах нових груп користувачів або компаній-даталістів, маргіналізацією або витісненням початкових користувачів, примусовою симпліфікацією цифрової спеціалізації внаслідок розвитку ІКТ, що дозволило виокремити платформенну джентрифікацію, просторову цифрову джентрифікацію, інфраструктурну цифрову джентрифікацію, алгоритмічну джентрифікацію, культурну цифрову джентрифікацію, інформаційну джентрифікацію, економічну цифрову джентрифікацію, професійну цифрову джентрифікацію, віртуально-просторову джентрифікацію.

Ключові слова: трансформація, диджиталізація, автоматизація, стратифікація, джентрифікація, смарт-місто, урбанізація, нерівність, конкуренція, продуктивність, інновація, технологія, технологічний розвиток, інноваційний розвиток, цифровий розвиток, цифрова економіка, економіка платформ, екосистема, Індустрія 4.0, ІІІ, ІКТ, R&D, попит, пропозиція, міграція, висококваліфікована робоча сила, ринок праці.

Introduction. We are witnessing powerful transformational processes that involve the emergence of new forms of inequality that combine digital, spatial, economic and social aspects. Inequality in access to digital infrastructure, inequality in digital skills and digital literacy, inequality in the use of digital technologies as new forms of social stratification are forms of manifestation of various digital gaps, which in the professional literature are simplistically synonymous with digital inequality, which, in our opinion, objectively acquires new forms of manifestation. Digital and spatial inequality coexist in at least two forms of manifestation – digital periphery and digital gentrification. Digital periphery is the result of the formation of territories with limited access to digital infrastructure, which in the context of digitalization of economic processes inevitably leads to economic marginalization. Digital gentrification is considered as a consequence of the increase in the cost of housing in areas with developed digital infrastructure due to the internal migration of digital workers. We believe that this approach to defining digital gentrification requires deepening, because in the era of digitalization, digital technologies not only change the physical space of cities, but also create new forms of spaces – digital environments, digital platforms, digital communities. This allows us to develop the concept of "digital gentrification" as a phenomenon that describes the processes of displacement, exclusion and transformation in digital space.

The review of the literature. The socio-economic manifestations of digital transformations (Vdovychenko, Yu., 2018; Kraus, N., Holoborodko, O., & Kraus, K., 2018; Plakhtii, M. A., 2020; Trokhymets, O., Tomareva-Patlakhova, V., & Semenov, A., 2024; Tulchynskyi, R. V., & Horbatiuk, M. R., 2023; *Tsyfrova transformatsiia ekonomiky: mikro- ta makroaspeky*, 2022; Yakushko, I. V., 2022) and their impact on the emergence of new forms of inequality and rivalry are highlighted in the works of Ukrainian scientists (Bulatova, O. V., Reznikova, N. V., & Ivashchenko, O. A., 2023; Krysvatyi, A., Desiatniuk, O., & Ptashchenko, O.,

2023; Panchenko, V., Reznikova, N., Ivashchenko, O., & Rusak, D., 2024; Perfilieva, A., Siliutina, I., Antypenko, N., & Vlasenko, D., 2022; Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023; Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023; Reznikova, N. V., Karp, V. S., & Ivashchenko, O. A., 2023; Reznikova, N. V., Rubtsova, M. Yu., & Ivashchenko, O. A., 2019; Reznikova, N. V., Chuhaiiev, O. A., Ptashchenko, O. V., & Ivashchenko, O. A., 2023; Desyatnyuk, O., Krysovatty, A., Ptashchenko, O., & Kyrylenko, O., 2024; Desyatnyuk, O., Krysovatty, A., Ptashchenko, O., & Kyrylenko, O., 2025; Desyatnyuk, O., Krysovatty, A., Ptashchenko, O., Kyrylenko, O., & Kurtsev, O., 2025; Reznikova, N. V., Ptashchenko, O. V., Chugayev, O. A., & Ivashchenko, O. A., 2022; Shlapak, A., Yatsenko, O., Ivashchenko, O., Zarytska, N., & Osadchuk, V., 2023) and foreign scientists (Bijker, W. E., Hughes, T. P., & Pinch, T., 1987; Brennen, S., & Kreiss, D., 2014; Bresnahan, T. F., & Trajtenberg, M., 1995; Saura Garcia, C., 2024a; Saura García, C., 2024b), among which we highlight the works of P. Di Maggio, F. Garip, E. Hargittai (DiMaggio, P., & Garip, F., 2012); DiMaggio, P., & Hargittai, E., 2001). The British sociologist R. Glass (Glass, R., 1964) is the author of the theoretical concept of physical gentrification – this term she used to describe socio-economic changes in working-class areas of London. The global perspective of gentrification and its chronology are noted in the works of Davidson M, Lees, L. (Davidson, M., & Lees, L., 2010), K. F. Gotham (Gotham, K. F., 2005), M. Graham, S. De Sabbata, M.A. Zook (Graham, M., De Sabbata, S., & Zook, M. A., 2015), C. Hamnett (Hamnett, C., 2003), R. Kitchin (Kitchin, R., 2014), L. Lees, T. Slater, E. Wyly (Lees, L., Slater, T., & Wyly, E., 2008). Despite the growing attention to digital transformations, in-depth research is needed on the latest manifestations of gentrification, which will allow us to offer a comprehensive approach to digital stratification at a new qualitative level.

The purpose of the article. The purpose of the study is to determine the essence of digital gentrification and its typology, which will allow us to characterize the positive and negative consequences of gentrification processes for inequality from the perspective of socio-spatial transformation.

The main material of the article. R. Glass (Glass, R., 1964) identified the main characteristics of gentrification as class displacement, physical transformation of space, change in the social and cultural character of the area, as well as dynamic development processes that accompany the rise of representatives of the working class by representatives of the middle class, who bought the apartments upon completion of the lease, putting them on the road of insanity, thereby changing the “social portrait” of the area. Over time, the concept of gentrification evolved and was supplemented by the concepts of new-build gentrification, super-gentrification, tourist gentrification, commercial gentrification, which allowed the actualization of new mechanisms of stratification.

The author of the concept of technofeudalism, Y. Varoufakis (Varoufakis, Y., 2021), coined the concept of technofeudalism from terminologists to describe the new system of water supply, which is the rise of primary capitalism. Technofeudalism is a by-product of platform capitalism and precautionary capitalism (Zuboff, S., 2019). Techno-feudalism of ideas as a new macroeconomic system. C. Saura García (Saura Garcia, C., 2024a; Saura García, C., 2024b) at a high theoretical level lays out the basis for data-feudalism as a manifestation of digital expansionism.

Digital expansionism violates the digital boundaries that divide the global information space. Digital boundaries are social constructs that can be divided into discursive and ontological levels. The discursive level is a reflection of power relations and discourse in the international arena. The ontological level is infrastructure, software, and digital content. There is a complex interdependence between the two levels, which do not coincide. At the discursive level, states act as subjects of formation that seek to strengthen their sovereignty and protect themselves from information security threats. A feature of digital territories and digital borders is their dynamism – they are constantly changing and rebuilding, and the creation of new territories and new dimensions of cyberspace occurs as a result of the activities of states and non-state actors. The

digital environment is an integrated communication environment in which digital devices interact and manage content and actions in it. The digital environment is a communication environment of digital devices and an environment for the formation of digital inequality. By viewing the digital environment as the basis of a complex network of digital interactions, we can better understand the differences that arise in access to, use of, and technology-related skills.

Economic inequality refers to differences in economic well-being between individuals or groups of individuals. Within-country economic inequality begins to increase after technological advances in the management of human capital, labor, skills, and competencies occur within a country. Economic inequality is not measured solely by income differences, but encompasses a broader range of factors, including: wealth, which reflects the longer-term accumulation of resources and power; income (refers to the flow of money received over a given period, including wages and investments); access to resources (health care, education, housing, and social safety nets); opportunity (availability of avenues for economic advancement, including education, training, and access to capital or loans). The choice of unit of measurement of inequality – the individual, the household, or the family – affects the assessment of inequality. Because income is typically distributed within a household or family, the most common unit of measurement for income differences is the household, which is an economic unit consisting of one or more people (not necessarily a family) who jointly own and control income and accumulated wealth. Income differences between households are typically lower than those between individuals. In the context of spatial inequality, the household is a key entity, since its socio-economic situation directly depends on spatial opportunities: access to infrastructure, jobs, social services, environmental conditions, etc. The spatial localization of the household determines its inclusion in socio-economic processes and opportunities for development. In the context of digitalization, the concept of “household” is significantly modified. There is a blurring of spatial boundaries, individualization of economic behavior, virtualization of consumption, and changes in the models of role distribution and decision-making within households, which is associated with new opportunities for self-realization provided by the digital economy. These transformations question the adequacy of the traditional understanding of the household as a single, spatially localized entity of economic activity.

The digital transformation of the economy creates new opportunities and challenges. There is a transformation of consumption – the replacement of ownership with access, personalized consumption is spreading, which affects the possibility of generating economies of scale. A separate type of economic entity is being formed – the prosumer, who is both a producer and consumer of digital content, a digital product or a digital service. Prosumerism blurs the lines between production and consumption. Lowering barriers to entry allows households to create micro-enterprises with minimal initial investment. Households gain access to a wide range of financial instruments through fintech platforms. New opportunities arise for households to raise and invest funds outside the traditional banking system. Using decentralized finance and cryptocurrencies, households are experimenting with alternative forms of saving and increasing capital. In essence, in the context of digital transformation, traditional households are being modified into “digital communities” or “virtual collectives” or into decentralized autonomous organizations (Table1).

Table 1

Digital household as an actor of digital gentrification

Aspect	Traditional household	Digital household
Spatial localization	Attachment to a specific place of residence	Geographical distribution. Virtual presence
Economic background	Shared budget	Partially integrated or autonomous budgets
Dynamism	Relatively stable composition and structure	Dynamic composition, flexibility, temporality, situationality
Base of formation	Family ties	Common interests, common competencies

Economic functions	Consumption, investments	savings, consumption, savings, investment, production, prosumerism, crowdfunding, sharing
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Source: compiled by the authors

Hybrid households are being formed – distributed households (family members who live in different locations but maintain economic unity thanks to digital communications), platform households (households that actively interact with digital platforms as consumers and suppliers of resources (housing, transportation), digital household ecosystems (networks of interconnected digital devices, services, and platforms that ensure the economic activity of households).

We propose to consider digital gentrification as a process of transformation of digital interaction spaces and digital platforms, which is characterized by a change in the nature and intermediary functions of the digital environment, accompanied by a revaluation of digital assets in the interests of new user groups or data-driven companies, marginalization or displacement of initial users, forced simplification of digital specialization due to the development of ICT, which allowed us to distinguish platform gentrification, spatial digital gentrification, infrastructure digital gentrification, algorithmic gentrification, cultural digital gentrification, informational gentrification, economic digital gentrification, professional digital gentrification, virtual-spatial gentrification (Fig.1).

Platform gentrification

transformation of digital platforms from community-oriented, non-profit or alternative forms to more commercialized and standardized ones

Spatial digital gentrification

result of the impact of digital technologies on physical space, determining its value and prospects for commercialization (geographical information systems, digital maps that unevenly represent areas and objects, which affects short-term rental platforms and real estate ratings)

Infrastructure digital gentrification

result of uneven distribution and access to digital infrastructure (uneven implementation of broadband internet, 5G networks, concentration of digital hubs, uneven distribution of free internet)

Algorithmic gentrification

the result of discrimination against certain groups of people due to the operation of algorithms used in search engines and recommendation systems, social networks that personalize content and imply bias in data or design

Cultural digital gentrification

the result of the marginalization or displacement of certain groups due to changes in cultural norms, practices, and representation in the digital space, which is expressed in the commercialization of subcultures, the transformation of platforms popular among certain age groups, and the standardization of online aesthetics

Informational gentrification

the result of uneven distribution and representation of information in digital space (bias in geodata; "data deserts" about which little digital information exists)

Economic digital gentrification

the result of the commercialization and monetization of digital devices, platforms, and data, which can lead to the exclusion or marginalization of certain users or practices (paid content; data monetization; digital labor markets that affect working conditions and earnings)

Professional digital gentrification

the result of the transformation of professional and creative spheres under the influence of digitalization and platforms (platforms for freelancers, digital marketplaces for creative works, platforms for professional training, which can change working conditions, competition and career trajectory)

Virtual-spatial gentrification

the result of the transformation of virtual spaces, leading to their commercialization and causing changes in the management and control of virtual assets/metases

Fig. 1. Typology of digital gentrification

Source: compiled by K. Oliinyk

Using the technofeudal approach as a theoretical basis for analyzing digital gentrification, we define it as a specific process of transformation of digital spaces that can occur within different economic systems, drawing on historical analogies of urban transformation and recognizing the ambivalent impact on inequality that varies depending on its stage ("pioneer" digital gentrification, when new digital spaces and digital innovations are experimental; popularization stage, when, against the background of improving user experience and accessibility, the first signs of commercialization and potential displacement of initial users or practices are recorded; "corporate" digital gentrification stage, when digital space becomes fully commercialized and integrated into a broader system, which can lead to maximum efficiency, security and accessibility, but also to standardization, restriction of freedom and concentration of power; "digital decline" stage, when, after prolonged commercialization and standardization, digital platforms can lose their innovativeness, leading to a gradual outflow of users and the emergence of new, alternative platforms or spaces, starting a new cycle).

We recognize the interrelationship between physical and digital gentrification, which are mutually reinforcing, as digital technologies act as catalysts for physical gentrification (digital maps, geographic information systems, location-based services that create a digital representation of physical space that influences its perception, use, and value), while changing the use of urban spaces. Physical gentrification often includes the development of infrastructure that supports digital spaces (coworking spaces, startup hubs, high-speed internet).

Conclusions. Digital transformation does not so much eliminate spatial aspects of social inequality as reconfigures them, creating complex interdependencies between the physical and virtual spaces of household life and economic agents' management. Digital transformation modifies the meaning of physical space for establishing interaction between economic agents on both the demand and supply sides. The criterion of proximity to the employer ceases to play a leading role, which affects not only the cost of rent, but in a broader context – on the flows of international migration in the segment of skilled and technologically educated workers. The developed digital infrastructure of smart cities becomes one of the most important criteria for attracting highly productive specialists employed in digital entrepreneurship and the digital platform economy, which allows combining various manifestations of digital employment and, in a broader sense, the gig economy as a specific form of the labor market. Spatial mobility under the influence of digitalization forms processes of multilocality and suburbanization of a new type, which provide for the possibility of remote work, which is extremely important for curbing uncontrolled urbanization, which actualizes the problem of energy security in the conditions of digital transition. As a result, a new glocalization of households is formed – the integration of physical and digital infrastructure in the everyday practice of households. Social mobility in the conditions of digital transformations exacerbates the gap between highly paid specialists who own digital technologies and are not limited by the geography of residence and carriers of low-paid skills, who are implemented in the halo of physical residence. Digital gentrification is a process of transformation of digital interaction spaces and digital platforms, characterized by a change in the nature and intermediary functions of the digital environment, accompanied by a revaluation of digital assets in the interests of new user groups or data-driven companies, marginalization or displacement of initial users, forced simplification of digital specialization due to the development of ICT, which allowed us to distinguish platform gentrification, spatial digital gentrification,

infrastructure digital gentrification, algorithmic gentrification, cultural digital gentrification, informational gentrification, economic digital gentrification, professional digital gentrification, and virtual-spatial gentrification.

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TRANSFORMATION OF PUBLIC ADMINISTRATION IN THE CONTEXT OF ECONOMIC AND FINANCIAL SECURITY: CHALLENGES OF GLOBALIZATION OF INTERNATIONAL RELATIONS

ТРАНСФОРМАЦІЯ ПУБЛІЧНОГО УПРАВЛІННЯ В КОНТЕКСТІ ЕКОНОМІЧНОЇ ТА ФІНАНСОВОЇ БЕЗПЕКИ: ВИКЛИКИ ГЛОБАЛІЗАЦІЇ МІЖНАРОДНИХ ВІДНОСИН

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Abstract. The article examines the theoretical and practical aspects of the transformation of public governance in the context of intensifying globalization processes, which significantly affect the level of economic and financial security of the state. The authors emphasize the growing interdependence between countries, which generates new challenges for governance systems, particularly those arising from global economic crises, cyber threats, transnational crime, and financial market instability. Special attention is given to the development of digital technologies, which, on the one hand, offer new opportunities for governance processes and, on the other, introduce new risks to economic security. The study analyzes modern approaches to public governance reform, which involve enhancing institutional capacity, transparency, efficiency, and resilience of administrative systems. The necessity of shifting from reactive to proactive management strategies based on principles of adaptability, digitalization, and resilience to global shocks is substantiated. Considerable attention is devoted to the analysis of international experience in ensuring economic and financial security through managerial innovations, improvements in legal and regulatory frameworks, and the development of public-private partnerships. A special focus is placed on the transformation of public governance in Ukraine under conditions of war and geopolitical instability. The authors argue that, in order to strengthen the country's economic and financial security, a systemic renewal of governance approaches is required, taking into account both the global context and national specificities. In this regard, the article provides recommendations for the formation of a modern governance culture aimed at

strategic thinking, openness, cross-sectoral coordination, and sustainable development. The research findings can be applied to improve public policy in the field of economic and financial security and to shape new models of public governance capable of effectively responding to the challenges of globalization and supporting national resilience.

Key words: *public administration, financial security, economic security, mechanism, international economy, public policy, transformations, globalization*

Анотація. У статті розглянуто теоретичні та практичні аспекти трансформації публічного управління в умовах посилення глобалізаційних процесів, що значно впливають на рівень економічної та фінансової безпеки держави. Автори акцентують увагу на зростаючій взаємозалежності між країнами, яка зумовлює появу нових викликів для систем управління, зокрема з боку глобальних економічних криз, кіберзагроз, транснаціональної злочинності та нестабільності фінансових ринків. Окремо підкреслено значення розвитку цифрових технологій, які, з одного боку, відкривають нові можливості для управлінських процесів, а з іншого – створюють нові ризики для економічної безпеки. У дослідженні проаналізовано сучасні підходи до реформування публічного управління, що передбачають підвищення інституційної спроможності, прозорості, ефективності та стійкості управлінських систем. Обґрунтовано необхідність переходу від реактивних до проактивних стратегій управління, які базуються на принципах адаптивності, цифровізації та стійкості до глобальних потрясінь. Значну увагу приділено аналізу міжнародного досвіду у сфері забезпечення економічної та фінансової безпеки через управлінські інновації, удосконалення нормативно-правового забезпечення та розвиток публічно-приватного партнерства. Особливе місце в статті займає аналіз трансформацій публічного управління в Україні в умовах війни та геополітичної нестабільності. Автори доводять, що для підвищення рівня економічної та фінансової безпеки країна потребує системного оновлення управлінських підходів, з урахуванням глобального контексту та національних особливостей. У цьому контексті запропоновано рекомендації щодо формування сучасної управлінської культури, орієнтованої на стратегічне мислення, відкритість, міжсекторальну координацію та забезпечення стабільного розвитку. Результати дослідження можуть бути використані для удосконалення державної політики у сфері економічної та фінансової безпеки, а також для формування нових моделей публічного управління, здатних ефективно реагувати на виклики глобалізації та підтримувати національну стійкість.

Ключові слова: *публічне управління, фінансова безпека, економічна безпека, механізм, міжнародна економіка, державна політика, трансформації, глобалізація*

Introduction. In the current context of globalization of international relations, the issue of transforming public governance has become particularly relevant. The growing interdependence of states, dynamic changes in the global economy, digitalization of financial systems, as well as new geopolitical challenges necessitate a revision of approaches to ensuring economic and financial security. Countries are increasingly facing the need to adapt their public governance systems to emerging threats, including cyberattacks, global market instability, energy crises, and transnational economic crime.

In this regard, there is an objective need to strengthen the institutional capacity of the state, enhance transparency and efficiency in governance processes, and improve intergovernmental coordination in the field of security. Achieving these goals is possible through the implementation of innovative management practices, the active use of digital technologies, improvements to the legal and regulatory framework, and the development of public-private partnerships. Equally important is the formation of a new governance culture focused on openness, strategic thinking, and resilience to global shocks.

Thus, the transformation of public governance in the context of modern globalization is not only a demand of the times but also a prerequisite for stable socio-economic development, the preservation of national security, and effective engagement in the international arena. Ukraine, as a country with a high level of external vulnerability and undergoing internal transformation, faces an especially urgent need to reconsider its public governance mechanisms in light of current challenges. These issues have become particularly critical in the context of the Russian Federation's invasion.

This situation underscores the necessity of ensuring economic and financial security through the implementation of effective and efficient mechanisms that take into account the principles of sustainable development and globalization. Consequently, there is a growing understanding that governance systems must not only respond to crises but also proactively shape development strategies based on resilience, flexibility, and a targeted focus on security indicators. Today, the assurance of a country's economic and financial security depends not only on fiscal and economic policy but also on the effectiveness of institutions capable of implementing reforms and responding to external threats.

The purpose of the article. The purpose of the study is to analyze the transformations of public governance under the influence of globalization processes in the context of ensuring economic and financial security, as well as to develop scientifically grounded approaches to improving management decisions.

To achieve this goal, the following objectives must be addressed:

1. To explore the theoretical foundations of public governance transformation in a globalized environment;
2. To analyze the challenges to financial and economic security in relation to the functioning of governance systems;
3. To outline the prospects for the development of the public governance system in Ukraine, taking into account international experience.

The methodological basis of the article includes systemic, institutional, and structural-functional approaches, which allow for a comprehensive examination of the research problem.

Literature review. Research in the field of public administration is not a new phenomenon in economic science. However, the current conditions of digitalization and globalization necessitate a revision of existing studies and the implementation of new tools into traditional mechanisms of economic and financial security. This becomes possible through the transformation of public administration. Nevertheless, it is important to identify the fundamental works that formed the basis for the present study.

In recent years, the scientific discourse has increasingly focused on the digital transformation of public governance in the context of global challenges, particularly economic and financial security. A significant contribution to this field has been made by both domestic and international scholars, who examine various aspects of digitalization, governance transparency, civic engagement, and business support instruments.

In particular, I. O. Shevchenko (*Shevchenko, 2024*), in her research, emphasizes the relationship between the digitalization of administrative processes and the increase in transparency of public policy, as well as the creation of conditions for an effective investment climate. She also analyzes modern financial instruments for business support—such as factoring, forfaiting, and leasing—which are gaining special relevance under conditions of global economic challenges.

The work by Kvitka et al. (*Kvitka, 2020*) highlights promising directions for the digital transformation of public administration, emphasizing the need for a strategic approach to implementing digital solutions. In turn, Pihariiev and Kosteniuk (*Pihariiev, 2021*) identify digitalization as a key factor in Ukraine's national digital transformation, which directly impacts the effectiveness and security of governance decisions.

Terminological clarity and standardization of digital processes in public administration are examined by Ya. Sandul (*Sandul, 2022*), who emphasizes the need to harmonize the "digital

language" of governance in the context of globalization. Syrotin (Syrotin, 2023) supplements this perspective with an analysis of digitalization in the sphere of public administration, focusing on the regional aspects of implementing digital tools.

Despite the broad presence of the topic of digital transformation in academic literature, certain aspects remain insufficiently explored—such as the integration of digital tools into the state's financial security system and the comprehensive merging of globalization challenges with local administrative transformations. This justifies the relevance of further research into the transformation of public governance specifically in the context of economic and financial security, which is the subject of this article.

Main results of the research. Modern public governance is undergoing profound transformation driven by multiple factors: the intensification of globalization processes, the development of digital technologies, the increasing complexity of international economic relations, and the exacerbation of security challenges. Under such conditions, states are compelled to rethink the functions and structures of public administration, forming a new quality of state policy oriented towards resilience and adaptability.

Globalization, on the one hand, opens new opportunities for interaction between countries, market integration, and the diffusion of innovations; on the other hand, it creates risks of losing control over internal processes, reducing the financial autonomy of states, and increasing vulnerability to external crises. These challenges shift the priorities of public governance, which must ensure not only development but also the preservation of economic and financial stability as integral components of national security.

Theoretical foundations of public governance transformation in a globalized environment

The theoretical understanding of public governance transformation is based on institutional theory, which emphasizes the role of formal and informal rules in maintaining the stability of governance systems, as well as on good governance theories that highlight transparency, efficiency, accountability, and citizen participation. Contemporary approaches increasingly incorporate elements of strategic thinking, scenario modeling, and risk management.

The scientific novelty lies in the development of a systemic model that interrelates globalization challenges with the adaptability of public administration institutions. The model accounts for three levels of influence: macroeconomic (external environment), mesoeconomic (national policies and structures), and microeconomic (tools for implementing managerial decisions), enabling the assessment of the resilience of state governance amid ongoing turbulence. The systemic model allows identification of weak links in adaptability at each level and how they interact with each other. It forms the basis for evaluating the institutional resilience of state governance in the context of multi-level globalization challenges.

Thus, effective transformation of public administration involves not only formal changes in legislation or the structure of government bodies but also a profound reorientation of managerial approaches based on the principles of strategic adaptation, crisis management, and an integrated security vision.

Analysis of Challenges to Financial and Economic Security in Relation to the Functioning of Governance Systems

Financial and economic security constitute fundamental determinants of a state's sustainable development and its capacity to effectively respond to both external and internal challenges. In the twenty-first century, these aspects have acquired heightened significance due to the increased interdependence of global financial markets, recurrent crises, and the volatility of the geopolitical environment. Within this context, public administration should be regarded not merely as an instrument for policy implementation but as a guarantor of national security.

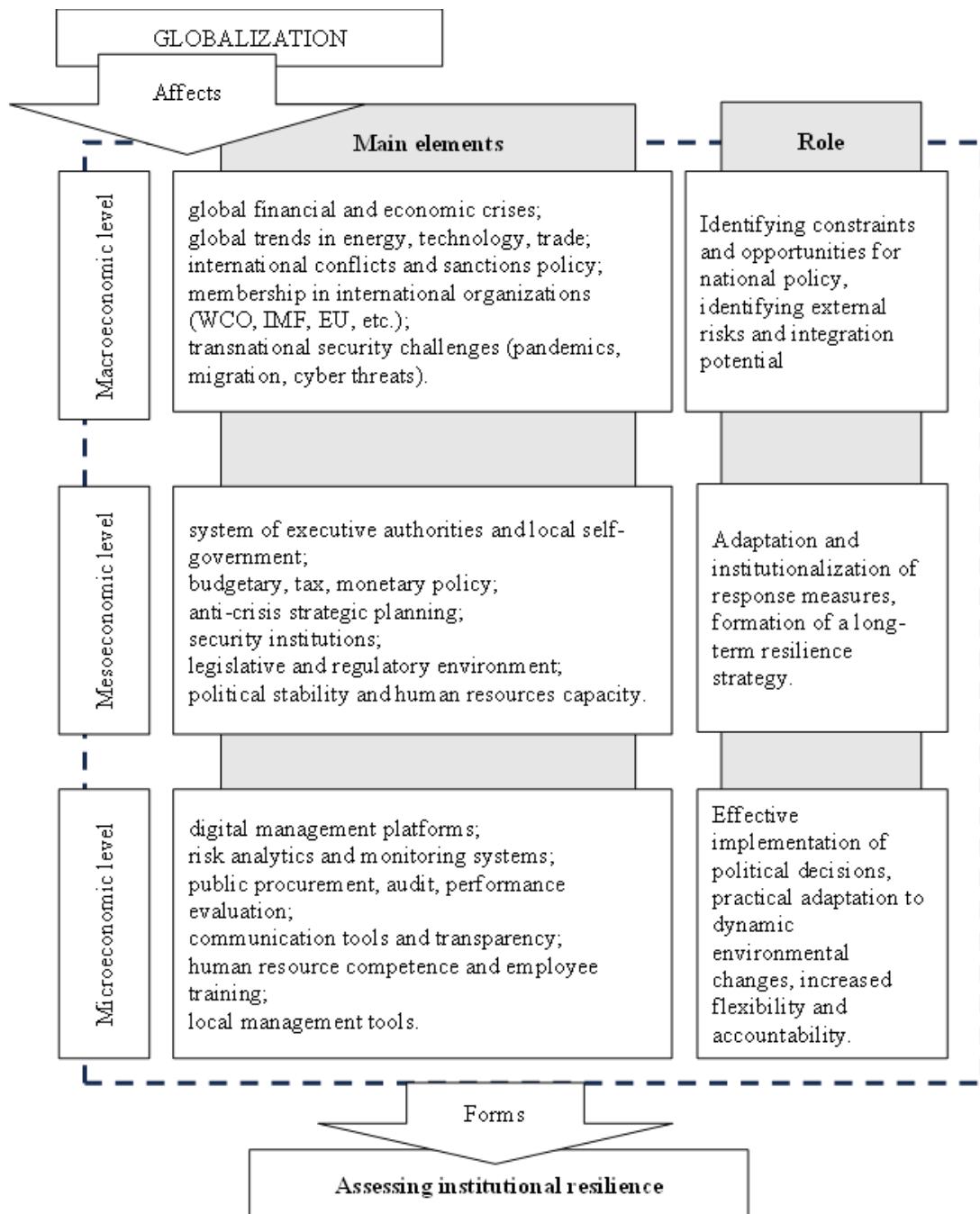


Fig.1 System Model of the Relationship Between Globalization Challenges and the Adaptability of Public Administration Institutions

Source: author's development

Contemporary public administration systems must address a complex array of financial risks, including budget deficits, inflationary pressures, currency instability, diminishing investment attractiveness, and debt dependency. From an economic standpoint, security encompasses the state's ability to maintain macroeconomic equilibrium, foster GDP growth, enhance economic competitiveness, and support critical infrastructure alongside social stability. Simultaneously, globalization has transformed the character of economic and financial threats, rendering them transnational, increasingly unpredictable, and closely associated with technological disruptions, cyber threats, and hybrid warfare. Particular emphasis should be placed on international best practices. Countries such as Finland, Canada, and South Korea exemplify successful integration of security mechanisms within the framework of public administration, notably through the deployment of integrated platforms for financial risk monitoring, facilitation of public participation

in decision-making processes, and the systematic assessment of vulnerabilities. For Ukraine, the adoption of such approaches presents a promising avenue for ongoing reforms.

Table 1.
Comparative analysis of macroeconomic indicators and financial security of countries in the context of public administration (2019–2024)

Indicator / Country	Finland	Canada	South Korea	Ukraine
Public debt (% of GDP)	85% (2021) → 88,8% (2024)	70,7% (2021) → 57,9% (2022)	42% (2019) → 54% (2023) → 60%+ (2024+)	49% (2021) → over 85% (2023) [including external aid]
Budget deficit (% GDP)	-2,5% → -4,0%	Approximately -5% (y 2023)	-0,02% → -1,8%	over -20% (2022–2023) due to war and resource mobilization
Inflation (%)	7,0% → 3,1%	5,0% → 3,25%	5,0% → 3,25%	26,6% (2022), 5,1% (2023), forecast ~8% (2024)
Unemployment (%)	7,0% → 7,8%	~5,0%	~3,0%	over 20% (2022), 18,1% (2023), forecast ~16–18% (2024)
Labor Productivity	Moderate Growth	0% growth (2019–2024)	Gradual growth	Decline since 2022, gradual recovery expected from 2024
Institutional Response	Digitalization, Fiscal Stabilization	Budget discipline, monitoring	Risk prediction, public engagement	Military administration, digitalization (“Diia” platform), fiscal control

A comparative analysis indicates that all examined countries face financial and economic challenges of varying intensity, driven by global instability, inflationary pressures, and increasing debt burdens. Ukraine, amid a full-scale war, exhibits critically high risks in the sphere of financial security, accompanied by a significant budget deficit, inflation, and high unemployment. At the same time, the experiences of Finland, Canada, and South Korea demonstrate the effectiveness of systemic governance solutions — including digitalization, integrated monitoring, and public participation — as key tools for adapting to these challenges. This underscores the relevance of implementing a comprehensive public administration model capable of promptly responding to both external and internal threats in economic and financial domains.

The scientific novelty lies in identifying the key mechanisms for integrating economic and financial security into the strategic planning system of public administration. This approach not only enhances decision-making efficiency but also ensures their resilience under conditions of uncertainty. It is proposed to consider economic and financial security as criteria for the effectiveness of state policy, thereby introducing a new framework for evaluating management decisions.

Thus, the transformation of public administration in the context of economic and financial security entails comprehensive reform of management processes — from strategic forecasting to institutional provision of control and transparency. This is critically important for the formation of a new model of state governance oriented towards sustainable development and a secure future.

Prospects for the Development of the Public Administration System in Ukraine Considering International Experience

Reforming the public administration system in Ukraine is a critically important task against the backdrop of increasing global challenges. The unstable security situation, the impact of international sanctions, external economic pressures, and the internal need for transparency in governance processes necessitate a comprehensive reassessment of the functioning of state authorities and local self-government bodies.

One of the key challenges is low institutional capacity — many government bodies remain inefficient in planning, implementing, and controlling state policies. This issue is compounded by personnel problems, insufficient digitalization, and limited access to high-quality analytics in decision-making. Consequently, the effectiveness of mechanisms responding to crises in the economy and finance is diminished.

Recent Ukrainian reforms — particularly in decentralization, digital governance (the “Diia” project), and anti-corruption policy — have demonstrated potential for positive change but simultaneously revealed deep structural fragmentation between management levels and the absence of a unified coordination strategy. A significant portion of management decisions are implemented in a “reactive” mode, lacking systematic alignment with long-term security and development goals.

In the current context of systemic crises caused by war, global instability, and the transformation of international economic relations, there is an urgent need to develop a new public administration architecture capable of flexible adaptation to change. In this regard, it is essential to design a model that accounts for the multi-level nature of influences — from the global environment to the instruments of governance implementation.

The adaptive three-tier model represents an attempt to systematically integrate macroeconomic, mesoeconomic, and microeconomic levels of analysis, drawing on best international practices (Finland, Canada, South Korea) to identify effective directions for enhancing Ukraine’s managerial capacity.

Table 2.

Indicative Development Trajectory of Ukraine Considering International Experience

Level	Challenges	Best Practices	Recommendations for Ukraine
Macro	External debt, inflation	Debt Sustainability Monitoring (Korea)	Establishment of debt limits and aid auditing
Meso	Budget deficit, political instability	Participatory Planning (Finland)	Involvement of the public in anti-crisis strategies
Micro	Ineffectiveness of management tools	Digital Management Platforms (Canada)	Integration of “Diia” with public finance management

The developed adaptive development trajectory for Ukraine enables a comprehensive assessment of the impact of global challenges on the effectiveness of the public administration system. At the macro level, it takes into account external threats such as economic instability, inflation, and debt pressure; at the meso level — institutional response mechanisms, state policy, and fiscal discipline; and at the micro level — specific tools for decision implementation, digital platforms, and public participation. This development trajectory provides a foundation for formulating strategies to enhance the resilience of Ukraine’s public administration system, its capacity for forecasting, self-correction, and effective interaction with both internal and external environments. It also opens opportunities for the phased implementation of international experience into the national governance framework.

Prospects for Public Administration Reform in Ukraine include:

1. Development of a unified national public administration strategy integrated with security and sustainable development goals;
2. Strengthening the institutional independence of key bodies, particularly in the fields of financial monitoring, strategic planning, and state auditing;
3. Advancement of public-private partnerships to attract innovative resources and enhance economic resilience;
4. Implementation of an indicator-based approach for assessing governance effectiveness using risk-oriented models.

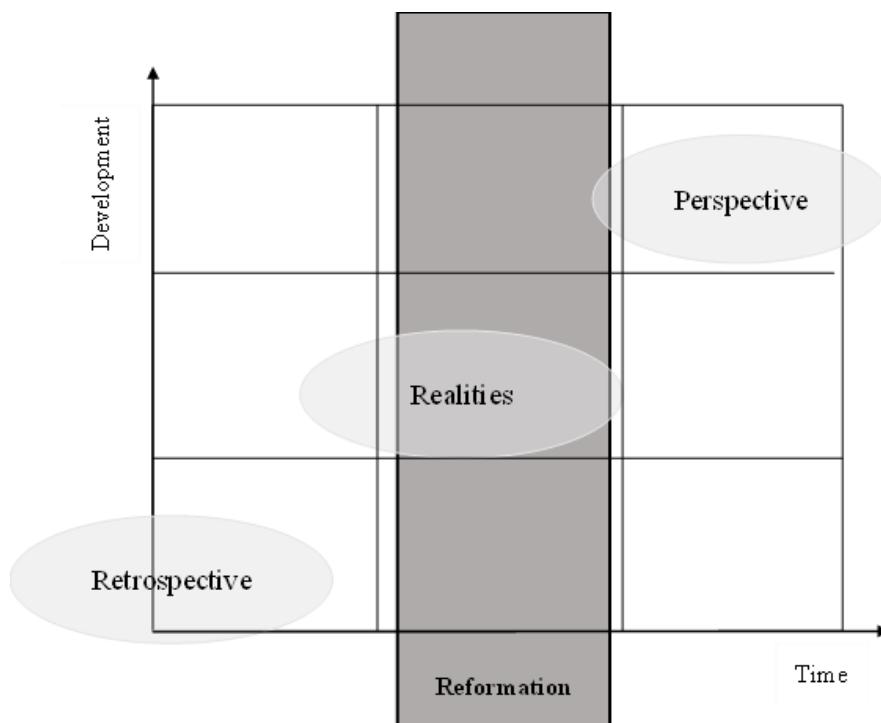


Fig. 2. Matrix Construction of Ukraine's Reform Scenario Plan

A positive example is the use of digital tools for public finance monitoring and policy evaluation based on open data — these instruments should be expanded to all levels of governance and linked to strategic planning systems.

Taking into account international experience, Ukraine possesses the potential to build a flexible, adaptive, and security-oriented model of public administration capable of functioning effectively under conditions of uncertainty.

Thus, public administration reform must be based not only on administrative restructuring but also on a profound reconsideration of its role as a system ensuring national security, economic stability, and social development.

Conclusions. In the current context of global turbulence—driven by economic instability, security threats, and technological transformations—the system of public administration requires profound structural transformation. A comparative analysis of international experiences (Finland, Canada, South Korea) and Ukraine's domestic practices reveals the necessity of transitioning from fragmented, reactive governance to a strategic, integrated, and adaptive model.

The scientific novelty of this study lies in the development of a three-tiered systemic model that enables comprehensive assessment of globalization challenges at the macro-, meso-, and micro-levels of public governance. This approach not only identifies vulnerabilities within the system but also facilitates the formulation of effective strategies for institutional resilience and administrative efficiency.

Key areas for reform include:

- the development of a unified national strategy for public administration aligned with security and sustainable development objectives;
- the implementation of digital platforms for monitoring public finance and decision-making processes;
- the expansion of civic participation in planning and evaluating public policy;
- the introduction of risk-oriented approaches to governance performance assessment;
- and the strengthening of institutional independence of bodies responsible for audit, strategic forecasting, and crisis response.

Thus, public administration in Ukraine must evolve into a coherent system capable not only of responding effectively to external shocks, but also of fostering a secure, stable, and forward-looking environment for national economic and societal development.

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IMPLEMENTATION OF CROSS-CULTURAL MARKETING MODELS INTO THE CONCEPT OF BEHAVIORAL ECONOMICS

ІМПЛЕМЕНТАЦІЯ МОДЕЛЕЙ КРОСКУЛЬТУРНОГО МАРКЕТИНГУ В КОНЦЕПТ ПОВЕДІНКОВОЇ ЕКОНОМІКИ

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Abstract. Behavioral economics considers deviations from rationality caused by cognitive biases, emotions and social factors. Cross-cultural marketing, thanks to a deep understanding of the cultural context, ensures the relevance, effectiveness and ethics of marketing campaigns in a global environment. The implementation of cross-cultural marketing models and tools in the concept of behavioral economics, the effective combination of their methodology allows developing and implementing marketing strategies in a global business environment, considering the glocalization trends of its functioning. The purpose of this article is to find common ground, implement cross-cultural marketing tools and approaches to rational and irrational behavior, studied in the concept of behavioral economics, into practice. It has been established that the combination of these two areas allows optimizing marketing strategies, adapting them not only to cultural characteristics, but also to psychological mechanisms of influence on consumer choice. Behavioral economics provides a powerful tool for influencing consumers. Key concepts, including bounded rationality, heuristics, prospect theory, and cognitive biases – the anchoring effect, the framing effect, and others – play a significant role in shaping decisions. The practical application of behavioral approaches in cross-cultural marketing is manifested in the adaptation of all elements of the marketing complex. Considering ethical aspects requires abandoning stereotypes and overcoming cultural biases to build trust with consumers. The synthesis of behavioral economics and cross-cultural marketing opens new opportunities for creating effective, culturally relevant, and ethically responsible marketing strategies.

Keywords: *intercultural communication, strategizing, global environment, rational and*

irrational behavior, framing, cognitive biases, neuromarketing, glocalization, hyperpersonalization, innovation, digital infrastructure.

Анотація. Поведінкова економіка враховує відхилення від раціональності, спричинені когнітивними упередженнями, емоціями та соціальними факторами. Кроскультурний маркетинг завдяки глибокому розумінню культурного контексту забезпечує релевантність, ефективність, етичність маркетингових кампаній в умовах глобального середовища. Імплементація моделей та інструментарію кроскультурного маркетингу в концепт поведінкової економіки, ефективне поєднання їх методології дозволяє розробляти і реалізовувати маркетингові стратегії в умовах глобального бізнес-середовища з врахуванням глокалізаційних трендів його функціонування. Метою даної статті є пошук спільних точок, впровадження в практику стратегування інструментарію кроскультурного маркетингу та підходи раціональної та іrrаціональної поведінки, досліджувані в концепті поведінкової економіки. Встановлено, що поєднання цих двох напрямів дозволяє оптимізувати маркетингові стратегії, адаптуючи їх не лише до культурних особливостей, а й до психологічних механізмів впливу на споживчий вибір. Поведінкова економіка надає потужний інструментарій для впливу на споживачів. Ключові концепції, серед яких обмежена раціональність, евристики, теорія перспектив, а також когнітивні упередження – ефект прив'язки (якорування), ефект фреймінгу та інші – відіграють значну роль у формуванні рішень. Практичне застосування поведінкових підходів у кроскультурному маркетингу проявляється у адаптації всіх елементів аркетингового комплексу. Врахування етичних аспектів вимагає відмови від стереотипів та подолання культурних упереджень для побудови довіри зі споживачами. Синтез поведінкової економіки та кроскультурного маркетингу відкриває нові можливості для створення ефективних, культурно релевантних та етично відповідальних маркетингових стратегій.

Ключові слова: міжкультурна комунікація, стратегування, глобальне середовище, раціональна та іrrаціональна поведінка, фреймінг, когнітивні упередження, нейромаркетинг, глокалізація, гіперперсоналізація, інновації, цифрова інфраструктура.

Introduction. In the context of increasing intercultural interaction, business success largely depends on the effectiveness of cross-cultural marketing. The modern market cannot be considered as a set of isolated units, because consumer segments are formed under the influence of cultural nuances and values. Companies need not only to understand these differences, but also to adapt their marketing strategies, content and products to the specific needs and expectations of each consumer group. Ignoring cultural differences can lead to ineffective or even offensive marketing campaigns, which can tarnish the brand's reputation and cause consumers to reject its products or services. Classical economic theory, based on the assumption of consumer rationality, is insufficient to explain real human behavior. Behavioral economics, integrating psychology into economic theory, offers a new understanding of decision-making processes, considering deviations from rationality caused by cognitive biases, emotions and social factors. Combining these two areas – behavioral economics and cross-cultural marketing – is key to optimizing marketing strategies, as it allows not only to adapt messages to cultural characteristics, but also to use psychological mechanisms to influence consumer choices.

Literature review. The issues of cross-cultural marketing and its optimization are studied by many scientists. The essence and features of cross-cultural marketing are revealed in their works by Sun J., Castaneda D.I., Ramírez C.A., Palmer D.E., Sarma S., Barbu C. and other scientists who emphasize the importance of cultural adaptation in the context of globalization, study the impact of cross-cultural communication on global marketing and branding strategies, and analyze the ethical aspects of cross-cultural marketing. An important tool for understanding cultural differences in the context of behavioral economics remains Hofstede G.'s theory of cultural dimensions. Behavioral economics, as a scientific direction, was initiated by Simon H. with the concept of bounded

rationality. Kahneman D. and Tversky A. developed prospect theory, which explains systematic deviations from rationality in the decision-making process. Bezgin K., Ushkalev V., Nouri P., Saleem H., Amjad A. and other authors consider the most common heuristics and cognitive biases characteristic of the marketing behavior of novice entrepreneurs and analyze the psychological influences on economic decision-making.

Main results. Personalized communication with diverse consumer segments is becoming a key factor in international competitiveness (*Sun, 2024*). These segments are shaped by a complex of cultural nuances and values. Thus, companies need not only to understand these cultural differences, but also to adapt their marketing strategies, content, and products to the specific needs and expectations of each group. This includes considering local trends, using adapted communication channels (for example, social networks and platforms popular in a particular region), and building an authentic brand that resonates with the cultural values of the target audience (*Sawaflahi, 2021*). Undoubtedly, successful interaction requires a deep analysis of consumer perception to identify patterns and trends in the behavior of different cultural groups, as well as flexibility and the ability to adapt culturally – from product development to customer support. In the era of digital-first strategies, effective cross-cultural communication is becoming not just an advantage, but a necessity for sustainable growth and expanding global presence (*Sun, 2024*).

Cross-cultural marketing focuses on understanding and considering cultural differences between different markets (*Castaneda, 2021*). It involves adapting marketing strategies, communications, and products to effectively interact with consumers from different cultural backgrounds. Cross-cultural marketing can be applied both within international marketing when a company enters individual foreign markets and globally – when a company realizes the need for cultural sensitivity to successfully operate in different parts of the world.

Successful international marketing campaigns often use cultural marketing tools to create a stronger connection with local audiences and demonstrate respect for their cultural identity. Therefore, in the context of cross-cultural marketing, it is extremely important to pay sufficient attention to various aspects of information presentation. In addition, an important aspect is the values of society, which are forever rooted in the minds of consumers, and, accordingly, form their priorities and are guides to their attitude towards various products and services. Traditions, customs, rituals also have a significant impact on purchasing behavior. Colors, symbols and visual images can carry different meanings in different cultures, so their use requires careful analysis. And, of course, the social structure of society (structure and attitude towards the family, social classes, gender roles, level of hierarchy, etc.) determines the process of making purchasing decisions and choosing the most effective communication channels to achieve the commitment of different consumer segments.

At the same time, it is important to develop and implement cross-cultural marketing strategies in conjunction with the general integration of this concept into the modern economic system. The latest trend in the development of the economic system is behavioral economics. Behavioral economics is an interdisciplinary scientific direction that combines psychology with economic theory and offers a new understanding of the processes of consumer decision-making by a person, completely different from what economists previously proposed. Unlike classical economics, within which it is assumed that agents act rationally, behavioral economics studies deviations from this rationality, which forms a more realistic picture of the choice process (*Angner, 2019*). In the neoclassical paradigm, which dominated economic thought for a long time, there were certain key assumptions about human behavior. First, it was assumed that consumers have unlimited cognitive abilities to process information, can logically analyze all available alternatives and choose the one that will maximize their expected utility, and have access to all the necessary information to make optimal decisions. They were seen as a kind of “unemotional calculators” that only seek to maximize their own benefit, regardless of the situation of others. Second, people's preferences were considered unchanging, independent of any external conditions. The model ignores the problems of

self-control based on the assumption that people can consistently act in accordance with their long-term goals without reacting to various impulses and temptations.

The modern view of this consumer portrait is different. Behavioral economics challenges each of these assumptions based on numerous psychological studies (Schettkat, 2018). Unlike the hypothetical "Homo Economicus", real people often have problems with self-control, are not always consistent and are prone to procrastination and impulsivity. In addition, people are far from always considering their own interests, instead they are also prone to altruism, empathy. Often people's choices are based on how information is presented, so there are several cognitive distortions that are interesting to consider exploring this issue. Nevertheless, it is important to emphasize that behavioral economics does not completely deny the existence of a rational consumer, nor does it claim that people always act irrationally. Instead, within the framework of behavioral economics, human behavior is a much more complex concept, and rationality has its limits. That is, a consumer can act rationally if the situation and his personal characteristics allow it, but in many real economic situations people tend to rely on intuition, emotions and simplified decision-making strategies, which leads to predictable deviations from the rational model. Therefore, replacing the neoclassical approach is not the task of behavioral economics, it complements and corrects it, makes its models more realistic and able to explain a wider range of economic phenomena.

It is interesting to consider the main concepts on which behavioral economics is based. One of them is the concept of bounded rationality, which was first proposed by Herbert Simon in the 1950s. He was one of the first scientists to disagree with the assumption of unlimited human capabilities for information processing. Herbert identified three factors that limit human rationality. The first is the presence of cognitive biases. The human brain still has limited computational capacity, memory, and attention. This is most evident in complex situations where there is a factor of anxiety and urgency, then a person cannot simultaneously process and consider all potentially relevant information. The next factor is the limitation of information. Often in the real world, information may be incomplete or unavailable. Sometimes obtaining it may require significant time and effort. That is why people rarely have all the information necessary to make an optimal decision. The third factor is time, namely its limited amount. Most people are faced with situations in which decisions need to be made quickly, which is an obstacle to a thorough analysis of all alternatives and their consequences.

These three factors are limitations due to which the clear and understandable chain of consumer thoughts presented in neoclassical theory is impossible. As a result, Simon proposed a concept within which people often do not look for the best possible option but choose the first one that meets a certain minimum level of their requirements. Thanks to this approach, it is possible to significantly save cognitive effort and time. However, it has a significant drawback, because it does not at all guarantee the achievement of maximum utility.

Prospect theory, developed by Daniel Kahneman and Amos Tversky in 1979, is one of the most important concepts in behavioral *economics* (Tversky, 1992). It offers a model of how people make decisions under risk and uncertainty that explains systematic deviations from the normative theory of expected utility. Prospect theory is based on several key psychological principles, the first of which is the repulsion from a reference point. Unlike expected utility theory, which considers the final level of enrichment, according to prospect theory, people evaluate outcomes as changes relative to a certain reference point. This reference point is subjective and can change depending on the situation and the formulation of the problem.

The central element of the theory is loss aversion. This means that the psychological impact of losing a certain resource is much stronger than the impact of equivalent gains. This explains why people are often risk-averse to avoid losses, but risk-averse when it comes to gains.

The framing effect is the next point to consider, and it is that the way information is presented or phrased significantly influences a person's decision, even if the objective nature of the information or options remains the same (Sher, 2008). Framing works by focusing attention on certain aspects of information to evoke the desired emotions. In the case of previous frames, hope is

the optimal emotion for positives, and fear is for negatives. Thanks to neurobiological research, it has become known that different messages, depending on whether they are framed positively or negatively, activate different areas of the brain.

Also worth mentioning is the possession effect. This is the tendency of people to place a higher value on things simply because they own them, compared to identical things that they do not own. From the owner's perspective, selling or giving up a certain thing is perceived as a loss. In turn, the psychological pain of loss is stronger than the pleasure of an equivalent gain, that is, acquiring such an item. This leads to the formation of a difference between the price that the owner is willing to accept ("willingness to accept", "WTA"), and the price that a potential buyer is willing to pay for it ("willingness to pay", "WTP"), with the value of WTA usually being significantly higher than WTP.

One of the most well-known cognitive biases is herding behavior. This is the tendency of people to repeat the actions or decisions of a large group of other people, often ignoring their own judgments. Such behavior is caused by several psychological and social factors. First, it is the desire to be accepted by society and the fear of being rejected by the group. Second, it is reliance on "social proof" – the perception of an action that many people are doing as something right. Third, it is the fear of missing out. In addition, people often draw conclusions based on the actions of previous people, if they had better information, even if this is not the case. Vivid examples of herd behavior are consumers who buy or sell many different goods, guided by their own emotions and the actions of others, rather than by a careful analysis of the market or their own needs and financial situation.

The great advantage of behavioral economics is its high applied potential. Understanding how people make decisions, what cognitive biases affect them, and how the context in which consumers find themselves shapes their choices. Today, companies actively use the principles of behavioral economics to influence consumer choices, develop pricing strategies, advertising campaigns, and product design. And behavioral economics, which studies the influence of psychological, social, and emotional factors on economic decisions, has become widely used in marketing science and practice. Moving away from classical models of the rational consumer, it offers a deeper understanding of why people make certain purchasing decisions, using the concepts of cognitive biases, heuristics, prospect theory, social norms, and other behavioral factors. At the same time, in the context of globalization and the growing interconnectedness of countries in the world, cross-cultural marketing is becoming an integral part of the successful activities of companies. Adapting marketing strategies to the cultural characteristics of different markets is critical.

Combining behavioral economics and cross-cultural marketing opens new opportunities for more subtle and effective consumer influence. However, applying behavioral insights across cultural contexts poses significant challenges, as cognitive biases, risk perceptions, stimulus responses, and social norms can vary significantly across cultural contexts.

Traditional cross-cultural marketing has often relied on generalizing behavioral patterns at the national level using cultural dimensions, such as Hofstede's model. While such models will continue to have some value, the future application of behavioral economics in cross-cultural marketing will be driven by a shift away from such generalizations to understanding the behavioral patterns of individual consumers in their complex cultural context. This means considering not only national culture, but also the influence of subcultures, social groups, personal values, and life experiences shaped by globalization and migration. This transition is made possible by the intensive development of Big Data tools and artificial intelligence (Viai, 2025). The vast amount of data on consumer behavior in the online environment (purchase history, social media activity, geolocation, interaction with content) combined with the capabilities of artificial intelligence allow us to identify much more complex relationships between cultural factors, cognitive biases and consumer behavior. Machine learning algorithms can analyze subtle nuances of language, visual preferences, reactions to certain stimuli, characteristic of specific segments or even individual consumers within different cultural groups. The result will be hyper-personalization of marketing messages and offers (Viai, 2025). The use of behavioral insights at this level will allow us to create individualized elements of

nudge, which will consider not only general cultural norms, but also the individual profile of cognitive biases and values of the consumer. For example, an algorithm might determine that for a particular consumer in a culture that tends to be collectivist, nudges based on social proof from a reference group would be more effective. For example, a call to action that says, “80% of your friends have already chosen this.” For another person from the same culture but with pronounced individualistic values, an appeal to uniqueness or personal gain would work. Future research will focus on developing AI models that can accurately predict the effectiveness of different interactions with individual consumer behavior in different cultural contexts, as well as on the ethical aspects of collecting and using such detailed data.

In addition, this will lead to a more active use of neuromarketing tools and biometrics (Moriuchi, 2024). These can be various technologies. For example, eye tracking, which records where exactly the consumer’s attention is directed, or even facial expression analysis to recognize basic emotions. Such a method can show that in one culture consumers focus more on the social aspects of a product, and in another – on its functional advantages. These tools allow you to obtain more accurate data on consumers’ unconscious reactions to various marketing communication elements: commercials, packaging design, website interfaces developed considering behavioral economics.

Already today, there is a negative perception of aggressive elements of nudge. The leader among negative reviews is the countdown technique. According to one of the modern studies, such a counter annoys consumers, so they often leave the store page and lose trust. This involves predicting the emergence of new, more sophisticated forms of nudges and the use of social proof that are specific to specific digital platforms and online communities across cultures.

A key challenge will be to account for the rapid evolution of online behavior and digital trends across cultures. What worked yesterday (e.g., a certain type of influencer marketing or content format) may not work today. This speed of change is underscored by statistics on digital consumption: on average, social media users spend 2 hours and 19 minutes per day interacting with content on nearly seven different platforms. In this dynamic environment, microtrends and new digital phenomena, from memes to challenges, emerge and spread rapidly, often fuelling the fear of missing out on opportunities among those who don’t participate. Research shows that a significant portion of online purchases are driven by this fear and social proof online: 76% of people admit to making a purchase after seeing something on social media due to FOMO. And 81% of millennials are influenced by friends’ posts on social media, which leads to quick purchase decisions. This data shows not only the speed of influence, but also the importance of social media as an environment where behavioral patterns are formed and change very quickly. Future research should develop methods for operational monitoring and analysis of digital subcultures and trends in different regions. This will include studying how global digital phenomena adapt and transform under the influence of local cultural characteristics, and how these transformations affect the perception and effectiveness of behavioral incentives. It is necessary to understand that, for example, the speed of loading a web page also affects consumer behavior, as 70% of users indicate that it affects their purchase decision, and a delay in loading even by one second can significantly reduce the number of pages viewed and conversion [59]. Thus, the technical aspects of the digital environment are inextricably linked to consumer behavior, which is constantly evolving.

However, the ability to analyze and influence consumer behavior in such detail through behavioral economics carries potential risks of manipulation. Awareness of these risks makes ethical standards and transparency in the use of the above-mentioned or similar tools and behavioral insights in marketing increasingly important, especially in cross-cultural contexts where norms and perceptions of privacy and permissible influence may differ. The future predicts increased regulation and public scrutiny of the use of behavioral data and influence techniques in marketing. Legislative initiatives such as the General Data Protection Regulation (GDPR) in force in Europe are likely to become more widespread and stringent in different countries, requiring companies to be more transparent about how behavioral data is collected, analyzed, and used, and imposing

restrictions on the use of certain nudge techniques that are considered manipulative, such as the countdown timer mentioned earlier.

In parallel, the concept of ethical nudge will develop, aimed not only at commercial profit, but also at the well-being of the consumer. First, this means using behavioral insights to promote healthy choices. This can be encouraging the consumer to buy healthy products by strategically placing them in supermarkets, for example, near more harmful snacks or at the checkout. Second, ethical nudge can promote environmentally sustainable behavior. Unfortunately, the forecasts for solving environmental problems are disappointing, so this issue will remain relevant. Such a socially responsible use of behavioral science in cross-cultural marketing will require a deep understanding of how cultural values influence the perception of health or environmental risks, and which behavioral elements will be perceived as beneficial, rather than intrusive. Research will focus on developing practices for the ethical application of behavioral economics on a global scale, considering cultural sensitivity.

One of the fundamental challenges of cross-cultural marketing has always been the static and limited nature of traditional models of culture. In the context of intense globalization, increasing levels of migration, increased intercultural interaction and accelerating social change, these models are becoming insufficient to accurately predict and explain consumer behavior. The future application of behavioral economics will require the development and application of more flexible and dynamic models of culture. There is already a need to create models that do not view culture as a monolithic phenomenon tied to national borders. They should reflect the impact of global trends on local cultural practices, as well as how cultural norms and values can change rapidly under the influence of internal social shifts and external events, such as economic crises, political changes and technological innovations. The future of behavioral economics in cross-cultural marketing will rely heavily on data: Big Data from digital platforms, biometric indicators, data from traditional research (Viiai, 2025). However, obtaining and effectively integrating this data on a global scale is a huge challenge. Collecting vast amounts of behavioral data, especially in real time and from different cultural contexts, is fraught with differences in digital infrastructure, as well as in the availability and quality of data across countries. Processing and interpreting such data also pose significant challenges. Online behavioral patterns, the meaning of biometric indicators, or even answers to standard questions can have different cultural backgrounds and require specific interpretation. And integrating data from different sources, such as combining shopping history in an online store with eye-tracking data from advertising and information about cultural norms, requires sophisticated analytical tools that still need significant development.

Furthermore, the general trend towards hyper-personalization based on behavioral data can potentially lead to the creation of new forms of stereotyping and even discrimination. AI algorithms, learning from the data obtained, can detect correlations between cultural context, socio-economic status and certain behavioral patterns, which can then be used to exploit or discriminate against certain groups of consumers. The ethical issue remains extremely relevant in terms of maintaining an invisible line between the application of elements of behavioral economics and the cruel manipulation of consumer pain (Turow, 2023). For example, if data analysis shows that a certain cultural group is more susceptible to the scarcity effect due to historical reasons, using this insight to constantly pressure them through limited offers may be unethical. There is a difference between effectively using behavioral insights to meet consumer needs and manipulatively using them to generate excess profits, which can be exacerbated by cultural differences in perceptions of honesty and transparency.

In general, the synthesis of behavioral economics and cross-cultural marketing is one of the most promising areas of development of marketing science and practice in the future. Behavioral economics offers a deep understanding of the cognitive biases and heuristics that influence consumer decisions, while cross-cultural marketing emphasizes the importance of adapting strategies to various cultural contexts. At the intersection of these two disciplines, especially in the context of technological development and overcoming existing challenges, fundamentally new opportunities open up. These opportunities go beyond simply increasing the effectiveness of

traditional marketing tools, allowing for the creation of longer-lasting relationships with consumers, the development of innovative products and even contributing to the solution of global social problems. An example would be the development of mobile applications that adapt their interface, messages and functions depending on the cultural characteristics of the user, considering, for example, differences in visual perception, a tendency towards minimalism or detail, or the importance of social elements. Integrating behavioral insights into the design process allows you to create products that not only perform their function, but also meet the mental models, habits, and cultural expectations of consumers, which significantly increases the likelihood of their success in various global markets.

Conclusions. Modern cross-cultural marketing is becoming increasingly relevant. Companies need to go beyond simply entering international markets; they need to engage effectively with diverse consumer segments, each shaped by unique cultural factors. This requires a deep understanding of cultural differences, and the adaptation of strategies, content, and products to the specific needs and expectations of each consumer group. Unlike classical economics, which assumes that consumers are rational, behavioral economics examines deviations from this rationality due to cognitive limitations, emotions, and social factors. There are a variety of concepts and cognitive biases that influence consumer decision-making, including bounded rationality, heuristics, prospect theory, the attachment effect, the framing effect, the ownership effect, and herd behavior. And the practical application of the principles of behavioral economics in the marketing activities of companies includes the development of pricing strategies (using the effect of binding and framing), creating a sense of limited supply, using the effect of ownership and considering the ethical issues of cross-cultural marketing (avoiding stereotypes). Standardization involves the use of a single marketing approach in all markets, adaptation - modification of marketing elements to local conditions, and glocalization – a combination of standardization with the adaptation of individual aspects. Each of the strategies has its advantages and disadvantages, and the choice of the optimal one depends on the specific conditions of the company's activities in the international market.

The effectiveness of cross-cultural marketing in the modern world largely depends on the ability of companies to understand cultural differences and adapt their strategies accordingly. The use of models, for example, the considered model of Hofstede's cultural dimensions, is an important first step in identifying these differences and adapting each element of the marketing mix - from product and price to promotion and place of sale. A key achievement in increasing the effectiveness of cross-cultural marketing is the integration of elements of behavioral economics. Understanding cognitive biases, heuristics, and emotional factors is a powerful tool for influencing consumer decisions in advertising and branding. The anchoring effect, social proof, the scarcity principle, framing, and nudge have a strong impact on consumer behavior, as confirmed by statistical research data. However, the application of these behavioral principles requires careful cultural adaptation, as their effectiveness and perception can vary significantly depending on the cultural context. Tactics that work in one culture may be ineffective or even cause a negative reaction in another, especially if they are perceived as manipulative. Predicting the development of this area, we can expect further deepening of the integration of behavioral economics and cross-cultural marketing, driven by the development of technologies (Big Data, AI, neuromarketing) and the desire for hyper-personalization. At the same time, challenges related to ethics, data privacy, the complexity of cross-cultural research, and the need to adapt to rapid changes in the digital environment and cultural peculiarities will increase. Despite these challenges, the future promises new opportunities to create more effective, culturally relevant, and ethically responsible marketing strategies that will allow brands to successfully engage with consumers around the world.

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BEYOND INDUSTRY 4.0 AND COMPETITION: DATA AND INFORMATION TECHNOLOGY MARKETS AS A BATTLEFIELD FOR DIGITAL LEADERSHIP

ЗА МЕЖАМИ ІНДУСТРІЇ 4.0 І КОНКУРЕНЦІЇ: РИНКИ ДАНИХ Й ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ ЯК АРЕНА ЗМАГАННЯ ЗА ЦИФРОВЕ ЛІДЕРСТВО

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Abstract. The purpose of the article is to analyze the transformational potential of the digital economy as an environment for acquiring new competitive characteristics in the context of global innovation and technological competition. Groups of countries are identified according to the criterion of technological leadership. The importance of institutional support for innovative development is noted and the technological development strategies of key players in the innovation race are analyzed. The article analyzes the strategy of the PRC government to implement a digital economy integrating ICT and transformed factors of production as the main economic structure, the key innovative and strategically important resource of which is data resources, and their leading carrier is information networks. The advantages of the digital platform economy are analyzed. Key technologies of the digital economy are highlighted, with an emphasis on the role of

big data, the IoT, cloud technologies, augmented reality technologies. We have included the following technological drivers that ensure the close interconnection of data and ICT markets in the context of the emergence of global digital competition: (1) artificial intelligence and machine learning; (2) cloud computing; (3) Internet of Things; (4) Big Data. It has been established that the growth of demand for cybersecurity solutions is a key driver of the growth of the interdependence of data and ICT markets. Analysis of the relationship between the data market and the ICT market indicates their deep structural integration and interdependence. The main characteristics of this relationship are: (1) technological convergence; (2) economic synergy (organizations that effectively combine ICT technologies with data analytics demonstrate significantly higher profitability and competitiveness); (3) global growth trends; (4) regional differentiation.

The concepts of IoT, Industrial IoT and Industry 4.0 are compared. It is established that, unlike Industry 4.0, which focuses on production and management of production processes, the cornerstone of the use of IoT is the collection and analysis of data. All three concepts are realized through the use of new technologies. The role of artificial intelligence and machine learning in the digitalization of economic relations is emphasized. The role of Data Science tools in foresight analysis is defined. Attention is focused on the role of Big Data in the development of the digital economy and on the transformation of the role of information as a factor of production. The impact of Data Science tools on costs, profitability and profitability of business, on the specifics of choosing a business model using digital technologies for managing business risks is characterized. We attribute the following economic effects of digitalization and platformization: changes in the life cycle of economic development strategy; changes in the ratio of strategic and tactical development goals; changes in business cycles; changes in approaches to competition; changes in approaches to pricing; automation and modification of business processes; revision of management systems; management of transaction costs; formation of a new economic and social environment; changes in business processes; reformatting of value chains; reformatting of supply chains; formation of a new economic geography.

Key words: technological development, techno-globalism, international competitiveness, competition, digitalization, inclusiveness, technology transfer, digital economy, digital inclusion, digital technologies, digital risk, strategic management, CRM, Internet of Things, AI, Industry 4.0, ICT, ICT infrastructure, IT sector, IT services market, ICT market, data market, AR, Big Data, startup, Digital Silk Road, China, USA, EU, Germany.

Анотація. Мета статті полягає в аналізі трансформаційного потенціалу цифрової економіки як середовища набуття нових конкурентних ознак в умовах глобального інноваційного й технологічного суперництва. Виокремлено групи країн за критерієм технологічного лідерства. Відзначено важливість інституційного сприяння інноваційному розвитку та проаналізовано стратегії технологічного розвитку ключових гравців інноваційних перегонів. Проаналізовано стратегію уряду КНР до впровадження цифрової економіки, що інтегрує в собі IKT та трансформовані фактори виробництва, як основного економічного укладу, ключовим інноваційним та стратегічно важливим ресурсом у якому є ресурси даних, а провідним їх носієм – інформаційні мережі. Проаналізовано переваги цифрової платформної економіки. Виокремлено ключові технології цифрової економіки з акцентом на ролі великих даних, Інтернету речей, хмарних технологій, технологій доповненої реальності. До технологічних драйверів, що забезпечують тісний взаємозв'язок ринків даних та IKT в умовах становлення глобальної цифрової конкуренції, нами зараховано: (1) штучний інтелект та машинне навчання; (2) хмарні обчислення; (3) Інтернет речей; (4) Big Data.

Встановлено, що зростання попиту на рішення кібербезпеки є ключовим драйвером зростання взаємозалежності ринків даних і ринків IKT. Аналіз взаємозв'язку ринку даних і ринку IKT свідчить про їх глибоку структурну інтеграцію та взаємозалежність. Основними характеристиками цього взаємозв'язку є: (1) технологічна конвергенція; (2) економічна

синергія (організацій, що ефективно поєднують IKT-технології з аналітикою даних, демонструють значно вищі показники прибутковості та конкурентоспроможності); (3) глобальні тренди зростання; (4) регіональна диференціація. Здійснено порівняння концепцій IoT, Промислового IoT та Індустрії 4.0. Встановлено, що на відміну від Індустрії 4.0, яка фокусується на виробництві та управлінні виробничими процесами, наріжним у використанні IoT стає збір та аналіз даних. Усі три концепції реалізують себе за допомогою нових технологій. У цифровізації економічних відносин підкреслено роль ітчучного інтелекту та машинного навчання. Визначено роль інструментів *Data Science* у форсайт аналізі. Акцентовано увагу на ролі Великих даних у розвитку цифрової економіки та на трансформації ролі інформації як фактора виробництва. Охарактеризовано вплив інструментів *Data Science* на витрати, прибутковість та рентабельність бізнесу, на особливості вибору бізнес-моделі із застосуванням цифрових технологій для управління бізнес-ризиками. До економічних ефектів цифровізації та платформизації ми ставимо: зміну життєвого циклу стратегії економічного розвитку; зміна співвідношення стратегічних та тактичних цілей розвитку; зміна бізнес-циклів; зміна підходів до конкуренції; зміна підходів до ціноутворення; автоматизація та модифікація бізнес процесів; перегляд систем керування; управління трансакційними витратами; формування нового економічного та соціального середовища; зміна бізнес-процесів; переформатування ланцюгів створення вартості; переформатування ланцюгів постачання; формування нової економічної географії.

Ключові слова: технологічний розвиток, техноглобалізм, міжнародна конкурентоспроможність, конкуренція, цифровізація, інклюзивність, трансфер технологій, цифрова економіка, цифрова інклузія, цифрові технології, цифровий ризик, стратегічний менеджмент, CRM, Інтернет речей, ШІ, Індустрія 4.0, IKT, IKT-інфраструктура, IT сектор, ринок IT послуг, IKT ринок, ринок даних, AR, Big Data, стартап, Цифровий шовковий шлях, КНР, США, ЄС, Німеччина.

Introduction. Technological innovations have a positive impact on the rate of economic growth, which once again confirms the key role of innovation in increasing the overall productivity of production factors, reducing production costs, creating more competitive products and supporting sustainable development processes. This statement is fully consistent with the main theoretical provisions of Romer's endogenous theory of economic growth and is confirmed by numerous modern empirical studies. Numerous studies have revealed the existence of a close relationship between the level of scientific specialization of a country, the intensity of its technological (patent) activity and the degree of complexity of its export structure. Thus, countries with a developed scientific base in certain priority industries usually demonstrate a higher intensity of patent activity in technologically related areas, and also, as a rule, have a more complex export structure focused on the production and sale of products with a high share of added value. Thus, it can be argued that fundamental scientific achievements serve as a necessary basis for technological breakthroughs, which, in turn, provide the basis for a country's long-term competitiveness in international trade. that higher indicators of economic complexity – regardless of whether they are measured through the analysis of scientific output, patent activity or export structure – are an important prerequisite for accelerated GDP per capita growth in the medium and long term. In other words, countries characterized by a more complex and more diversified economic structure tend to demonstrate higher rates of economic growth. This is explained by the fact that such economies are more able to adapt effectively to rapid global technological changes, are able to generate and export products with higher added value and have better opportunities for successful integration into global high-tech value chains. Analysis of global innovation processes shows that ensuring long-term economic growth is inextricably linked to the progressive development of science, technology and increasing the level of production complexity within individual countries. Therefore, to ensure sustainable development of the global economic system, it is necessary not only to increase the internal

innovation potential of individual states, but also to create effective mechanisms for effective international technology transfer, because it is the effective international exchange of knowledge and technology that provides a real opportunity for developing countries to gradually overcome existing barriers to technological lag, as described in the model of catch-up development, and successfully integrate into modern global value chains. Therefore, effective mechanisms for the transfer of innovations and technologies are becoming an important tool not only for the implementation of national strategies for accelerated development, but also for the formation of a more just and balanced global economic order as a whole. New technologies are rapidly changing the economy and society radically, and today this is happening much more actively than in previous periods. This process is at different stages in different countries and regions, but the general trend and pattern is digital transformation.

The purpose of the article The purpose of the article is to analyze the transformational potential of the digital economy as an environment for acquiring new competitive characteristics in the context of global innovation and technological rivalry.

Literature review. The literature describes the digital imperative of the development of the global economy, namely the features of digital technologies as the basis for building a new economic system and a system of new competitive relations (*Lukyanenko, D., Pavlovskyi, D., & Sydorenko, O., 2023; Tymoshenko, M., Sainko, V., Serbov, M., Shashyna, M., & Slavkova, O., 2023*). An analysis of scientific research on the problems of digitalization of the digitalized economy (*Bennish, A., 2024; Brennen, S., & Kreiss, D., 2014*) allows us to distinguish several levels. The level of the digital economy is the ICT industry itself (*Desyatnyuk, O., Krysovaty, A., Ptashchenko, O., & Kyrylenko, O., 2025*), which includes information technology and telecommunications services (*Desyatnyuk, O., Krysovaty, A., Ptashchenko, O., Kyrylenko, O., & Kurtsev, O., 2025*). The second level – the digital economy – is the first level supplemented by network business and digital services (*Krysvaty, A., Desiatniuk, O., & Ptashchenko, O., 2023*), as well as those activities that are based on innovative technologies and digital business models (platform economy) (*(Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023*). The third level of the digital economy, or "digitalized economy", is based on the use of "digitized" data and includes network business, e-commerce, algorithmic economy, and digital technologies (*Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023*). We draw attention to the authors' attempt to systematically comprehend the role of the digital economy in international economic development (*Perfilieva, A., Siliutina, I., Antypenko, N., & Vlasenko, D., 2022*), taking into account a set of insoluble global problems (*Tulchynskyi, R. V., & Horbatiuk, M. R., 2023*), that actualize the transition to sustainable development (*Reznikova, N., Panchenko, V., Karp, V., Grod, M., & Stakhurska, S., 2024; Tsybuliak, A., Spasiv, N., Tyshchenko, O., Oliynyk, K., & Yermolenko, O., 2025*). The availability and widespread penetration of digital technologies for the country as a whole are assessed positively (*Bulatova, O. V., Reznikova, N. V., & Ivashchenko, O. A., 2023*), while digitalization has negative consequences in terms of increasing regional inequality (*DiMaggio, P., & Hargittai, E., 2001*), which exacerbates the problem of equal and fair development and forces us to reconsider approaches to defining the digital divide. In fact, the awareness of the ambiguity of the consequences of digital development on human development and the development of human and labor potential (*Panchenko, V., Reznikova, N., Ivashchenko, O., & Rusak, D., 2024*) leads to the fact that the problem of intergenerational relations (*Reznikova, N. V., Chuhaiiev, O. A., Ptashchenko, O. V., & Ivashchenko, O. A., 2023; Reznikova, N. V., Ptashchenko, O. V., Chugayev, O. A., & Ivashchenko, O. A., 2022*) is intensifying as technological globalization (*Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023; Reznikova, N. V., Karp, V. S., & Ivashchenko, O. A., 2023; Zuboff, S., 2019*) intensifies, because it radically changes the concept of the right to development. Research into new forms of dependence and tools for generating competitive advantages, economic growth and development in the context of changing economic landscapes and business conditions is becoming especially relevant (*Reznikova, N. V., 2013; Reznikova, N. V., & Panchenko, V. H., 2023; Panchenko, V. H., 2018; Orlovska, Yu. V., Chala, V. S., & Varlamova, O. A., 2016*). The issue of gaining competitive advantages in the face of

increasing leadership in the digital era is central to the discussion platforms of international organizations, non-governmental organizations, business associations, and other institutional actors concerned with the problem of developing new digital markets (Crémer, J., de Montjoye, Y.-A., & Schweitzer, H., 2019; Capobianco, A., 2022; OECD, 2022; Schallbruch, M., Schweitzer, H., & Wambach, A., 2019; McMahon, M., Calligaris, S., Doyle, E., & Kinsella, S., 2021; Monopolies Commission, n.d.; OECD, 2023).

Main results of the research. The global information technology market includes several main segments: computer hardware (global market); communication equipment (global market); software (global market); IT services (global market); information security (global market). IT is included in a broader concept – information and communication technologies (ICT), which combines information technologies and communication services. According to the OECD classification, information and communication devices include: computers and peripheral equipment (external devices); communication equipment, consumer electronic equipment, electronic parts and components, measuring and high-precision instruments, other equipment (OECD, 2022). The classification of information and communication devices adopted in the USA includes: high-performance computers, personal computers, direct access storage devices, computer printers, computer terminals (for entering and displaying information), data storage devices, communication equipment, telecommunications equipment, etc. The formation of the global information technology market involves the development of the high-tech sector in terms of involving both medium-tech sectors ("structural inclusion") and regions of various types ("spatial inclusion") in the vector of technological development. Inclusivity is a property associated with the inclusion of any object in a certain phenomenon or set. The concept of "structural technological inclusion" means the involvement of medium-tech industries in the process of new industrialization and the modernization of low-tech industries. When speaking about the contribution of the IT sector to economic growth, they most often mean the contribution of IT as infrastructure: systemic, network and synergistic effects that arise when introducing IT into all sectors of the economy (Capobianco, A., 2022). Of course, the ratio of the effects of the development of the IT industry as such and the effects of the actual development and implementation of IT in all sectors of the economy is not equal to one. And neither in theory nor in practice is there yet an exhaustive and unambiguous answer to the question regarding their relationship. ICT technologies expand the possibilities for achieving the goals of socio-economic development. Effective use of ICT can help organizations use their available resources more rationally and increase their competitiveness, improve economic indicators, and increase their investment attractiveness. At the macroeconomic level, the use of ICT increases the level of market competitiveness and increases expert assessments of the investment attractiveness of the national economy. The dynamic development of the information and telecommunications sector creates the basis for the prompt, organized, and effective solution of business problems within international groups. Information and telecommunications technologies are a tool for reducing transaction costs.

The implementation of information technology in the activities of companies has caused fundamental changes in their operating models. Automation of business processes has allowed organizations to significantly increase the efficiency of performing routine tasks, freeing up human resources for more strategic activities. Customer relationship management (CRM) and enterprise resource planning (ERP) systems have created opportunities for deep data analysis and making informed management decisions. Changes in communication processes have been especially revolutionary. Cloud technologies and remote collaboration tools have transformed traditional ideas about the workplace, allowing companies to attract talent regardless of geographical location. This has not only expanded the opportunities for finding qualified personnel, but also contributed to the formation of new organizational cultures focused on results, rather than physical presence. Digital platforms have radically changed customer interaction models. E-commerce, mobile applications and personalized digital services have created new sales channels and ways of providing services. Companies have gained the ability to collect and analyze vast amounts of data on consumer behavior, which has allowed them to develop more accurate marketing strategies and personalized

offers. Artificial intelligence and machine learning have opened up new horizons for optimizing business processes. Predictive analytics allows companies to anticipate market trends and customer needs, automated decision-making systems increase the speed of response to changes, and chatbots and virtual assistants provide 24/7 customer support. States have also undergone a profound transformation under the influence of information technology. The large-scale implementation of information technology has led to the emergence of new sectors of the economy and the transformation of traditional industries. The IT industry has become one of the most dynamic segments of the global economy, creating millions of jobs and generating significant investment flows. The digital economy is shaping new business models based on data exchange, the platform economy, and network effects.

We propose to consider the ICT sector, revealing each of its components.

1. IT services: Data centers, cloud computing, Artificial intelligence and BigData analytics, IT consulting services, IT outsourcing, Operational applications, Software applications.

2. ICT services - IT services, television and radio broadcasting services, publishing services.

3. ICT production - electronic components segment, computer and peripheral equipment production segment, communications equipment production segment, consumer electronics production segment.

4. ICT sector - ICT services, as well as ICT production.

Depending on their attitude towards technology, states are divided into the following groups: states that view global digital transformation as an instrument of geopolitical influence; states that introduce private digital solutions to the market; states that copy technologies; states that import technologies. In today's globalized world, countries are developing large-scale national strategies to manage technological development and maintain the competitiveness of their manufacturing sectors. These initiatives are aimed at transforming traditional manufacturing through the integration of advanced digital technologies, ensuring technological independence and creating new opportunities for economic growth. The most influential and illustrative examples of such strategies are the "Advanced Manufacturing Partnership" in the United States, the German "Industrie 4.0" initiative, the "European Factories of the Future" program, and the Chinese "Made in China 2025" strategy.

The Advanced Manufacturing Partnership (AMP) (*Manufacturing.gov*, 2025) was launched in 2011 by President Obama as a national initiative that brings together industry, universities, and the federal government to invest in new technologies. The primary goal is to create high-quality manufacturing jobs and increase the global competitiveness of the United States. The strategy focuses on three key objectives: (1) developing and deploying new manufacturing technologies; (2) educating and training the manufacturing workforce; (3) empowering domestic manufacturing supply chains.

The AMP sees digital technologies as a key driver of manufacturing transformation. The initiative supports the integration of information technology, biotechnology, and nanotechnology into manufacturing processes. Particular attention is paid to the development of "smart manufacturing" through the use of artificial intelligence, the Internet of Things (IoT), and cyber-physical systems. Manufacturing USA, a network of manufacturing innovation institutes established under AMP, focuses on advanced manufacturing technologies, including additive manufacturing (3D printing), digital technologies, and automation. The National Advanced Manufacturing Strategy 2022 identifies 11 strategic goals, including deploying advanced manufacturing technologies to support the bioeconomy and accelerating manufacturing innovation for microelectronics and semiconductors.

The German "Industrie 4.0" (*Platform Industrie 4.0*, 2025) initiative, launched in 2011 by the Federal Ministry of Education and Research (BMBF) and the Federal Ministry of Economic Affairs and Energy (BMWI), is a national strategic initiative aimed at the digital transformation of production. A distinctive feature of the German approach is the emphasis on combining production methods with modern information and communication technologies to create intelligent value chains. Key features of Industrie 4.0 include: (1) high customization of products in conditions of

highly flexible mass production; (2) introduction of self-optimization, self-configuration and self-diagnosis methods; (3) intelligent support of employees in their increasingly complex work.

The German strategy of digital transformation "Industrie 4.0" is based on the intelligent connection of people, machines, objects and ICT systems horizontally and vertically. The Industrie 4.0 Platform, established in 2013, brings together over 350 stakeholders from over 150 companies, associations and trade unions to develop concepts for a networked industry. Digital technologies within the scope of Industrie 4.0 include: Cyber-Physical Systems (CPS); Internet of Things (IoT); Cloud and cognitive computing; Artificial intelligence as a national priority; Automation and robotics. The German federal government has allocated almost 100 million euros for two programs: "Autonomics for Industrie 4.0" and "Smart Service World" to promote research and innovation in the respective areas. More than 65% of German companies are already planning to implement specific Industrie 4.0 technologies.

"The Factories of the Future" programme (EFFRA, 2025) of European Union is a €1.15 billion public-private partnership of the European Union for research and innovation in advanced manufacturing. This initiative is the EU's flagship programme for the next industrial revolution and the materialisation of the Factories 4.0 concept. The main objective of the partnership is to ensure a more sustainable and competitive European industry at the heart of the European economy, generating growth and securing jobs. The programme supports European manufacturing companies in strengthening their technological base through cross-sectoral projects focusing on manufacturing technologies from different sectors. Digitalisation in the European context to be implemented by The Factories of the Future sees digital technologies as a key element in the transformation of manufacturing. The "Factories 4.0 and Beyond" programme takes into account the growing impact of advanced ICT technologies in manufacturing in synergy with advanced material handling technologies and mechatronic systems.

The programme's research and innovation domains include: (1) advanced manufacturing processes and technologies; (2) mechatronics for advanced manufacturing systems; (3) ICT and manufacturing strategies; (4) modelling, simulation and forecasting. In parallel, the EU is launching a new initiative, AI Factories, as part of the AI Continent Action Plan 2025. By the end of 2026, at least 15 AI Factories are planned to be operational, combining computing power, data and talent to create advanced AI models and applications. China's Strategy "Made in China 2025" (*Made in China, 2025*) is a national strategic plan and industrial policy signed by Premier Li Keqiang in May 2015 (*Chen, K., Guo, R., & Pei, R., 2022*). It is a 10-year plan aimed at further developing China's manufacturing sector, moving from the status of the "world's factory" to a leader in high-tech industries with the ambitious goals. They include: (1) reducing dependence on foreign technology; (2) achieving 40% domestic content of key components by 2020 and 70% by 2025; (3) creating globally competitive Chinese companies; (4) dominating the domestic market, followed by capturing overseas markets (*Hancock, T., 2024*).

Made in China 2025 is directly inspired by the German Industry 4.0 strategy and focuses on ten strategic industries, including the next generation of information technology, robotics, aerospace, and new energy vehicles. The five national strategic initiatives include: (1) building R&D centers (40 centers by 2025); (2) developing high-tech projects in all key industries; (3) sustainable development and global leadership in green manufacturing practices; (4) smart manufacturing, including robotics and digitalization; (5) building cyber-physical systems for lean-agile manufacturing capacity (*Chen, K., Guo, R., & Pei, R., 2022*).

An important component of Horizon Europe is the European Innovation Council, which purposefully finances the development of breakthrough technologies, supports innovative start-ups and actively promotes the commercialization of research and innovation results. This innovation ecosystem is complemented by the European Institute of Innovation and Technology (EIT), which, by stimulating multi-stakeholder partnerships between business, scientific institutions and educational institutions, ensures the accelerated transfer of new knowledge and technologies directly to the market. The EU also implements the Digital Europe Programme, supports innovation activities in the SME sector (through the COSME programme and the EEN network), and co-

finances innovation projects through structural funds, in particular the European Regional Development Fund (ERDF). It is worth mentioning separately the financing of joint technological initiatives and enterprises in strategically important sectors, a vivid example of which is the Clean Sky initiative in the field of aviation.

The Digital Silk Road (DSR) of the PRC involves the merging of public functions of the state and private interests of large technology companies, setting economic and geopolitical objectives of the Chinese technological initiative and managing the development of digital competition on a global scale. The Digital Silk Road initiative is aimed at achieving important geopolitical goals for the PRC to ensure and maintain technological dominance primarily in the Asia-Pacific region and Africa through the use of the following technological and ideological management tools: implementation in the countries of presence of the idea of creating a single mechanism for global integration based on the principles of institutional openness, cooperation, mutual assistance, mutual benefit, inclusiveness ("community of common destiny"); development of its geopolitical strategy based on the slogan about the inadmissibility of the dominance of one country and one currency in the context of an open digital economy; digital expansion of China within the framework of the DSR, which is built on a platform model for the formation of a business environment. is aimed at eliminating digital imbalances between economic sectors and regions of China, as well as introducing modern digital solutions in neighboring countries using the potential of large high-tech corporations; establishing unified technological standards focused on the Chinese digital economy and infrastructure (implementation of 5G mobile networks and the BeiDou satellite navigation system); forming cyber governance norms through the development of the so-called concept of cyber sovereignty with "Chinese characteristics"; the DSR initiative increases dependence on Chinese technologies and investments. The development of the AI industry is one of the most significant areas of development of the Digital Silk Road, as it concentrates many cross-cutting technologies, establishes effective cooperation between the government and corporations in terms of expanding the geography of their own developments, and also concentrates the main contradictions between China and the United States, and for each country, the issue of leadership in the field of AI is a question of international technological leadership in general.

The Chinese "14th Five-Year Plan for the Development of the Digital Economy" defines it as follows: "The digital economy is the main economic structure that historically follows the agricultural economy and industrial economy. Its key factor is data resources, and its main carrier is modern information networks. The digital economy is based on the integration and practical use of information and communication technologies, and its main driver is the digital transformation of all factors of production. It is a new form of economy that promotes a more complete combination of fairness and efficiency" (*Outline of the 14th Five-Year Plan (2021-2025) for National Economic and Social Development and Vision 2035 of the People's Republic of China*). The foundation of digital transformation is algorithms, computing power and data. Although China has a huge amount of data, the data infrastructure is still underdeveloped, and there are not enough conditions to fully realize data as a factor of production. Most of the risks in the digital economy related to property rights, transfer, evaluation, registration, transactions, profit distribution and other aspects of data are determined by the virtual nature of data. Digital data have special consumer properties, which makes them a specific commodity.

The advantages of the digital platform economy include: (1) stimulating innovation (use of advanced technologies, development of customized goods and services, emergence of new types of product stratification, consumption of innovative business models, creation of a flexible organizational structure); (2) create a new value for consumers (improvement of competitive advantages, increase in choice, increase in usability, distribution of resources and financial assets; change in marketing policy, ability to choose the best prices and information transparency of the market); (3) opening of new channels (increase in aggregate supply and demand, stimulation of small and medium-sized businesses to enter the market, use of marketing innovations (*Palfreyman, J., & Morton, J., 2022*), organization of a new distribution system and ability to enter foreign markets (export to any country in the world); (4) reduction of transaction costs (systematic

accumulation of information; comprehensiveness in resolving various situations; rationalization of costs; reduction of information, communication, logistics costs and increased flexibility of production). Instrumental platforms reduce the cost of developing software and hardware-software solutions, and infrastructure and application digital platforms reduce the costs of each additional unit of access, copying and distribution of information, goods or services (Reznikova, N. V., Bulatova, O. V., Shlapak, A. V., & Ivashchenko, O. A., 2023).

The Strategy defines six types of platforms according to the different functions and services they provide: (1) an online sales platform “connects” people and goods and provides trading services; (2) a service platform “connects” people and services; (3) a social entertainment platform “connects” people with each other; (4) an information platform “connects” people with information; (5) a financial services platform “connects” people and financial services; (6) a computing service platform “connects” people and computing power. These 6 categories are divided into 31 subcategories (Zenglein, Max J., & Holzmann, A., 2019). Traditional consumer markets, being subject to deep structural transformations associated with the growing influence of Internet technologies, have become increasingly related to Internet-dependent markets. In the context of a constantly growing number of Internet users and accelerated development of Internet technologies, the key element in managing e-commerce is the choice of the most suitable Internet platform to attract target consumers. E-commerce can be considered as a basis for creating a new business, the business processes of which are completely or in the overwhelming majority carried out using Internet technologies, or as an additional tool for an existing business in a traditional form, which will allow developing a standard business model through e-commerce. The infrastructure of e-commerce is based on many technological components, including; websites and portals; electronic data interchange; electronic payment systems; electronic reference systems; content management systems (CMS); systems for automating customer service processes (CRM); automatic data collection systems.

We highlight the defining technologies of the digital economy: clouds; distributed computing; big data and the Internet of Things; blockchain; digital twins; augmented reality; additive manufacturing; robots and cognitive technologies. Extended reality is a concept of interaction with virtuality and reality, characterized by various levels of immersion, presence and interactivity of the user with the digital, artificial world. Nowadays, XR is usually divided into virtual (VR), augmented (AR) and mixed (MR) reality. In augmented reality, there is no change in the human vision of the surrounding world and its perception, augmented reality supplements the real world with digital images and new information, and does not completely replace it. Digital technologies are transforming manufacturing in several key areas. In personalization and flexibility digital technologies enable the production of personalized products in mass production, providing high flexibility for production systems. In efficiency and productivity automation and optimization of processes through AI leads to significant productivity gains. The German strategy promises to increase production productivity by up to 50% while halving the required resources. Digital technologies support sustainability as digital technologies contribute to the development of green manufacturing practices by optimizing energy consumption and reducing waste. They also develop new business models as digitalization creates opportunities for new service models, such as "production as a service" and digital ecosystem platforms.

IoT has become a tool for developing technologies such as machine learning and big data analytics. It allows for increasing productivity and reducing costs for many organizations. To fully utilize the potential of IoT, it is necessary to increase the share of data analytics and artificial intelligence, which will significantly improve predictive capabilities and performance in various situations, from industrial production to the household sphere. The Industrial Internet of Things (IIoT) is a technology that connects machines, devices, and systems into a single network, enabling automation of production and business processes. It is a key component of Industry 4.0, the fourth industrial revolution, which represents the integration of digital technologies into production processes. IIoT plays an increasingly important role in the digital economy. IIoT opens up new opportunities to increase efficiency and optimize production, as well as to obtain more information

about the operation of technological systems. Companies that invest in IIoT technologies will gain significant competitive advantages in the market. Industrial Internet of Things technology is an important means of implementing the Industry 4.0 concept. Industry 4.0 is a concept of digital transformation that involves the integration of all production processes into a single digital system. This makes production more efficient and flexible, which in turn leads to increased competitiveness and economic growth ().

Unlike IoT, Industry 4.0 focuses on manufacturing and production process management (*Beier, G., Ullrich, A., Niehoff, S., Reißig, M., & Habich, M., 2020*). In turn, IoT can be applied in any area where data collection and analysis is required. In addition, Industry 4.0 involves the use of new technologies such as artificial intelligence and machine learning, and IoT is the collection and analysis of data from devices. The use of Data Science tools makes it possible to collect, accumulate, and process large amounts of data (Big Data) and, based on them, predict events and model processes occurring in the economy in the context of global economic instability. The use of Data Science tools allows you to search for connections and patterns in data arrays that contribute to the creation of models in the economy that predict the results of economic activity, that is, we can say that Data Science works for the future of the economy. Using software algorithms and mathematical statistics, Data Science tools solve the tasks set, primarily economic ones. The use of Data Science tools in economic activity helps to increase business profitability, increase the profitability of enterprises and its profitability, allows solving a number of urgent problems, such as analyzing the current organizational structure of an enterprise and building a new business model using digital technologies, reducing production costs, marketing costs and logistics costs, as well as reducing business risks and increasing the profitability of investments in the economy.

Digital risk is a term that covers all digital opportunities caused by ICT, automation of data processing, automation of decisions. Digital risks are caused by the use of digital technologies. Digitalization risks are the consequences of their implementation. Digital risk implies the coordinated configuration of processes, data, analytics and information technologies, as well as the overall organizational structure, including human resource development management and organizational culture. Among the digital risks are ensuring data security, forced transformation of business processes and the resilience of digital systems and digital infrastructure. Digital infrastructure is not only traditional information infrastructure — high-speed broadband networks, IP addresses, domains — but also the digitalization of railways and roads, water transport, and electric power.

Conclusions. The main technological drivers that ensure the close interconnection of data and ICT markets are: (1) artificial intelligence and machine learning (AI and machine learning are transforming data analytics by automating complex processes, which significantly stimulates the ICT market); (2) cloud computing (the growing popularity of cloud computing is a significant factor in the growth of the corporate ICT market, as organizations increasingly adopt cloud solutions due to their scalability, cost-effectiveness and flexibility); (3) Internet of Things (the integration of IoT in the ICT sector promotes intelligent interconnection between industries, allowing for real-time data collection, automation and remote monitoring); (4) Big Data (the growing volumes of unstructured and structured information have caused a boom in big data analytics). Among the mechanisms of interconnection between data and ICT markets, we highlight infrastructural interdependence (data centers act as the physical basis for storing and processing large volumes of data, therefore global expansion, hyperscale consumption (*Oliveira-Dias, D., Maqueira-Marín, J. M., & Moyano-Fuentes, J., 2022*), adoption of interconnections and development of edge locations are among the key drivers of growth in this segment) and economic synergy.

The growing demand for cybersecurity solutions is a key driver of the growth of the interdependence between data and ICT markets. The growth of generative AI and the expansion of data collection have pushed data privacy and security to the forefront, making it a critical focus for businesses around the world. The techno-globalism of data-driven companies will burden global competition. Technological innovations will be activated - edge computing (there is currently a significant growth in sensors and network devices, which leads to a massive increase in the amount

of collected data), the development of 5G and 6G (6G networks are revolutionizing telecommunications with ultra-high speeds and low latency). Analysis of the relationship between the data market and the ICT market indicates their deep structural integration and interdependence. The main characteristics of this relationship are: (1) technological convergence; (2) economic synergy (organizations that effectively combine ICT technologies with data analytics demonstrate significantly higher profitability and competitiveness); (3) global growth trends; (4) regional differentiation.

All four strategies (The Advanced Manufacturing Partnership, The German “Industrie 4.0”. “The Factories of the Future”, Made in China 2025) demonstrate common characteristics: public-private partnership: All initiatives are based on cooperation between government, industry and academic institutions, focus on digitalization (Integration of ICT, artificial intelligence and the Internet of Things is central to all strategies), long-term (all programs are designed for 10-15 years of implementation), innovation networks (creation of specialized research and development centers). The strategies have three key differences: (1) market approaches (US and EU rely more on market forces; Germany uses a balanced approach of state guidance and market mechanisms; China applies strong state support with large-scale subsidies); (2) geographical focus (US and China target domestic market with global ambitions; Germany emphasizes support for small and medium-sized enterprises; EU focuses on pan-European cooperation); (3) technological priorities (US emphasize national security and defense technologies; Germany focuses on industrial automation and efficiency; EU focuses on sustainable development and green technologies; China aims for technological independence and export potential. In all the strategies digital technologies play a central role in the transformation of production. Artificial intelligence and machine learning are used to optimize production processes, predictive maintenance and product quality. All countries see AI as a critical technology for future competitiveness. The Internet of Things (IoT) connects machines, products and systems, creating the basis for smart factories. This technology enables real-time data collection and automated decision-making processes. Cyber-physical systems integrate physical processes with digital control systems, ensuring the autonomy and adaptability of production systems. Cloud computing provides scalable computing resources and platforms for big data analytics, which are critical for modern manufacturing. Digital technologies are central to all strategies, but with different emphases: In the field of artificial intelligence, the US develops military applications, the EU creates AI Factories, Germany integrates into production processes, China seeks leadership (DeepSeek as an alternative to ChatGPT). In IoT and cyber-physical systems, Germany leads in industrial IoT, the US focuses on security, the EU on standardization, China on scalability. In robotics, all strategies include collaborative robotics, but China and Germany lead in industrial implementation. In additive manufacturing, the US develops through America Makes, Germany through Fraunhofer, the EU through joint projects. The strategies have certain differences, in particular, the US uses public-private financing, Germany - balanced public-market financing, the EU - supranational financing through Horizon Europe, China - large-scale state subsidies. The target audience of the strategy for the USA is large corporations and the defense sector, for Germany - SMEs and hidden champions, for the EU - cross-border cooperation, for China - state champions and exporters. The geopolitical goals also differ, in particular, the US wants to achieve technological leadership and security, Germany - industrial excellence, the EU - strategic autonomy, China - global dominance in high technology. All strategies demonstrate that digital technologies do not simply modernize production, but create new paradigms of smart manufacturing, where the convergence of the physical and digital worlds forms the basis for future industrial competitiveness. By 2025, China achieved the highest implementation rates (86% of the goals), including leadership in electric vehicles (50% of the market), high-speed railways and shipbuilding. Germany maintains leadership in industrial equipment and automation. The US has strengthened its position in semiconductors through the CHIPS Act. The EU is developing sustainable manufacturing and an AI ecosystem.

We attribute the following economic effects of digitalization and platformization: changes in the life cycle of economic development strategy; changes in the ratio of strategic and tactical

development goals; changes in business cycles; changes in approaches to competition; changes in approaches to pricing; intensification and automation of existing business processes; optimization of management systems; reduction of transaction costs; creation of a technological basis for the formation of new types of economic interactions; acceleration of economic cycles; efficient use and release of production and logistics capacities.

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INSTITUTIONAL LIBERALIZATION OF THE AVIATION SERVICES MARKET IN THE EUROPEAN UNION

ІНСТИТУЦІЙНА ЛІБЕРАЛІЗАЦІЯ РИНКУ АВІАЦІЙНИХ ПОСЛУГ В ЄВРОПЕЙСЬКОМУ СОЮЗІ

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Abstract. This article examines the evolution and key stages of liberalization in the air transport market within the European Union. The study outlines the development from early deregulation packages in the late 1980s to the establishment of the European Common Aviation Area (ECAA) and the implementation of the Single European Sky (SES) initiatives. Special attention is paid to institution measures, which consolidated the internal aviation market and facilitated greater market access, pricing transparency, and competition. The analysis also highlights the ongoing transformation of EU aviation policy in the context of the European Green Deal. The liberalization process is evaluated in terms of its impact on airline competition, regional connectivity, and regulatory harmonization across member and associated states. The article concludes by assessing the challenges and future prospects for fully integrating EU airspace governance and sustainable aviation policy. In the long-term perspective, the success of these initiatives will depend on the European Union's ability to adapt to technological innovations, as well as on overcoming geopolitical and economic barriers that impact the stability of the aviation sector.

Keywords: EU air transport market, institutions, liberalization, Single European Sky, aviation policy, competition, sustainability, decarbonization.

Анотація. Ця стаття досліжує еволюцію та ключові етапи лібералізації ринку повітряного транспорту в межах Європейського Союзу. Дослідження описує розвиток від ранніх пакетів дегрегуляції наприкінці 1980-х років до створення Спільний Європейський авіаційний простір та впровадження ініціатив Єдине європейське небо. Особливу увагу приділено інституційним заходам, які консолідували внутрішній авіаційний ринок і сприяли розширенню доступу до ринку, прозорості ціноутворення та конкуренції. Аналіз також підкреслює поточну трансформацію політики ЄС у сфері авіації в контексті Європейського зеленого курсу. Процес лібералізації оцінюється з точки зору його впливу на конкуренцію серед авіакомпаній, регіональну сполученість та гармонізацію регулювання між державами-членами та асоційованими державами. Стаття завершується оцінкою викликів і перспектив повної інтеграції управління повітряним простором ЄС та політики сталого авіаційного розвитку. У довгостроковій перспективі успіх цих ініціатив залежатиме від здатності ЄС адаптуватися до технологічних інновацій, а також від подолання геополітичних і економічних бар'єрів, що впливають на стабільність авіаційного сектору.

Ключові слова: ринок авіаційного транспорту ЄС, інституції, лібералізація, , Єдине європейське небо, авіаційна політика, конкуренція, стабільність, декарбонізація.

Introduction. The EU aviation market represents a complex multi-level system that integrates a wide array of stakeholders, including air carriers, airports, aircraft manufacturers, and regulatory authorities. This sector exerts a significant economic and social impact by facilitating passenger and cargo transport, creating millions of jobs, enhancing the integration of regional economies, and promoting the growth of related industries such as tourism, logistics, and services.

Air transport plays a strategically vital role in the EU's logistics infrastructure, supporting the operations of over 100 scheduled airlines, a network of more than 400 airports, and 60 air navigation service providers. The sector directly employs 1.4 to 2 million people, while overall employment supported by aviation in the EU is estimated at 4.7 to 5.5 million jobs – equivalent to approximately 2.1% of the Union's GDP (*European Commission, n.d.*).

The liberalization of the EU air transport market is a cornerstone of the broader policy agenda aimed at creating a single internal market. The removal of national restrictions on airspace access, deregulation of fare structures, and liberalization of route rights have been decisive steps toward the integration of air transport within the EU framework.

Analysis of Recent Research and Publications. Scientific studies on the liberalization of the air services market play a key role in understanding the economic, social, and environmental consequences of this transformation, providing sound recommendations for the further development of policy in this area. They contribute to the analysis of the effectiveness of deregulation measures, the assessment of the impact on competition and the integration of regional markets, and help adapt strategies to global challenges such as decarbonization and sustainability.

According to the study by Graham (1997), the liberalization of the air transport market in the EU had a significant impact on the development of regional airlines, particularly in terms of enhancing their competitiveness under the new market structure. In another work, Graham (1998) draws attention to the geographical aspects of demand for air services, arguing that liberalization created conditions for the intensification of transport links in peripheral EU regions. The author emphasizes that the process of liberalization gives rise to significant contradictions between the neoliberal approach to aviation liberalization and other regional development strategies of the EU, which are oriented toward cohesion and European solidarity.

At the institutional level, as noted by Kinnock (1996), the implementation of the Single Aviation Market project was the result of political will to overcome the fragmentation of European airspace.

The analysis of the long-term effects of deregulation of the air services market in EU countries is of considerable importance. In this context, the work of Burghouwt, Mendes De Leon,

De Wit (2015) indicates the formation of a new configuration of the aviation network, characterized by the dominance of large hubs and increased market concentration.

Of particular interest is the analysis of regional differences in the dynamics of aviation market development after the accession of new states to the EU. In this context, the work by Jankiewicz, Huderek-Glapska (2016) demonstrate that the countries of Central and Eastern Europe underwent a more radical transition to an open market, explained by the political and economic conditions of the transition period.

Similar processes at the national level are traced in the study by Pisarek (2009), which describes the positive impact of liberalization on the development of aviation infrastructure in Poland. The author notes that the liberalization of air transport within the EU had a significant impact on the evolution of Poland's aviation sector, contributing to changes in market structure and air traffic dynamics after the country's integration into the EU. This process also contributed to increased accessibility of air services and the adaptation of the Polish market to pan-European standards, highlighting the importance of analyzing the stages of liberalization for understanding its regional consequences.

The expansion of air links with third countries, particularly in EU–Africa relations, is studied in the work by Njoya et al. (2018). The analysis shows that intercontinental air connections between Europe and Africa are mainly governed by bilateral agreements concluded between individual EU countries and various African governments. The authors conclude that the liberalization of the transcontinental aviation market contributes to the growth of passenger traffic and the diversification of the route network.

At the same time, some empirical studies demonstrate the ambiguity of the consequences of air market liberalization in the EU. In particular, Abate, Christidis (2020) found that the effectiveness of the EU's external aviation policy largely depends on the level of integration with third countries as well as the internal consistency among member states.

The issue of liberalization of the EU aviation market is also actively studied in Ukrainian academic discourse, particularly in the context of Ukraine's integration aspirations toward the EU. Ukraine signed an agreement with the EU on the creation of the Common Aviation Area Agreement (CAAA) on October 12, 2021, during the Ukraine–EU summit. Its purpose is to integrate Ukraine's aviation space into the single European market, which includes liberalizing market access, harmonizing safety standards, and promoting the development of air services.

The study by Sokolova et al. (2022) is devoted to analyzing the expected effects of the implementation of the CAA Agreement between Ukraine and the EU for the domestic passenger air transport market. The authors emphasize that market opening will contribute to increased competition, lower fares, and expansion of the route network.

The purpose. The primary aim of this scholarly analysis is to conduct a comprehensive examination of the institutional aspects of the air transport liberalization process within the EU, as well as to assess its short-term and long-term implications for the aviation services sector.

Main results of the research. The process of liberalizing the aviation market in EU countries began under conditions characterized by significant differences in socio-economic and political determinants. Until the 1990s, the air services market in EU member states developed mainly based on the implementation of bilateral agreements that defined the framework of international air connections. At that time, each member state operated a national airline that maintained an extensive network of international and intercontinental routes. These national carriers acted as designated operators under bilateral air service agreements concluded by individual countries both with European partners and with states beyond the continent. However, these networks generally did not correspond to the classic hub-and-spoke model, primarily due to a lack of coordinated scheduling at key airports. In many cases, airlines – many of which were wholly or partially controlled by national governments – received state support, leading to distortions in market competition (Button, K., 2001).

In 1984, the United Kingdom and the Netherlands signed an agreement that significantly eased regulatory restrictions on air transport between these two countries. Key features of the

agreement included the right of any airline registered in either of the signatory states to operate flights between them, and the introduction of fare freedom, which eliminated mandatory consultations with other carriers and allowed fares to be set by the airline of origin, subject to approval by the respective state. From 1985, airlines were allowed to adjust fares independently provided there were no objections from either state, although this often resulted in inefficient resource allocation, high fares, and limited consumer choice (Button, K., 2001).

It is also important to emphasize that the institutional process of liberalizing European air transport began in the late 1980s, influenced in part by transformations in the aviation policy of the United States, which focused on establishing more liberal bilateral agreements on transatlantic routes. After analyzing the U.S. experience with liberalizing air transport, the EU developed its own strategy for reforming the aviation sector. In the U.S., liberalization efforts concentrated mainly on the domestic market, involving the elimination of flight subsidies and ending the practice of assigning airlines to domestic routes by a state regulator, which in turn fostered increased competition. In contrast, domestic air traffic volumes in European countries remained limited due to natural factors, particularly the small territorial size of most states, which did not support the large-scale development of this segment. As a result, the EU faced a pressing need to establish a single aviation market that would integrate the numerous national markets of member states and to develop an appropriate regulatory framework (Button, K., 2009).

The liberalization of the EU aviation sector evolved progressively through a series of legislative and institutional reforms that shifted the industry from a strictly regulated, protectionist framework to a competitive single market. This transformation unfolded in several stages, most notably through three liberalization packages adopted between 1987 and 1992. Each successive package eliminated barriers to competition, fostered deeper integration, and laid the foundation for a unified EU air transport market.

The **first liberalization package**, introduced in 1988, was a crucial initial step toward increasing flexibility in fare setting and easing the regulation of capacity sharing among airlines. It allowed carriers to offer discounted fares and negotiate flight frequencies on international routes with fewer restrictions. This stage was supported by several key legal instruments, including Council Regulations (EEC) No. 3975/87 and 3976/87, which extended EU competition rules to the aviation sector for the first time, as well as Council Directive 87/601/EEC on scheduled air service fares and Council Decision 87/602/EEC on capacity allocation among carriers.

The first package played a pivotal role in harmonizing aviation policy with EU competition law. By removing protectionist restrictions – especially in the area of pricing – it initiated the process of integrating national aviation markets and contributed to the broader development of the EU internal market. This was critical for enabling the free movement of goods, capital, services, and people, and for meeting modern expectations regarding delivery times, safety, cargo integrity, and passenger comfort.

Although the reforms were significant, the first package did not impose excessive regulatory burdens on member states. Rights granted to airlines concerning market access and pricing remained limited in scope. Importantly, the reforms did not fully encompass all five “freedoms of the air” outlined in international aviation law, particularly in the 1944 Chicago Convention, which governs international commercial air transport.

According to the Chicago Convention, the five freedoms of the air include:

1. The right to overfly another country without landing.
2. The right to land in another country for technical purposes (e.g., refueling), without embarking or disembarking passengers or cargo.
3. The right to carry passengers and cargo from one's home country to a foreign country.
4. The right to carry passengers and cargo from a foreign country back to one's home country.
5. The right to carry traffic between two foreign countries as part of a service connecting to one's home country (ICAO, n.d.).

It is important to emphasize that the variation in the number and application of the five freedoms of the air is largely determined by regional specificities and the conditions stipulated in bilateral or multilateral agreements. In the European Union, since the 1990s, successive liberalization packages have significantly expanded carriers' access to intra-European air routes – going beyond the traditional five freedoms of the air outlined in the 1944 Chicago Convention. For instance, the Common Aviation Area (CAA) Agreement between Ukraine and the EU, signed in 2021, aims to harmonize Ukraine's national legislation with European standards. It provides for the expansion of market access rights but does not alter the fundamental structure of the five freedoms, which remain a cornerstone of international air law (*European Commission, 2021*).

The **second liberalization package**, adopted in 1990, introduced several new fare-setting regimes for EU-based airlines operating scheduled services and implemented full liberalization of air traffic within the scope of the third and fourth freedoms. Additionally, it allowed for multiple airline designations on air routes, enhanced cargo transport regulations, and extended these reforms to the freight segment. A particularly important development was the **partial introduction of cabotage rights**, i.e., the right to operate domestic flights within another EU member state. This was a significant innovation given the increasing role of air freight in the overall volume of air transport across Europe. The legal framework for this stage included Council Regulations (EEC) No. 2342/90, 2343/90, and 2344/90.

As shown in the studies by Burghouwt and De Wit (2005), and later by Burghouwt et al. (2007), during the 1990s national flag carriers gradually transformed their traditional hub-and-spoke networks and home airports into fully functional hub systems. They implemented intensive wave-based scheduling, which significantly increased connectivity at major aviation hubs. The development of these hub-and-spoke structures facilitated the emergence of **transcontinental multi-hub systems**, often in cooperation with alliance partners in the United States. This process led to the formation of so-called *dog bone* networks – structures that dramatically stimulated passenger demand from regions located both "behind" and "beyond" the major hubs. As a result, by the end of the 1990s, a significant number of aviation hubs had emerged throughout the EU. Most of these were secondary regional hubs that connected intra-European traffic with intercontinental destinations.

A significant conceptual distinction persisted between leading American and European air carriers. European national airlines operated primarily within the boundaries of their home hubs, focusing on national and international routes without establishing new hub infrastructures in other EU member states. In contrast, U.S. carriers – following deregulation – developed multi-hub operations that spanned the entire domestic market, greatly expanding their network reach.

The **third liberalization package**, adopted in July 1991 and implemented in 1993, codified key principles such as fare liberalization, determination of flight frequencies, and technical specifications for equipment acquisition and air traffic management. This package was pivotal for achieving full liberalization of the air transport market and formally established the Single European Sky (SES). Notably, it introduced «full cabotage rights», allowing airlines to operate domestic flights within another EU member state. It also introduced the concept of the "community carrier", which enabled any airline under EU jurisdiction to operate flights throughout the Union, regardless of its home country, as long as it was controlled by EU member states.

This stage was anchored in five principal Council Regulations:

- Council Regulation (EEC) No. 2407/92
- Council Regulation (EEC) No. 2408/92
- Council Regulation (EEC) No. 2409/92
- Council Regulation (EEC) No. 2410/92
- Council Regulation (EEC) No. 2411/92

According to various experts, the implementation of the third liberalization package helped achieve a compromise between EU member states that had already embraced liberalization – such

as the Netherlands and the United Kingdom – and those that were still in transition, including Germany, Greece, Italy, Spain, and France (Bartlik, 2007, p. 15).

The cumulative effects of the three liberalization packages were profound. Firstly, EU-based airlines gained the right to operate flights between member states without restrictions, and to perform domestic flights within other member states (except their own) under certain fare and capacity regulations. Cabotage rights were extended with the exception of premium routes, while pricing was largely deregulated. This transformation brought the EU aviation market closer to the U.S. internal market model, allowing European carriers to compete on domestic routes under relatively equal conditions. Moreover, national constraints on fare setting were abolished, advancing further integration of the market.

Low-cost carriers benefited substantially from the liberalization, gaining incentives to grow their market segment and attract price-sensitive passengers who previously favored alternative transport modes. Their rapid expansion pressured legacy airlines to cut operating costs and reduce ticket prices. As a result, within the first twelve years of liberalization, average ticket prices dropped by two-thirds (IATA, 2006).

The transition toward the creation of the SES marked a pivotal phase in the evolution of the EU's aviation industry, aimed at eliminating the fragmentation of national air traffic management (ATM) systems. Launched in the late 1990s in response to rising flight delays, inefficiencies in resource use, and growing environmental concerns, the initiative sought to enhance safety, airspace capacity, and environmental sustainability. Its overarching goal was to establish an integrated and harmonized system adapted to the needs of an expanded aviation market and designed to promote economic growth across the European region. This effort reflects the EU's broader strategic orientation toward integrating transport markets and strengthening its competitive position globally.

In 2008, **Regulation No. 1008/2008** was adopted, replacing the previous third liberalization package. However, this did not conclude the harmonization of legislation or the development of a fully open European airspace. The realization of the Single European Sky has been implemented through two sequential stages (European Commission, n.d.):

- **2001–2004 (SES I):** This phase involved the development and adoption of the first SES package. It proposed the creation of a unified ATM authority for EU member states, including Norway and Switzerland. This authority was granted responsibility for managing upper airspace levels and coordinating operations with military ATM services – an innovative approach, given that military use of airspace had previously been regulated exclusively by national governments.
- **2008–present (SES II):** The second package introduced the division of European airspace into **nine Functional Airspace Blocks (FABs)**, within which air traffic management is conducted across national borders. This cross-border approach significantly increased the efficiency of EU airspace usage.

Table 1.

Stages of Liberalization of the Air Transport Market in the European Union (Updated to 2024)

Stage	Year(s)	Key Developments
First Liberalization Package	1987–1990	Initial relaxation of market access restrictions; limited cabotage rights; bilateral agreements remained dominant.
Second Liberalization Package	1990–1992	Introduction of full third and fourth freedom rights within the EU; gradual deregulation of fares; increased competition between carriers.
Third Liberalization Package	1993	Full market liberalization: freedom to operate any intra-EU route; liberalized pricing; establishment of common licensing rules for EU air carriers.
Creation of the ECAA	2006	Establishment of the European Common Aviation Area (ECAA); inclusion of non-EU countries into the single aviation market on equal legal terms.
Single European	2001–	Legal and institutional reforms for unified air traffic management

Stage	Year(s)	Key Developments
Sky (SES I)	2004	(ATM); cross-border coordination, including military-civil integration.
Single European Sky (SES II)	2008–present	Division of EU airspace into Functional Airspace Blocks (FABs); performance-based ATM; operational efficiency; environmental and climate objectives.
Regulation No. 1008/2008	2008	Replaced the Third Package; consolidated provisions on market access, carrier licensing, and pricing transparency within the internal market.
Digital & Green Aviation Transition	2020–2024	EU Aviation Strategy updated for decarbonization and digitalization; integration of the <i>European Green Deal</i> and <i>Fit for 55</i> into aviation policy; support for Sustainable Aviation Fuels (SAFs); post-COVID recovery and resilience funding for aviation modernization.

Source: created by the authors based on their own research

Functional Airspace Blocks (FABs) are key structural elements of SES, representing cross-border airspace regions that integrate national ATM systems to enhance efficiency, safety, and capacity. This organizational concept was designed to overcome fragmentation caused by the traditional allocation of airspace along national lines. The FAB concept was formalized under **SES II in 2008**, specifically through **Regulation (EC) No. 1070/2009**, with the primary objective of optimizing airspace utilization, minimizing delays, and reducing the environmental footprint of aviation.

EU legislation obliges member states to collaborate in establishing FABs, thereby reducing resource duplication. The main goals of FABs include:

- Increasing airspace capacity by 10–15%
- Reducing fuel costs by 8–12% through more direct flight routing
- Enhancing safety through the implementation of standardized operational procedures
- Promoting environmental sustainability by lowering CO₂ emissions.

During the implementation of SES II, the **European Union Aviation Safety Agency (EASA)** was granted extended competencies. As the EU's central regulatory authority, EASA is responsible for maintaining high safety standards in civil aviation and fostering its sustainable development across Europe. The comprehensive regulatory framework introduced during this phase contributed to restructuring Europe's airspace and air navigation systems. Key reforms included the separation of regulatory and operational functions, increased flexibility in the joint civil-military use of airspace, standardization of navigation equipment, unified classification of upper airspace levels, the introduction of a single charging system for navigation services, and harmonized licensing requirements for air traffic controllers (*European Parliament*, 2025).

The **SES initiative** has delivered notable outcomes: according to Eurocontrol, flight delays have been reduced by 20%, and CO₂ emissions have dropped by 8% compared to the baseline year 2000 (*Eurocontrol*, 2023).

It is imperative to emphasize that the development of the aviation services sector in European Union (EU) countries is significantly influenced by intensified regulatory pressure and market trends oriented toward integrating principles of sustainable development, particularly through a focus on the decarbonization of the aviation sector. The European Green Deal, within the context of air transport, is closely linked to the promotion of Sustainable Aviation Fuel (SAF), which plays a critical role in reducing greenhouse gas emissions within the EU's aviation industry. In accordance with EU regulatory frameworks, suppliers are mandated to ensure that at least 2% of the fuel available at Union airports complies with SAF standards by 2025, with a gradual increase to 6% by 2030 and up to 70% by 2050 (*European Commission*, 2019). However, aviation companies highlight the limited availability of SAF, contending that they are unfairly blamed for the resource deficit in the energy sector, while reaffirming their commitment to the broader industry

goal of achieving net-zero greenhouse gas emissions by 2050. In this context, on March 27, 2025, the Director General of the International Air Transport Association (IATA) expressed support for a proposal by leading European airlines to postpone the SAF transition target to 2030 as part of the sustainable use of aviation fuel in Europe, underscoring the necessity for Brussels policymakers to account for current realities (*Reuter, 27 March 2025*).

Simultaneously, the implementation of the Green Deal provisions encounters significant challenges driven by persistent increases in fuel prices, a shortage of skilled labor, and geopolitical instability affecting the utilization of certain airspaces. In this regard, the European aviation market exists in a delicate state of equilibrium between recovery processes and transformation, as political institutions and industry leaders actively work toward establishing a more resilient and environmentally oriented future (*IATA. (March/April 2019)*). Furthermore, the integration of sustainable development principles necessitates substantial investments in technological innovations, such as electrified aircraft and route optimization systems, which form part of the broader SESAR (Single European Sky ATM Research) strategy aimed at modernizing air traffic management and reducing the aviation industry's ecological footprint. These initiatives, while promising long-term benefits, currently face limitations due to insufficient funding and the need for enhanced coordination between national and supranational authorities.

Conclusions. The liberalization of the aviation market among EU member states represents a complex and multifaceted process encompassing economic, institutional, and geographical transformations that significantly influence the development of the region's transport infrastructure. Over the past decades, the European Union has consistently implemented a series of strategic initiatives aimed at strengthening logistical integration within the air transport sector, notably through the elimination of fragmentation in the European airspace, the liberalization of air connectivity between member states, and the modernization of air traffic management systems. These measures, including the introduction of liberalization packages, the Single European Sky (SES), and innovative programs such as SESAR, have facilitated the establishment of one of the most interconnected and competitive aviation markets globally, characterized by enhanced service accessibility, expanded route networks, and the integration of ecological standards.

Despite these substantial achievements, the complete integration of the system remains unrealized due to disparities in the national interests of EU member states, as well as varying levels of technological readiness and institutional capacity among them. Such challenges complicate the harmonization of regulatory frameworks and coordination among national management bodies, necessitating further efforts in policy development and financing. Prospective development plans envisage the expansion of SES to the Western Balkan countries, thereby fostering deeper regional integration, and the further alignment with global standards set by the ICAO, which is a prerequisite for ensuring the competitiveness of European aviation on the international stage. In the long term, the success of these initiatives will depend on the EU's capacity to adapt to technological innovations, alongside overcoming geopolitical and economic barriers that impact the stability of the aviation sector.

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