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# STATE AND ECONOMY

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**CHUGUNOV Igor,**  
Doctor of Sciences (Economics), Professor,  
Head of the Department of Finance  
State University of Trade  
and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-3612-7236  
i.chugunov@knute.edu.ua

**PRUTSKA Olena,**  
Doctor of Sciences (Economics), Professor,  
Professor of the Department of Finance  
Vinnytsia Institute  
of Trade and Economics  
of State University of Trade and Economics  
87, Soborna St., Vinnytsia, 21000, Ukraine

ORCID: 0000-0002-6272-3330  
Prutska@vtei.edu.ua

**NIKITISHIN Andriy,**  
Doctor of Sciences (Economics), Professor,  
Dean of the Faculty  
of Accounting and Finance  
Vinnytsia Institute  
of Trade and Economics  
of State University of Trade and Economics  
87, Soborna St., Vinnytsia, 21000, Ukraine

ORCID: 0000-0002-7951-4017  
a.nikitishyn@vtei.edu.ua

## PUBLIC DEBT MANAGEMENT OF UKRAINE

*The aim of the article is to justify the main tools for reducing the debt burden on the State Budget of Ukraine during the war and in the period of post-war reconstruction, based on the generalization of the world experience of restructuring the state debt and providing grant assistance.*

*The research is based on the hypothesis of the need to develop and approve debt cancellation mechanisms for Ukraine, as well as the orientation of state policy to achieve an increase in the share of grant aid in post-war reconstruction, taking into account world experience,*

**ЧУГУНОВ Ігор,**  
д. е. н., професор,  
завідувач кафедри фінансів  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-3612-7236  
i.chugunov@knute.edu.ua

**ПРУТСЬКА Олена,**  
д. е. н., професор, професор кафедри фінансів  
Вінницького торговельно-економічного  
інституту  
Державного торговельно-економічного  
університету  
Соборна, 87, м. Вінниця, 21000, Україна

ORCID: 0000-0002-6272-3330  
Prutska@vtei.edu.ua

**НІКІТИШИН Андрій,**  
д. е. н., професор, декан  
обліково-фінансового факультету  
Вінницького торговельно-економічного  
інституту  
Державного торговельно-економічного  
університету  
Соборна, 87, м. Вінниця, 21000, Україна

ORCID: 0000-0002-7951-4017  
a.nikitishyn@vtei.edu.ua

## УПРАВЛІННЯ ДЕРЖАВНИМ БОРГОМ УКРАЇНИ

*Метою статті є обґрунтування основних інструментів зменшення боргового навантаження на Державний бюджет України під час воєнних дій та в період післявоєнної відбудови на основі узагальнення світового досвіду реструктуризації державного боргу та надання грантової допомоги. В основу дослідження покладено гіпотезу про необхідність розроблення й апробації механізмів списання боргів України, а також орієнтації державної політики на досягнення збільшення частки грантової допомоги у післявоєнній відбудові з урахуванням світового досвіду,*



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*in particular the Marshall Plan (MP). To achieve the specified aim, the research methods were used such as: historical, logical, methods of statistical analysis, synthesis and comparison, generalization. Given the unprecedented nature of the destruction caused and the fall in Ukraine's GDP, there are reasons to insist on writing off most of Ukraine's debt to international organizations, including the IMF and the World Bank. The second component of the restructuring program should be the application of discounts to the nominal amount of debt for bond loans of private creditors. It was noted that in the conditions of active military operations in Ukraine, it is expedient to attract as much grant funding and long-term loans at preferential interest rates as possible.*

*Keywords:* public debts, loans, grant funds, debt restructuring, economic recovery.

*зокрема плану Маршалла (ПМ). Для досягнення зазначеної мети використано методи дослідження: історичний, логічний, статистичного аналізу, синтезу і порівняння, узагальнення. З огляду на безпрецедентний характер завданих руйнувань і падіння ВВП України є підстави наполягати на списанні більшої частини заборгованості України перед міжнародними організаціями, включно з МВФ і Світовим банком. Іншою складовою програми реструктуризації повинно стати застосування знижок до номінальної суми боргу за облігаційними позиками приватних кредиторів. Відзначено, що в умовах активних воєнних дій Україні доцільно залучати якомога більше грантового фінансування та довгострокових кредитів під пільгові відсотки.*

*Ключові слова:* державний борг, позики, грантові кошти, реструктуризація боргу, відновлення економіки.

JEL Classification: F34, F35, H63.

## Introduction

The full-scale war has posed unprecedented challenges to the state, which cause significant damage to the economy and society, and destabilize the public finance system. Under martial law, it is extremely important to finance the needs of national defense, fulfill the social functions of the state, address humanitarian issues, and keep the overall financial and economic situation under control. Financial support from partner countries and international institutions is of paramount importance in the face of a significant decline in real GDP and a growing budget deficit. So far, Ukraine has managed to keep its debt burden under control, at up to 80% of GDP, but the war is ongoing, and the corresponding payments on external public debt will increase, exacerbating the problem of peak debt payments. In these circumstances, public debt management becomes one of the main tasks, for which it is important to study the global experience of debt crisis management and post-war recovery. Particular attention should be paid to the experience of implementing the Marshall Plan (MP) in the context of the possibility of borrowing certain financial mechanisms of economic assistance that would not result in a significant increase in the debt burden.

The problem of public debt management is constantly in the focus of domestic and foreign economists. Wheeler (2004) identified the main components of effective public debt management practices, including the need for clear objectives, an institutional and legal framework, appropriate quality assurance procedures and checks and balances, and effective information management systems. Montiel (2005) emphasized that the optimal debt composition depends on the circumstances of the country, but

should involve a trade-off between increasing the anti-inflationary credibility of the government and reducing the budget's vulnerability to macroeconomic shocks.

Sadowski (2015) analyzed in detail the state of Ukraine's external debt in 2011–2015 and identified the most acute problems of its servicing, including a large share of short-term external borrowings, insignificant foreign exchange reserves, and limited access to foreign financial markets as of 2015. Eichengreen, El-Ganainy, Esteves & Mitchener (2021) justified the formation of public debt as a natural result of the functioning of public finances, especially in times of war or pandemics. Such extraordinary conditions, according to the authors, continue to require states to intensify public borrowing and increase public debt. Teupe (2020) uses the experience of the British economic recovery after World War II to answer the question "How to pay for the war?" emphasizing the importance of an effective public debt management policy.

Recent publications, such as Ash & Garrard (2023, July 13) and Drea (2023, January 23), are devoted to finding new approaches to public debt management in Ukraine, taking into account the extremely complex problems of financing military expenditures and the prospects for post-war recovery. Domestic economists have made a significant contribution to the development of public debt theory. In particular, Fedosov and Kolot (2008) studied public debt management in the context of risk management. Vakhnenko (2009) highlighted the peculiarities of public debt formation and management of its components during the financial crisis. Kucher (2017) examined the preconditions and consequences of the budget deficit as the root cause of public debt in the system of financial and credit development of the economy. Pasichnyi (2018) summarizes the peculiarities of public debt management policy in Ukraine. Lunina (2022) assessed the potential of public finances to cover wartime expenditures and post-war recovery in Ukraine. Bogdan (2022) examines the problems of public debt accumulation during the war and identifies methods for their post-war settlement. The publications of 2023 analyzed the parameters and methods of restructuring the external public debt, concluding that "an important factor in the protracted nature of the war and the unjustified loss of human life is the lack of Western military assistance to Ukraine" (Bogdan, 2023a).

Chugunov, Makohon and Markuts (2019) studied the peculiarities of debt policy in EU countries compared to the debt policy of Ukraine (Chugunov, Makohon & Markuts, 2019). Continuing the theme, the specifics of budget policy in war conditions were determined and it was determined that during 2022, receipts to the consolidated budget of Ukraine from EU countries, foreign governments, international organizations and donor institutions reached UAH 481.3 billions or 21.9% of consolidated budget revenues. Noting that during the last 10 years this indicator did not exceed 1.2% of budget revenues, the authors concluded that this became a significant

source of replenishing the revenue part of the budget in wartime conditions (Chugunov et al., 2023).

Zamkova and Hnydyuk (2022), on the basis of a study of the influence of the state of war in Ukraine on the servicing and repayment of the state debt, found that "it will be difficult to avoid the restructuring of the state debt of Ukraine. And here the experience of other countries that have already experienced external debt restructuring can come in handy, but it must be based on the active diplomatic support of foreign partners" (Zamkova and Hnydyuk, 2022). Shemaeva (2022) reviewed the international experience of public debt restructuring in terms of Ukraine and formulated recommendations for reducing the critical debt burden, including adopting a new debt strategy, achieving political support from international partners to guarantee immunity from default, etc. Kush (2023) substantiates the thesis about the need to write off part of Ukraine's debt as a necessary prerequisite for post-war recovery, otherwise the main budget resources will be spent on servicing the state debt. Nestor (2022) considered the peculiarities of the MP in the context of its economic aspect and the advantages and disadvantages of implementation, conducted an analysis of the distribution of US economic aid to Europe within the framework of the MP in terms of loans, aid by articles, and formulated a number of recommendations for the Ukrainian counterpart of the MP.

At the same time, despite the presence of significant theoretical development and thorough analytical studies of the main trends in the formation of debt dependence of Ukraine, the problem of how to ensure the survival of the country in the conditions of a full-scale war, to implement financing at a sufficient level of national defense and post-war economic recovery, taking into account implementing a balanced debt policy. It is impossible to predict the end of the war, but it is necessary to prepare an answer to one of the important post-war questions regarding the management of the debts of the state accumulated during the war.

The aim of the article is to substantiate the main instruments of management of the State Debt of Ukraine in the context of post-war recovery prospects. The research presented in the article is based on the hypothesis of the need to develop and approve debt relief mechanisms of Ukraine, as well as the orientation of state policy to achieve an increase in the share of grant aid in post-war reconstruction, taking into account world experience. To achieve this aim, the following research methods were used: historical, logical, statistical analysis, synthesis and comparison, summarization of research materials.

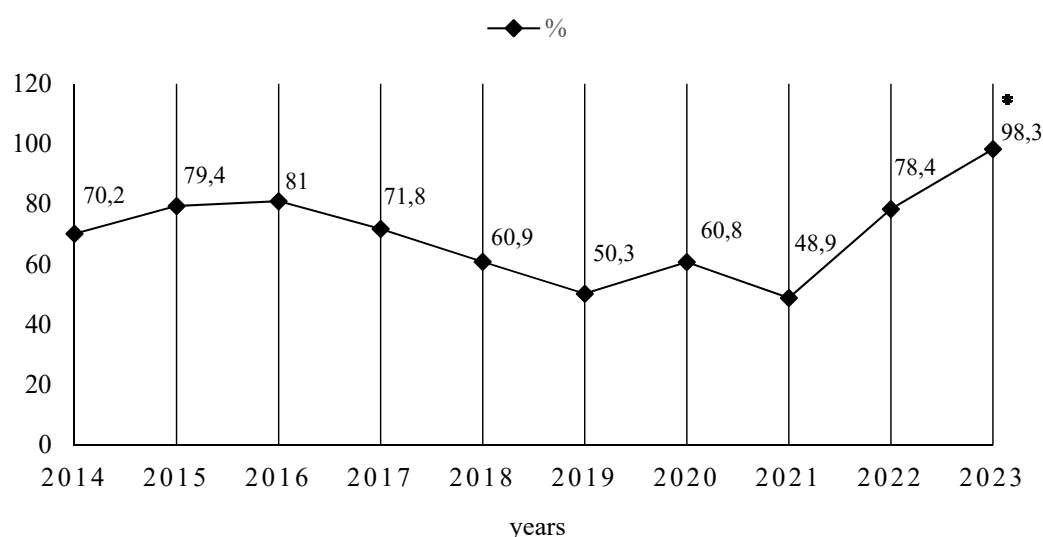
Materials of international databases, including the International Monetary Fund, analytical reports of the Ministry of Finance of Ukraine, the Ministry of Economy of Ukraine, the State Statistics Service of Ukraine, and state institutions became the information basis for the preparation of the article. The logic of the research consists in considering the debt trajectory of

Ukraine during the last 10 years, determining the main effects of a full-scale war on the state of public finances and the debt burden of Ukraine in 2022–2023, substantiating the possibility of applying mechanisms tested in world practice to reduce the debt burden, with an emphasis on the need to increase share of international grant aid, in particular, on the use of experience in the implementation of MP for Ukraine.

The structure of the main part of the research includes four sections, the first of which is devoted to the analysis of indicators of the debt trajectory of Ukraine in 2014–2023, the second to the peculiarities of the impact of the war on the state of public finances and debt dependence of Ukraine in 2022–2023. The third section highlights the global experience of reducing debt load and grant aid. In the fourth, the mechanism for ensuring the transparency and efficiency of the use of international aid is revealed.

### 1. Debt trajectory of Ukraine in 2014–2023

Before a full-scale war, the problem of public debt was not critical, and the level of public debt remained under control. During 2014–2018, the level of public debt fluctuated between 70.2% (at the end of 2014) and 60.9% (2018), and only in 2016 there was a short-term increase in the level of public debt to 81% of GDP. In the following years, the positive trend towards reducing Ukraine's debt dependence continued, which is confirmed by the reduction of the relative level of public debt to 48.9% of GDP in 2021 (*Figure 1*).



\*estimated by the IMF

Figure 1. Dynamics of the relative level of public debt of Ukraine during 2014–2023, % of GDP

Source: calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget web portal for citizens, n.d.).



At the same time, in the same year 2021, the USA had a level of public debt to GDP of 137.2%, Japan – 234.4%, France – 112.9%, Great Britain – 101.9% (Myhal, 2023). Although these indicators significantly exceeded the normative indicator of the state debt level of 60% of GDP for EU countries, this did not significantly prevent these developed countries from remaining the flagships of the world economy.

The dynamics of the state and state-guaranteed debt of Ukraine, starting from 2014 (annually), is presented in *Figure 2*.

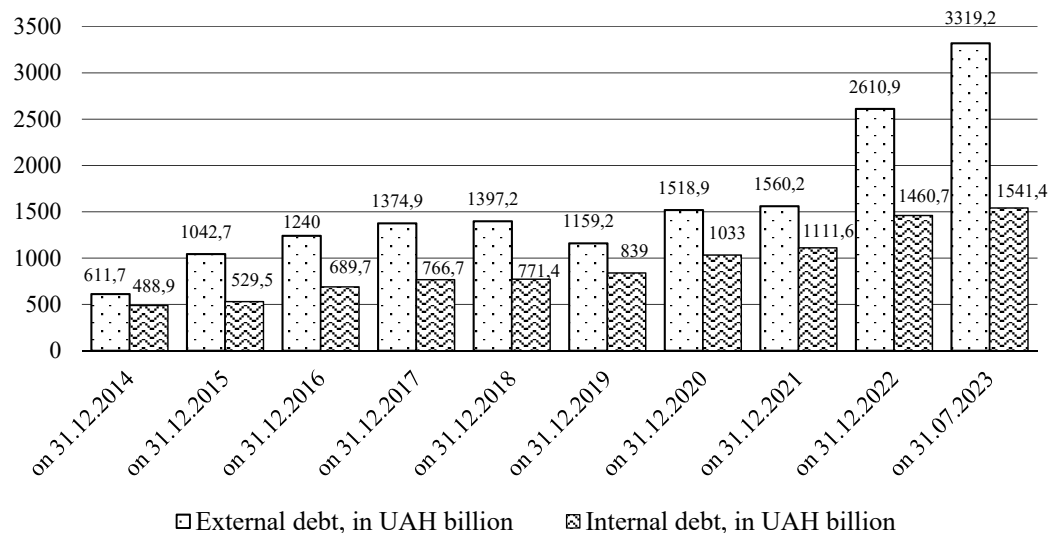


Figure 2. Dynamics of external and internal debts of Ukraine for 2014–2023, UAH billion

*Source:* calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget website for citizens, n.d.).

## 2. The impact of the war on the state of public finances and debt dependence of Ukraine in 2022–2023

With the beginning of the war, due to the need to finance military needs and increased costs to support citizens who lost their homes and jobs, government spending began to grow at a high rate. The state's ability to generate budget revenues has significantly decreased, which prompted an urgent search for sources of funding for state expenditures. During March–December 2022, UAH 562.9 billion or 46.4% was raised from external sources, which became the main source of financing the state budget in 2022. At the same time, 33% of the budget financing was provided by the NBU through the direct purchase of military bonds, 20.6% of the financing was raised by the government at auctions with placement of OVDP, most of which were purchased by commercial banks. During 7 months of 2023, the volume of state debt continued to increase (*Figure 3*), mainly due to external borrowing.

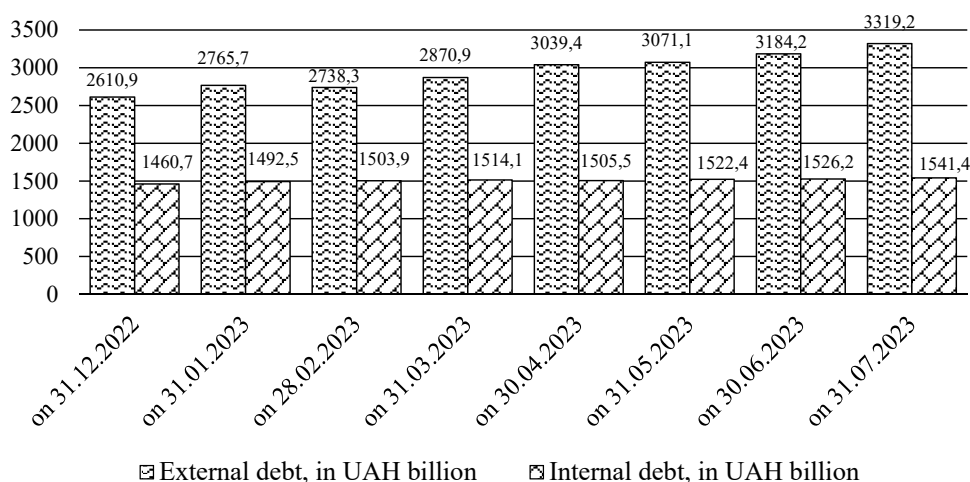


Figure 3. Public debts’ increase of Ukraine during 2023

Source: calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget web portal for citizens, n.d.)

As of the end of March 2023, the external debt was about 65% of the state and guaranteed debt. More than half of it are preferential long-term loans from donors and other countries (EU, IBRD, IMF, Canada and EIB – the largest creditors of the state), which are provided on exceptionally favorable terms with a repayment period of up to 35 years, grace periods for repaying the body of the loan up to 10 years and at low interest rates (Figure 4).

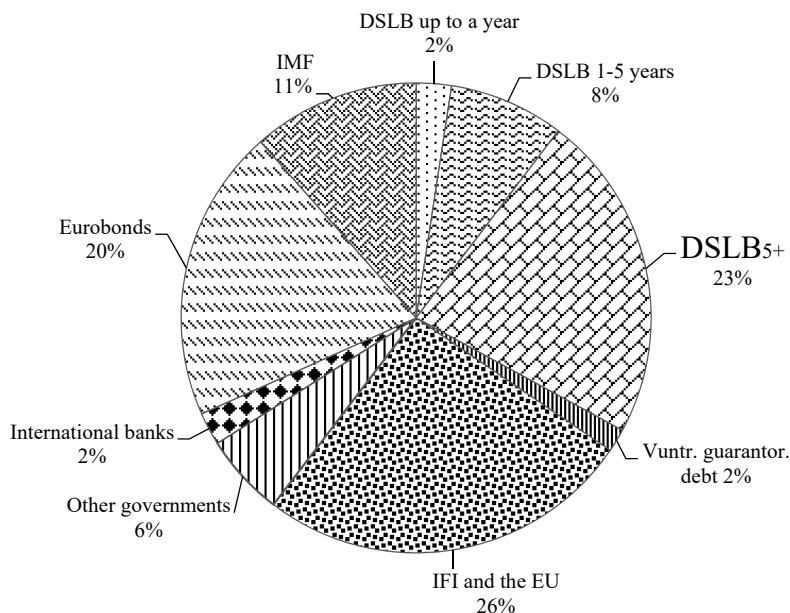


Figure 4. The structure of the state and guaranteed debt of Ukraine, March 31, 2023

Source: calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget web portal for citizens, n.d.).

There is also debt for Eurobonds and commercial loans from banks and other foreign financial institutions. The largest domestic creditor of the government, which holds almost half of DSLB, is the National Bank of Ukraine, and about 30% is held by state banks, the rest is distributed among private commercial banks, companies, non-residents and the population.

According to the Law of Ukraine on the State Budget of Ukraine, in 2023, the maximum amount of public debt was to be UAH 6.2 trillion or USD 152.3 billion, according to the forecast rate of the IMF (1 USD = 40.7 UAH). According to IMF estimates, by the end of 2022, the ratio of public debt to GDP should be 81.7% (according to the Ministry of Finance, the public debt of Ukraine increased to 78.5% of GDP), and in 2023 – to 98.3%. The state spends more than half of its funds on national defense and security, and its own revenues are only enough to cover them. To finance all other areas, including education, health care, the government resorts to attracting funds in the form of grants and loans.

According to the Ministry of Finance of Ukraine, during January–June 2023, the State Budget of Ukraine was financed by UAH 879.1 billion, of which UAH 593.4 billion was provided by external sources (*Table 1*).

Table 1

Funding of the State Budget of Ukraine for January–June 2023, UAH billion

State Budget Financing Sources of Ukraine	Internal sources	External sources
DSLB Placement	285.7	–
Macro-financial assistance in accordance with the Memorandum of Understanding between Ukraine and the EU		357.0
Funds from the IMF under the four-year EFF Enhanced Financing Program		131.4
Government of Canada loan		64.2
IBRD loan (as part of the project "Supporting public expenditures to ensure sustainable public administration in Ukraine")		18.3
MAR loan		16.1
IBRD loan (as part of the project "Acceleration of Investments in the Agriculture of Ukraine")		4.8
IBRD loan (as part of the project "Strengthening the health care system and saving lives")		1.3
IBRD loan (within the framework of the project "Additional financing of the Project to improve health care at the service of people")		0.2
Together for January–June 2023	879.1	

*Source:* calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget website for citizens, n.d.).

According to the estimates of the Ministry of Economy of Ukraine, the size of the state debt in 2023 will exceed the nominal size of the gross domestic product and will amount to 102% of GDP, provided that the

## STATE AND ECONOMY

promised funds are received in the form of loans, which means an increase in the debt burden on the budget, problems of peak payments in the conditions of a protracted war. So far, Ukraine has managed to keep the debt burden at a manageable level of less than 80% of GDP, and thanks to the help of partners and the support of creditors during the war, the issue of debt payments is not yet acute, but everything may gradually change, in particular in 2024–2027, the forecast payments on Ukraine’s external debt will amount to 6% of GDP in 2022, and the problem of peak payments appears to be much more important than the issue of the general level of indebtedness relative to the size of the economy.

According to the Ministry of Finance of Ukraine, an increasing share of resources can be attracted in the form of non-refundable financial aid (grants), which are a tool for covering the budget deficit without increasing the country’s debt burden. A large amount of international financial support in the form of grants (USD1 7.7 billion from February 2022 to March 2023) made it possible to slow down the growth of the debt burden. From the beginning of the full-scale war until the end of 2022, Ukraine received UAH 480.6 billion in grants, thanks to which social needs, wages, medical services, and assistance to temporarily displaced persons were financed (*Table 2*). In some months (in particular, in July and September 2022), up to 100% of the received aid came in the form of grants, which is a positive trend.

*Table 2*

### Loans and grants received by Ukraine in 2022

Month	Grant funds		Credit funds	
	UAH billion	%	UAH billion	%
March	3.6	3.6	95.4	96.4
April	6.6	19.9	26.5	80.1
May	30.9	52.6	27.9	47.4
June	38.0	38.6	60.5	61.4
July	81.9	99.9	0.1	0.1
August	109.9	64.0	61.8	36.0
September	73.1	100.0	0.0	0.0
October	0.0	0.0	135.9	100.0
November	0.0	0.0	94.7	100.0
December	136.0	69.4	69.4	30.6

*Source:* calculated by the authors based on data (Official website of the Ministry of Finance of Ukraine, n.d.; State budget website for citizens, n.d.).

According to the Ministry of Finance of Ukraine, in January–July 2023 the funds received by Ukraine in the form of international aid (grants) – UAH 317.2 billion, while the largest donor of grant support in January–July 2023 is the United States of America (UAH 310.8 billion). In 2023, Ukraine

received USD 9.7 billion in direct budget support from the United States in the form of grants (Government Courier, 2023).

Ukraine also received funding from Germany on an irrevocable basis. Spain, Finland, Ireland, Switzerland, Belgium, Iceland with a total volume of up to UAH 6.4 billion. The funds are directed to the State Budget of Ukraine through the World Bank trust fund within the framework of the PEACE project. The purpose of the project is partial compensation of state budget expenditures, in particular, social and humanitarian expenditures that are not related to the security and defense sector. In September 2023 through this target fund, the State Budget of Ukraine received a grant from the USA in the amount of USD 1.25 billion, which is part of the fifth additional financing within the framework of the World Bank project "Supporting public expenditures to ensure sustainable public administration in Ukraine" (PEACE in Ukraine). The purpose of the project is partial compensation of state budget expenditures, in particular, social and humanitarian expenditures that are not related to the security and defense sector. Funding raised is directed to provide pension payments, payments to employees of the State Emergency Service, salaries of medical workers who provide services under the medical guarantee program, civil servants and teaching staff (Official website of the Ministry of Finance of Ukraine, n.d.).

The general picture is complemented by the data of the Kiel Institute of World Economy, given by Bohdan (2023b), according to which estimates of the value of military, financial and humanitarian aid from allied states during February 24, 2022 – May 31, 2023, amounted to EUR 165.4 billion in terms of liabilities. This amount covers military, humanitarian and financial assistance of state institutions; it does not include private donations, expenses for the maintenance of refugees and aid to Ukraine from international organizations. If to the specified EUR 165.4 billion of aid, state aid is added, taking into account the costs of maintaining refugees in host countries (EUR 57.9 billion), the amount of support for Ukraine will amount to EUR 222.4 billion. These amounts refer to bilateral aid to Ukraine from allied states and do not include funding from international institutions – the IMF, the World Bank, the United Nations and the EBRD, which additionally allocated EUR 12.8 billion to Ukraine.

Thus, the full-scale war caused an active accumulation of public debt, contributed to the intensification of grant-credit support from external creditors, and stimulated a significant increase in the yield of foreign loan bonds and the issuance of internal military bonds by the Government.

### **3. World experience in debt reduction and grant assistance**

Repko and Samoiluk (2023) consider attracting international aid in the form of grants and cheap and long loans as factors for reducing the debt burden; the policy of "financial repression", when debt rates are lower than inflation, economic growth; primary budget surplus; debt restructuring;

as well as privatization of state assets and reparations from the aggressor country. Agreeing with this vision, we note that not all of the proposed tools can be used before the end of the hot phase of the war, in particular economic growth, budget surplus, privatization of state assets, and can be used only after its end.

### *3.1 International practices of settling debt crises*

Debt restructuring is an effective tool for resolving debt crises. In his research, T. Bohdan cites IMF data, which show that during 1950–2021, 709 cases of restructuring in 115 countries were recorded in the world. The average percentage reduction in the debt ratio after restructuring was 15% of GDP in emerging market countries and 18% of GDP in low-income countries (Bogdan, 2023a). The same opinion is held by Eon Drea (Drea, 2023): "Uncomfortable as it may be, Brussels and Berlin know very well that it was the debt relief granted to Germany in the late 1940s that laid the foundation for Europe's postwar economic miracle: a return to economic growth that eventually led to the establishment of the prosperous European Economic Community in 1957" (Drea, 2023).

The historical experience of countries that have experienced armed conflicts over the last dozen years (Afghanistan, Iraq, Egypt) shows that such countries actively use debt restructuring under the conditions of its partial write-off. Thus, in 2010, the World Bank, the IMF and the creditor states approved a decision to ease Afghanistan's external debt in the amount of USD 1.6 billion. The USA is a war-torn country. The total amount of debt relief consisted of writing off the nominal amount of debt payments under the global Heavily Indebted Poor Countries (HIPC) Initiative, the Multilateral Debt Relief Initiative and the debt to the Paris Club of Creditors, which in November 2003 decided to give Iraq 80% debt relief and called on other commercial and official creditors to write off the debt on comparable terms. As a result of concerted actions, the stock of debt to the Paris Club of Creditors alone was reduced by USD 7.8 billion.

In 1991, 20.2 billion dollars were written off to Egypt as US foreign debt for participation in the anti-Iraq coalition during the Persian Gulf War. The Paris Club agreed to reduce Egypt's debt by 50% over three years, subject to progress on reforms agreed with the IMF. 15% of Egypt's debt was to be written off immediately, 15% after 18 months and 20% at the end of the 3-year term (Bogdan, 2023a).

Based on a comprehensive analysis of debt sustainability, Bohdan established what should be the amount of debt discounting/write-off to restore the stability of Ukraine's financial position. The overall assessment of risks based on three forecast scenarios made it possible to conclude that the implementation of the assumptions of the base scenario and the negative scenario will lead the country to a debt crisis. Only the application of

corrective policy measures in the form of positive shocks (increase in grants + debt write-off) is highly likely to ensure the solvency of the state and maintain macro-financial stability, which cannot be disagreed with (Bogdan, 2023a).

Given the unprecedented nature of the destruction caused and the fall in Ukraine's GDP, there are reasons to insist on writing off most of Ukraine's debt to international organizations, including the IMF and the World Bank. The second component of the restructuring program should be the application of discounts of 50–60% to the nominal amount of debt for bond loans of private creditors.

### *3.2. The experience of implementing the Marshall Plan and new approaches to financing post-war reconstruction*

Considering the international experience, emphasis is placed on the experience of countries after the Second World War, reparations as a source of financial resources and grants as a long-term source of financial resources. Recently, at various levels, it is increasingly possible to hear about PM for Ukraine. The experience of the implementation of the PM requires careful study in the context of the possibility of introducing certain of its tools for the recovery of Ukraine. Undoubtedly, the PM for Ukraine will be significantly different, if only because the PM had one US donor and 17 recipient countries. Ukraine will receive aid from a large number of donors, but the main principles – the validity and expediency of requests, the transparency of the distribution of funds provided by donors, the clarity of accounting and analytical support, the targeted use of received funds – must be respected. Only this will make it possible to minimize corruption and achieve the necessary level of trust between donors and the recipient – Ukraine. The following indicators are particularly important for the study: the achievement of the objectives of the PM was ensured by a combination of 90% grants and 10% loans, as well as by regulating the use of funds from auxiliary partnership funds in local currency. During 1948–1952, the United States provided aid to Europe in the amount of more than USD 13 billion, of which grants amounted to more than 11 billion, and loans – more than 1 billion (Nestor, 2022, pp. 90–91).

Taking into account the existing global experience of using international technical assistance, more and more researchers note the need to use this tool in the conditions of Ukraine. In particular, Larikova draws attention in her research to the fact that "in order to restore the competitiveness of the domestic economy disrupted by military actions, it is necessary to provide compensation for the damage caused and the restoration of damaged and destroyed objects" (Larikova, 2022, p. 81). Already in 2022 aid from the USA, EU, Germany, Canada, and Great Britain accounted for a third of the expenditures of the consolidated budget of Ukraine. During 2023, aid is provided for almost all sectors of the economy and social life by more

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than 20 countries, as well as such international organizations as the UN, World Bank, EBRD. The scale and sources of assistance are indicated by the data in the *Table 3*.

*Table 3*

Financial, humanitarian and military aid to Ukraine from allied states in  
24.02.2022–31.05.2023, EUR billion (obligations to provide)

A country or group of countries	Financial Aid	Humanitarian help	Military aid	Help together
EU, collective institutions and member states	32.8	7.6	28.0	68.4
Anglo-Saxon countries	31.6	4.3	51.3	87.2
including USA	24.3	3.6	42.8	70.7
Great Britain	3.9	0.3	6.6	10.7
Canada	3.4	0.4	1.5	5.3
Australia	0.0	0.0	0.1	0.1
Total bilateral donors	71.3	13.7	80.4	165.4
Multilateral donors (IMF, UN, EBRD, World Bank Group)	12.8	0.0	0.0	12.8

*Source: (Bohdan, 2023b).*

Western researchers insist that the situation with Ukraine requires new approaches. We fully agree with E. Drea's opinion that "economically devastated Ukraine needs a debt agreement to achieve future peace – and grants, not loans" (Drea, 2023). T. Ash and A. Garrard (2023) suggest a creative approach to the issue of Ukraine's debt, stressing that public and private sector creditors should work together. The scale of Ukraine's post-war recovery, according to scientists, "will require a creative approach to debt and its sustainability, as well as a higher level of partnership and trust between official and private creditors." Researchers insist on the "inevitable need for a large financial contribution due to frozen Russian assets" (Ash & Garrard, 2023). In addition, they consider a combination of traditional debt relief measures with a new monetary component as one of the solutions.

Proceeds from the new lending will ensure positive cash flows from the private sector over the duration of the IMF's Extended Financing Facility program, provide liquidity to manage public liabilities, and provide significant capital to finance the budget. The understanding of the private sector role is achieved that will play in the financing of Ukraine's public sector starting in 2024, which inextricably links the settlement of legacy debt with new monetary commitments, which is critical to restoring Ukraine's credit rating and complementing future private investment initiatives into the real sector of the economy (Ash & Garrard, 2023).



#### **4. How to ensure the transparency and efficiency of the use of international aid**

What stands in the way of further expansion of assistance to Ukraine? In addition to the fact that considerable hard diplomatic work is needed to attract international aid, to create an atmosphere of trust and cooperation with potential partners, it is extremely important to ensure transparency and efficiency of the use of the funds involved. Not having a comprehensive answer to the question of how to ensure this, we note that we can agree with T. Larikova, who considers one of these obstacles to be the irregularity of the order of cooperation of international donors, central and local authorities on attracting international technical assistance (Larikova, 2022). Recipients and beneficiaries of international aid – both humanitarian and technical – can be ministries, other central bodies of state administration and local self-government.

Managers of budget funds as budget institutions can receive international assistance in monetary, material form or in the form of performance of works, provision of services. If a specific goal is not specified in the contract, the issue of target orientation is decided by the head of the institution according to the priority needs. The accounting of used funds is assigned to the duties of the recipient – manager of budget funds. Thus, legal and organizational gaps in the regulatory framework, designed to ensure clear accounting and analytical support for the targeted use of the aid received, inhibit the processes of its further increase. In order to ensure the transparency of the evaluation indicators of the targeted and effective use of the involved international aid, it is necessary to develop Methodological recommendations for the accounting and analytical support of the involvement and use by managers of budgetary funds of international technical aid and other relevant regulatory documents.

It should be noted that work is underway to ensure monitoring, control and minimization of corruption when using international aid. In particular, the Law of Ukraine dated 14.04.2022 No. 2192-IX provides that during the period of martial law in Ukraine, grants for budget support, attracted from foreign countries, foreign financial institutions and MFIs, are credited to the general fund of the State Budget of Ukraine (Law of Ukraine " On Amendments to Chapter VI "Final and Transitional Provisions" of the Budget Code of Ukraine and Chapter XX "Transitional Provisions" of the Tax Code of Ukraine", 2022). Amendments to the relevant concluded international treaties of Ukraine are carried out by the Ministry of Finance of Ukraine by decision of the Cabinet of Ministers of Ukraine. On December 14, 2022, the European Parliament and the Council of the European Union adopted the Regulation on the creation of an instrument for providing support to Ukraine for 2023 (Regulation (EU) 2022/2463) on providing Ukraine with Union support in the form of loans of up to EUR 18 billion, non-refundable support

depending on funding opportunities and interest rate subsidies in the context of full-scale war (Official website of the Ministry of Finance of Ukraine, n.d.). The signed Memorandum of Understanding between Ukraine as the Borrower and the European Union as the Lender provides for the allocation of any tranche of aid conditional on the satisfactory fulfillment of reporting requirements and satisfactory progress in implementing the conditions. The state authorities of Ukraine undertake to ensure to the European Union the effective, transparent and accountable use of the financial support received under this instrument.

### Conclusions

The full-scale war caused an active accumulation of public debt, contributed to the intensification of grant-credit support from external creditors; and stimulated a significant increase in the yield of foreign loan bonds and the issuance of internal military bonds by the Government. The study of the world experience in the settlement of debt crises gives reason to believe that Ukraine should insist on the restructuring of the external debt on the terms of write-off, as it happened in Afghanistan, Iraq, Egypt and other countries. Given the unprecedented nature of the destruction caused and the fall in Ukraine's GDP, there are reasons to insist on writing off most of Ukraine's debt to international organizations, including the IMF and the World Bank.

The second component of the restructuring program should be the application of discounts of 50–60% to the nominal amount of debt for bond loans of private creditors. In the context of the future reconstruction of Ukraine's economy, it is worth considering that the achievement of the goals of the Marshall Plan was ensured by a combination of 90% grants and 10% loans, as well as by regulating the use of auxiliary partnership funds

It was determined that during the war, it is advisable for Ukraine to attract as much grant funding and long-term loans at preferential interest rates as possible. In addition, new approaches are needed to ensure financing of Ukraine's post-war reconstruction, in particular at the expense of frozen Russian assets, as well as attracting private capital to finance the public sector of Ukraine. Considerable persistent diplomatic work is needed to attract international aid, to create an atmosphere of trust and cooperation with potential partners, and it is extremely important to ensure transparency and efficiency of the use of the funds involved. In order to ensure the transparency of the evaluation indicators of the targeted and effective use of the international aid involved, it is necessary to develop Methodological recommendations for accounting and analytical support of the involvement and use by managers of budget funds of international aid and other relevant regulatory and legal documents.

After the end of the war, it is necessary to carry out a set of financial and budgetary measures for economic growth, recovery of the economy, and

at the same time to increase the level of effectiveness of budget expenditures and the efficiency of the use of budget funds.

The prospects for further scientific research are in the formation of the main directions of the state financial policy for the restoration of the economy, infrastructure, human potential, and management of the State Debt of Ukraine, taking into account the provisions of the budget-tax adaptive architecture, dynamic financial-budgetary, socio-economic, demographic, state and territorial balances.

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**KOROHOD Alona,**  
Master, PhD student of the  
Department of World Economy  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0003-3566-8038

A.Korohod@knute.edu.ua

### ECOTRANSFORMATION OF THE UKRAINIAN ENERGY SECTOR

*The research has been focused on analyzing the stages of formation of Ukraine's energy sector and its transformation in the context of full-scale military aggression from Russia. Considering the significance of energy for national security and economic growth, the article is emphasized the perspectives for green development during wartime. Specifically, it is examined the readiness of the energy sector to implement renewable energy sources and green technologies in the context of global challenges and the need to reduce dependence on traditional energy sources. The research is highlighted the interrelation between consumer-conscious development and stimulating innovation in the energy sector during crises. The relevance of the research is driven by global trends, climate changes, and the necessity for reforms in the energy sector. The hypothesis is suggested that the war may serve as a catalyst for implementing green development strategies and transitioning to renewable energy sources. The methodology is included an analysis of the stages of formation and the current state of the energy sector during military actions, as well as its preparedness for the implementation of environmentally friendly technologies. The results of the research are confirmed that the conscious development of consumers, focused on supporting green initiatives, it can be a key factor in the development of the renewable energy sector in the conditions of geopolitical uncertainty.*

**Keywords:** energy sector, energy security, renewable energy sources, decarbonization.

**JEL Classification:** F29, Q40, Q42, Q48.

**КОРОГОД Альона,**  
магістр, аспірант кафедри світової економіки  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0003-3566-8038

A.Korohod@knute.edu.ua

### ЕКОТРАНСФОРМАЦІЯ ЕНЕРГЕТИЧНОГО СЕКТОРА УКРАЇНИ

*Дослідження зосереджене на аналізі етапів формування енергетичного сектора України та його трансформації у контексті повномасштабної воєнної агресії з боку росії. З урахуванням важливості енергетики для національної безпеки та економічного зростання акцентовано увагу на визначенні перспектив зеленого розвитку під час війни. Зокрема, проаналізовано стан готовності енергетики до впровадження відновлюваних джерел енергії та зелених технологій у контексті глобальних викликів та потреби зменшення залежності від традиційних енергоносіїв. Досліджено також взаємозв'язок між свідомим розвитком споживачів та стимулюванням інновацій в енергетичному секторі в умовах кризи. Актуальність дослідження обумовлена глобальними тенденціями, змінами клімату та необхідністю реформ в енергетичному секторі. Гіпотеза допускає, що війна може стати каталізатором для впровадження стратегій зеленого розвитку та переходу до відновлюваних джерел енергії. Методологія містить аналіз етапів формування та стану енергетичного сектора під час військових дій та його готовності до впровадження екологічно чистих технологій. Результати дослідження підтверджують, що усвідомлений розвиток споживачів, спрямований на підтримку зелених ініціатив, може виявитися ключовим чинником у розвитку галузі відновлюваних джерел енергії в умовах геополітичної невизначеності.*

**Ключові слова:** енергетичний сектор, енергетична безпека, відновлювані джерела енергії, декарбонізація.



## Introduction

Russia's full-scale invasion of Ukraine has proved that the energy sector of Ukraine is one of the strategically important branches of the national economy, which directly affects the stability of the country, its economic development and the social condition of the population. In view of the latest global trends, climate change, as well as reforms in the energy sector, the question of assessing the formation and development of the energy sector becomes significant for the long-term success of the country.

In addition, the problem of finding effective strategies for the modernization of national energy systems in the face of threats from global environmental and security challenges is in the epicenter of attention.

The relevance of the conducted research is determined by a number of factors. First, on the way to climate neutrality, achievement of climate ambitions and economic development, the world community recognizes the need for transformations in the energy sector, in particular with an in-depth focus on the transition to renewable energy sources (RES). Secondly, solving the issue of rapid and effective transformations in the energy sector directly and acutely concerns not only the issue of energy, but also national security and national sovereignty, and the transition to RES is considered a promising way to reduce systemic threats to national economies that are importers of energy resources.

Being part of the global world, striving to follow global trends and having a number of climate and environmental obligations, Ukraine has also chosen a course for decarbonization. However, the full-scale invasion of Russia on the territory of Ukraine, the terrorist attacks of the aggressor country on the facilities of the energy system of Ukraine make the situation extremely difficult and require attention to the problem of energy security, and also call into question the green development of the sector.

Therefore, the aim of this article is a comprehensive analysis of the energy sector of Ukraine, the stages of its formation, as well as confirmation or refutation of the hypothesis that Russia's war against Ukraine will not stand in the way of the decarbonization of the economy, as well as the green development of the energy sector.

The hypothesis that forms the basis of the article is the assumption that Russia's war against Ukraine will not only not slow down the process of decarbonization of the economy and the energy sector, but may also become an additional incentive for Ukrainian society and authorities to implement and accelerate green development strategies, in particular, the transition to a larger scale use of RES. The hypothesis also suggests that in the context of military aggression and post-war recovery, it is important to consider decarbonization as a component of a national recovery and development strategy, and not just as an environmental aspect.

The methodology of this research includes an analysis of the formation of the energy sector of Ukraine, an assessment of its state in different time periods and in accordance with national policies. The state

of the energy sector of Ukraine has been investigated since the beginning of the full-scale invasion, and an assessment of the situation and readiness for the development of the sector has been provided, in particular with regard to the expansion of RES capacities on the basis of available information using the methods of analysis and synthesis, abstraction and generalization, comparison and systematization, as well as approaches to evolutionary and institutional and comparative analysis. The obtained conclusions are based on the results of research by domestic and foreign scientists on the issues of energy transition, decarbonization and energy security research, supported by analytical data of the State Statistics Service of Ukraine, the National Commission that carries out state regulation in the fields of energy and communal services, PrJSC "National Energy Company "Ukrenergo", the State Agency for Energy Efficiency and Energy Saving of Ukraine, the analytical center DiXi Group, as well as the International Energy Agency IRENA.

The results of scientists, who considered the transformation of the energy sector in the context of the influence of various factors, in particular the energy transition, ecology and security factors, were analyzed. Thus, Metelenko N., Oglobina V. and Summa V., studied the post-war "green" recovery of Ukraine in the context of the energy transition and proved the economic feasibility of investing in renewable energy sources (Metelenko & Ogloblina, 2022). Through the prism of ecological and economic aspects, Vovk V. and Krasnoselska A. investigated the transformation of the energy sector, increasing the share of renewable energy sources in connection with increased attention to environmental issues and economic benefits (Vovk & Krasnoselska, 2023). Research on the theoretical foundations of energy market development, individual energy sector transformations, and sector development at the intersection of ecology and climate is highlighted in the studies of Dolinskyi A. and Doronina I., whose research focuses on the transformation of the energy sector and the mitigation of climate risks (Dolinsky, 2006; Doronina, 2019). The scientists' researches, which analyzed the impact of security factors on the further development of the sector, became particularly relevant. Thus, the article by Kudyenko L. proved that the war of the Russian Federation against Ukraine became a catalyst for the decarbonization of European economies (Kudyenko et al., 2022). In addition, O. Borodina researched that the management of the recovery of the national economy in ensuring energy decentralization and energy security is relevant, taking into account the need to restore and ensure the security of the energy infrastructure in the post-war period (Borodina, 2023).

Among foreign scientists, certain aspects of the development of renewable energy, decarbonization of the economy, and the "green" transition in the context of energy security were considered by Antenucci A., Granado P., Georgiev B., and Sansavini J., who concluded that the impact of long-term decarbonization policy on security energy supply is critical



to ensuring a reliable and sustainable energy transition (Antenucci et al., 2019). Other scholars (Tian et al., 2022) have confirmed that transitioning to low-carbon energy sources and reducing dependence on fossil fuels are crucial steps in achieving energy security and economic stability. In line with recent geopolitical developments affecting the energy sector, scholars have also explored ways to improve energy strategies. Thus, Rabbi M., Popp J., Mate D., Kovacs S. investigated that the energy industry can be decarbonized and achieve energy security with the help of three main strategies, such as supply diversification, energy conservation and faster adoption of RES (Rabbi et al., 2022).

At the same time, the possibility of continuing the implementation of decarbonization policies, in particular the energy transition using renewable energy sources, in the context of Russia's military aggression against Ukraine and post-war reconstruction, requires an in-depth analysis and disclosure.

The article is divided into two sections, which logically lead the reader from the general analysis of the formation of the energy sector, which is confirmed by a statistical assessment to the sector development during the war and the possibilities of post-war recovery.

## **1. Evolution of the energy sector formation of Ukraine**

During the years of independence, the energy sector of Ukraine underwent a significant transformation, which was caused by a change in national priorities, geopolitical dynamics and global energy trends. Taking into account the external and internal factors of influence, it is possible to single out the stages of formation of the system of regulation of the energy sector in Ukraine.

The first stage is early independence and energy security (1991–2000). In the first years of independence, the primary energy goal of Ukraine was to ensure stable energy supply. After the collapse of the Soviet Union, Ukraine was heavily dependent on Russian energy imports, in particular natural gas, so the main focus was on ensuring a stable supply of energy resources to meet domestic needs. This period is characterized by a change in the ownership structure in the fuel and energy complex of Ukraine such as the process of privatization of coal mines (1996), electricity distribution companies (1998) and oil refineries (1999) began (Ukraine. Overview of energy policy, 2006).

II stage is reforms and diversification of the energy sector (2000–2010). In the early 2000s, energy sector reforms aimed at creating a more market-oriented and transparent energy system began in Ukraine (Institutional Reform of the Energy Sector of Ukraine, 2016). Diversification of energy sources became particularly important during this period, as Ukraine sought to reduce its dependence on Russian gas by seeking alternative suppliers and increasing domestic energy production, particularly coal and renewables.

III stage is energy efficiency and sustainable development (2010–2014). In the early 2010s, energy efficiency became a central goal. High energy consumption and inefficiency in industry and buildings have been recognized as major economic and environmental problems. Ukraine launched energy saving programs and improved energy efficiency standards. The pursuit of sustainable development has also gained momentum with increased attention to the development of renewable energy and reducing emissions.

IV stage is modernization of the energy sector and European integration (2014-present). After the events of 2014 and Ukraine's commitment to bring its policies closer to those of the European Union (EU), the energy goals have changed significantly. The focus was on bringing Ukraine's energy sector to EU standards and norms (Overview of the energy sector of Ukraine, 2019). The key tasks were liberalization of the energy market, integration with the European electricity and gas markets, compliance with EU energy directives. Ukraine's energy strategies emphasized transparency, competition, and regulatory compliance (Institutional Reform of the Energy Sector of Ukraine, 2016). The increase in RES capacity is becoming noticeable, and the policies are appropriate – with the aim of reducing carbon emissions and increasing energy security. Energy security remained a priority with an emphasis on diversifying energy sources, improving infrastructure and reducing dependence on Russian gas.

V stage is following the global energy transition and green European politicians (present time). In recent years, the energy policy of Ukraine has seen the constant importance of adapting to global energy transition trends, which includes an increased emphasis on decarbonization, reduction of greenhouse gas emissions, and coordination with international climate agreements and European politicians. Thus, Ukraine became one of the first countries to support the European Green Deal in order to influence the processes of minimizing potential threats with the help of joint projects on decarbonization and climate protection. In addition, despite active hostilities on the territory of Ukraine and heavy losses of the energy sector, in April 2023 Ukraine approved the Energy Strategy until 2050 to bring the energy sector as close as possible to climate neutrality. The document is based on international commitments undertaken by Ukraine, in particular within the framework of the Agreement on the Association of Ukraine with the EU and the Paris Climate Agreement.

### *1.1. Analysis of national energy key goals strategies*

The system of regulation of the energy sector and energy policies developed in response to the change in the national and global context, which is also reflected in the key policies and goals of the Energy Strategies of Ukraine (*Table 1*).

Table 1

## Comparative characteristics of the national energy key goals strategies of Ukraine

Indicator	Energy strategy of Ukraine for the period:		
	until 2030	until 2035 "Safety, energy efficiency, competitiveness"	until 2050
RES	12.6% by 2030	25% by 2035	100% carbon-free energy mix in 2050
Energy efficiency	Reducing the specific consumption of energy resources in the economy by 30–35% by 2030.	Reducing the energy intensity of the country's GDP by half by 2035 (0.13 toe)	n/a*
Reduction of emissions	–	<50% limitation of CO <sub>2</sub> emissions to the level of 1990; >20% reduction in emissions in CO <sub>2</sub> equiv. on final fuel consumption	
The need for investment	UAH 1821 billion (UAH 130 billion for RES)	–	

\* n/a (not available).

*Source:* developed by the author based on the data of the Energy Strategies of Ukraine (Order of the Cabinet of Ministers of Ukraine No. 1071-r, 2013; Order of the Cabinet of Ministers of Ukraine No. 605-r, 2017; Order of the Cabinet of Ministers of Ukraine No. 373-r, 2023).

In the Energy Strategy of Ukraine until 2030, which was approved in July 2013, it was noted that in order to maintain the reliability of the energy sector of Ukraine and stimulate the growth of the economy, the priority tasks of the electricity sector under any scenario of demand growth were planned (Decree of the Cabinet of Ministers of Ukraine No. 1071-r, 2013):

- modernization of existing generating capacities, such as thermal and gas power plants, with the installation of modern dust and gas cleaning equipment on new units, nuclear and hydroelectric power plants, with the solution of problems of sorbent supply and disposal of waste from its use;
- modernization and development of main and distribution power networks;
- implementation of construction projects of hydro- and geothermal power plants with a total capacity of 5 GW;
- extension of the operational life of existing power units of nuclear power plants to 20 years with appropriate safety inspections;
- construction of the third and fourth power units at the Khmelnytsky NPP with a minimum capacity of 2 GW;
- development of renewable energy sources;

- construction of 4 GW of coal-fired power plants to replace outdated capacities;
- launch of pre-project works in 2017 and start of construction of new nuclear units in 2022 to replace old units that will be decommissioned after 2030;
- construction of nuclear units in new territories with a minimum capacity of 3 GW under the base scenario and 5 GW under the optimistic scenario of forecasted demand;
- additional construction of coal-fired power plants with a capacity of 9 GW under the base scenario and 11 GW under the optimistic scenario.

Thus, the Energy Strategy of 2013 provided for the development of renewable sources, namely, a forecast of the appropriate aggregate capacity of renewable energy sources in 2030 at the level of 12.6% of the total installed capacity or 8 GW (14 GW, including large hydroelectric power plants), and the production volume – 14 TWh (28 TWh, including large HPPs). In addition, the overall technological potential of increasing energy efficiency on average across the economy in the base development scenario of 30–35% has been established. The document also notes the importance of reducing pollutant emissions and reducing greenhouse gas emissions, but the overall goal for the energy sector has not been established (Order of the Cabinet of Ministers of Ukraine No. 1071-r, 2013).

However, in addition to the goals for the development of clean energy and energy efficiency, reducing emissions, the strategy also provided for increasing the capacity of nuclear units and the construction of coal-fired power plants. The total need for investments in the energy sector by 2030 was predicted at the level of UAH 1 821 billion, of which only UAH 130 billion (7.14%) was needed for the development of RES (Decree of the Cabinet of Ministers of Ukraine No. 1071-r, 2013).

The energy strategy of Ukraine for the period until 2035 "Security, energy efficiency, competitiveness" was approved in 2017 to replace the previous version (Decree of the Cabinet of Ministers of Ukraine No. 605-r, 2017). The prerequisites for creating a new strategy were changes in the energy policy of the European Union – the establishment of the Energy Union in Europe, the agreement on the full integration of energy markets between Ukraine and the EU, participation in the Paris Agreement on climate change, and Russia's aggression against Ukraine, including the occupation of part of its territory (Uatom, 2019).

The main differences between the Energy Strategy until 2035 and the previous one are the transition from an energy model dominated by the use of fossil fuels, inefficient networks and insufficient transparency of gas and coal markets to a new model that provides equal opportunities for the development of all types of energy production. Special emphasis is placed on the importance of increasing energy efficiency and the use of energy from RES (Uatom, 2019).

The strategy until 2035 identifies among the tasks the reduction of the energy intensity of GDP from the current 0.28 toe/USD 0.13. The percentage of losses in electricity networks, which is currently more than 12%, must be reduced to less than 7.5% by 2035. In general, the limitation of CO<sub>2</sub> emissions compared to the level of 1990 should reach 60% by 2020, 2025 and 2030; and – 50% by 2035 (Order of the Cabinet of Ministers of Ukraine No. 605-r, 2017).

Reductions in CO<sub>2</sub> emissions from final fuel consumption must exceed 5% by 2020 and increase by at least 5% every 5 years, reaching a reduction of more than 20% by 2035.

The forecast of the strategy regarding the share of renewable energy sources (RES) in total energy consumption correlates with the forecast of the International Energy Agency IRENA, which foresees the possibility of Ukraine achieving a share of RES at the level of 22% by 2030 (IRENA, 2015).

The strategy does not specify the need for investments, however, the State Agency for Energy Efficiency and Energy Saving of Ukraine estimates the need for investments to achieve these goals at the level of (EUR 12 billion) (Karmelyuk, 2017).

In May 2023, the Energy Strategy of Ukraine until 2050 was adopted. The document has the status "For official use" and is distributed for perusal among ministries and specialized state companies only in paper form (Davidenko & Chaika, 2023).

It is only noted that the Energy Strategy of Ukraine until 2050 takes into account:

- the consequences of a full-scale war, increasing the importance of energy security and strengthening the stability of the energy system;
- the results of joining the Unified Energy System Operator of Ukraine to the European Network of Electricity Transmission System Operators (ENTSO-E) and deepening the integration of the energy system of Ukraine into the pan-European context;
- application of advanced technologies (production and use of hydrogen, small modular nuclear reactors, energy storage systems), technical transformations in the energy sector, world trends and innovative solutions, compliance with the environmental standards of the European Union and Ukraine's environmental safety commitments;
- fulfillment of Ukraine's international obligations regarding energy efficiency and use of renewable energy sources, reduction of greenhouse gas emissions, etc.;
- development of decentralized electricity generation throughout the country (UKRINFORM, 2023).

The key goal of the Strategy is to transform Ukraine into the energy hub of Europe, contributing to the global goal of phasing out Russian fossil fuels. The strategy sets the goal of achieving climate neutrality in the energy sector by 2050 (Denisyuk, 2023).

The document itself is not publicly available for security reasons during the war, which creates uncertainty in the vectors of development of the sector until 2050 for various groups of stakeholders.

Consequently, Ukraine’s energy strategies were updated in accordance with internal and external events that could affect the transformation of the energy sector and the market in general. As a result, Ukraine’s energy goals reflect the desire for a safe, efficient and environmentally responsible energy future, from early efforts to ensure energy supply to the current commitment to sustainable development and alignment with EU standards. A constant challenge is the effective implementation of national strategies to achieve goals and overcome difficult conditions, particularly geopolitical ones, in order to achieve energy security.

## 2. Assessment of the energy sector development: statistics

If we follow the stages of development of the regulation system of the energy sector in Ukraine in a statistical dimension, we will get the following results (*Figure 1*).

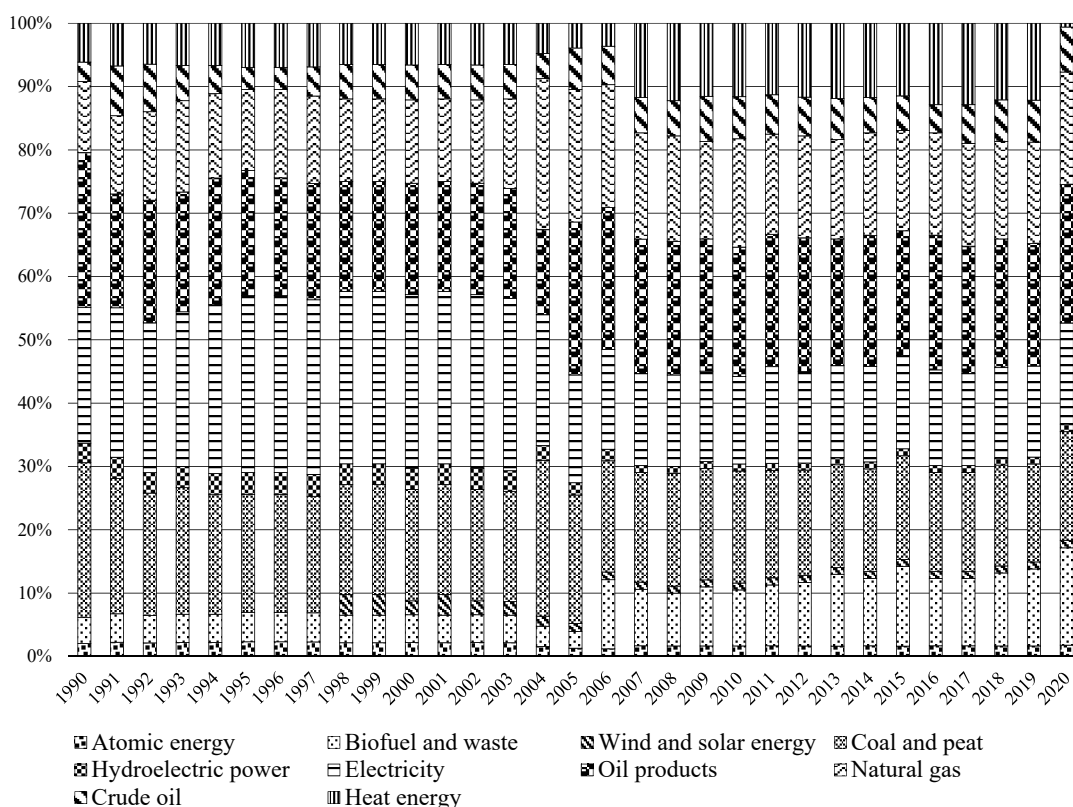


Figure 1. Total energy balance of Ukraine for 1990–2020, %

Source: (Energy Map, 2021).

It can be seen from *Figure 1* that in the energy balance of Ukraine in production in 1990, coal and peat significantly prevailed (about 65%). And in 2020, the share of coal in energy production has almost tripled. In

turn, the growth of nuclear generation, natural gas, energy from biofuels and waste, as well as, albeit not significant, growth of renewable energy sources is being monitored. According to the data on the amount of electricity produced, the share of RES in production increased 5 times from 2017 to 2021, and this growth shows positive dynamics every year (*Figure 2*).

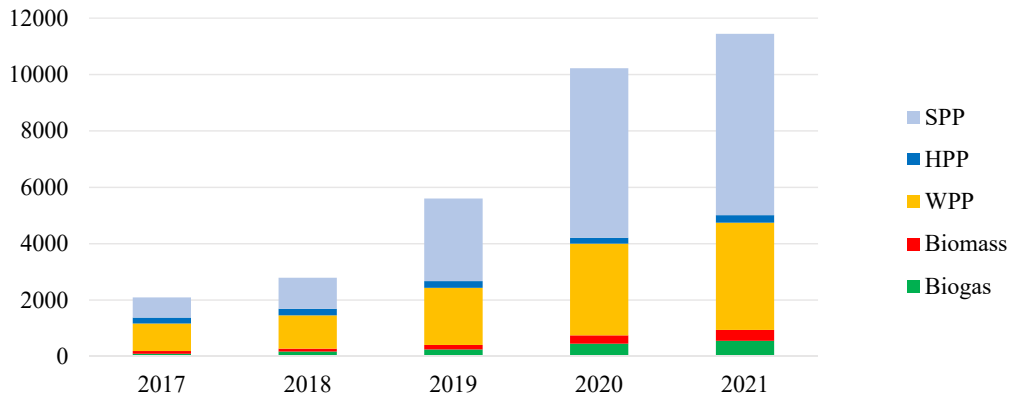


Figure 2. The amount of electricity generated from RES from 2017–2021, million kWh

Source: (Energy Map, 2022a).

If you follow the dynamics of the installed electric capacity of power plants of the energy system of Ukraine, detailed by type of power plants (nuclear power plants, thermal power plants, hydroelectric power plants, RES), you can see that 2018–2021 were the peak years in terms of installed capacities. In addition, the dynamic growth of solar and wind capacities is monitored (*Figure 3*).

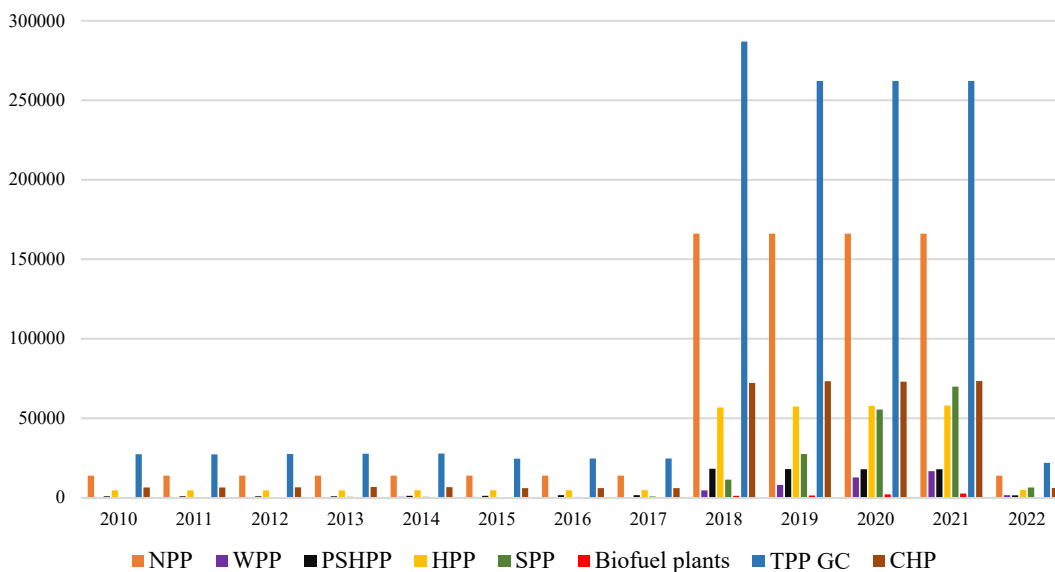


Figure 3. Installed electric power by generation, MW

Source: (Energy Map, 2022b).

At the beginning of 2022, according to the latest available analysis, the capacity of the renewable energy sector in Ukraine was 10475.1 MW, taking into account the generation of domestic solar power plants. However, this growth was particularly intense due to the active installation of SPP (*Figure 4*).

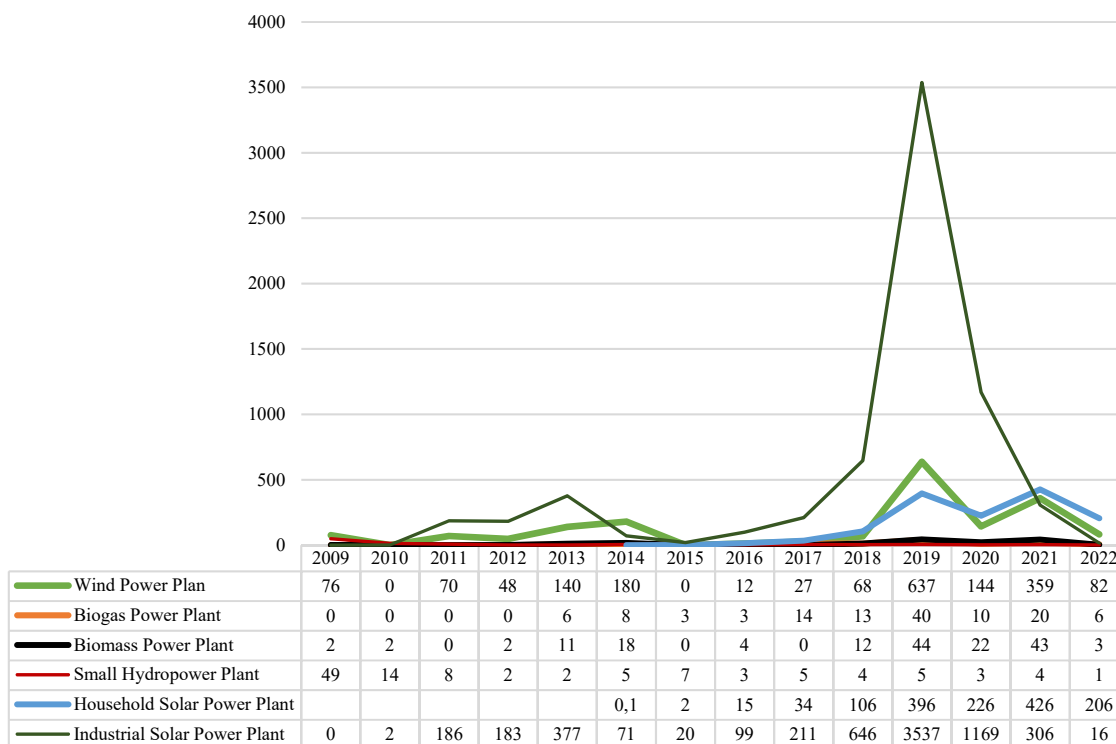


Figure 4. Dynamics of the installed capacity of RES facilities in Ukraine in 2009–2022, MW

*Source:* compiled according to data (Energy Map, 2022).

In the renewable energy sector nationally, wind power installations remain second only to solar power in terms of total installed capacity. According to the Ukrainian Wind Energy Association (UWEA), before the full-scale war, there were 34 wind power plants or 699 wind turbines in Ukraine, and the average capacity of each of them was 3.5 MW (UWEA, 2022). Thus, the total capacity of wind generation reached almost 1.7 GW, not taking into account the capacity of wind power plants in the occupied territories of Donetsk and Luhansk regions, as well as the annexed Crimea. However, within a year of the start of the full-scale invasion, Ukraine lost more than 90% of its wind generation, three-quarters of its thermal generation, almost half of its nuclear generation (due to Russian control over the Zaporizhzhia NPP), a third of its solar generation and block thermal power plants.

In turn, before the war, the volume of investments in the industry exceeded USD 12 billion. Most of the projects were started by 2020, and the peak of investments fell on 2019 (*Figure 5*).



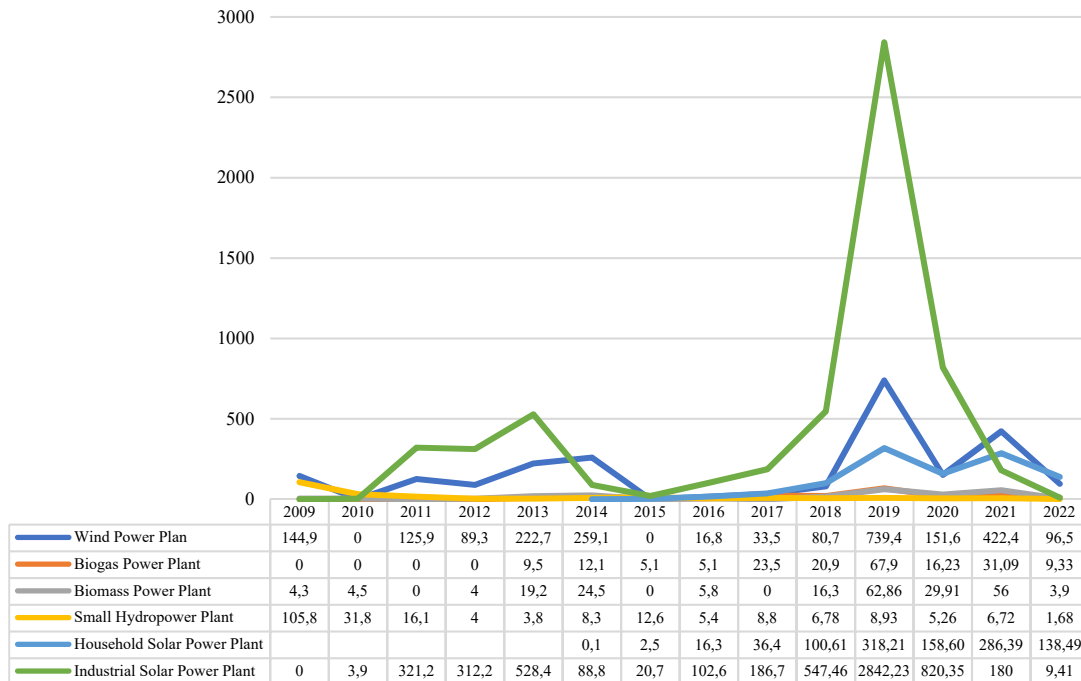


Figure 5. Dynamics of investments in the capacity of RES facilities in Ukraine in 2009–2022, mln EUR

Source: compiled according to Energy Map data based on data from the State Agency for Energy Efficiency and Energy Saving of Ukraine (Investments in "green" generation capacity, 2022).

In 2019, Ukraine was among the TOP-10 in terms of renewable energy development rates, and in 2020 – in the TOP-5 European countries in terms of solar energy development rates. In the same 2019, Ukraine took 8th place in the Climatescope rating by Bloomberg New Energy Finance (Bloomberg NEF) among 104 countries in the world in terms of the attractiveness of investments in the development of low-carbon energy sources and the construction of a "green" economy, rising from 63rd place. In 2021, Ukraine ranked 48th in terms of overall investment potential among 136 countries in the world according to the BloombergNEF rating (Konechenkov, 2022).

### 2.1. Sector development during a full scale invasion

Since the beginning of the full-scale invasion, due to security risks, a large amount of information has been restricted from being published in the public domain, particularly in the energy sector, which has become one of the targets of terrorist attacks by the Russians.

The war had a significant impact on the transparency of the sector and the availability of data. DiXi Group's research on access to data showed that restricting access to information has a negative impact on the sector and stakeholders, so it needs to be reviewed to make part of the data open, taking into account security risks and avoiding manipulation (DiXi Group, 2023a).

On December 11, 2023, for the first time in almost 2 years, NEURC published information (NEURC, 2023), which allows for a generalized analysis of the sector development. By the end of autumn 2023, the Register has 3,600 active licenses in the field of energy, including the markets of electricity, natural gas, oil and petroleum products, as well as the field of heat supply (*Figure 6*).

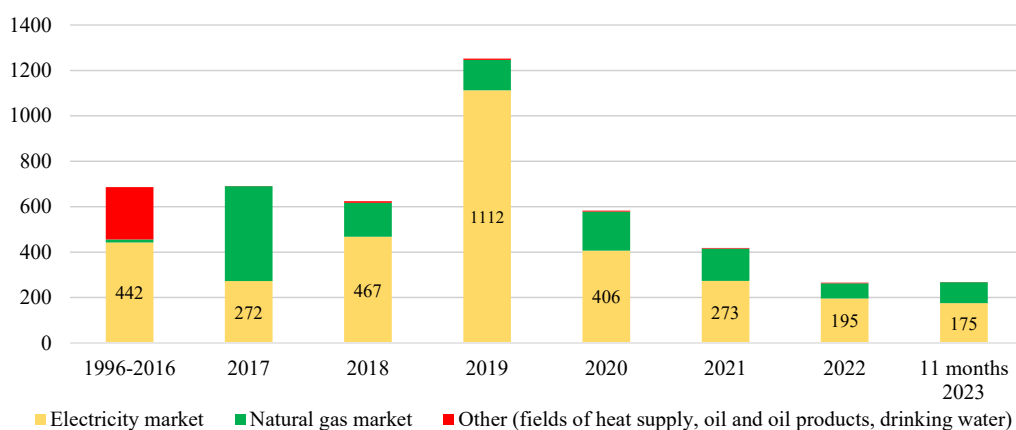


Figure 6. Dynamics of the number of issued licenses for economic activity in the energy sector in 1996–2023

Source: (NEURC, 2023).

The number of licenses issued in 2022 is the lowest in the last 6 years. During this period, 265 licenses were issued, of which 15% were issued by February 24. Compared to 2021, the number of licenses decreased by 37%. During the first 11 months of 2023, 268 licenses have already been issued. During the war, the majority of licenses were obtained for activities related to the supply of electricity (243 or 49%) and natural gas (147 or 30%). 66 licenses were granted for electricity production, 30 for resale, and 1 more for storage. Four licenses were obtained for heat production and one for natural gas distribution (DiXi Group, 2023b).

As for the sector of renewable energy sources, according to the information of the Chairman of the Committee of the Verkhovna Rada of Ukraine on energy and housing and communal services, in 2023 the following were put into operation:

- 182.3 MW of wind power plants;
- about 500 MW of solar power plants;
- about 100 MW of gas power plants.

According to him, the largest number of generating facilities was introduced with a capacity of 1 MW or less, accounting for more than 90% of the number of all power plants built in 2023, which duplicates last year's situation (Gerus, 2023, December 30).

With the beginning of the full-scale invasion, especially during the difficult winter period, Ukrainians began to actively install domestic SPPs in

order to provide themselves with energy and be energy independent. In 2022, the share of investments in domestic SPPs was more than 50% of the total investment in green generation capacity (*Figure 7*).

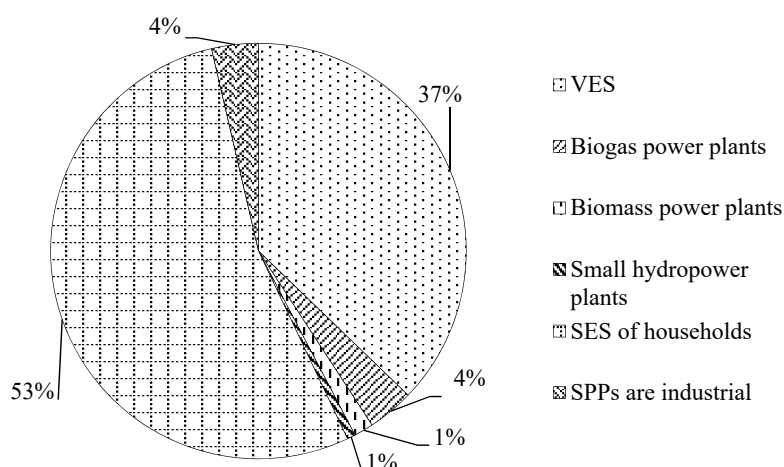


Figure 7. Investments in "green" generation capacity in Ukraine in 2022, %

Source: compiled according to data (Energy Map, 2022 c).

The results of the analysis of Figure 7 show a high level of adaptability and responsibility of consumers in difficult socio-economic conditions. The development of the sector does not stop, but rather adapts to global challenges, which shows the potential for further improvement and growth. A significant factor is the efforts of citizens in achieving energy independence, which emphasize the importance of the development of RES and supporting the decarbonization of the sector despite the war.

The study of the energy sector formation of Ukraine and the prospects of green development in the conditions of a full-scale invasion of Russia determined the key role of this industry in the national economy, the stability of the country and ensuring energy security.

### Conclusions

During the years of independence, the energy sector of Ukraine has undergone several stages of transformation, including ensuring energy security, reforms and diversification, increasing energy efficiency, modernization and European integration, as well as adaptation to global energy trends and green European policies. Ukraine is actively working on decarbonization and reducing greenhouse gas emissions, and is also implementing measures to achieve climate neutrality by 2050.

The results of the analysis of the key goals of the national energy strategies of Ukraine show that, despite the war, the country strives for a safe, efficient and environmentally responsible energy future, in particular by increasing energy efficiency, reducing emissions of pollutants and developing renewable energy sources. Strategies are updated in accordance

with internal and external geopolitical events affecting the energy sector and the market in general.

Emphasis on the transition to RES in the context of global climate ambitions and economic development is defining for the study. Despite the challenges associated with Russia's military aggression and terrorist attacks on energy system facilities, the study indicates that Ukrainian society and the authorities remain interested in the development of the green energy sector.

The hypothesis that the war will not only not lead to delays in decarbonization, but can also become an incentive for the accelerated development of green strategies, is confirmed. The conditions of the war proved to be a catalyst for consideration of decarbonization as a key component of the national recovery and development strategy, not only at the level of the state, but also at the level of citizens in their own provision of energy resources and gaining energy independence.

The research expands the understanding of adaptability and responsibility of consumers in conditions of social and economic instability. In particular, the significant contribution of citizens to achieve energy independence and support decarbonization is highlighted.

Thus, the research makes an important contribution to understand the relationship between military conflict and a country's energy strategy, emphasizing that decarbonization can be not only a national, but also a social and environmental response to the geopolitical challenges of the time.

The results of the research will serve as a basis for further improvement of the energy strategy of Ukraine with the determination of prospects for the implementation of decarbonization policies in the conditions of military aggression and post-war recovery. Among the priority areas of future research in the context of the development of the presented topic, the following can be considered:

- econometric testing of decarbonization factors, which will consist in conducting a more detailed econometric analysis to determine the factors that affect the speed and quality of the transition to renewable energy sources (RES);
- financial aspects of decarbonization, which will include a detailed study of financial mechanisms and investments necessary for the implementation of decarbonization strategies and will consist of an assessment of the efficiency of investments in the RES sector and the development of recommendations on the need for financial support;
- modeling of risks and adaptation strategies will consist of studying the risks associated with military conflict, national and energy security. The development of models of adaptation strategies to ensure the sustainability and efficiency of the energy sector in conditions of environmental instability will be important for further research on the issue.

These lines of research can help expand understanding of the importance of implementing effective strategies for the sustainable development of Ukraine's energy sector during military, social, economic and security challenges, as well as post-war recovery.

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**IANKOVETS Tetiana,**  
PhD in Economics, Associate Professor,  
Associate Professor of the Department of Marketing  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-8159-3826  
t.yankovets@knu.edu.ua

## SEARCH ENGINE MARKETING IN CREATING WEBSITE USER IMPRESSIONS

*Increased competition in the digital environment leads to the search for effective tools to attract targeted traffic to websites. Search engine marketing (SEM), which includes search engine (contextual) advertising (SEA) and search engine optimization (SEO), allows to achieve this aim by means of technical settings and consideration of marketing aspects in creating user impressions. The effectiveness of search engine marketing is tested in practice with the help of web analytics, which allows real-time tracking of traffic, its sources, and user actions, which helps identify the most effective tools and advertising campaigns. In the context of the emerging impression economy, improving the user experience of potential and existing customers at every touchpoint depends on the speed and convenience of achieving user goals in the digital environment. Search engine marketing is based on users' search queries in the face of actualized demand. Therefore, websites that are quickly accessible in search and contain a value proposition in accordance with the search queries of potential customers will be convenient for users, have a competitive advantage by providing positive impressions based on an improved customer experience. This approach ensures that the interests of both users and businesses are satisfied, thus achieving the goals of digital marketing and business efficiency in general. The aim of the research is to substantiate the relationship between search*

**ЯНКОВЕЦЬ Тетяна,**  
к. е. н., доцент,  
доцент кафедри маркетингу  
Державного торговельно-економічного університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-8159-3826  
t.yankovets@knu.edu.ua

## ПОШУКОВИЙ МАРКЕТИНГ У СТВОРЕННІ ВРАЖЕНЬ КОРИСТУВАЧІВ ВЕБСАЙТІВ

*Посилення конкуренції у цифровому середовищі спричиняє пошук ефективних інструментів залучення цільового трафіку на вебсайти. Пошуковий маркетинг (SEM), який включає пошукову (контекстну) рекламу (SEA) та пошукову внутрішню й зовнішню оптимізацію (SEO), дозволяє досягати цієї мети за рахунок технічних налаштувань та врахування маркетингових аспектів у створенні вражень користувачів. Ефективність пошукового маркетингу перевіряється на практиці за допомогою вебаналітики, яка дозволяє в режимі реального часу відслідковувати трафік, його джерела та дії користувачів, що допомагає виявляти найбільш ефективні інструменти та рекламні кампанії. В умовах становлення економіки вражень покращання користувацького досвіду потенційних та існуючих клієнтів у кожній точці контакту залежить від швидкості та зручності досягнення цілей користувачів у цифровому середовищі. Пошуковий маркетинг базується на пошукових запитах користувачів за умови актуалізованого попиту. Тому вебсайти, які будуть швидко доступними у пошуку та містити пропозицію цінності відповідно до пошукових запитів потенційних клієнтів, будуть зручними для користувачів, мають конкурентні переваги завдяки наданню позитивних вражень на основі покращеного клієнтського досвіду. Такий підхід забезпечує задоволення інтересів двох сторін – як користувачів, так і підприємств, які таким чином досягають поставлених цілей цифрового маркетингу та*



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contextual advertising and search engine optimization as search engine marketing tools and to identify their synergistic impact on creating positive user impressions, increasing targeted traffic and increasing website conversion. In the research, the general scientific methods of analysis and synthesis, system-structural analysis, comparison, systematic, logical generalization were used. Based on the semantic mechanism of working with search queries, the article substantiates the relationship between search engine advertising and search engine optimization as search engine marketing tools and reveals their synergistic impact on creating positive user impressions, increasing targeted traffic and increasing website conversion. The proposed algorithms for search engine advertising and internal search engine optimization, taking into account the technical and marketing aspects of the implementation of these digital marketing tools, help in this regard.

*Keywords:* search marketing, web analytics, machine learning, websites, targeted traffic, search engine advertising, contextual advertising, SEO optimization, impressions, user experience, conversions.

**JEL Classification:** M31, M37, O33.

## Introduction

Increasing competition in the digital environment necessitates the creation of positive user impressions to attract attention to websites among a large number of them. The customer experience is formed at every point of interaction at every stage of the consumer's digital journey. Therefore, it is important for businesses to create customer impressions by applying digital marketing (DM) tools across all interaction sources/channels to facilitate website users and provide an "impressive" customer experience. It is important to provide users who are looking for specific goods and services with the information they need as quickly as possible. Search engine marketing (SEM) is one of the key tools of DM, providing simple and quick access to a website that will help in solving a specific query.

Among SEM researchers, there is no single interpretation of its constituent elements. Thus, some authors (Ivanekko, Dudar, Pavelko, 2022) refer to it as search engine optimization (SEO, Search Engines Optimization) and website optimization for social networks (SMO, Social Media Optimization). Researchers consider contextual advertising as a separate tool of Internet marketing and emphasize that it is paid, so it cannot be classified as SEM. This criterion cannot be decisive in such a distribution, since it is not users who pay for advertising, but website owners. The authors'

ефективності бізнесу в цілому. Метою дослідження є обґрунтування взаємозв'язку пошукової контекстної реклами та пошукової оптимізації як інструментів пошукового маркетингу, виявлення їх синергічного впливу на створення позитивних вражень користувачів, збільшення цільового трафіка та підвищення конверсійності вебсайту. При проведенні дослідження використано загальнонаукові методи аналізу та синтезу, системно-структурного аналізу, порівняння, системний, логічний узагальнення. У статті на основі дії семантичного механізму роботи з пошуковими запитамі обґрунтовано взаємозв'язок контекстної реклами та пошукової оптимізації як інструментів пошукового маркетингу та виявлено їх синергічний вплив на створення позитивних вражень користувачів, збільшення цільового трафіка і підвищення конверсійності вебсайту. Допомагають у цьому запропоновані алгоритми контекстної реклами та внутрішньої пошукової оптимізації, з урахуванням технічних та маркетингових аспектів реалізації цих інструментів цифрового маркетингу.

*Ключові слова:* пошуковий маркетинг, вебаналітика, машинне навчання, вебсайти, цільовий трафік, пошукова реклама, контекстна реклама, SEO-оптимізація, враження, досвід користувачів, конверсії.

conclusion that users do not trust contextual advertising is not supported by research and is not justified. The main task of SEM is to attract target consumers to the website based on their search queries to solve actual needs. This principle is used in contextual advertising, which is also called search advertising (SEA, Search Engines Advertising), and in search engine optimization. Site optimization for social media (SMO) refers, along with targeted advertising (SMA, Social Media Advertising), to another DM tool, namely social media marketing (SMM, Social Media Marketing), which is aimed at building long-term brand relationships with customers provided that the demand is not actualized, in contrast to SEM. Technologically, the interaction of brands with the target audience in social media can take place without the company having a website. Therefore, these tools cannot be combined because they use different DM objectives and technologies to implement them.

In the study (Vovchanskaya, Ivanova, Baluk, 2023) SEM and SEO are considered as separate digital marketing technologies. Also, this study does not pay attention to digital advertising, including search advertising. Note that SEO and search advertising technologies are built on a single semantic mechanism for working with search queries, so these two tools are combined into a single DM tool is search marketing.

A significant amount of research is devoted separately to either search engine optimization or contextual advertising. Thus, in the work (Drokina, 2018) the factors and methods of SEO optimization are systematized, and the mechanism of SEO optimization for an active site is developed. Recognizing the importance of the results of this study, we note that SEO optimization as part of internal optimization measures must be started at the stage of creating a website, in order to save time spent on its promotion in search engines (Iankovets, 2023a). The study (Astistova, 2023) considered the technical possibilities of using SEO optimization in the website monitoring system, without taking into account the marketing aspects of its promotion. Other authors limit themselves to listing the advantages and disadvantages of SEO optimization and formulating conclusions about its importance for increasing the effectiveness of a website. Researchers studying contextual advertising draw similar conclusions (Chernysh, Salimon, 2023). Koslow, Stewart (2022) refer to search advertising as the dominant form of digital advertising. This thesis is debatable, since the choice of the type of digital advertising and media for its placement depends on many factors and is verified in practice for each specific website using web analytics. Each advertising tool has its own characteristics, advantages and disadvantages, and its choice depends on the goals of digital advertising campaigns according to the DM strategy (Iankovets, 2023).

According to the results of the analysis of research papers on search marketing issues, the insufficiency of papers investigating the mutual influence of the analyzed SEM tools on the increase of targeted traffic to the

company's website due to the synergy effect was revealed. Also, the possibilities of SEM in creating impressions and improving the user experience of website users remain overlooked by scholars.

The aim of the research is to substantiate the relationship between search contextual advertising and search optimization as search marketing tools and to identify their synergistic effect on creating positive user impressions, increasing targeted traffic, and increasing website conversion rates. In order to achieve the set goal, the following tasks must be performed: substantiate the connection between web analytics and the effectiveness of digital tools of targeted traffic to the website; to investigate the semantic mechanism, principles and algorithm of search contextual advertising; establish a connection between contextual advertising and search optimization for a synergistic effect on increasing targeted traffic to the website; to investigate the algorithm of search engine optimization, to identify the factors of search engine marketing to create positive user impressions and increase the conversion rate of websites.

In order to realize the set aim, a hypothesis was formulated that it is possible to influence the creation of impressions of website users purposefully with the use of SEM tools. Search marketing is aimed at attracting users to a website based on their interests, which are formulated through search queries. That is, this audience is a target audience with updated needs and requests for exactly those goods and services that the company can offer right now. This gives rise to the possibility of creating positive impressions of users through instant satisfaction of demand, which will increase the conversion rate of the website and the efficiency of the enterprise as a whole.

To test the hypothesis, general scientific research methods were applied: analysis and synthesis, system-structural analysis, comparison (to identify key channels/tools for attracting targeted traffic to the company's website, substantiating the synergistic relationship of contextual advertising and search engine optimization; identifying factors of search engine optimization to create positive impressions of website users); systemic (for substantiating algorithms of search context advertising and internal search optimization); logical generalization (for formulating conclusions from the conducted research).

In the main part of the article: technological changes and possibilities of web analytics (using the example of Google Analytics 4) in choosing the most effective digital channels for attracting targeted traffic to the website are investigated; the features, advantages and disadvantages of the main channels/tools for attracting traffic are described; the semantic mechanism of working with search queries in contextual advertising is described; the principles and key strategic advantages of contextual advertising are highlighted, the corresponding algorithm is proposed, a comparison of contextual advertising and search optimization is made, the synergistic

relationship of these DM tools in increasing targeted traffic to the company's website is revealed; an algorithm for internal search optimization is proposed, taking into account technical and marketing aspects; the factors of internal and external search engine optimization of the website to create positive impressions of website users were identified.

### **1. Web analytics and digital tools for attracting traffic to the website**

Web analytics opens up a huge range of opportunities for enterprises to measure the effectiveness of digital marketing campaigns, which are carried out with the aim of attracting a target audience to the company's website, as well as, based on the analysis of measured data, to draw conclusions about the quality of the site and the achievement of the goals set before it, which gives an understanding of the directions for its improvement.

The effectiveness of digital marketing campaigns depends on the quality of digital assets (website, mobile application, content, design), digital tools, traffic, measurement. Assets must be visible to ensure targeted traffic to the digital asset and increase it. In a previous study by the author (Iankovets, 2023b), the features and tasks of different types of sites were considered, and it was also indicated the need to add web analytics program code to each website page to track and measure in real time how digital marketing campaigns are performing in order to make decisions about them optimization and efficiency improvement.

In the world and in Ukraine, the most widespread web analytics service is Google Analytics – a free service provided by Google for collecting statistics from websites and mobile applications (it also has a paid version of Google Analytics Premium with the ability to process more than 10 million site visits per month. The free version handles up to 10 million visits per month). Variations of this service for websites are: Universal Analytics, support ended July 1, 2023 (historical data available for some time); Analytics 360, end of support July 1, 2024. Mobile apps used Google Analytics for Firebase. Google Analytics 4 (GA4) is available today – the latest version, which is an innovative solution for collecting data from websites and mobile applications (for collecting data only from sites, the Universal Analytics service is used, and for tracking actions only in mobile applications – Google Analytics for Firebase). The novelty of the GA4 service is that it collects data from both websites and mobile applications and presents them in a joint report. Yes, users often change the devices from which they view the website. In order to identify the user and not lose it when moving from one device to another, as well as to collect data about all their interactions, regardless of the device, GA4 uses user identifiers (User-ID), Google Signals and device identifiers. In this way, duplicate users are eliminated and a single holistic user path is created from all data related to

one person, which makes it possible to track the history of his relationship with the enterprise. For the user, this capability provides an improved customer experience based on taking into account their interests and eliminating inconsistencies when using different devices. In this way, the omnichannel principle is realized and positive impressions are created.

Also, Google Analytics 4, compared to previous versions, allows you to: collect data based on events, not sessions; track without cookies; model user behavior and conversions.

Today, user expectations regarding privacy have significantly increased. People expect transparency and more control over how their data is collected and used for personalized advertising and other purposes. Increasing global surveillance is affecting traditional data collection using cookies and device identifiers, these traditional methods of data collection are becoming less viable (Ganem, 2021; Dischler, 2021). Accordingly, browsers support cookies less and less, over time the use of this technology will be discontinued. This led to the complication of digital measurement. In this new environment, data collection company Google implemented machine learning models to identify patterns of cookie-accepting behavior and then use those patterns to model conversions, i.e. creating consumer paths to macro-conversion taking into account all touchpoints for those who has refused cookies.

Machine learning models are created by analyzing vast amounts of historical data, identifying correlations and trends between key data points, and using this information to accurately predict consumer behavior (Sharma, 2021). In addition to modeling conversions, machine learning allows you to model:

- user behavior on the website or in the application;
- attributions, that is, points of interaction on the consumer's path that most stimulate purchasing activity;
- online-offline (can attribute purchases or visits made in person to advertising points of interaction online. Online-offline modeling combines signals from many sources such as surveys, online route requests or calls to a store, restaurant or any business, as well as data on in-store sales or restaurant orders or offline service receipts to assess the impact of specific marketing campaigns (Measure the offline value of your online ads, n.d.);
- Unique Reach (helps determine how often people in a certain demographic group were shown a certain ad and on which device).

GA4 also adds the function of predicting the receipt of recommendations without the use of complex models and the function of direct integration with media platforms to stimulate user actions on the site and in the application.

After installing the software package on the site, Google Analytics starts collecting traffic data, based on which it is possible to: evaluate traffic on the website and identify its most effective sources/channels; analyze

advertising campaigns; conduct split testing; evaluate the behavior of users on the site; calculate the sales funnel and conversions; determine the return on investment in advertising campaigns, etc. Analyzing the behavior of users on the company's website, among other things, allows you to identify the most effective DM tools in attracting targeted traffic to the company's website.

Figure 1 presents the key digital tools for attracting a target audience to a website on the Internet. Each of the presented tools has its own features, advantages and disadvantages.

Direct (type in) is a direct entry to the site by its URL address (domain name) through a web browser (browser). This channel is not a direct channel of Internet promotion, because it is not possible to increase the amount of traffic through it. At the same time, the channel provides a high level of conversion, since people who directly enter the site address in the search bar are interested in it. To increase the attention of potential consumers to the site with the use of direct measures, offline means of marketing communications are used: outdoor advertising, POS materials, television, radio advertising, etc. One of the factors that affects the decrease in the use of this channel in modern conditions is the improvement of search engine algorithms, in which the name of the website (or the name of the company/brand), as a brand search query, is enough to enter into the search line and immediately receive a call to this the site in the output of search results by the search engine.

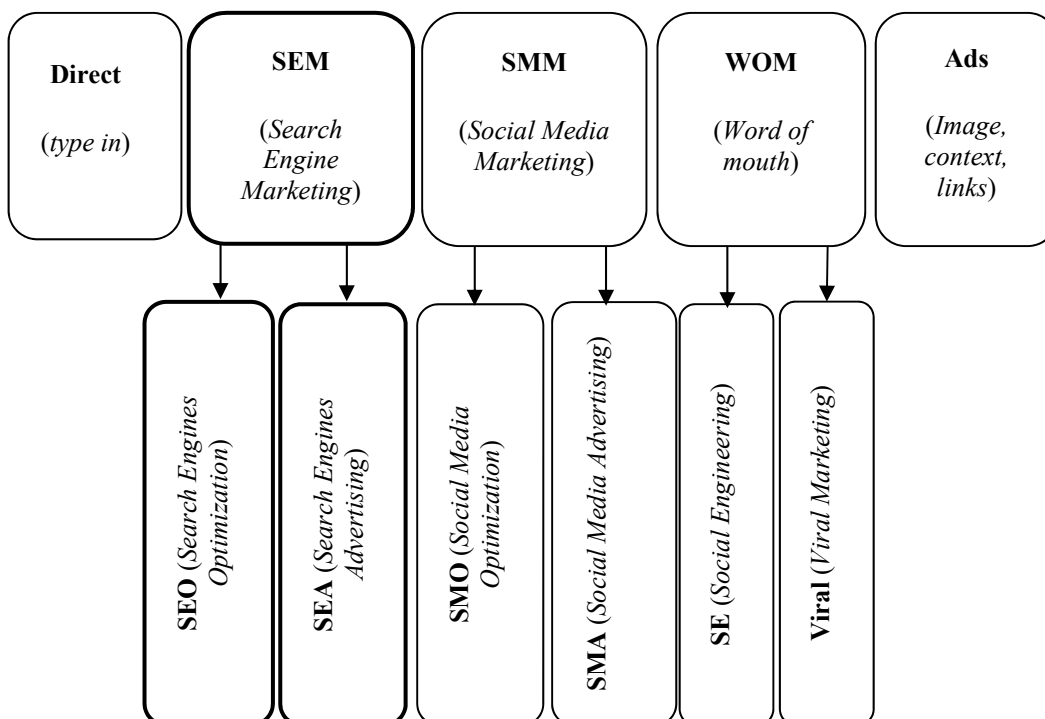


Figure 1. Key digital channels/tools for attracting website traffic

Source: created by the author according to (Iankovets, 2022).

Search engine marketing (SEM) includes search engine optimization (SEO) and search engine advertising (SEA). The use of SEM is based on the fact that people in search engines search for information about specific products, services, brands, sites, etc. with specific search queries. Accordingly, businesses that offer exactly what people are looking for by promoting their site through SEM are working with a target audience that is ready to make a purchase right now. This is a significant advantage of this tool. The disadvantages also follow from this: great competition, constant changes in the algorithms of search engines and in the principles of search engine ranking. Speaking separately about search engine optimization (SEO) – this promotion channel is slow, while it is conditionally free. The main task of the company in the organic promotion of the site is to implement all the basic settings for SEO and monitor the quality of the content (payment for the services of a programmer, SEO specialist, designer, and copywriter), the company is not charged by search engines for appearing in the search results. The advantages also include the long-term effect of using this tool.

Marketing in social media (SMM, Social Media Marketing) includes optimization of social media (SMO, Social Media Optimization) and targeted advertising in social media (SMA, Social Media Advertising). In general, SMM is a long history of building brand relationships with customers; demand is not actualized, which is a disadvantage. The advantage of this channel is that it is easy to find a target audience on social media. People learn about the company, get interested, subscribe to the brand's pages, follow the news, get involved in discussions, etc. If not immediately, then over time, potential customers – members of the community in social media – become customers of the brand. Thus, it is precisely through the involvement of the target audience in communication that enterprises form their loyal audience and grow defenders and promoters of the brand.

WOM (Word of mouth) – word of mouth includes social engineering (SE, Social Engineering) and viral marketing (Viral Marketing). Social engineering involves the use of digital technologies to collect information about consumers in order to predict digital behavior and implement personalized targeted offers. The advantage of this tool is the ability to influence people's behavior and the choice in favor of the brand's product, the disadvantage is the danger of cyber attacks on the data of both consumers and enterprises. A feature of viral marketing is the rapid spread of brand news among customers and their friends, relatives, etc. The advantage of this channel is the low cost of one contact, and the disadvantage is the impossibility of constant use and the difficulty of reproduction, since it is impossible to accurately predict whether a news or advertising campaign will go viral or not.

Internet advertising (Ads) includes search (contextual) advertising (SEA), targeted advertising in social networks (SMA), banner advertising, video advertising, etc., in the form of images (image), context (context), links

(links). Online advertising is used mainly to spread brand awareness (image advertising) and sales (conversion advertising). The advantage is high efficiency, which is ensured by successfully created advertising creatives and correct settings for the target audience, which guarantees quick results and increased sales. The disadvantage is the high cost of placement due to high competition and short-term effect.

One of the important digital tools for attracting a target audience to a company's website is search engine marketing (SEM), which includes contextual advertising (SEA) and search engine optimization (SEO).

## 2. Semantic mechanism of contextual advertising

Contextual advertising is the display of text or image advertisements that appear on a search engine page alongside organic search results. The mechanism of contextual advertising, which is also used in search engine optimization, is semantic. This means that everyone gets the meaning of certain words (*Figure 2*).

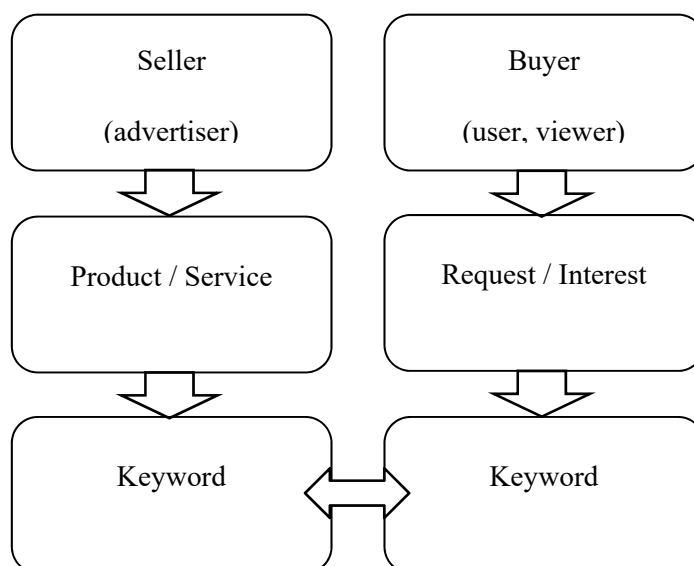


Figure 2. Semantic mechanism of search contextual advertising

*Source:* compiled by the author according to (Rindfleisch, 2020; Ivitsky, 2021).

The start of the action of the mechanism of search contextual advertising begins from the moment when the user enters a query in the corresponding line of the search engine. A user's request can be different in number and composition of words, but it is indicated by one keyword. A keyword is an identifier (word or phrase) that characterizes a seller's (advertiser's) product or service. The mechanism of contextual advertising is built on the same understanding of the meaningful meaning of the keyword by both the buyer (user, viewer) and the seller (advertiser). Work with



semantics is fundamental in contextual advertising. The company’s work with contextual advertising begins with the formation of a semantic core – a list of keywords for which the search engine will display ads to users. The success and effectiveness of an advertising campaign using contextual advertising depends on the completeness and quality of such a list. In *Figure. 3* shows the semantic mechanism of working with search queries.

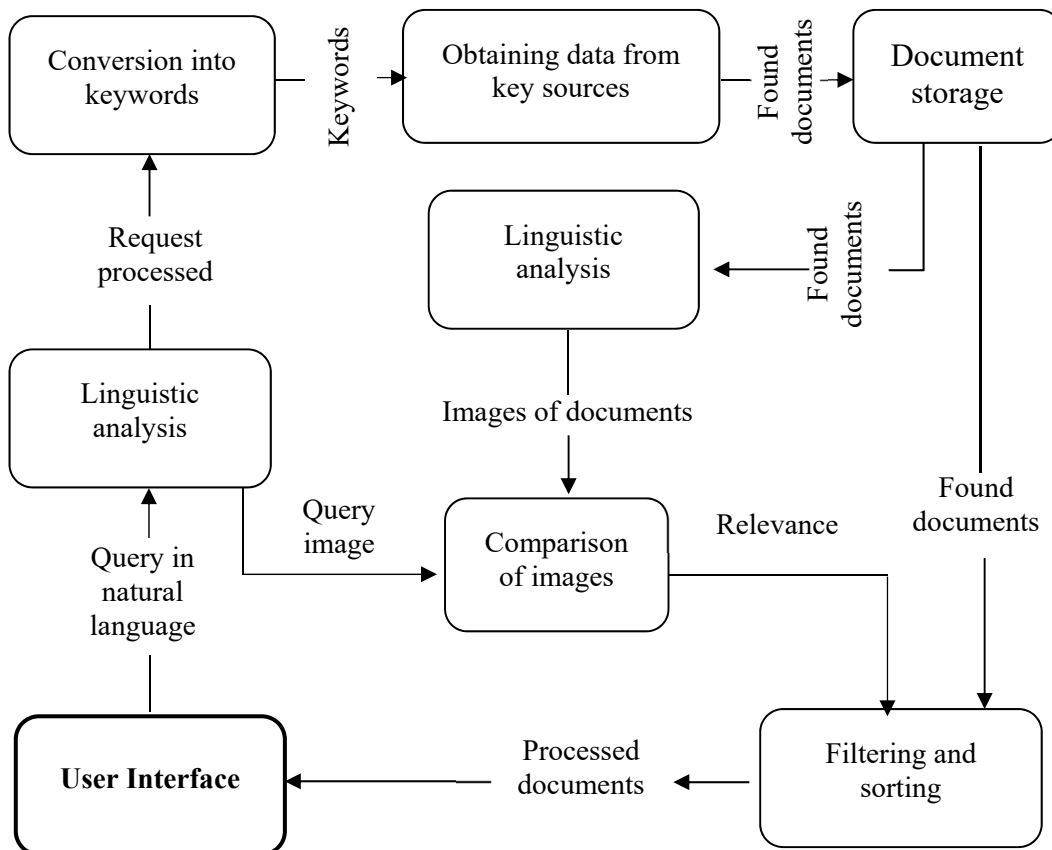


Figure 3. Mechanism of work with search queries

Source: generated by the author from (Rindfleisch, 2020; Ivitsky, 2021).

The action of the mechanism starts from the moment the user enters a request in natural language; further, machine processing of the request takes place inside the mechanism, and its linguistic analysis is carried out. After that, there is a comparison of images, that is, a comparison of the semantic structure of the word with the machine’s understanding of this word; the processed request is converted into keywords that are sent to data processing from information sources. Inside the mechanism of contextual advertising there is a huge number of information databases that rank words by semantic meaning, meaning; the received data from information bases are compared with keywords, after which the keywords enter the document repository;

there is a parallel comparison of images, filtering and sorting of keywords, again their linguistic analysis, and among numerous samples and images of documents, the machine selects the most relevant value that matches the user's keyword entered in the search line in the form of a search query. Advertisers in contextual advertising compete precisely for relevance, that is, for the search query (keyword) that coincides in the understanding of the user with the understanding of the advertising query.

The main principles of contextual advertising are presented in *Figure 4*.

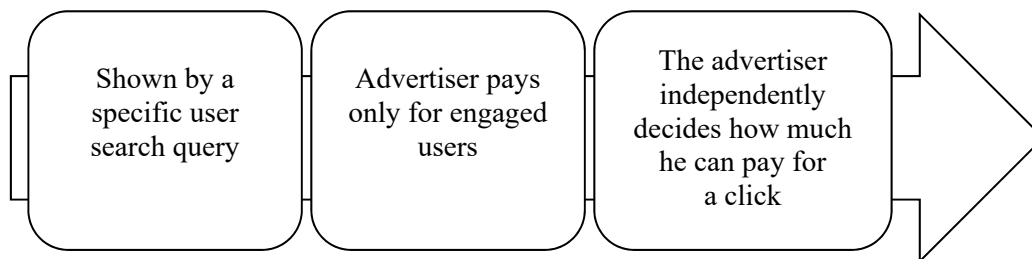


Figure 4. Principles of contextual advertising

Source: created by the author according to (Rindfleisch, 2020; Ivitsky, 2021).

- The main nuance of the user's search query interaction with the advertiser is a keyword, that is, a word or phrase that the advertiser chooses to match the user's search query. The selection of keywords in the semantic core takes place with the help of domestic and foreign digital services, such as, for example, Google Ads keyword planner, Serpstat, Key Collector, Keyword Tool, etc.

- The strategic advantages of contextual advertising include:

- attraction of the target audience thanks to the display of ads according to the search queries of those users who are looking for products or services offered by the company;

- thanks to the use of web analytics counters and their integration with the advertising service of the search engine (for example, the integration of Google Analytics and Google Ads), it becomes possible to monitor the results of the advertising campaign in real time and quickly react to shortcomings (unsuccessful advertisement, unsuccessful selection of keywords, incorrectly selected target audience, incorrectly configured time targeting, etc.) by means of instant readjustments in order to increase its effectiveness or to abandon altogether in order to save the budget. Such monitoring allows you to notice problematic moments not only in the advertising campaign, but also in the product and/or the quality of the website, which allows you to quickly react and correct them;

- the ability to independently manage rates and an advertising budget or use programmatic services using the technology of purchasing advertising at programmed online auctions and purchasing a target audience (for example, Programmatic), which allows you to control and optimize the company's advertising expenses;

- powerful capabilities of geo-settings from a few kilometers around a person to a few meters from a person inside the maps and even to a point advertising campaign of certain places. Cartographic services are connected to more precise geotargeted settings, which are transferred to the mechanism of contextual advertising, and within one or another issue, within the maps, exactly those ads are shown that are configured for the geolocation of a specific person. This means that contextual advertising is the most accurate in terms of geolocation;

- temporal targeting capabilities allow you to set up advertising campaigns for the target audience in such a way that they are shown exactly at the time when users are online and searching.

The contextual advertising algorithm consists of 7 steps (*Figure 5*).

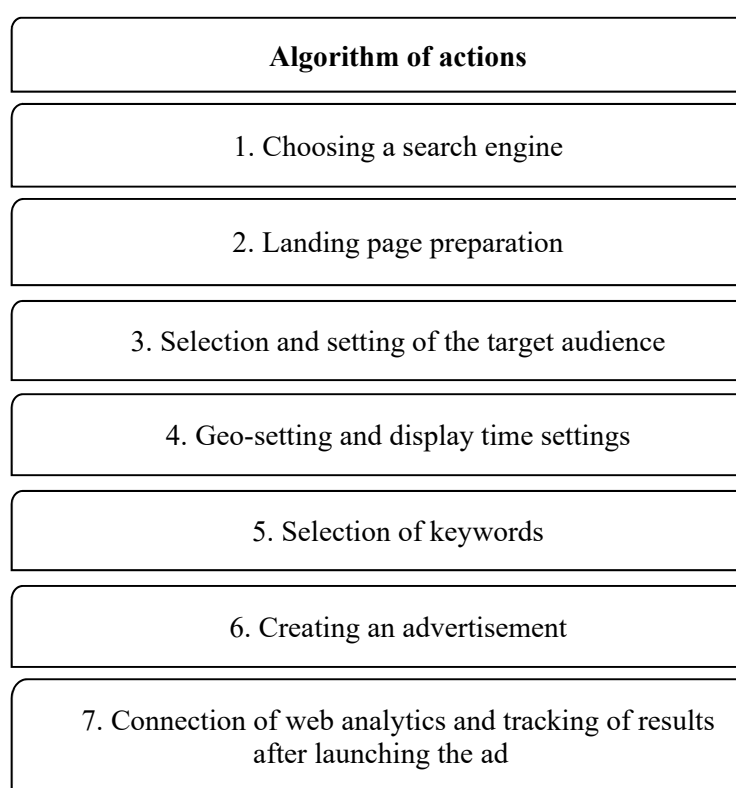


Figure 5. Algorithm of contextual advertising

*Source:* systematized by the author according to (Rindfleisch, 2020; Ivitsky, 2021).

1. The choice of search engine depends on which search engine the target consumers use. In Ukraine, the most powerful and widely used search engine today is Google with the Google Ads advertising service (Measure the offline value of your online ads, n.d.). If people in the country use several search engines, the company needs to find out the percentage ratio of the target audience, depending on which service is used by different groups of consumers, and take this into account when distributing the advertising budget between them.

2. The conversion into the target user action directly depends on the high-quality preparation of the landing page to which the target audience is directed according to the advertisement. The landing page should be primarily relevant to the ad and also contain content that will meet the needs of the target audience. In addition, it should be optimized for work with search engines (SEO settings). The rating and place of the ad in search results depends on the quality of the page.

3. Each enterprise must know exactly its target audience and understand exactly who the advertisement should be aimed at, which will simplify its correct setting within contextual advertising.

4. Researching the target audience and understanding the rhythm of life of the target consumers will allow you to set the right time for the release of advertisements and displays to the target audience, that is, to match this time with the time when the user will directly search.

5. When forming a high-quality semantic core, it is advisable to use several different services for the selection of keywords that exactly correspond to search queries (Google Ads, Serpstat, Key Collector, Keyword Tool, etc.).

6. The text of the announcement must be competent and effective. Today, contextual advertising is automated and, accordingly, there are various services that help create ads and check them for appearance and perception by the target audience. It is advisable to check ads using various services, as well as conduct A/B testing in order to increase the effectiveness of the search advertising campaign.

7. An important stage within contextual advertising is the connection of web analytics in order to monitor in real time how the advertising campaign is progressing.

Implementation of the given recommendations in the selected stages will allow effective advertising campaigns taking into account the interests of the target audience, which will create positive impressions, with optimal costs. This will help to increase sales and increase the income and profit of the enterprise.

### **3. Synergistic connection of contextual advertising and search engine optimization**

Search optimization, as a tool of search marketing, is a set of measures to increase the position of a website in the results of search engine results based on pre-selected user searches. That is, both contextual advertising and search engine optimization are based on the use of a semantic mechanism for working with user searches. Contextual advertising and search engine optimization have their own characteristics (*Table 1*).

*Table 1*

Comparison of contextual advertising and search engine optimization

Comparison parameter	Contextual advertising (SEA)	Search engine optimization (SEO)
Costs	Creation of advertising creative and pay per click (CPC)	Services of specialists (designer, programmer, SEO specialist, copywriter), for the purchase of external links, etc.
Pay per click, per site visit	Yes	No
Prospect	Short-term	Long-term
The share of potential customers who come to the site from only one channel	40% (first page of search results) 60% (top-3 in the issue)	
The share of potential customers who come to the site from both channels	80–90%	
Efficiency	Expensive; quick result; effective in the short term	Effective, but slow; relatively inexpensive; long-lasting effect with proper support

*Source:* compiled by the author using data (Rindfleisch, 2020; Ivitsky, 2021; Shevchenko, 2024).

As it could be seen from the *Table 1*, both channels of attracting traffic to the website have their own characteristics, advantages and disadvantages. At the same time, it is advisable for the enterprise to use both channels in order to ensure the synergistic effect of their interaction.

Search engine optimization is systematic work on a website, from the beginning of its implementation to raising the position of the site in the results of search results and bringing it to the top 3 on the first page, it takes from three to six months. Maintaining high positions and, accordingly, creating positive user impressions requires: constant generation of high-quality content relevant to the requests of target consumers; gradual increase in referral mass to the site from authoritative sources; tracking feedback about the site’s performance and about the company and its brand/product in general, as search engine algorithms react to any negative mentions on the web related not only to the site, but also to the brand/company, which affects its ranking and site position in search results; competent settings of the internal optimization of the site without using dishonest methods of promotion, etc. Such organic promotion of the site in the long term leads to the fact that search engines begin to "like" it, they perceive it as high-quality and, free of charge for the enterprise, promote the site in the results of search queries of target users, which is effective in the long term. At the same time, enterprises that carry out entrepreneurial activities need to ensure sales every day. This task is helped by contextual advertising.

Contextual advertising is a paid tool, the company pays for each click on the advertisement (CPC pricing model (Iankovets, 2023a). The

effectiveness of contextual advertising is ensured, among other things, by competent search optimization aimed at improving the quality of the website.

If the company will use only one of the search marketing tools, it will not perform part of the website promotion tasks. Using only search engine optimization provides targeted traffic to the site, but it happens slowly. Using only contextual advertising can provide a short-term effect in increasing sales, but only under the condition of a high-quality site provided by search engine optimization. Therefore, the use of both channels in communication increases the share of target customers' traffic from 40% (using one channel) to 90%.

#### **4. Search engine optimization in creating website user impressions**

To create positive impressions of website users, it is important to ensure that the site is optimized for the requirements of the search engines used by the target audience to find information. Searching and finding information should be convenient and fast, and the obtained results should contribute to the satisfaction of users from receiving exactly the necessary and useful information, which will make a positive impression. This will improve the customer experience and form a loyal audience of the website, which meets the requests as fully as possible and allows solving specific needs.

Search engine optimization (SEO) includes a set of measures to optimize a website to increase its position in search engine results for pre-selected user searches. The purpose of SEO for commercial resources is to increase the traffic of potential target consumers with the subsequent monetization of this traffic, that is, the receipt of income and profit by the enterprise. For non-commercial resources, the goal of SEO is to increase the network traffic of a potential audience.

There is a huge number of various websites on the network, from which search engines collect data (scanning) and, according to this data, classify sites by content (indexing). Next, ranking takes place, i.e. giving the site weight by the search engine and sorting the sites by location in the search results. According to the results of research presented in the source (Rindfleisch, 2020), it was found that if the site comes to the first place in the results of the search query, 80% of users switch to it, if the site comes to the fifth place – 20% of users. If the site gets to the second page instead of the first, only 3% of users make the transition. Accordingly, the further from the first page a site is located, the less likely it is to be seen at all by those who are looking for exactly what is offered on it. To increase the position of the site in the search results, SEO is carried out, which is divided into internal and external.

The internal optimization of the website is aimed at eliminating technical errors and improving the resource – the site becomes as relevant as possible for search engines and users. The terminology of internal

optimization is updated over time and today contains the following basic concepts: metatags: title, description; h1 tag; mass and weight of the word.

A tag is the name of an element of the standardized HTML language (document markup language for viewing web pages in a browser), written in angle brackets (<>). Web browsers receive an HTML document from the server using HTTP/HTTPS protocols or open it from a local disk, then interpret the code into the interface that is displayed on the monitor screen. An HTML document consists of a group of elements, where each element begins and ends with a certain tag. Usually, tags are used in pairs, the opening and closing tags between which the element is located. Yes, information about the document is located after the opening <head> tag. The </head> tag closes a text element with information about the document. It is before the closing tag </head> that the web analytics counters are located, which are installed on the site pages to collect information about traffic and user behavior. Each HTML tag has its own unique name with a defined syntax, which is written in Latin letters and is not case-sensitive. A meta tag is a tag designed to present accompanying data about a web page. For the internal optimization of the site, it is important to specify the title and description meta tags correctly. This is service information about the page that does not get to the page itself, but is visible to the search engine, which is necessary for scanning and indexing the page.

The <title> meta tag tells the search engine what the page title should be in search results. The name of the page itself should be located between the opening and closing tags (*Figure 6*):

```
<title>Simms Fishing Products</title>
```

Figure 6. The title of the web page in HTML language in the source code

Source: view-source: <https://rozetka.com.ua/>

The title of the page should briefly and clearly reflect its content, the optimal length of the title is 60–70 characters, the maximum is up to 120 characters. Usually, the most frequent search query is placed at the beginning of the title text.

The <title> meta tag is displayed:

- in the source code of the page (*Figure 6*);
- in the output snippet (*Figure 7*);

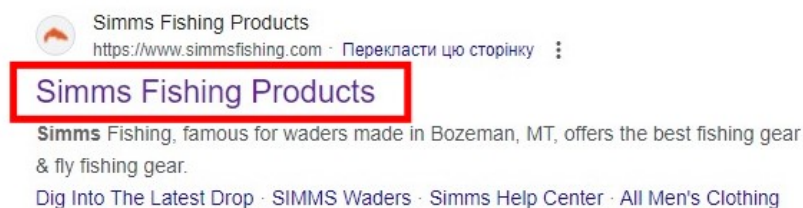


Figure 7. Displaying the title of the page in the search results output snippet

Source: Google.

- in the browser tab (*Figure 8*);

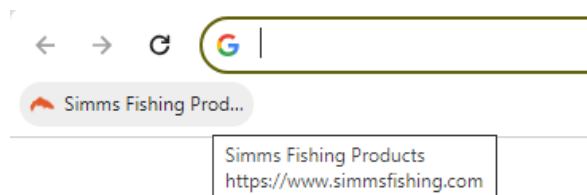


Figure 8. Displaying the page name in the Google Chrome browser tab

- in the CMS control panel (site management system).

The `<description>` meta tag is used by search engines to describe a page in search results. The description should be clear, concise, contain keywords. The optimal length of the page description is 120–135 characters, no more than 200 characters.

The `<description>` meta tag is displayed:

- in the source code of the page (*Figure 9*);

```
<meta name="description" content="Simms Fishing, famous for waders  
made in Bozeman, MT, offers the best fishing gear & fly fishing gear." />
```

Figure 9. Displaying the description of the website in the source code

Source: view-source: <https://rozetka.com.ua>

- in the output snippet (*Figure 10*)

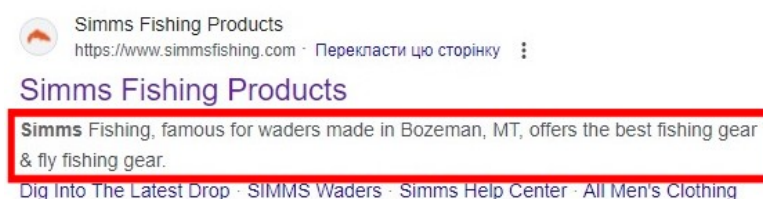


Figure 10. Displaying the description of the page in the search results output snippet

Source: Google.

- in the CMS control panel.

For a long time, internal search engine optimization used the `<keywords>` meta tag to determine the relevance of a page. But over time, there are changes in the work of algorithms of search engines and, accordingly, in the requirements for the promotion of websites.

Algorithms of search engines are constantly developing and improving. Today, the relevance of a page is determined not so much by the similarity of keywords to user searches, but by the meaning of the text as a whole, even if synonyms and other phraseological units are used instead



of keywords. Hence, the placement of the <keywords> meta tag has become optional since 2007. Practitioners even advise to remove this metatag altogether, as algorithms perceive it negatively as artificially created semantics and attribute it to dishonest promotion of the site, which affects the reduction of its positions in search results (Shulga, 2017). It is more important to generate high-quality content to increase the quality index of the site, which affects the increase of its positions in the issue as a whole with the use of search marketing tools, both search engine optimization and contextual advertising.

Also, in the internal optimization of the site, when marking up the page to structure its content in order to improve the display of information and its perception by users, headings and subheadings are used, which are marked with the tag h1 – page heading, h2-h6 – subheadings. A title differs from a page title in that a page title is the service information that does not appear on the page, while the title is what users see when they land on it. Therefore, it is advisable to place the header on each page at the top, it should be clearly visible. Moreover, the title should not repeat the name of the page (h1 is not equal to title), be concise and contain the main search query (Figure 11).

Subheadings h2-h6 must differ in terms of text and queries in them from the h1 header, may not contain exact queries, located inside the text on the page. When formulating the title and sub-headings, it is recommended not to use the word "buy" and its synonyms.

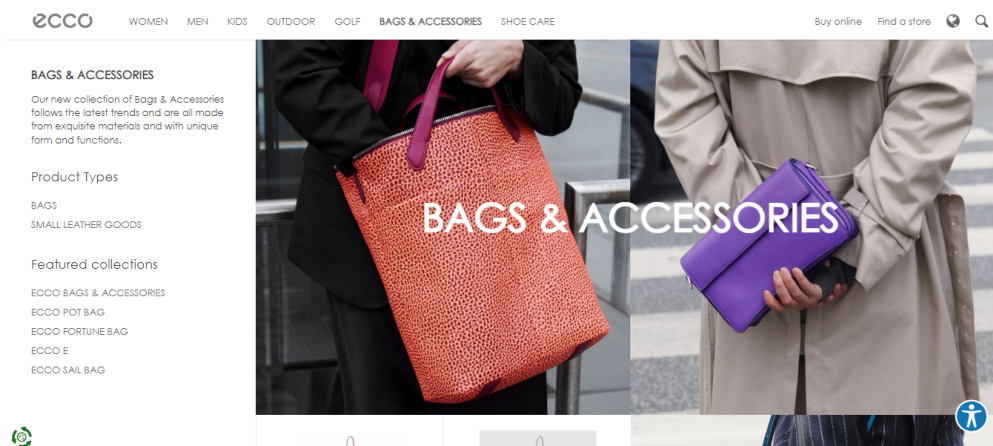


Figure 11. Comparison of the title (<title>) and the title (<h1>) of the page

Source: view-source:https://intertop.ua/ua/catalog/zhenskaya\_obuv/marc-o-polo/

When working with texts on website pages, it is important to improve the quality indicator of both a separate page and the site as a whole to comply with the requirements for the mass and weight of words. Word weight is the ratio of the number of repetitions of a given keyword (phrase, phrase) to the total number of indexed words on the page. The share of the keyword in the text on the page should not exceed 8%, and this value is critical from the point of view of over-optimization (oversaturation of the text with

keywords). The optimal value of the word weight indicator is 4% (Rindfleisch, 2020). The weight of the word characterizes the semantic connection of the keyword with the content of the page. The weight of the word is higher if the main keyword: is used in the title of the page; located in the header (and, as mentioned above, the name of the page and the header must be worded differently); highlighted in bold; placed in the first third of the text; used in picture captions.

The sequence of actions for the internal optimization of the website is presented in *Figure 12*.

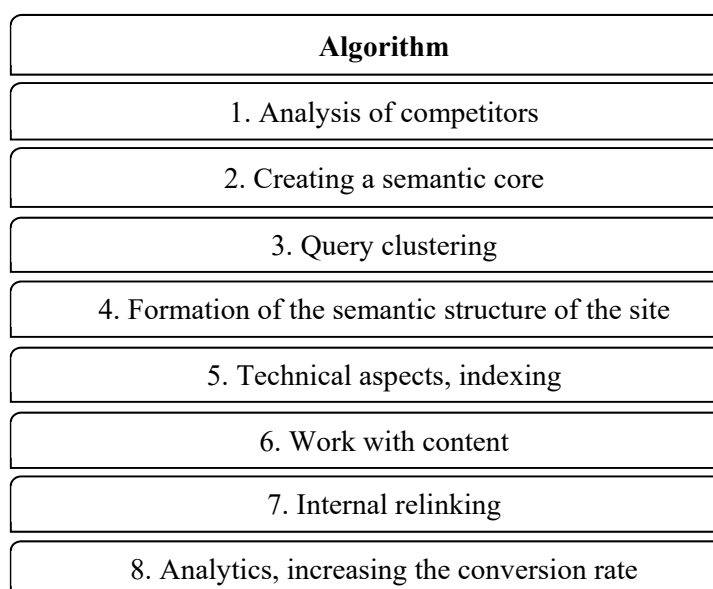


Figure 12. Algorithm of internal website optimization

*Source:* systematized by the author according to (Rindfleisch, 2020; Ivitskyi, 2021; Shulga, 2022; Shevchenko, 2024)

Competitor analysis is important in terms of identifying how competitors are represented and where they appear in search results, what keywords they are promoting, and what their site structure is, etc. Like any competitor analysis, competitor analysis in search marketing is necessary to identify their strengths and weaknesses. It is advisable to use the best experience in the development and promotion of your own site. Disadvantages of competitors are opportunities for the company. Services such as Serpstat, SEMRush, etc. are used to analyze competitors.

1. The creation of the semantic core takes place according to the same principles and using the same resources as in contextual advertising. The difference is that in contextual advertising, the semantic core is selected to promote a specific ad and is small in scope. In search engine optimization, the semantic core is formed to promote each page of the website, so it can include tens of thousands of keywords (depending on the type and information architecture of the site (Iankovets, 2023b).

2. Query clustering involves the analysis of selected keywords in the semantic core, which allows you to identify clusters (groups of keywords) in different thematic areas. The semantic structure of the site is formed from the obtained clusters.

3. Formation of the semantic structure of the site, which is a logical scheme and principle of location of site pages, categories and subcategories. How quickly the user will find the necessary information on it depends on how simple and understandable the site's structure is. There are two main types of site structure: simple linear and tree.

4. A simple linear structure assumes the presence of a main page and several internal pages. This structure is suitable for small sites, for example, portfolio or business card sites (*Figure 13*).

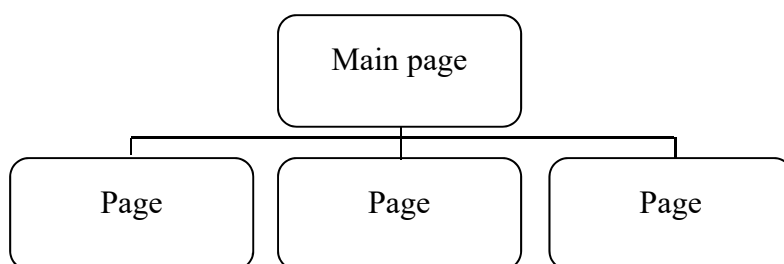
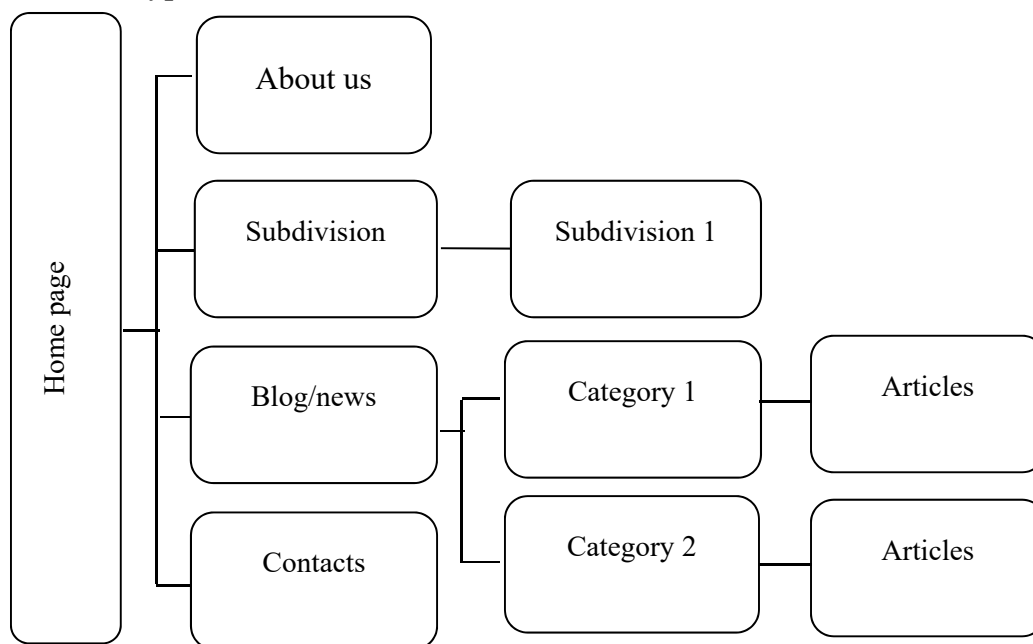


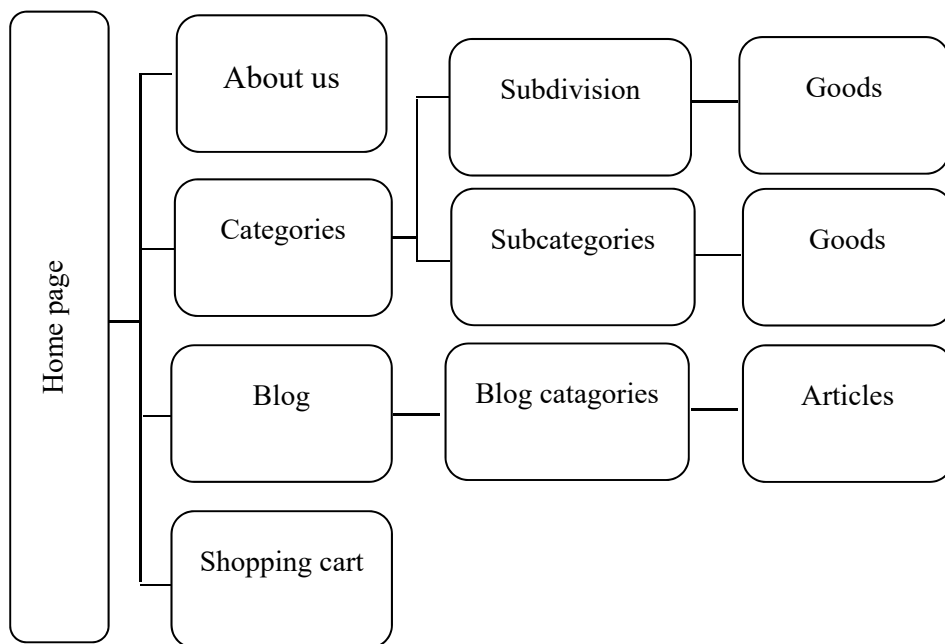
Figure 13. Simple linear website structure

Source: generated by the author.

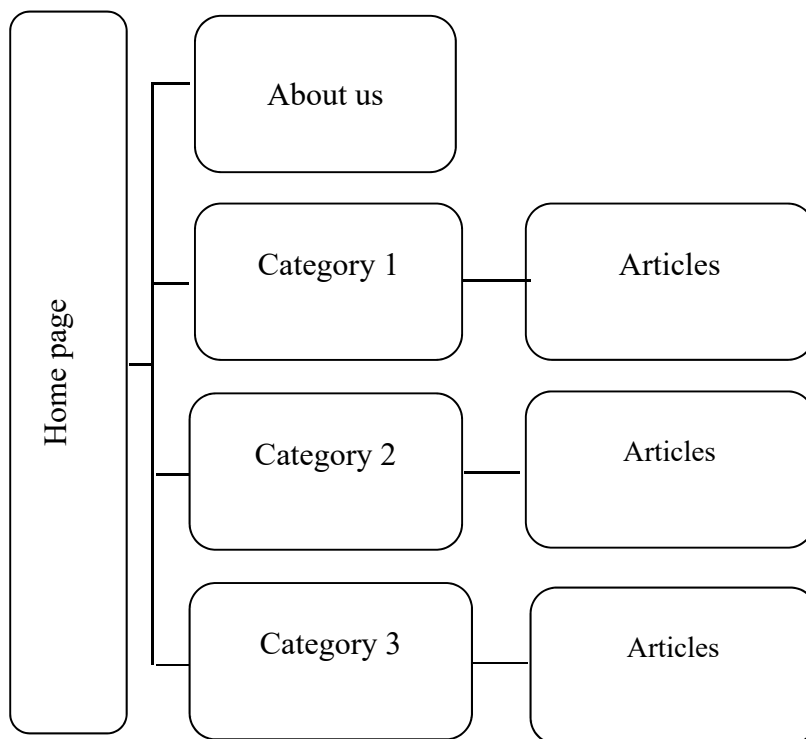
The tree structure of the site is used for more large sites, blogs, online stores and online portals. In *Figure 14* presents examples of the tree structure of various types of sites.



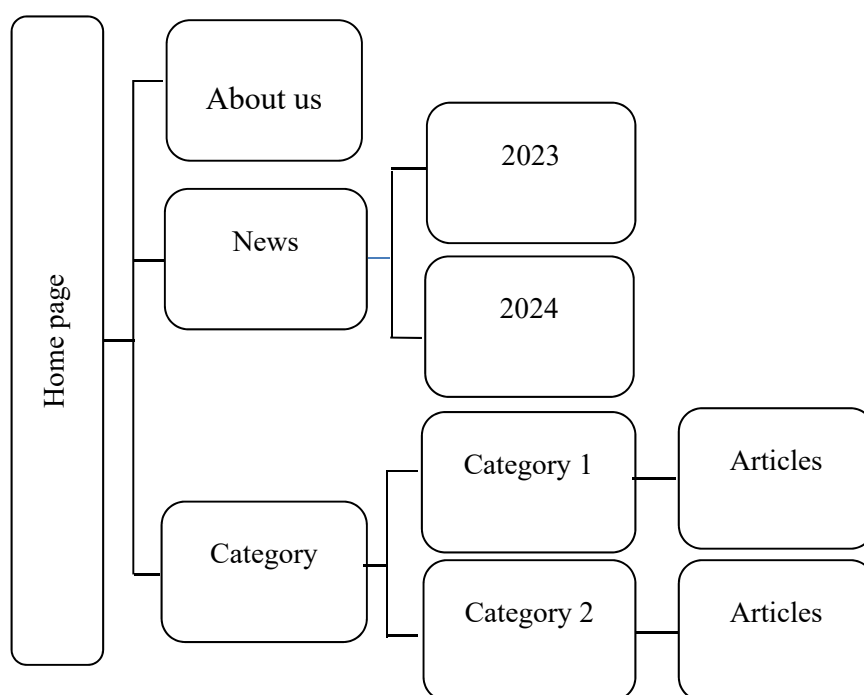
a) the structure of the corporate website



b) the structure of the online store



c) blog structure



d) the structure of the news portal

Figure 14. Semantic structure of different types of sites

Source: created by the author based on (Iankovets, 2023b).

In the structure of the corporate site (*Figure 14a*), "Subdivision" is the main page relative to the "Subdivision 1" page. The main page of the "Blog" is divided into several sections, each of which contains articles on the corresponding topic.

The tree structure of the online store (*Figure 14b*) can have an unlimited number of categories and subcategories. At the same time, it is important to comply with the requirement that the page of any product should be located no further than three clicks from the main page. For example, for a clothing store, it is advisable to create such nesting of pages "clothing – men's clothing – outerwear". The user can choose types of clothing using filters.

In the structure of the blog (*Figure 14c*), posts are grouped by categories. For example, in a food blog, articles can be categorized by region or country (Mediterranean, Chinese, Italian, etc.) or by type of food (soups, meat dishes, fish dishes, salads, etc.).

The content on the news portal (*Figure 14d*) can be grouped according to a more complex branched structure. It can be grouped by material type or publication date. In this case, the content will be placed in the appropriate categories.

5. Technical aspects, indexing. After the necessary metatags (title, description) and tags (h1, can also be h2-h6) are added to the code of each web page in the formed site structure, the pages are filled with high-quality content, all technical settings are made, it is important to add the site to search engine services, with the help of which you can get information about how the site is presented in the search results in order to optimize the content and identify and correct possible malfunctions. In particular, registration in the free Google Search Console service helps to find out how the site is scanned by the Google search engine and allows you to improve interaction with it (About Search Console, n.d.). With the help of Search Console, it is possible to monitor and optimize the traffic, position and appearance of the site in the search results due to: acceleration of the process of finding the site by the Google system and its scanning and indexing; detection of problems with indexing and, after their correction, a request for re-indexing of new or updated content; estimates of the traffic coming to the site from Google search, how often and for which queries links to the site's pages appear in search results, how often users click on them and make a transition; receiving a notification about problems with indexing, spam and other malfunctions; identifying which sites refer to the resource; troubleshooting AMP pages (a format of web pages that load quickly and are convenient for viewing on smartphones), etc.

To register in Search Console, you need to enter the domain name of the site, confirm ownership and upload the proposed HTML file to the site (or in another way – insert the proposed meta tag into the code of the main page of the site). To avoid errors, it is recommended that this procedure be performed by a programming specialist. An important technical aspect of facilitating the indexing process for search robots is the addition of two service files to the site (performed before adding the site to Search Console):

- robots.txt – a file that records which pages on the site will be visible to search robots;
- sitemap – a site map with information about the pages of the site that need to be indexed and how often to index this or that page.

The robots.txt file is standard for various CMS and is used to block certain pages from being indexed. The robots.txt file is placed in the root directory of the site. For example, on the website <https://rozetka.com.ua> it is located at the address <https://rozetka.com.ua/robots.txt>. This is a plain text file that complies with the robot exclusion standard (protocol) and contains one or more rules, each of which prohibits or allows one or another search engine to access a certain path in the domain or subdomain in which the robots.txt file is located. All files are considered crawlable by default unless specified otherwise in the robots.txt file (Google Search Central, n.d. a).

It is in the robots.txt file that the link to the site map (Sitemap) is located. A sitemap file contains information about how the content on a site (such as web pages, videos, and other resources) is organized. A sitemap

helps Google and other search engines index your site's content more accurately. For example, in the Sitemap file, you can indicate which sections of the site are most important and provide additional information about them (when the page was last updated, whether there are versions in other languages, etc.).

The Sitemap file should be used if (Google Search Central, n.d. b): the site is large and search engines may miss new or updated pages; the site contains a large archive of pages that are not related to each other, so it is advisable to list them in the site map; the site is recently created and does not have enough external links to it from which search engines enter the sites; the site contains a large amount of multimedia and news content.

There are also conditions under which it is not necessary to use a Sitemap file: the site is relatively small (no more than 500 pages to be displayed in search results); the site implements a detailed system of internal links, by which, starting from the main page, the work can go to all important sections of the site; the site has relatively few media files and news pages to appear in search results. Sitemap files help Google robots find and analyze videos, images and news from sites. If the business does not want such content to appear in search results for images, videos or news, a sitemap is not required.

All technical settings are performed by programming specialists.

6. Working with content involves its systematic updating and improvement, taking into account the interests and needs of the target audience in order to increase the quality of the website. This will contribute to the improvement of user experience, the creation of positive impressions and the formation of a loyal audience, which will allow solving the tasks of the website and increasing the efficiency of the enterprise.

7. Internal linking helps extend the time the user visits the site and immerses him in viewing various pages, which, provided the content is of high quality, is positively perceived by the search engines and raises the position of the site in the search results, as well as improves the customer experience thanks to the positive impressions of the user.

8. Analytics, increasing the conversion rate. The connection of web analytics counters to each page of the site allows you to monitor the operation of the site, identify problems and malfunctions in time, correct them and, provided that all previous stages of internal search optimization are performed, increase the conversion of the site.

If the internal optimization of the site refers to its technical configuration and filling with quality content, the external optimization of the site is necessary to increase its authority for search engines and users. External optimization is directed outside the site, it is work on backlinks to the site, building up the mass of links, or obtaining links from other resources to your site. Building the reference mass of a site to increase its ranking in search engines was called link building (from the English link – link, build-

ding – construction). It is important to take into account the fact that ranking algorithms determine the "authority" of Internet resources taking into account the qualitative characteristics of links to them from other sites, taking into account the thematic approximation of the resource and the site that links to it. There are different types of external links that are used to increase the weight of the site (*Figure 15*).

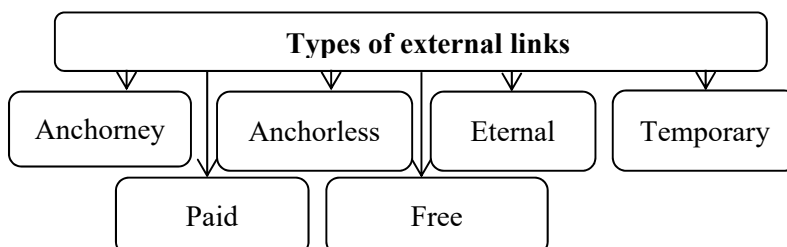


Figure 15. Types of external links

*Source:* compiled by the author based on (Rindfleisch, 2020; Borzenko, 2021; Shulga, 2022; Shevchenko, 2024).

The links must be active, that is, clicking on them must lead to a page on the website.

Any link includes the URL of the page and the anchor text that the user sees. By clicking on this text (it is usually highlighted in blue and when the mouse cursor is hovered over it, an image of a palm appears), the user goes to the site page. An anchor link consists of two parts: text related to the topic of the page of the site being redirected to, and the URL of the page. At the same time, the user sees only the text. In anchor links, keywords are organically introduced into the anchor text, which accurately reflect the content of the page and the user clearly imagines exactly what he will see on the page after going to it. The text part in the anchor link is highlighted using tags. In the HTML code, the anchor link looks like this:

```
<a href="https://example.ua/">Anchor</a>.
```

You have to be very careful with the number of links using anchors, because Google algorithms quickly calculate links with exact keywords and can send them to the Google Spam team (Borzenko, 2021).

An unanchored link is a link whose text part does not reflect what the user will see when he goes to the site page. Unanchored links can either be a page URL or neutral text such as "Learn more", "Details", "View here", etc. In addition to neutral words, brand names, the domain name of the main page of the website to which the transition will be made, low-frequency queries, etc. can be used. In the HTML code, the unanchored link looks like this:

```
<a href="https://example.ua/"> https://example.ua/</a>.
```

Unanchored links in the form of page URLs look organic and are perceived by search engines as natural. At the same time, they do not answer



what information is located on the page where the link leads. The content of the text located before the link can help in this. Such links are actively used in blogs, forums, and social networks.

Link exchanges (MegaIndex, Rookee, SeoPult and others) are used to obtain paid links. The advantage of buying links on an exchange is that the link will not be removed after some time, for which the exchange is responsible. Buying permalink exchanges is considered a long-term investment, since these are the links that are established inside the topic articles forever. They are expensive, but are considered the most effective.

Temporary (or leased) links are published temporarily and after the expiration of the specified period, are deleted. The main disadvantage of such links is that they are not placed in the text (they are placed on the sidebar, which is graphically separated from the main content area (sidebar), as well as at the bottom of the site page ("basement" of the site, footer), that is, they are inconspicuous).

Free (crowd marketing) links are the most natural links, as they are posted under the guise of a review or recommendation on review forums and directories. The disadvantages include the fact that their creation and publication requires time.

The most optimal option for creating an organic link mass is the ratio of anchor and non-anchor links of 20%: 80%, as well as the placement of both eternal and crowd links. It is this approach that will be perceived by search engines as natural and will protect the site from falling into Google Spam.

How useful and interesting the site is to users is characterized by their behavior (behavioral factors), which is reflected in the corresponding indicators (*Figure 16*).

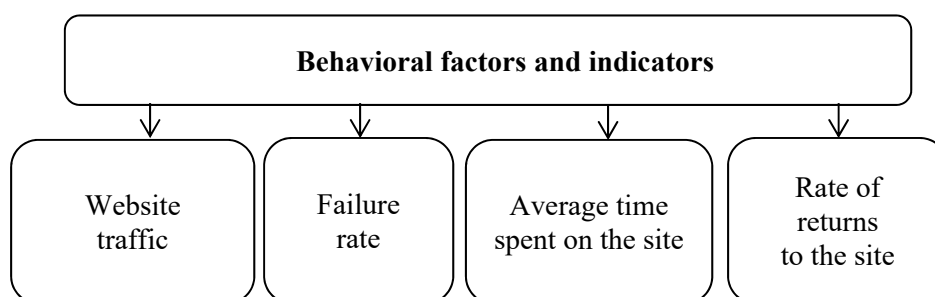


Figure 16. Indicators of evaluation of behavioral factors of users

*Source:* compiled by the author based on (Rindfleisch, 2020; Borzenko, 2021; Shulga, 2022; Shevchenko, 2024).

Systematic monitoring with the help of web analytics programs and analysis of data indicators allows you to identify problems, solve them and improve the user experience, which, thanks to positive impressions, will contribute to increasing the conversion of the site and the overall efficiency of the enterprise.

### **Conclusions**

In the digital environment, search engine marketing (SEM) is one of the most effective digital marketing (DM) tools in driving targeted website traffic. This conclusion is based on the fact that SEM is focused on the requests of users whose demand is actualized. Websites that will appear in search results at higher positions, will be visible to the potential target audience, have a value proposition relevant to the requests, and have a competitive advantage by creating a positive impression for potential and existing customers. This is achieved by speed and convenience in meeting the needs of consumers. Web analytics, which is based on the collection, analysis of measurable data and its presentation in reports, helps to find out how effectively traffic is attracted and user interaction with websites, which allows businesses to make quick decisions aimed at improving websites and interacting with customers. At the same time, users' expectations regarding privacy in the digital world have increased today. Therefore, the use of machine learning models, which are created by analyzing huge volumes of historical data, determining correlations and trends between key data points, is widespread in web analytics for modeling consumer behavior and conversions. Google has introduced the latest version of Google Analytics 4, which allows you to collect data about the consumer's digital journey from various devices, including online and offline, and compile them in a joint report. This allows you to build communication with the user thanks to the implementation of the omnichannel principle in DM. This improves customer experience and creates impressions.

Search marketing, as a DM tool, includes search (contextual) advertising and search engine optimization (SEO). Working with semantics and forming a semantic core based on user searches is fundamental in contextual advertising. Accordingly, advertisements are shown for specific search queries, taking into account settings for the target audience, and the advertiser pays only for engaged users and independently determines how much he will pay for a click. Web analytics help in real-time to monitor how advertising campaigns are progressing and to quickly respond to identified shortcomings. The contextual advertising algorithm proposed in the article allows you to conduct effective advertising campaigns taking into account the interests of the target audience, which will create positive impressions, with optimal costs for the enterprise.

Contextual advertising and SEO as SEM tools have their own characteristics, advantages and disadvantages. At the same time, both tools are based on the action of the semantic mechanism of working with search queries. The synergy of using both tools ensures an increase in targeted traffic to the website from 40% when using one tool to 90% when using both, and focused work on improving the quality of the website increases the effectiveness of both contextual advertising and SEO.

SEO includes internal and external optimization. Internal is aimed at technical adjustments, according to the requirements of search engines, and

working with content to improve the user experience. External optimization is aimed at building a link mass to the website. The article proposes an internal optimization algorithm that takes into account both technical and marketing aspects in creating user impressions. The optimal structure of external links is proposed. Behavioral factors and indicators are indicated, according to which, with the help of web analytics, it is possible to identify problems and directions for improving the website and customer experience. In general, search engine optimization contributes to the improvement of the user experience due to the speed and convenience for users in meeting actualized needs, which creates a positive impression. This will improve the customer experience and form a loyal audience of the website, which meets the search queries as fully as possible and allows you to solve specific needs, which will contribute to increasing the conversion of the site and the overall efficiency of the enterprise.

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**KARMAZINOVA Viktoriia,**  
PhD in Economics, Associate Professor of the  
Department of Marketing  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-8554-1900

v.karmazinoва@knute.edu.ua

## **GAMIFICATION OF CONSUMER LOYALTY PROGRAMS**

*The development of a comprehensive approach to the implementation of gamification is an important direction in ensuring long-term consumer loyalty. The companies' use of game elements such as challenges, competition, and reward systems provides an effective impact on consumer loyalty, creating an attractive and exciting experience. In this direction, it is important to substantiate the principles of gamification, distinguish the stages of implementation, determine the elements and places in the creation of unique loyalty programs. The purpose of the article is to substantiate the implementation directions of gamification in programs for ensuring long-term loyalty. When conducting the research, general scientific methods of analysis and synthesis were used, used to present the main elements of gamification, their characteristics; empirical methods, system-structural analysis, comparison and graphic representation. The role of gamification in loyalty programs is substantiated and its key role in building long-term relationships with consumers is proven. Key trends in the use of gamification to stimulate interaction and audience engagement are explored. It was established that for domestic companies the main elements of gamification should be: points and awards; social interaction; tasks and challenges; progression and levels; competition and leaderboards; personalization and customization; time limits; stories and narratives; virtual awards and honors. The priority areas of using gamification are determined and attention is focused on the effectiveness of the elements within each. The stages of implementation of*

**КАРМАЗІНОВА Вікторія,**  
к. е. н., доцент кафедри маркетингу  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-8554-1900

v.karmazinoва@knute.edu.ua

## **ГЕЙМІФІКАЦІЯ ПРОГРАМ ЛОЯЛЬНОСТІ СПОЖИВАЧІВ**

*Розробка комплексного підходу до впровадження гейміфікації є важливим напрямом у забезпеченні довгострокової лояльності споживачів. Використання компаніями таких ігрових елементів, як виклики, конкуренція, системи нагород, забезпечує дієвий вплив на лояльність споживачів, створюючи привабливий та захоплюючий досвід. У цьому напрямі важливим є обґрунтування принципів застосування гейміфікації, виокремлення етапів впровадження, визначення елементів та місця у створенні унікальних програм лояльності. Метою статті є обґрунтування напрямів імplementації гейміфікації у програми забезпечення довгострокової лояльності. При проведенні дослідження використано загальнонаукові методи аналізу та синтезу для представлення основних елементів гейміфікації, їх характеристик; емпіричні методи, системно-структурний аналіз, порівняння та графічне зображення. Обґрунтовано роль гейміфікації у програмах лояльності та доведено її ключову роль у побудові довгострокових взаємовідносин зі споживачами. Досліджено ключові тенденції використання гейміфікації для стимулювання взаємодії та залучення аудиторії. Встановлено, що для вітчизняних компаній основними елементами гейміфікації мають бути: бали та відзнаки; соціальна взаємодія; завдання та виклики; прогресія та рівні; конкуренція та лідерборди; персоналізація та кастомізація; часові обмеження; історії та наративи; віртуальні нагороди та стимули. Визначено пріоритетні напрями використання гейміфікації та акцентовано увагу на дієвості елементів у межах кожного. Запропоновано етапи впровадження гейміфікації*



*gamification by Ukrainian companies are proposed, taking into account the balance of elements and the unique needs of brands.*

*українськими компаніями з урахуванням збалансованості елементів та унікальних потреб брендів.*

*Keywords: loyalty, loyalty programs, gamification, elements of gamification, gamification of loyalty programs.*

*Ключові слова: лояльність, програми лояльності, гейміфікація, елементи гейміфікації, гейміфікація програм лояльності.*

**JEL Classification:** D11, D21, E20, E21.

## **Introduction**

In the highly competitive world of modern business, creating effective loyalty programs is an important strategic task for companies. Traditional methods no longer always meet the growing expectations of consumers, who demand personalization and innovation. In this context, gamification is an important tool for creating unique and exciting loyalty programs. Every year, gamification attracts more and more attention from practitioners and academics due to its potential to stimulate interaction with customers and increase the effectiveness of marketing strategies. Gamification is based on the principles of game design and uses game elements to stimulate certain actions. An important aspect of its application is its role in loyalty programs. By introducing gamified elements, brands create a unique context for interaction with consumers. Personalized tasks and individual rewards help increase participation and strengthen the connection between the customer and the company's product. Rewards and competition create positive emotions, increase motivation and encourage participation in loyalty programs. Understanding these aspects allows you to more effectively implement gamification in consumer loyalty programs

Consumers show great tolerance for diversity, actively express their individuality and strive for original impressions. In today's business, it is impossible to successfully compete without taking these trends into account. It is precisely in this context that gamification becomes a necessary component of consumer loyalty programs.

The use of gamification allows companies to build long-term relationships with audiences, taking into account their unique needs and aspirations. This not only stimulates consumer interest, but also empowers them to express themselves and engage in creative interactions. This approach not only meets the expectations of the modern generation, but also ensures a positive impact on the brand, increasing loyalty and competitiveness of the company in the market.

Scientific studies show that gamification activates various aspects of consumer behavior. At the same time, the greatest attention is paid to the relationship between gamification and ensuring consumer loyalty. The problem of combining elements of gamification with loyalty programs is covered in the works of the following scientists and practitioners: Clock (May 27, 2023), O'Neill (January 25, 2022), Grochowska I. (2023), Höber

(November 30, 2023), Barney (September, 2023), Chang (2023), Prysiazchnikova, Kirnosova (2023), Mostova (2018)), Iankovets, Cherneva (2022). Scientific studies devoted to the problems of gamification of loyalty programs reveal significant aspects of this approach. At the same time, the relationship between the level of loyalty and the gamified elements of the company needs to be researched. In this direction, it is important to focus on the methods of choosing gamified elements, while understanding the psychological aspects and taking into account the development of a comprehensive approach to the implementation of gamification in programs to ensure long-term loyalty.

The aim of the article is to substantiate the implementation directions of gamification in programs for ensuring long-term loyalty.

In accordance with the defined aim, the hypothesis was formulated that gamification is an effective tool for ensuring long-term consumer loyalty. Gamification also opens up opportunities to personalize long-term loyalty programs. The use of analytics and recommendation algorithms will allow for the creation of individual gamified tasks and rewards, taking into account the personal preferences and consumption habits of each client.

To test the proposed hypothesis, the following general scientific research methods were used: analysis and synthesis to present the main elements of gamification, their characteristics; empirical methods, system-structural analysis, comparison and graphic representation.

Despite the positive aspects of gamification in providing long-term loyalty programs, there are challenges associated with psychological reluctance, excessive pressure on the consumer and lack of balance in the combination of gamification elements.

The main part of the article defines the key elements of gamification in loyalty programs, indicating their features, specifics of use and possible areas of use. An analysis of the dynamics of the use of gamified elements by companies was carried out and a matrix of loyalty trends was constructed. The main stages of implementing gamification elements for building long-term loyalty and achieving the company's strategic goals are proposed.

## **1. Gamification: basic concepts and components**

Gamification in business is recognized as an effective tool aimed at stimulating the participation of consumers and employees through the use of game elements. This approach significantly affects various areas of business activity, combining entertainment and business processes. The scientific approach allows considering gamification as an effective tool for achieving strategic goals in the modern business environment.

The biggest advantage of gamification in business is its ability to create interest and motivation of participants. Game elements such as contests, rewards, and virtual achievements encourage active participation and audience engagement. This is especially important in marketing and advertising, where



competitions and awards can increase brand engagement and increase customer loyalty.

Gamification also has a positive effect on internal business processes, increasing staff motivation and productivity. Historically, for a long time, companies have tended to be more product-oriented in their operations. This traditional concept has been about maintaining an existing market position with a focus on short-term profits, mostly by cutting costs and increasing production revenues (Iankovets & Cherneva, 2022). The implementation of gamified motivation systems creates an opportunity to become the basis for effective change management and the development of team cooperation in the organization. In addition, gamification allows you to collect important data about the behavior of customers and employees, using analytical tools to further improve business strategies. This aspect enables businesses to adapt their approaches and offer personalized solutions. The interpretation of the term "gamification" can be viewed from several angles.

First of all, gamification is the application of game design and mechanics in a non-game environment. Its purpose is to increase the level of motivation and involvement of users, stimulate behavior change and achieve specific goals (Clock, May 27, 2023).

Gamification is a strategy that combines entertaining and engaging game elements into a non-game context to increase engagement and motivate certain behaviors. Gamification requires an understanding of the target audience, their motivations and the context in which the strategy is applied. For the effective use of hemification, it is necessary to take into account all the components (Figure 1).

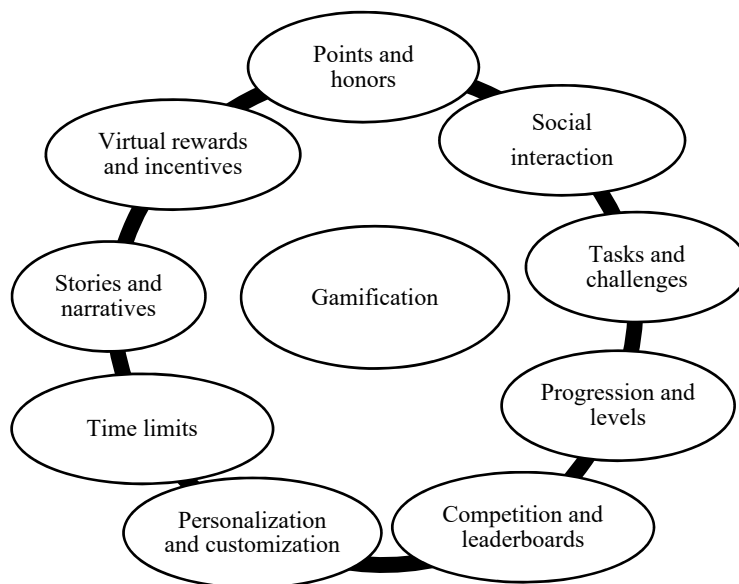


Figure 1. Basic elements of gamification

Source: developed and supplemented by the author from (Barney, September, 2023).

These elements work together to create a great gaming experience that encourages players to actively participate and achieve their goals. Each of the elements has its own role in achieving the goals (*Table 1*).

*Table 1*

Characteristics of gamification elements

Element	Characteristic
Points and honors	It is a fundamental game mechanic that rewards users for achievements and progress. Users earn points when they complete certain actions or reach checkpoints; they are awarded badges for achievement or mastery in a particular field. These visual representations of progress encourage users to continue interacting (Barney, September, 2023)
Social interaction	The possibility of sharing experience, joint play and interaction between participants
Tasks and challenges	Setting tasks and challenges that participants must complete in order to receive points or rewards
Progression and levels	Allow users to progress through various stages of the game system as they complete tasks or earn points. This visual progression provides a sense of growth and mastery, and encourages continued participation. Unlocking new levels or accessing additional content creates a sense of anticipation and excitement
Competition and leaderboards	Identification of leaders and competition among participants, which increases motivation and stimulates activity. Displays the ratings of participants based on their results and achievements. They create a sense of competition, challenge and motivate users to take a higher position on the leaderboard. Leaderboards are good for motivating people to improve their skills and achieve goals (Barney, September, 2023)
Personalization and customization	Allow participants to customize their profiles, characters, or other gamification elements according to their preferences
Time limits	Set deadlines for completing tasks or achieving goals, which creates an element of urgency and tension
Stories and narratives	Weave elements of stories and narratives that make gamification more interesting and engaging
Virtual rewards and incentives	Participants receive virtual rewards such as medals, badges or trophies as recognition of their achievements

*Source:* developed by the author from (Barney, September, 2023).

Gamification is used in a variety of industries, including education, marketing, employee training, healthcare, wellness, and customer engagement. For example, educational programs can use gamification to make learning more interactive for higher education students, while businesses can use it to improve employee productivity, encourage customer loyalty, or reward employees and consumers (*Figure 2*).

Scope of gamification	
Marketing	Gamification elements can create unique interactive campaigns that attract attention and enhance interaction with the audience
Education	The adaptability of gamification allows teachers to adapt content for individual students, ensuring that each student receives an individual learning path, making education more accessible and enjoyable (Höber, November 30, 2023)
E-trade	It is a strategic approach aimed at attracting and retaining customers through the use of game elements and mechanics; provision of virtual bonuses that can be exchanged for discounts or gifts attracts customers and stimulates their activity; using gamified algorithms to personalize recommendation systems, which allows each customer to receive individually selected offers and discounts
HR	Badges, points and leaderboards motivate employees to learn the necessary skills and constantly improve; it creates a culture of continuous learning and professional development; leaderboards promote a sense of friendly competition among employees, encouraging them to surpass themselves and reach new heights in their positions (Höber, November 30, 2023)
The sphere of entertainment and recreation	Health and wellness apps and platforms, for example, use gamification to motivate people to lead healthier lifestyles; use gamified elements to track physical activity, set goals and reward users for achieving important results, this gamified approach encourages users to stay active and make healthier choices

Figure 2. Possible application areas of gamification elements

*Source:* compiled by the author based on (Höber, November 30, 2023; Education Technology, September 28, 2023).

These are far from all areas in which gamification elements are integrated, since, according to statistics, they are increasingly used by various companies.

The study of gamification is an urgent task, since this tool will allow to study the complex processes of forming long-term partnerships between the company's staff and customers (Mostova, 2018). In the general context, gamification in business is an innovative tool that promotes interest, efficiency and interaction of all participants in business processes and creates additional benefits for the company.

**2. Gamification: research and trends**

The dynamics of the use of gamification at enterprises shows the gradual realization of its potential as an effective tool for achieving various business goals. The general trend indicates that businesses are increasingly incorporating gamification into their strategy to engage staff, drive productivity and increase customer loyalty. Confirmation of the growth in the level of gamification use is shown in *Figure 3*.

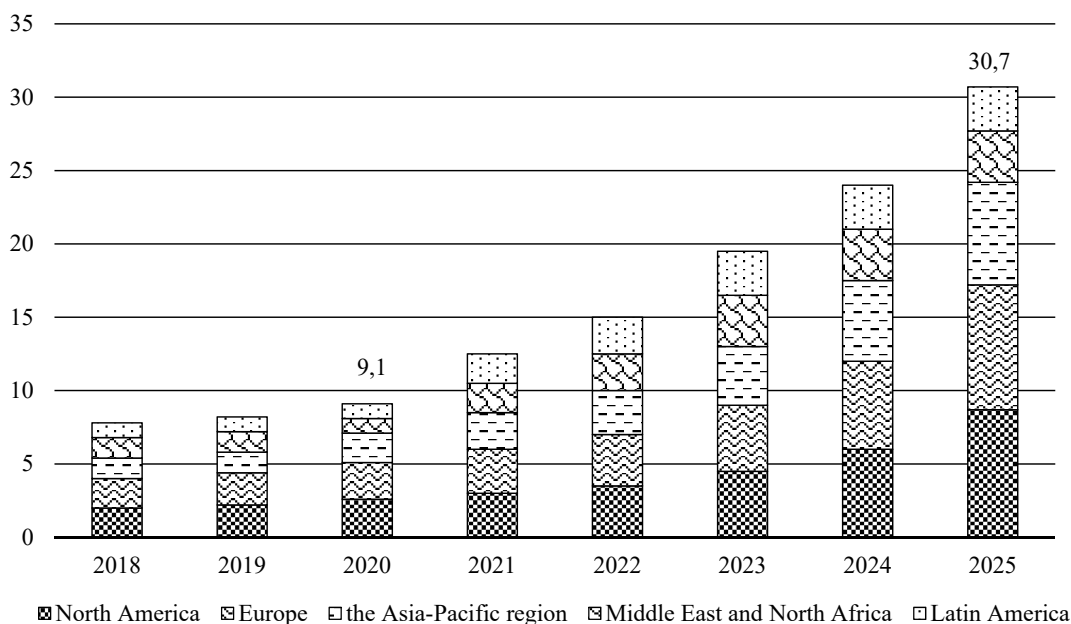


Figure 3. Global gamification market, USD billion

Source: (Clock, May 27, 2023).

The global gamification market is projected to grow from USA 9.1 billion in 2020 to an expected USA 30.7 billion by 2025, at a CAGR of 27.4%. North America will remain the leader in the global gamification market, continuing to hold the largest share over the next five years. This is due to the high popularity of mobile Internet, which is used by 90% of the region's residents through smartphones (Chang, 2023).

At the same time, the gamification market in Europe is also expected to develop significantly during the forecast period. Active support from local authorities and key stakeholders will contribute to further growth. For example, political initiatives in Great Britain and France are aimed at holding conferences and events dedicated to gamification (Clock, May 27, 2023). Although North America and Europe remain the main participants, other regions plan to gradually increase the use of gamification elements.

Gamification finds its application in various markets, proving to be an effective tool for stimulating interaction and engaging the audience. In the field of retail trade, gamified loyalty programs and interactive contests help

increase sales and retain customers. In the financial sector, gamification is used to increase financial literacy and motivation for financial transactions. In the technology sector, gamification is used to improve productivity and develop skills. In the field of personnel management, gamified incentive systems become a tool for increasing employee motivation. Thus, gamification is a universal tool that adapts to various business sectors, helping companies to achieve their goals and interact with the audience at a new level.

According to research, the number of enterprises planning to use elements of gamification will increase, and today it is most often used by retailers (*Figure 4*).

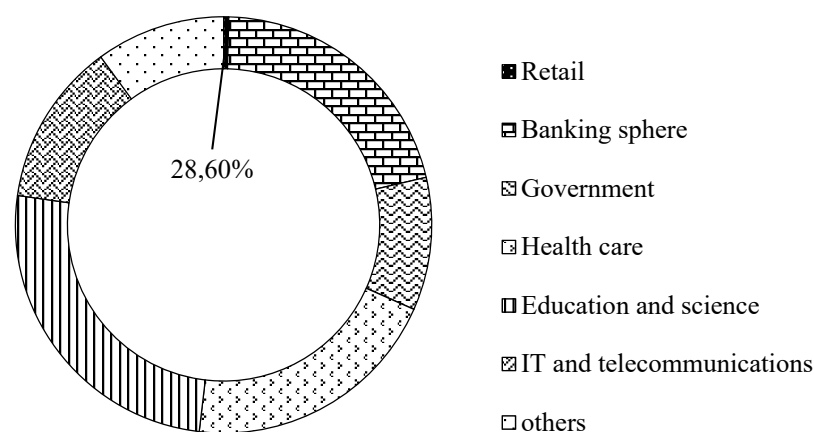


Figure 4. Analysis of the use of gamification elements by industry distribution, %

Source: (Fortune. Business Insights, Jun, 2020).

Predictions indicate that gamification is now an unstoppable industry. Many businesses, from large to small, see the benefits of engaging their customers and employees in the use of interactive technologies. And this is reflected in the numbers (O’Neill, January 25, 2022):

- according to estimates, by 2025 the global profit from the sale of gamification will reach USD 32 billion;
- it is expected that by 2025, gamified learning will be valued at USD 25.7 billion; USD 25.7 billion;
- in 2016, the international gamification market was estimated at USD 4.91 billion. The latest numbers predict growth of 142%, with the market now valued at USD 11.94 billion;
- 70% of global companies use gamification in one way or another;
- 50% of startups use gamification;
- 80% of US households own at least one gaming device – therefore people approach this technology with pre-developed gaming skills and knowledge and can be more receptive and adaptive to the system;
- companies using gamification can increase the conversion rate up to 7 times.

The best positive dynamics of the use of gamification elements is demonstrated by the food retail industry, namely the use in building customer

relations with the help of marketing tools. Companies use gamified loyalty programs, contests and promotions to attract and retain customers. This allows businesses to compete effectively on the market and provide consumers with a new level of interaction with the brand. One of the examples of the effective use of gamification elements is the project with the integration of AR-books: "Alice in the Wonderland" and "Alice through the Looking Glass", implemented by the ATB product network. The condition of participation in the program was the purchase of goods for a certain amount. The assortment of goods was the same for all stores and was not limited to specific categories of goods. 275 000 books were printed. The mobile application was supposed to "revive" the pages and the characters on them. The effectiveness of augmented reality in marketing, according to live animations, increased the frequency of purchases by 25%, their number by 30%, and the time of interaction with the product seven times. According to the results of the promotions, 718 000 AR-books were sold in ATB. This is an absolute record for Ukraine, because for comparison, according to the Book Chamber of Ukraine, the average circulation of one children's book in 2017–2018 was about 2 700 copies. Another retailer, namely Silpo, held promotions with action figures of fantastic characters – "Stikeez". According to the retailer, the figurines, of which there were about 20 million of pieces ran out even before the end of the first promotion. During the campaign, the average check increased by 7%, the number of new customers – by 2% during the first campaign and by 6% after the second, and the retailer's market share increased by 8%. 75% more buyers participated in this promotion than in similar promotions with other toys (RAU, 2022).

As such, gamification is growing in popularity in businesses as it helps improve various aspects of business, including HR, marketing and training. This trend shows that enterprises recognize it as an effective tool for achieving strategic goals and improving both internal and external business processes.

### **3. Elements of gamification of loyalty programs**

Loyalty programs are one of the most effective tools for retaining customers and building long-term loyalty. Loyalty is considered as a component of three elements: trust; commitment to values; long-term relationship. Consumer loyalty is defined as their preference for the product, services, service, trademark, logo, appearance, personnel, service system of a particular enterprise (Prysiashnikova, Kirnosova, 2023).

Gamification, as a concept of using game elements in non-game contexts, is an important component of marketing strategy implementation. Let's consider the impact of gamification on the effectiveness of loyalty programs and ways to use this approach to attract and retain customers.

Figure 5 shows two key insights into loyalty marketing trends: their greatest impact over the next 2–3 years and the urgency of investment in 2023.

On the one hand, it identifies the importance of the trends that have the greatest impact on customer loyalty marketing, including strategies and tools that will be a key to successfully securing customer loyalty in the near future. On the other hand, the urgency of investments in 2023 is taken into account, showing which trends require the most attention and resources in the current year for effective implementation.

This allows companies and marketers to direct resources to the most promising and important aspects of loyalty marketing in the near future, ensuring an optimal relationship between strategic planning for the long term and current investment needs in the current year.

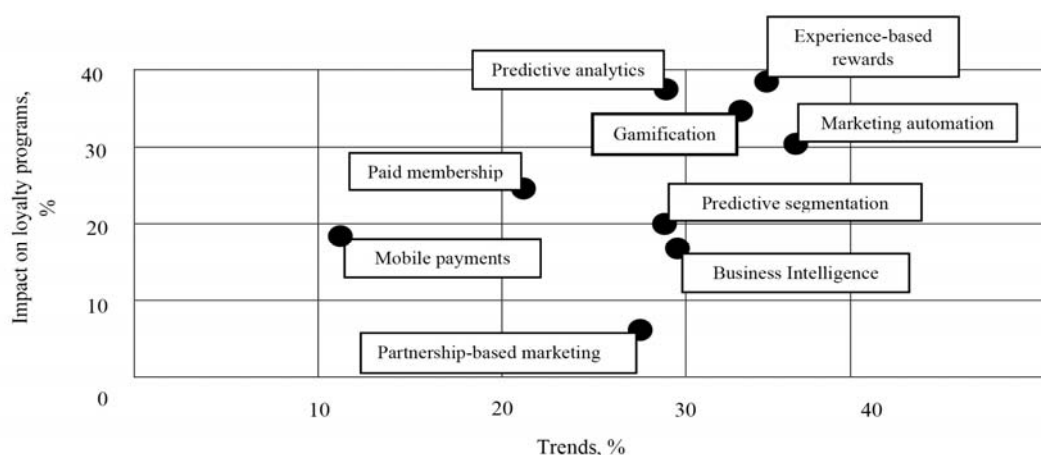


Figure 5. Loyalty Trends Matrix

Source: (Open Loyalty, 2023).

2023 Gamification, experience-based rewards and predictive analytics are named as key trends that will impact the loyalty industry over the next 2–3 years. The top three trends that marketers plan to invest in next year are pretty much the same, with the exception of marketing automation replacing predictive analytics.

Experts confirm that gamification and attracting customers in a non-transactional way is becoming a decisive way to stand out from the competition. The fact that marketing automation is one of the key trends that marketers plan to invest in is also no surprise, given its potential for things like data collection, personalization and, most importantly, creating memorable customer experiences. Companies' focus on collecting and using data to deliver more personalized experiences remains an ongoing challenge, especially as customer expectations rise and Gen Z becomes a key segment. An increasingly strong connection between payment systems and loyalty is developing, which will also be a key in the coming recession (Grochowska, 2023).

In 2023 it was noticed a noticeable shift in approaches to key trends that were relevant in previous years, particularly in the areas of mobile applications and mobile payments. This unexpected turn may indicate either a change in priorities in the business environment or a rethinking of what can ensure maximum investment efficiency in today's unpredictable environment.

The popularity of mobile applications and mobile payments, which used to be widely recognized, has now lost its relevance. Instead, the emphasis is shifting to experience-based rewards, which have not previously been valued in the industry. This indicates a change in perception and approaches to how to achieve maximum profit in the uncertain conditions of today's market.

Gamified loyalty programs have an amazing ability to retain experience-oriented consumers over time, building relationships and communities among participants. Gamification encourages consumers to interact with the brand regularly and make more frequent purchases, and also provides an opportunity to collect important customer data. Let's consider the stages of introducing gamification into loyalty programs, which can increase consumer engagement in online and offline environments (Figure 6).

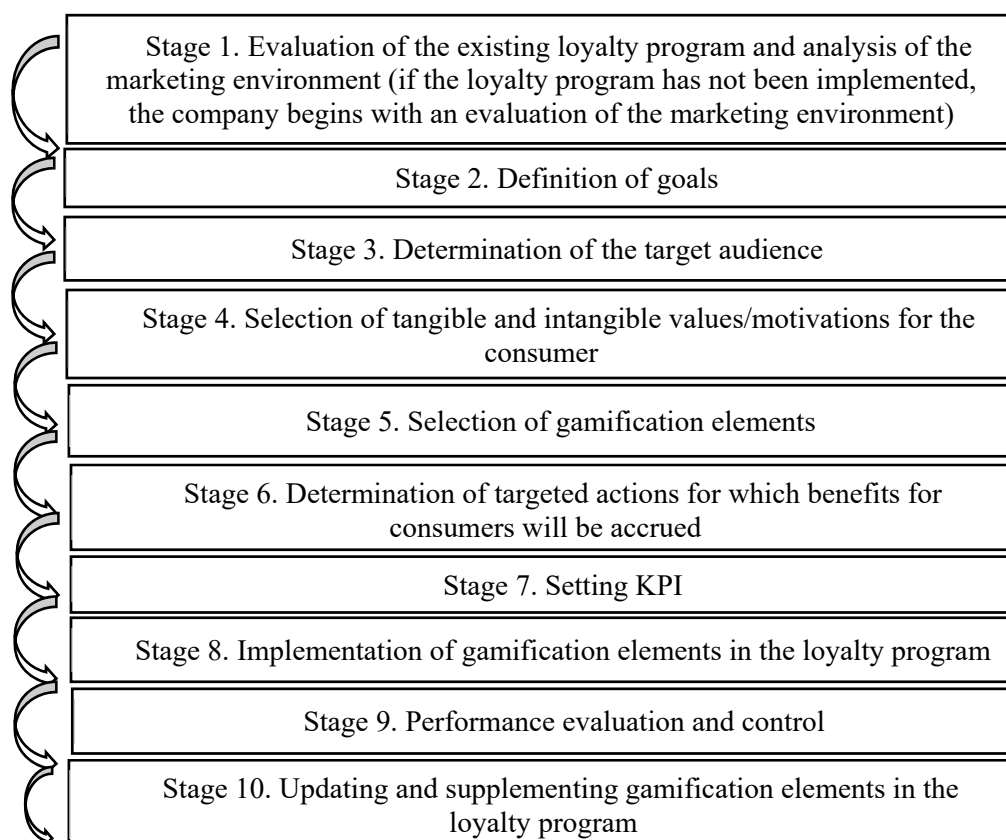


Figure 6. Stages of implementation of gamification elements to build long-term loyalty

Source: compiled by the author.



When considering the importance of implementing gamification elements in loyalty programs, it is important to consider all stages of this process. From initial concept to implementation and further refinement, every step is important. At the first stages, you need to clearly define the purpose of gamification and the goals of the loyalty program. A thorough analysis of the audience and its needs allows you to collect key information for further consideration in game design.

The next stages are the development of game mechanics and elements that meet the defined goals. It is important to create an engaging gaming experience that will encourage participants to be active and participate.

One of the most responsible stages is the implementation of the gamified program in the real environment. At this stage, it is necessary to ensure convenient access and effective integration with existing loyalty systems. Constant monitoring and analysis of results allows timely identification of weak points and optimization of gamification elements to achieve maximum efficiency.

This article examines the main elements of gamification and characterizes each of them. These elements are actively used by companies in loyalty programs, in addition to generalized elements; it is worth providing examples of ideas that are effectively applied in practice (Adact, November 10, 2023). These elements include:

- wheel of fortune (wheel of fortune spins can reward consumers with discounts, free products or services and other prizes of their choice; consumers will not only enjoy the game, but also be more likely to return for future purchases);

- boxes with prizes (simple logistics compared to the excitement of opening a box and receiving some kind of gift can make people very enthusiastic about the game; the company can even create different levels, depending on the conditions of the loyalty program);

- rewards for targeted actions (answering questions, watching videos, going to the site, finding an error, passing a test, etc. – all these targeted actions can be supported by a reward for the consumer);

- puzzles or quests, quizzes (a unique game that allows you to demonstrate to consumers how much the company understands them and how much consumers are loyal to the company in return; for each successful game, consumers can also receive a reward, in addition to the interesting aspect of the game, a special prize will motivate people to continue playing and doing everything right);

- scratch cards (this element of a gamified loyalty program works in a similar way to lottery tickets, where customers can scratch a card and receive a reward if they are lucky enough to collect the right combination; this is a fun way to attract customers and give them something of value at the same time).

Considering all stakeholders is critical to the successful implementation of gamification in loyalty programs, creating an engaging, exceptional experience for consumers and ensuring the building of long-term loyalty.

**Conclusions**

The effectiveness of the functioning of domestic companies is determined by the formation of long-term relations with consumers. That is why every year marketers pay more and more attention to the management of loyalty programs. An important direction in ensuring long-term consumer loyalty is the development of a comprehensive approach to the implementation of gamification by domestic companies. The effectiveness of its implementation determines the need to structure its main elements (points and honors, social interaction, tasks and challenges, progression and levels, competition and leaderboards, personalization and customization, time limits, stories and narratives, virtual awards and incentives) and systematization of stages. This composition of elements will allow solving the problem of psychological insensitivity and excessive pressure on the consumer.

The results of the research indicate that for domestic companies the main stages of gamification implementation should be: evaluation of the existing loyalty program and analysis of the marketing environment; definition of goals, definition of the target audience; selection of gamification elements; determination of targeted actions for which benefits for consumers will be accrued; KPI setting; introduction of gamification elements into the loyalty program; performance evaluation and control; updating and supplementing gamification elements in the loyalty program. Such phasing will allow to rationally determining the components of the gamification process, which will generally increase interest in the corresponding loyalty program.

Further research will be aimed at developing a comprehensive approach to the implementation of gamified elements in order to form a positive attitude towards loyalty programs of enterprises and increase consumer involvement.

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**ОНОФРІЙЧУК Ірина**,  
PhD in Economics, Associate Professor,  
Associate Professor of the Department  
of Journalism and Advertising  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-2032-8578  
i.gamova@knute.edu.ua

### **DIFFUSION OF INNOVATIONS IN E-TRADE**

*In terms of market relations, the effectiveness of marketing systems is a decisive factor in the competitiveness of the enterprise. In today's world, enterprises cannot exist without the introduction of innovative processes into production or to existing goods or services. The application of innovations in marketing, which increases profitability by 10%, is extremely relevant today, so there is an urgent need to study the spread of innovations in e-trade, taking into account marketing management. The aim of the article is to determine the impact of marketing management on the spread of innovations in e-trade. The research was conducted using methods of theoretical generalization and grouping; formalization and synthesis; principles of scientific content analysis. In order to assess the significance of the influence of the components of the marketing complex on the spread of innovations in e-trade, for the reliability of the research results and the justified choice of strategies, the model of F. Bass was chosen, which is characterized by the universality of application and the classification of e-consumers into social groups: innovators, early followers, early majority, late majority and outsiders. Price and promotion (advertising) are found to affect the size of the e-trade market, taking into account the elasticity of demand and the growth dynamics of the e-trade market size. Innovations ensure the further development of successful business and maintaining competitive positions on the market, therefore demand forecasting is a priority area. Marketing mix management affects all key elements of the Bass model, including innovativeness and imitation rates, total e-trade market size, and diffusion rates. It was found that the price is the dominant factor in the diffusion of innovations, and the*

**ОНОФРІЙЧУК Ірина**,  
к. е. н., доцент, доцент  
кафедри журналістики та реклами  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-2032-8578  
i.gamova@knute.edu.ua

### **ДИФУЗІЯ ІННОВАЦІЙ В Е-ТОРГІВЛІ**

*В умовах ринкових відносин ефективність маркетингових систем є вирішальним фактором конкурентоспроможності підприємства. У сучасному світі підприємства не можуть існувати без впровадження інноваційних процесів у виробництво або до вже існуючих товарів або послуг. Надзвичайно актуальним на сьогодні є застосування інновацій у маркетингу, що підвищує рентабельність на 10%, відтак, виникає нагальна потреба дослідження поширення інновацій в е-торгівлі, враховуючи управління маркетингом. Метою статті є визначення впливу управління маркетингом на поширення інновацій в е-торгівлі. Дослідження проведено із застосуванням методів: теоретичного узагальнення та групування; формалізації та синтезу; принципів наукового контент-аналізу. З метою оцінки істотності впливу складових комплексу маркетингу на поширення інновацій в е-торгівлі для достовірності результатів дослідження та обґрунтованого вибору стратегій обрано модель Ф. Басса, що характеризується універсальністю застосування та класифікацією е-споживачів на соціальні групи: новатори, ранні послідовники, рання більшість, пізня більшість та аутсайтери. Ціна та просування (реклама) впливають на розмір ринку е-торгівлі, враховуючи еластичність попиту та динаміку зростання розміру ринку е-торгівлі. Інновації забезпечують подальший розвиток ведення успішного бізнесу та утримання конкурентних позицій на ринку, тому прогнозування попиту є пріоритетним напрямом. Управління комплексом маркетингу впливає на всі ключові елементи моделі Басса, включаючи коефіцієнти інноваційності та наслідування, загальний розмір ринку е-торгівлі та на швидкість дифузії. Виявлено,*



*effect of advertising is cumulative during the life cycle of the innovative product, which positively affects both the size of the market and the speed of diffusion of innovations.*

*Keywords:* innovations, marketing complex, diffusion of innovations.

*що ціна є домінуючим фактором поширення інновацій, а ефект від реклами є кумулятивним протягом життєвого циклу інноваційного продукту, що позитивно впливає як на розмір ринку, так і на швидкість розповсюдження інновацій.*

*Ключові слова:* інновації, комплекс маркетингу, дифузія інновацій.

JEL Classification: M30, M31, M37, F10.

### Introduction

In terms of market relations, the effectiveness of marketing systems is a decisive factor in the competitiveness of the enterprise. In today's world, enterprises cannot exist without the introduction of innovative processes into production or to existing goods or services. Bringing innovative products to the market is associated with significant risk, as it requires investment, powerful organization and coordination of actions. In particular, there is a need for forecasts of the speed and volume of sales of products, taking into account novelty (Barabanova, Bogatyrova, 2022, p.10). Modern methods of econometric forecasting of the product life cycle are impossible without the use of the most modern models of marketing forecasting, which can investigate the process of diffusion of innovative products based on the theory of complex systems. The first studies in this direction appeared in the 1960s and are still widely used today. These models represent the arrival of new products in the market and use the S-curve to characterize their diffusion. The class of diffusion models is very broad and well suited for practice. The diffusion of innovation in the market and the role of marketing management is the subject of research in many disciplines, including but not limited to marketing, economics, operations, statistics, and technology management. 50% of business profits are generated by products that are less than 5 years old, in particular the total demand for a new product and the shape of the demand curve influence the company's decisions regarding supply chain, production, inventory and marketing investments (Teach, Schwartz, 2003). Despite the fact that the approaches to modeling the diffusion of technology and innovative product are very similar, in recent years it is the study of modeling the demand for innovative products that dominates scientific research. After all, when launching and evaluating a project for the development of an innovative product, two unknowns have the greatest influence on its cost, and therefore on its attractiveness for investors: the amount of demand and risks. The more accurate the forecasting of these parameters, the more accurately the cost of the innovative project is predicted and the smaller its uncertainty. Considering this, the application of innovation in marketing, which increases profitability by 10%, is extremely relevant today, so there is an urgent need to study the spread of innovation in e-commerce, taking into account marketing management.

Modeling and forecasting the rate of spread or diffusion of innovations and innovative products has been one of the key topics of scientific discussions, since the first works of scientists Fourt A., Woodlock D. (1960), Mansfield E. (1961), Floyd A. (1962), Rogers E. (1962), Chou G. (1967) and Bass F. (1969). At the same time, Fourt and Bass operated with just such a concept as an innovative product.

The concept of "diffusion" was initially applied to the adoption of technological innovations in a social group (Stoneman, Battisti, 2010), (Melnikov, 2015), but over time this perspective of "technology implementation" regarding diffusion appeared in the influential theories of Rogers E. (1962), described in the framework of 5 factors affecting the diffusion of innovations: better product performance compared to alternative methods; compatibility with the client's values (for example, expensive wines should have corks, not screw caps); lack of complexity of the product; the possibility of convenient testing and transparent observation (for example, non-users can observe how others use the product) (Rogers, 1962).

In 1969, Bass F. published a model for predicting the first purchase of a new product category in the journal "Management Science" (Bass, 1969). Bass's theory has been described as a model of the diffusion of innovation because it hypothesizes that the increase in demand for a new product category is a function of how information about that product spreads through the social system.

In the 1970s, scientists began to expand models of the diffusion of innovations. Let's consider the main ones. Abernathy W., Townsend P. (1975) proposed a descriptive model of the spread of innovations based on scientific and technical achievements affecting labor productivity within the enterprise (Abernathy, Townsend, 1975). Dodson J.A. and Muller E. (1978) developed a modified exponential curve to model product growth and a logistic curve to model the increase in the total number of potential customers (Dodson, Muller, 1978).

Mahajan V. and Peterson R. (1979) put forward a model of the diffusion of innovations to durable goods, taking into account the change in market volume over a certain period of time (Mahajan, Peterson, 1979). The model proposed by Mahajan and Peterson is a general dynamic growth model, and the Dodson and Muller model is a mechanism for incorporating the advertising variable into the dynamic growth model.

In 1984, Asmus H. classified new product forecasting models into two types: trial repetition models (distinguishing the total volume of sales and trial purchases) and competitive structural models (estimating market share when introducing a new product) (Assmus, 1984).

The considered theory of Bass caused interest and the appearance of debatable issues regarding the fixed market potential and the possibilities of marketing influence on the diffusion of innovations.

The aim of the article is to determine the impact of marketing management on the spread of innovations in e-trade. The hypothesis

underlying this study is that price and advertising can alter the diffusion of innovations in e-trade.

The theoretical and methodological bases for writing the article were the works of foreign scientists on the issue of studying the diffusion of innovations. The methods of grouping, formalization and synthesis, the principle of scientific content analysis were used to select a model to forecast the spread of innovations.

The main part of the article is divided into sections, each of which reveals an aspect of the diffusion of innovations in e-trade through the influence of price and advertising. The chapters reveal the essence of innovation diffusion models, the influence of marketing on their diffusion, and changes in the volume of the e-trade market with changes in price and promotion. Each chapter succinctly presents the key findings, highlighting the dependence of the e-trade market on marketing, taking into account price elasticity. The research is the starting point in a series of articles aimed at highlighting the importance of forecasting demand for product innovations at the stage of their development.

### **1. The essence of innovation diffusion models**

Innovations can spread through social systems only through the perception of individual elements of the system: consumers, when new products enter the market. Rogers E. called this cognitive process innovation adaptation. The central place in the theory of diffusion of innovations is occupied by the modeling of the decision-making process regarding the adaptation of the elements of the social system due to the wide recognition of the idea of the spread of technological innovations as a social phenomenon, so this concept is adopted by strategists and marketers in different countries.

Over time, innovations spread through communication in social systems. In this regard, the following key elements of the theory can be identified:

Innovation is defined by E. Rogers as "an idea, practical activity or object that is perceived as something new by an individual."

Communication channels are means of transmitting messages from one person to another.

Adaptation time is the relative speed with which members of the social system adapt their innovations.

A social system is a set of interconnected communities that solve problems together to achieve a common goal (Bazhal, Bakushevych, Venesaar, 2015, p. 110–111).

The Bass model, widely known in the academic literature, has been chosen as one of the ten most influential works in the 50-year history

of management science (Ofek, 2005), (INFORMS ONLINE, 2004). Bass's generalized model studies the impact of such variables of the marketing mix as pricing and promotion (advertising) on the level of demand. In Bass's generalized model, changing these elements of the marketing mix shifts the demand curve, given the fact that market size is constant (Bass, Krishnamoorthy, Prasad, Sethi, 2004).

## **2. The influence of marketing on the diffusion of innovations**

To understand how the marketing mix affects consumer buying behavior and overall market opportunities, it is necessary to study the behavior of e-users. The basic assumption of the Bass model is that the acceptance of a new product category by members of a social system leads to an increase in unit sales. Assuming that Bass's hypothesis is correct, the question arises as to how the social system affects those who do not use the product and what factors influence them (Gurumurthy, Mukherjee, 2020; Chenavaz et al., 2020).

Bass F. assumed that the possibility of purchasing a new product (service, technology) by consumers is a linear function of the number of previous buyers. Bass interpreted the model's linear coefficients as a tendency toward innovation and imitation. The probability that someone will buy a new product at time  $t$  (assuming that the person has not bought this product before) is represented by the equation:

$$P+qF(t)=(f(t))/(1-F(t)), \quad (1)$$

where  $P$  – is the coefficient of initial perception of the innovation, often referred to as the "advertising effect";

$q$  – imitation coefficient, word-of-mouth effect;

$F(t)$  – is the cumulative distribution function (probability of accepting the product at time  $t$ );

$f(t)$  – is the probability function of a random variable;

$t$  – is the time of acceptance of a new product (adaptation).

Based on open statistical data of e-trade enterprises for 2021 (UkrStat, 2024), their estimated parameters are given, where  $p = 0.022$ ,  $q = 0.384$ ,  $m = 5\,628$  (the number of e-enterprises on the territory of Ukraine that are consumers of innovative products). The coefficient of initial adoption of innovations and the coefficient of imitation are constant values that are taken as a basis for new innovative products. Let's try to refute the assumption that the market potential is fixed and does not depend on the management of the marketing complex (*Figure 1*).



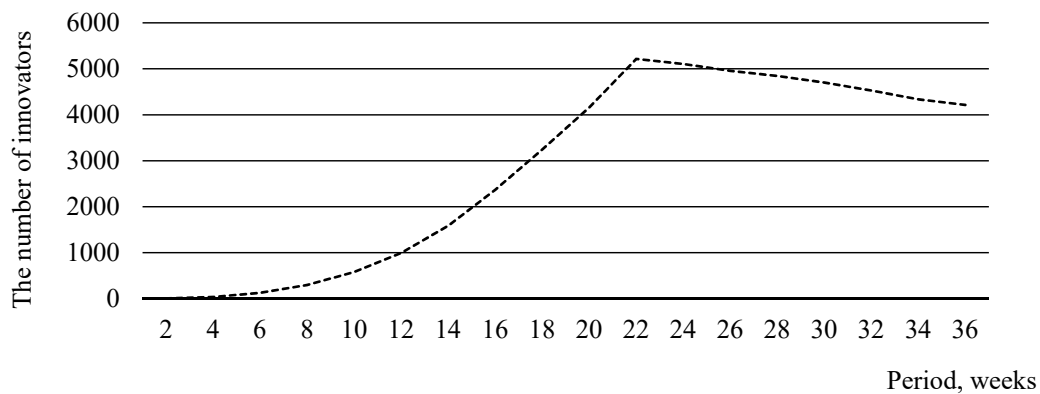


Figure 1. Number of innovators for new innovative products

Source: compiled by the author based on data (UkrStat, 2021).

So, from the maximum number of possible innovators (e-enterprises that are the first to introduce innovative products), the peak of demand for new innovative products fell on week 22 and reached the mark of 5 214 people, and then the dynamics began to decrease, which may mean that the attention of innovators switched to other products and saturation of the e-trade market, calculations were made based on the presented formula. Some scholars believe that e-trade refers to the innovation of enterprises to develop fragmented value chains without a system of industrial relations regardless of business models (Kharchenko, 2023).

### 3. Diffusion of innovations when price and promotion change

AnyLogic (2023) software was used to simulate the simplest innovation diffusion model. This software allows you to model system dynamics using simulation simulations. In the simulation model, there are two stock variables and one flow variable, which will form the basis of the Bass model. In addition, three parameters and two dynamic variables have been added. The same model can be used to test the effect of prices and advertising on the market volume of innovative products. So, let’s consider the dynamics of demand for new innovative products according to the cumulative distribution (Figure 2).

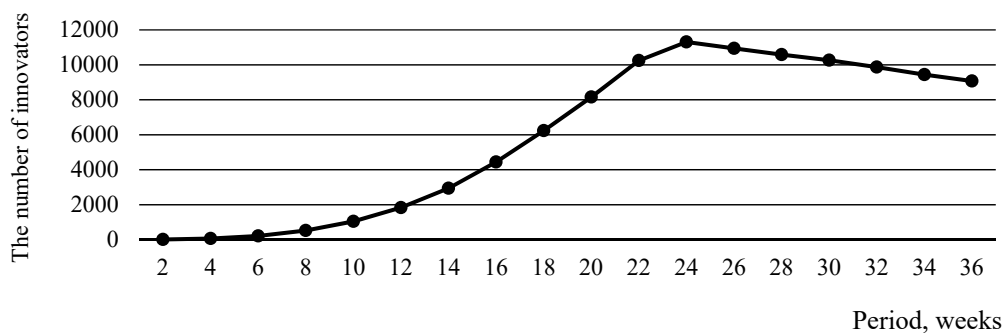


Figure 2. Number of cumulative innovators for new innovative products

Source: compiled by the author based on data (UkrStat, 2021).

Bass’s model suggests that the process of a new idea depends on two factors: the coefficient of innovation and the coefficient of imitation. Pricing affects the speed of diffusion (innovation rate, imitation rate) and overall market potential. The effects of pricing may differ for durable and non-durable goods, for expensive and inexpensive goods, but the general effect of pricing is to increase diffusion and market opportunities (Boehner, Gold 2012).

We will try to identify the influence of such components of the marketing complex as: price and promotion (advertising) on the size of the e-trade market.

As a result, we will check the influence of low, medium and high values both on price elasticity and on advertising values. We propose the following multiplicative expression for market potential, where  $m$  is a function of price ( $P$ ) and advertising ( $A$ ):

$$m = sP^{-e}A^f, \tag{2}$$

- where  $m$  – is the market potential (size);
- $s$  – scaling factor;
- $P$  – price;
- $A$  – advertising expenses;
- $e$  – price sensitivity (elasticity) coefficient;
- $f$  – is the coefficient of sensitivity (elasticity) of advertising.

The functional form for the market potential was chosen because it is the standard Cobb-Douglas function, which is widely used in economic research due to its robust stability properties and ease of parameter estimation. Coefficient  $e$  is the price elasticity of demand; coefficient  $f$  is advertising elasticity (*Table*).

*Table*

Parameters of marketing complex management  
in the Cobb-Douglas demand function

Parameters	Sensitivity coefficient		
	low	medium	high
$e$	0.35	1.00	3.00
$f$	0.25	0.50	0.75

*Source:* compiled by the author from (Cobb, Douglas, 1928).

In *Figure 3*, the price and advertising levels are normalized for ease of illustration and comparison, where an index value of 100 represents the average value.

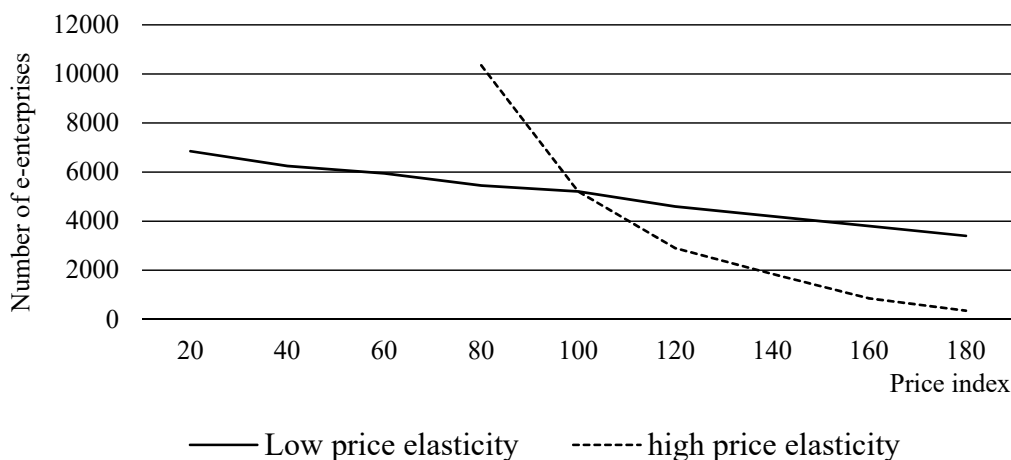


Figure 3. The influence of price on the size of the e-trade market

Source: developed by the author based on data (UkrStat, 2021).

A low price elasticity of demand is a relatively more direct trend and shows the effect of price on the overall size of the e-trade market, which is growing much faster. For example, for a price index of 100, the market size is 5 213 for both curves. If the price falls to 80, the size of the highly elastic demand market doubles to about 10 350 (Figure 4).

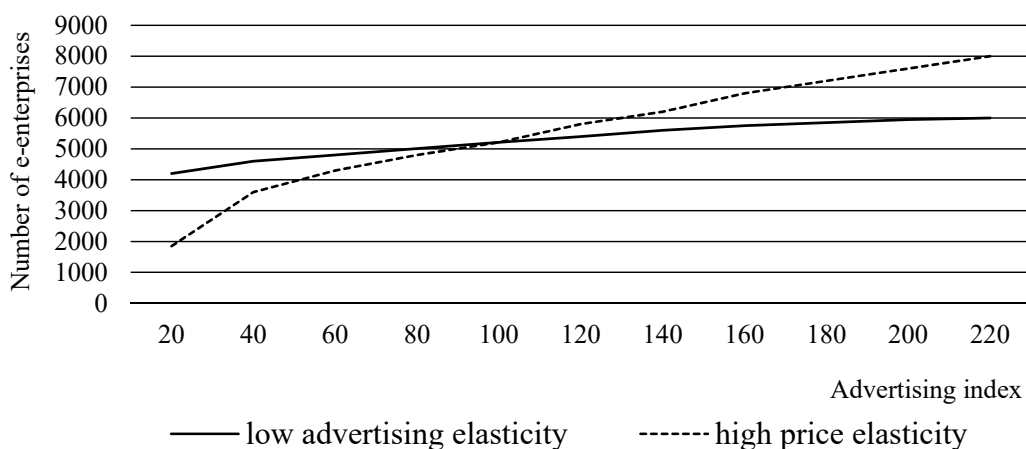


Figure 4. The impact of advertising on the size of the e-commerce market

Source: compiled by the author based on data (UkrStat, 2021).

The impact of advertising on the total size of the e-trade market grows much faster, given the low advertising elasticity. Also, the returns to advertising diminish as advertising increases, so the low-elasticity demand curve becomes much steeper (more vertical), indicating that the increase in market demand eventually becomes very small as advertising increases. For example, with an advertising index of 100, the market size is approximately 5 213 for both curves. If advertising increases to 200, the size of the

e-trade market is highly elastic, demand nearly doubles to about 8 000, while with low price elasticity, the market increases to 6,000. In general, the effect of advertising is cumulative over the life cycle of the innovative product, which positively affects both the size of the market and the speed of diffusion of innovations.

### Conclusions

Innovations ensure the further development of successful business and maintaining competitive positions on the market, therefore demand forecasting is a priority area. Marketing mix management affects all key elements of the Bass model, including innovativeness and imitation rates, total e-trade market size, and diffusion rates. It was found that price is the dominant factor in the diffusion of innovations, and advertising has a cumulative effect and affects not only the size of the e-trade market, but also the speed of diffusion of innovations. The results of the research show that the management of the marketing mix (price and promotion) affects all the key elements of the Bass model, taking into account the coefficients of innovation and imitation, the total size of the e-trade market and the speed of diffusion, which will allow qualitative forecasting of the demand of e-users and simplify the choice of business – strategies.

Prospects for further research should be to study the significance of the influence of innovative marketing management (lean management, quality management, reengineering, change management, benchmarking, business time management, effective customer service, computer integrated production, innovation provision) on the diffusion of innovations.

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**KONONENKO Ganna,**

PhD in Economics, Associate Professor,  
Associate Professor of the Department of Marketing  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-4033-8538

h.kononenko@knu.edu.ua

## THE FUNCTIONAL BASIS OF AGRICULTURAL MARKETING

*The article is examined key principles, functions, systems and methods that allow ensuring market orientation of the production and sales activities of the enterprise, where effective management decisions are based not only on the capabilities of the manufacturer, but also primarily the needs of the agro-industrial market, existing and potential needs of consumers and buyers of agricultural products. It was the first time to propose a definition of the functional basis of agricultural marketing – it is a system of organizational, economic, technical, financial and commercial functions of enterprises, united by a synergistic effect, and aimed at optimal and adaptive satisfaction of consumer demand for agricultural products and food security. It has been established that agricultural marketing can be implemented in mechanisms of mutually beneficial exchange between various market subjects, create conditions for identifying consumer requirements and determining the possibilities of their satisfaction, which will provide an opportunity to study the agricultural market and forecast its dynamics, form demand for the products of this market and stimulate its distribution. The main aim of the research is to offer the author's interpretation of the concept of "agricultural marketing" and to determine of the functional basis of agricultural marketing in the conditions of martial law. The main hypothesis of the research is to prove the effectiveness of the functional basis of agricultural marketing in the conditions of a full-scale invasion of the Russian Federation on the territory of Ukraine. It has been proven that for effective planning and management of agrarian business of the national economy in the conditions of a full-scale invasion, as well as taking into account the existing conditions (alienation of territories, damage and occupation of part of the land),*

**КОНОНЕНКО Ганна,**

к. е. н., доцент,  
доцент кафедри маркетингу  
Державного торговельно-економічного університету  
вул. Києво, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-4033-8538

h.kononenko@knu.edu.ua

## ФУНКЦІОНАЛЬНИЙ БАЗИС АГРАРНОГО МАРКЕТИНГУ

*У статті досліджено ключові принципи, функції, системи та методи, що дають змогу забезпечити ринкову орієнтацію виробничо-збутової діяльності підприємства, де в основі прийняття ефективних управлінських рішень не тільки можливості виробника, а насамперед потреби агропромислового ринку, існуючі та потенційні потреби споживачів і покупців сільськогосподарської продукції. Вперше запропоновано визначення функціонального базису аграрного маркетингу – це система організаційно-економічних, технічних, фінансових та комерційних функціоналів підприємств, об'єднаних синергічним ефектом і спрямованих на оптимальне та адаптивне задоволення попиту споживачів на сільськогосподарські продукти та продовольчу безпеку. Встановлено, що аграрний маркетинг можна імплементувати в механізми взаємовигідного обміну між різними суб'єктами ринку, створити умови для виявлення вимог споживачів та визначення можливостей їх задоволення, що надасть можливість вивчення сільськогосподарського ринку та прогнозування його динаміки, формування попиту та стимулювання його розподілу. Дослідження має за мету запропонувати авторське трактування поняття "аграрний маркетинг" та визначення його функціонального базису в умовах воєнного стану. Основною гіпотезою дослідження є доведення ефективності функціонального базису аграрного маркетингу в умовах повномасштабного вторгнення РФ на територію України. Доведено, що для ефективного планування та управління аграрним бізнесом національної економіки в умовах повномасштабного вторгнення, а також з врахуванням умов, що склалися (відчуження території, пошкодження та окупація частини земель), підприємці змушені ефективно та*



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*entrepreneurs are forced to effectively and quickly implement agricultural marketing in its economic activity for researching consumer needs, forecasting demand, studying assortment policy and developing a production program, studying channels of goods movement and organizing safe sales.*

*Keywords:* agricultural marketing, functional basis, martial law, mechanism, system, concept.

*швидко імплементувати агромаркетинг у свою господарську діяльність задля дослідження потреб споживачів, прогнозування попиту, вивчення асортиментної політики, розроблення виробничої програми, вивчення каналів товароруку та організації безпечного збуту.*

*Ключові слова:* аграрний маркетинг, функціональний базис, воєнний стан, механізм, система, концепція.

**JEL Classification:** M30, M31, Q13.

### **Introduction**

For effective planning and management of agrarian business of the national economy in the conditions of a full-scale invasion of the Russian Federation on the territory of sovereign Ukraine, as well as taking into account the existing conditions (alienation of territories, damage and occupation of part of the land), agricultural entrepreneurs are forced to effectively and quickly implement agricultural marketing in its economic activity for researching consumer needs, forecasting demand, studying assortment policy and developing a production program, studying channels of goods movement and organizing safe sales (Bahorka, Kadyrus, 2023), (Beleviat, 2021).

The modern concept of agro marketing is that all activities of the enterprise are based on knowledge of consumer demand and its change in the future. The functional basis of agricultural marketing puts the production of agricultural products in a functional dependence on demand and requires the production of agricultural products in the range and quantity needed by the consumer. That is why agricultural marketing directs its efforts to the creation of effective sales channels and comprehensive formation of demand (Burova, 2012), (Volkova, 2012).

Bagorka, Kadyrus, Burova and Volkov paid attention to the problems of the formation of the marketing system of an agricultural enterprise. The main issues of agricultural marketing were investigated in the scientific works of Belevyat (2021); Kvyatko, Vitkovsky (2019); Kondratyuk (2020); Kuzkina and Pravotorov (2015). Peculiarities and mechanisms of the formation and functioning of regional agricultural marketing systems were studied in the works of Lagodienko V., Basyurkina N., Turlenko N. (2020), Morokhova V., Boyko O., Bulavchyk M. (2019) and Solovyov I. (2010) The issues of the development and functioning of agricultural enterprises remain in the circle of scientific research by the following authors: Bondarchuk L., Mazur N., Tsalko T., Kovalenko M., Zaritska N. and Puzyryova P. (2023). Among the foreign authors, scientific work in the field of formation and development of agricultural marketing belongs to Davis J. H.A, and Gilbert R.A. (1957), who first proposed the term agribusiness marketing.



Also, research on the issue of agromarketing was devoted to the scientific works of Branson R.E. and Norvell D.G. (1983). However, the functional basis of agricultural marketing is still not sufficiently disclosed, especially in conditions of martial law.

In modern conditions, with a full-scale invasion of the territory of sovereign Ukraine, the popularity of agrarian marketing among agricultural enterprises is growing significantly, but its practical implementation is extremely insufficient, and sometimes, due to the use of only certain elements, it is ineffective. Therefore, there is an objective need to establish a full functional basis of agricultural marketing in order to meet the needs of consumers (Bondarchuk and all, 2023).

Agricultural marketing is able to offer mechanisms of mutually beneficial exchange between various market subjects, create conditions for identifying consumer requirements and determining the possibilities of their satisfaction, which will provide an opportunity to study the agricultural market and forecast its dynamics, form demand for the products of this market and stimulate its distribution.

Thus, the main aim of the research is to offer the author's interpretation of the concept of agrarian marketing and to determine the functional basis of agrarian marketing in the conditions of martial law.

The main hypothesis of the research is to prove the effectiveness of the functional basis of agricultural marketing in the conditions of a full-scale invasion of the Russian Federation on the territory of Ukraine.

The following methods were used to prove the main hypothesis: epistemological analysis, to study the genesis of the concept of "agrarian marketing"; theoretical generalization, analysis, synthesis, induction and deduction, to identify general patterns of the functional base of agro-industrial marketing; structural and logical analysis, to study the dynamics and structure of indicators of agriculture; grouping and classification, to systematize factors affecting agricultural marketing; tabular and graphic ones for a visual representation of the analytical data and provisions of the study. The information base of the research consists of regulatory and legal acts, statistical and analytical materials of the State Statistics Service of Ukraine, scientific periodicals, monographs, the results of scientific research by domestic and foreign scientists in the field of agricultural marketing, reference and periodical literature, special scientific and other sources.

In the main part of the article, the peculiarities of the interpretation of the concept of agricultural marketing will be investigated and a number of important functions will be given that will ensure effective production and satisfaction of consumer needs; the functional basis of modern agricultural marketing is presented, taking into account aspects aimed at improving production and sale of agricultural products during martial law; analysis of the activity of the agrarian sector in Ukraine during a full-scale war will allow

to assess all the problems and opportunities for the further development of agrarian marketing.

### 1. Features and functions of marketing in the agricultural sector

The prerequisites for the emergence of agricultural marketing in Ukraine are related to the transition to a market economy and the need to navigate the situation on the market in terms of effective positioning of agricultural enterprises on it.

There are many interpretations of agricultural marketing, but the general basis is that agricultural marketing is aimed at satisfying the needs of consumers, ensuring the competitiveness of agro-industrial production and each of its branches, taking into account the regularities of the functioning and development of the market for agricultural products and food. Also, agricultural marketing can be interpreted as an activity aimed at implementing the concept of marketing at all stages of reproduction of agricultural products with the priority of maximum application of the self-regulating market mechanism. The integration of the functional basis of marketing (its tools, methods, methods, etc.) into the agrarian environment at all stages of reproduction of agricultural products will make it possible to use the mechanism of self-regulation of the market as much as possible, because any economic decision must be made based on the analysis of the market situation and the trends of its change, and also taking into account the possible reaction of the market to the adopted decision. It is possible to fully realize this task in the agricultural sector only if there is a conscious need to apply agro marketing both on the part of the subjects of the industry and on the part of the state (Kuzkina, Pravotorov, 2015).

Agricultural marketing performs a number of important functions for effective production management and ensuring satisfaction of consumer needs. The main functions of agricultural marketing include the following (*Figure 1*).

These functions help agricultural enterprises to effectively interact with the market and ensure the successful sale of their products (Lahodiienko and all, 2020).

Today, most enterprises of agro-industrial production face many problems that exist not only in the domestic, but also in foreign markets (Ponomarenko, 2017):

- imperfection of the management structure;
- inefficient pricing system;
- impossibility to identify real consumer demand;
- reluctance to organize a high-quality communication, sales, product policy;
- inability to develop a clear strategy for the development of the enterprise.

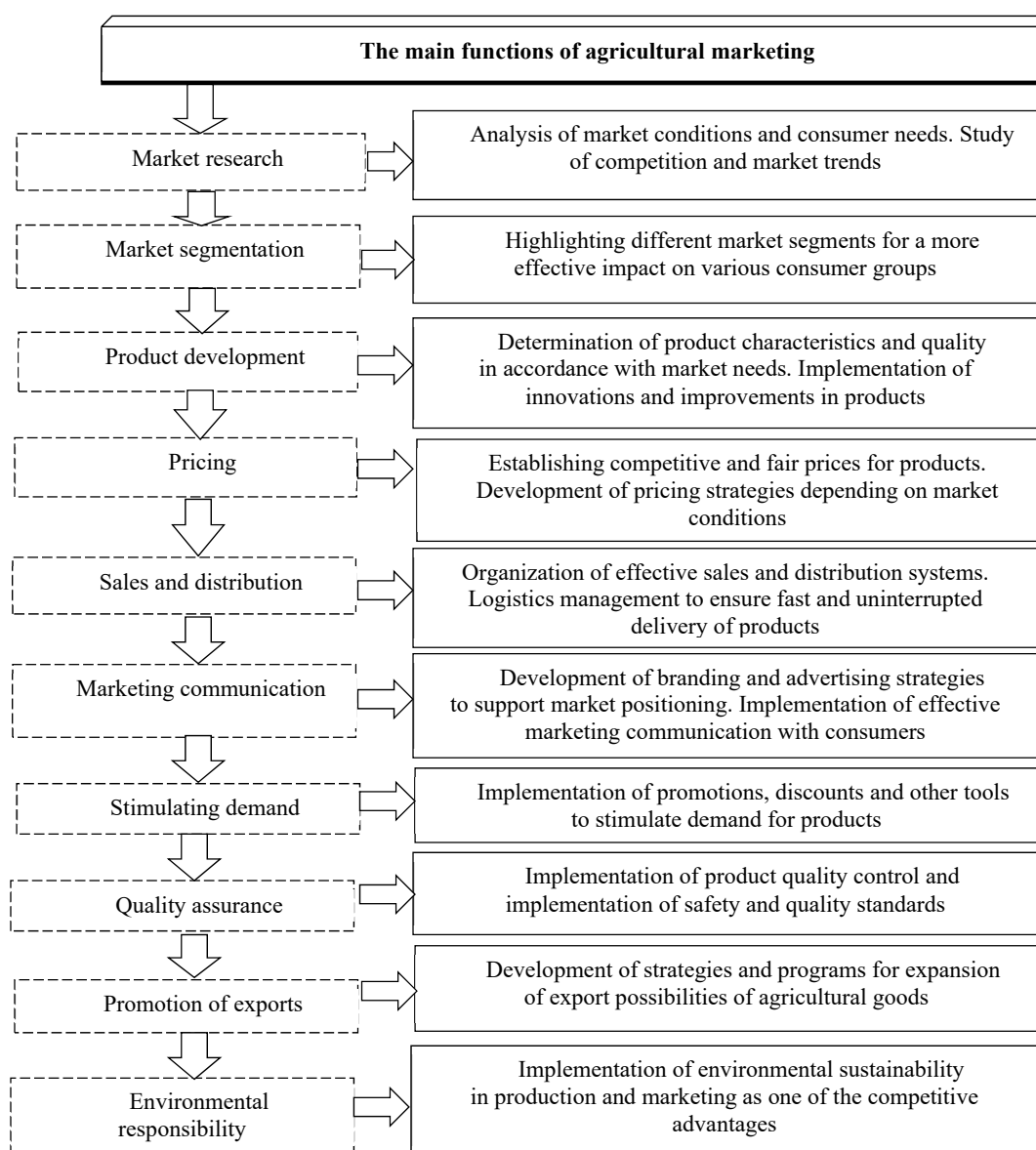


Figure 1. The main functions of agricultural marketing in today’s conditions

Source: summarized by the author based on (Morokhova and all, 2019).

The peculiarities of marketing in the agricultural sector are closely related to the specifics of agricultural production, which is characterized by the diversity of the range of products and market participants, as well as the diversity of organizational forms of management. The purpose of the operation of an agro-industrial enterprise must be consistent with the performance of a set of marketing functions, the essence of which is as follows:

- firstly, orientation to the sales market, which involves the study of its objects and subjects, that is, consumers, competitors, information about the market situation and goods;

- secondly, market influence through its study and analysis, adaptation to market conditions;
- thirdly, the organization of the system of sales of competitive products, collection and processing of information;
- fourthly, orientation to achieve long-term commercial success, which involves the subordination of short-term interests to the goals of long-term stable advantages over the market (Soloviov, 2010).

At the same time, marketing functions are based on a set of principles such as:

- studying the state and dynamics of consumer demand and using the obtained data in the process of developing and making business decisions;
- maximum adaptation of production to market requirements in order to increase the efficiency of the enterprise's functioning, the criterion of which is the general indicator of economic activity – profit;
- influencing the market and consumer demand through means such as advertising, promotion, sales promotion and personal selling.

That is, all the above marketing functions and principles of agro-industrial enterprises provide an opportunity to form the functional basis of agricultural marketing in modern conditions, which will lead to improvement and more effective functioning of enterprises in the agricultural sector of Ukraine.

## **2. Functional basis of agricultural marketing in modern conditions**

Currently, the country's agro-industrial enterprises use separate functions and strategies of marketing activities, which give a sufficient effect. The effective functioning of the entire agro-industrial complex depends on how correctly the agricultural marketing system is built, but the existing economic situation does not allow most producers to apply the entire marketing system.

Therefore, the main problems hindering the development of agricultural marketing in Ukraine are mentioned in *Figure 2*.

Agricultural marketing is a set of strategies and actions aimed at ensuring the effective sale of agricultural products. It covers all stages from cultivation to delivery of products to the market. The agricultural sector has its own characteristics, such as dependence on natural conditions, seasonality and high competition. Therefore, agricultural marketing includes the study of market conditions, the development of effective pricing strategies, product promotion and product quality assurance.

Agricultural marketing is a specific branch of marketing, which is determined by the peculiarities of the agricultural sector. We will present the main updated principles of agricultural marketing, taking into account modern conditions (*Table 1*). These principles reflect the main aspects that are important for successful agricultural marketing.

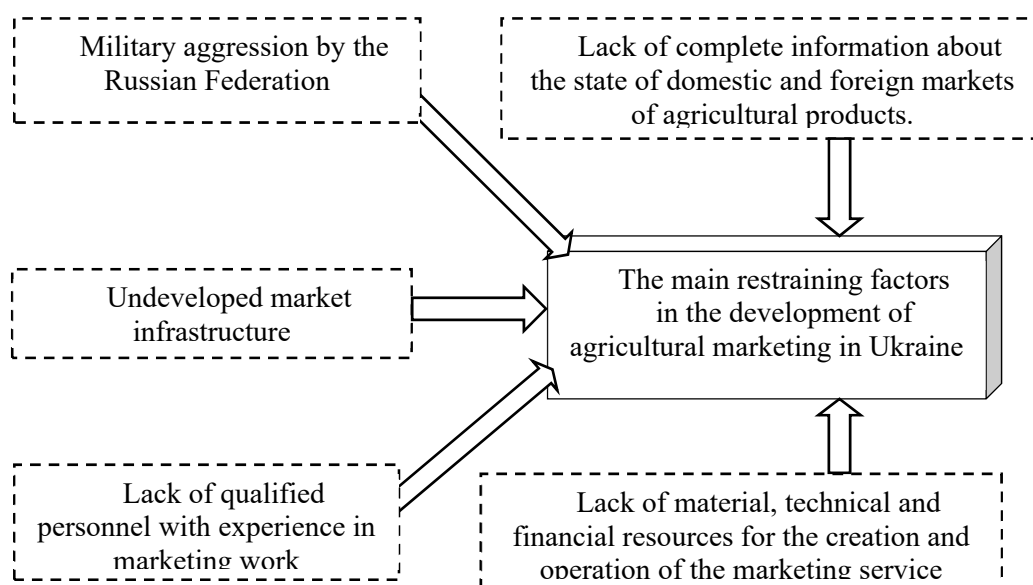


Figure 2. The main obstacles to the development of agricultural marketing in Ukraine

Source: built by the author based on (Ishchejkin and all, 2022).

Table 1

Basic updated principles of agricultural marketing

Principle	Subprinciple	Characteristics
Market orientation	Understanding consumer needs	Research and understanding of the needs and wishes of the target audience is important for successful marketing in the agricultural sector
	Market segmentation	Identifying different market segments to ensure an effective strategy for attracting customers
Product strategy	product quality	High product quality is a key factor in agricultural marketing
	Product innovations	Application of the latest technologies and methods to improve the quality and competitiveness of products
Pricing	Determination of fair price	Taking into account production costs, competitiveness and price policy in the market
	Flexible prices	Adaptation to changes in the market and production costs
Sales and distribution	Efficient logistics	Ensuring fast and efficient delivery of products to consumers
	Creation of sales channels	Development of effective channels for product sales
Relations with consumers	Branding and marketing communication	Building a strong brand and effective communication with consumers to create a positive impression about the products
Legal and environmental responsibility	Compliance with laws and standards	The importance of compliance with legislation and quality standards
	Environmental sustainability	Paying attention to environmental issues and implementing practices aimed at preserving the environment

Source: systematized by the author based on (Olshanska, Puzyrova, 2023).

In order to establish the essence and meaning of the functional basis of agrarian marketing, it is necessary to more thoroughly investigate its main components: functions of agrarian marketing; updated principles of agricultural marketing under martial law; agricultural marketing mechanism; systems and methods of agricultural marketing. Because only a complete and synergistic combination of these components will help to optimize consumer demand for agricultural products and ensure food security.

The functional basis of the modern agricultural marketing mechanism takes into account various aspects aimed at improving the production, sale and consumption of agricultural products. Here are the main key elements of this mechanism.

*Market research in wartime conditions* – analysis of supply and demand in the market, study of consumer trends, competitiveness and other factors that may affect agricultural products in wartime.

*Marketing strategy* – development of effective strategies for promoting products to the market, taking into account the characteristics of the target audience, competitive advantages and other factors.

*Digital technologies* – the use of information technologies, websites, social networks and other online channels to attract consumers, create a brand and conduct effective advertising.

*Production management* – use of modern production management methods to optimize processes, improve product quality and reduce costs.

*Sustainable production* – paying attention to sustainability of production, application of environmentally friendly methods and responsible use of resources.

*Supply and logistics systems* – improvement of the supply chain, ensuring efficient and timely transportation of products from the producer to the consumer.

*Brand development* – creation and management of a brand that reflects the values and quality of products, helps to build consumer trust.

These elements make it possible to create a comprehensive approach to agricultural marketing aimed at achieving efficiency and sustainable development in agriculture (Puzyrova and all, 2021).

In *Figure 3* presents the functional basis of agricultural production marketing taking into account the military situation in Ukraine.

Also, when studying the functional basis of agro marketing, systems (*Table 2*) and methods (*Table 3*) of agricultural marketing, which combine various elements and tools for effective management of agricultural products, sales and consumption, become important. The following are identified among the main key systems of agricultural marketing.

These systems interact with each other, creating a comprehensive approach to agricultural marketing that promotes efficient production and successful market entry of products. Agro marketing uses various methods to ensure successful production and sale of agricultural products (*Table 3*).

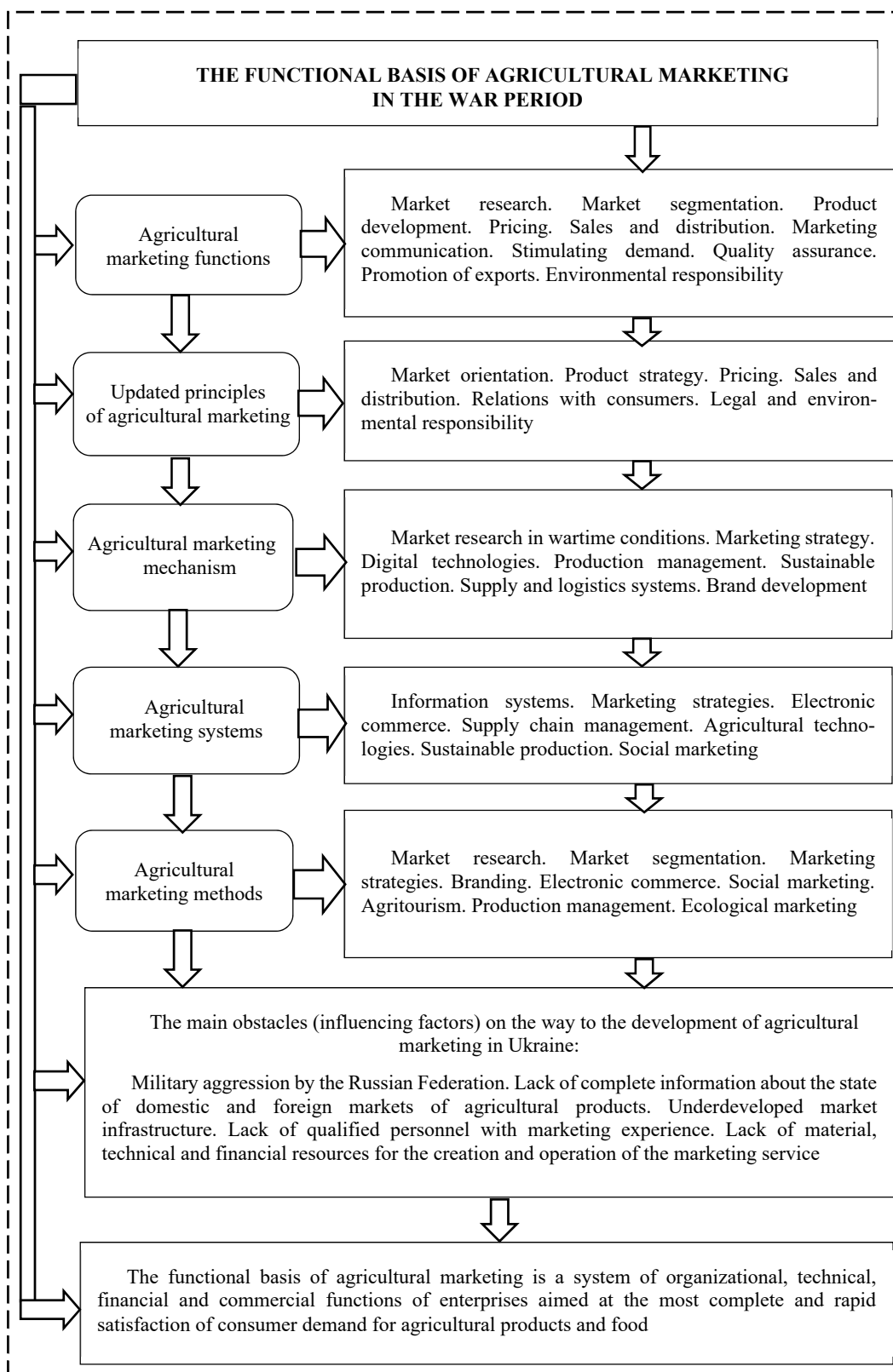


Figure 3. The functional basis of agricultural marketing in the war period

Source: compiled by the author based on (Ishchejkin and all, 2022; Puzyrova and all, 2021).

*Table 2*

## The main key systems of agricultural marketing

System	Characteristics
Information systems	Collection and analysis of data on the market, production and consumption of agricultural products. Use of modern technologies for collecting and processing information
Marketing strategies	Development and implementation of strategies for selling and promoting products to the market. Brand and reputation management
Electronic commerce	Use of online platforms for trade and interaction with customers. Development of electronic ordering and delivery systems
Supply chain management	Optimization of logistics and product transportation. Maintaining an efficient supply chain from producer to consumer
Agricultural technologies	Use of modern agricultural technologies to increase production and product quality. Production monitoring using sensors and automated systems
Sustainable production	Implementation of environmentally friendly production methods. Support for sustainable development and an environmentally responsible approach
Social marketing	Interaction with the public and consumers through social networks and other channels. Attracting consumers to participate in agricultural support programs

*Source:* systematized by the author based on (Bahorka, & Kadyrus, 2023; Burova, 2012).

*Table 3*

## Basic methods of agricultural marketing

Method	Characteristics
Market research	Analysis of supply and demand on the market. Study of competition and identification of key trends
Market segmentation	Determination of target audiences for products. Development of strategies for each segment
Marketing strategies	Development and implementation of sales and advertising strategies. Use of innovative methods of market promotion
Branding	Creating and maintaining a brand for product positioning. Ensuring brand compliance with values and quality
Electronic commerce	Use of online platforms for sales and marketing of products. Development of effective websites and electronic ordering systems
Social marketing	Interaction with the public through social networks and other channels. Attracting consumers to participate in agricultural support programs
Agritourism	Development of agritourism to attract tourists and additional income. Use of effective management methods to optimize production and costs
Production management	Interaction with consumers through direct farm visits and events. Ensuring product quality and safety
Environmental marketing	Use of environmentally friendly production methods. Focusing on a sustainable and environmentally responsible approach

*Source:* systematized by the author based on (Kviatko, & Vitkovskiy, 2019; Soloviov, 2010).

These methods help agricultural producers to maximize production, attract consumers, and effectively market their products in the face of military aggression.

So, on the basis of the conducted theoretical research, we can propose the definition of the functional basis of agricultural marketing as a system of



organizational, economic, technical, financial and commercial functions of enterprises, united by a synergistic effect, and aimed at optimizing consumer demand for agricultural products and ensuring food security.

### 3. Analysis of the agricultural sector activity during the martial law

Assessing the real state of the agricultural sector of the economy, it should be noted that in 2022 the agricultural sector suffered significant losses as a result of the full-scale war of the Russian Federation against Ukraine. According to the assessment of the Ministry of Agrarian Policy of Ukraine and the Kyiv School of Economics, the total amount of losses caused to the agricultural industry as a result of the large-scale Russian invasion of Ukraine reached USD 6.6 billion as of September 15, 2022. At the same time, indirect losses in the agricultural economy of Ukraine due to a decrease in production, the blockade of ports and an increase in production costs are estimated at USD 34.25 billion (in particular, in crop production due to a decrease in production – USD 11.2 billion; in livestock production – USD 348.7 million; losses due to a reduction in the production of winter crops are estimated at USD 3 billion; in perennial crops – at USD 322 million; losses due to disruption of logistics amount to USD 18.5 billion).

The total number of economic entities of the agro-industrial complex that suffered losses as a result of the armed aggression of the Russian Federation is 2 653 units (arable land decreased by 1.9 million hectares, perennial plantations decreased by 9 thousand hectares). In addition, the territory of about 1 million hectares needs to be examined for the presence of explosive objects (*Figure 4–6*).

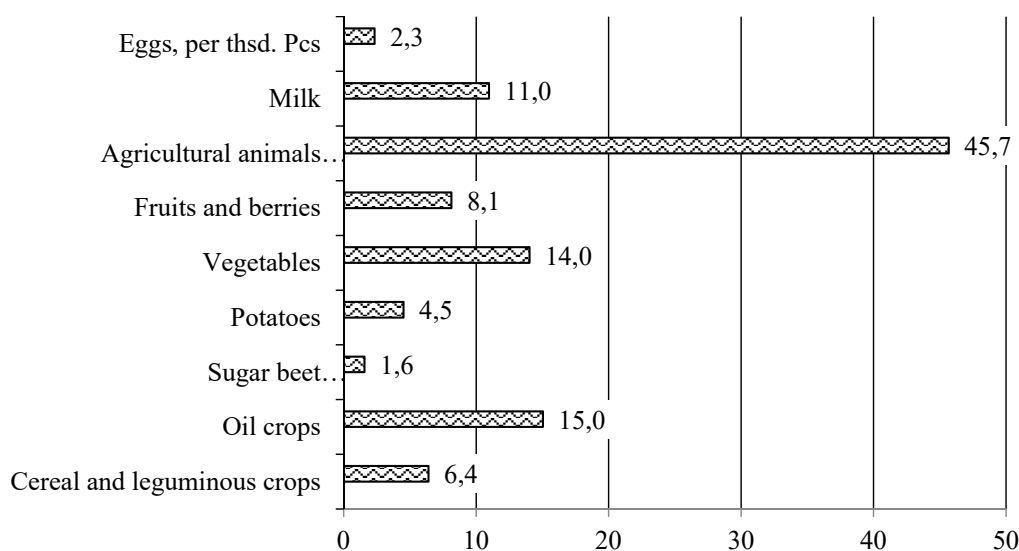


Figure 4. Average sale prices for agricultural products sold by enterprises in 2022 (UAH thousand for one ton)

Source: compiled by the author based on (State Statistics Service of Ukraine, n.d.).

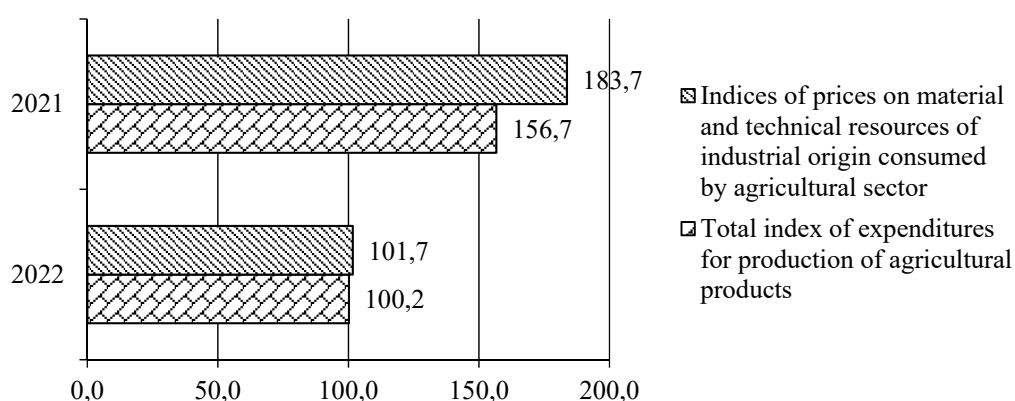


Figure 5. Total index of expenditures for production of agricultural products<sup>1</sup> in 2022

Source: compiled by the author based on (State Statistics Service of Ukraine, n.d.).

At the same time, in 2022–2023, in the conditions of a full-scale war, the agro-industrial complex of Ukraine is remarkably stable and still remains one of the guarantors of ensuring food security in the world. In total, in 11 months of 2022, Ukraine exported 50.9 million tons of agricultural and food industry products for a total amount of USD 21.1 billion. Adaptation of the agrarian policy of Ukraine to the relevant provisions of the Common Agrarian Policy of the EU, bringing domestic legislation in this area into compliance with the requirements related to Ukraine’s accession to the EU.

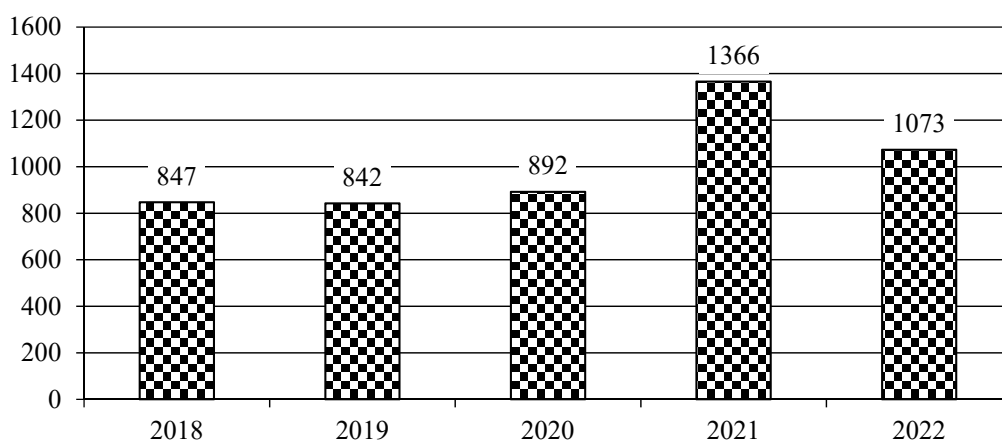


Figure 6. Output of agricultural products for 2018–2022 (UAH billion)

Source: compiled by the author based on (State Statistics Service of Ukraine, n.d.).

At the same time, legislative and regulatory acts, which will be difficult for farmers to implement in war conditions, should be adopted with a delayed implementation period – after the end of martial law (and in some cases – with the introduction of an adaptation period of the effect of certain provisions after its end).

### Conclusions

Therefore, the set of researched and used data, their evaluation and analysis, complex generalization and appropriate systematization using general and special methods, united by a common theoretical base, methodology and research algorithm, made it possible to ensure scientific reliability, adequate interpretation of work results, reasonableness and argumentation of practical conclusions. Thus, the author was the first to propose the following definition of the functional basis of agricultural marketing as: it is a system of organizational, economic, technical, financial and commercial functions of enterprises, united by a synergistic effect, and aimed at optimal and adaptive satisfaction of consumer demand for agricultural products and food security.

It has been proven that agricultural marketing is a management concept that ensures market orientation of the production and sales activities of the enterprise, where effective management decisions are based not only on the capabilities of the producer, but primarily on the needs of the agro-industrial market, existing and potential needs of consumers and buyers of agricultural products.

As a result of the conducted research, we can claim that the main hypothesis of the research has been confirmed, since only a correctly built functionality of agricultural marketing and full compliance with the principles, functions, mechanism, systems and methods of agricultural marketing will ensure research of consumer needs, demand forecasting, and ensuring safe sales in wartime conditions.

Among the prospects for further research, it is possible to single out the further development of agricultural marketing, taking into account the experience of the leading countries of the world and with an orientation towards the EU, which will provide an opportunity for all stakeholders to participate in the process of ensuring food security and increase state support in terms of giving freedom to farmers to meet the needs of the population in agricultural products.

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**SHULGA Nataliya,**  
Doctor of Science (Economics), Professor, Head of  
the Department of Banking  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-2010-5884  
n.shulga@knu.edu.ua

**SAVLUK Serhii,**  
Doctor of Science (Economics), Associate Professor  
of the Department of Banking State University of  
Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-4709-6607  
s.savluk@knu.edu.ua

## "ENVIRONMENTAL" VECTOR OF BANKING REGULATION: THE EU MODEL

*Ukraine is on the verge of joining the European Union, which requires, on the one hand, the transformation of the regulation of banking activity in accordance with the standards adopted by it, and on the other hand, the implementation of the concept of sustainable financing in all spheres of public life, including the banking system. Recently, a stable trend has emerged in the countries of the Euro zone, which consists in liaison of the mechanism of regulation of banks' activity to the goals of sustainable financing, which makes it necessary to do changes to the existing standard of requirements for the capital of credit institutions (CI) and to regulate its adequacy. The mentioned metamorphosis has also spread to the banks of Ukraine, which are only taking the first steps in the direction of introducing the key principles of sustainable financing into their practical work. Along with the above, in the near future the domestic banking sector may face the problem of "greening" the mechanism of regulation of their activity according to European standards, directives, regulations and guidelines. Solving this extremely difficult problem will require the*

**ШУЛЬГА Наталія,**  
д. е. н., професор, завідувач кафедри  
банківської справи Державного торговельно-  
економічного університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-2010-5884  
n.shulga@knu.edu.ua

**САВЛУК Сергій,**  
д. е. н., доцент кафедри банківської справи  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-4709-6607  
s.savluk@knu.edu.ua

## "ЕКОЛОГІЧНИЙ" ВЕКТОР РЕГУЛЮВАННЯ ДІЯЛЬНОСТІ БАНКІВ: МОДЕЛЬ ЄС

*Україна знаходиться напередодні вступу до Європейського Союзу, що вимагає, з одного боку, трансформації вимог до регулювання банківської діяльності відповідно до прийнятих ним стандартів, а з іншого – реалізації концепції сталого фінансування в усіх сферах суспільного життя, включаючи банківську систему. Останнім часом у країнах Єврозони спостерігається чітка тенденція з приведення механізму регулювання діяльності банків до цілей сталого фінансування, що потребує внесення змін в існуючий стандарт вимог до капіталу кредитних інститутів (КІ) та регулювання його достатності. Це поширилося також на банки України, які роблять лише перші кроки у напрямку запровадження ключових засад сталого фінансування у свою практичну роботу. Поряд із зазначеним, перед вітчизняним банківським сектором найближчим часом може постати проблема щодо "екологізації" механізму регулювання їх діяльності згідно з європейськими стандартами, директивами, регламентами та настановами. Вирішення цієї надзвичайно складної проблеми вимагатиме від НБУ прийняття рішучих та*



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*NBU to take decisive and, at the same time, well-balanced measures, which would not hinder the active development of investment and lending in a sustainable economy. The aim of the study is to reveal the key provisions of the regulation of banks in the EU, to determine the vectors of their change in accordance with the goals of sustainable financing, as well as to develop recommendations for the banking sector of Ukraine. In this research, methods of scientific knowledge were used, in particular: observation, theoretical generalization, abstraction, comparison, analysis and synthesis, induction and deduction. The main provisions of the Directive on capital requirements and regulation of capital adequacy of banks in the European Union are outlined. The essence of harmonious finance and the stages of its transformation in EU countries are revealed. The ecological vector of the regulation of banks' activities was considered, and the difficulties and prospects of its implementation in the banks of Ukraine were determined. A "chain" of step-by-step implementation of the NBU's "environmental" regulatory initiatives in Ukrainian banks is proposed based on the best European practices and the possibilities of their implementation in a country at war.*

*Keywords:* bank regulation, capital, sustainable financing, harmonious credit, ESG risks.

*разом з тим виважених заходів, які не завадили б активному розвитку інвестування та кредитування сталої економіки. Мета дослідження полягає у розкритті ключових положень регулювання діяльності банків в ЄС, визначенні векторів їх зміни відповідно до цілей сталого фінансування, а також розробленні рекомендацій для банківського сектора України. Використано методи наукового пізнання, зокрема: спостереження, теоретичного узагальнення, абстрагування, порівняння, аналізу і синтезу, індукції та дедукції. Викладено основні положення Директиви вимог до капіталу та регулювання достатності капіталу банків у Європейському Союзі. Розкрито сутність гармонійних фінансів та етапи їх трансформації у країнах ЄС. Розглянуто екологічний вектор регулювання діяльності банків, визначено труднощі та перспективи його впровадження у банках України. Запропоновано "ланцюжок" поетапного впровадження "екологічних" регуляторних ініціатив НБУ в банках України з огляду як найкращої європейської практики, так і можливостей їх реалізації в країні, яка перебуває в умовах війни.*

*Ключові слова:* регулювання діяльності банків, капітал, стале фінансування, гармонійний кредит, ESG-ризик.

**JEL Classification:** G 21, G 28

## Introduction

After the Second World Financial Crisis in 2008, banking regulation in the EU is aimed at increasing the effectiveness of the risk management system based on integrated and proactive approaches; establishing the relationship between their identification, measurement, selection of management methods, control, monitoring and buffering with banks' own capital. The financial responsibility of the owners and other stakeholders of banks for accepting excessive risk-appetite, which leads to their bankruptcy, have increased. Along with the growing requirements for regulation and supervision of the activities of banks in the contours of the new post-crisis financial architecture, in the last decade the policy of sustainable development has been actively promoted in the EU countries, which provides for the harmonization of production with nature and society, which will contribute to the transformation of the modern economy into a clean ecological system.

Ensuring sustainable development of the country requires taking into account, along with financial and operational risks, also environmental, social and governance (ESG) risks management of all business entities, including banks.

The European Central Bank (ECB), which is entrusted with the executive functions of monetary policy and direct supervision of the largest 109 banking and investment institutions registered in the member states of the European Banking Union, which account for 82% of the assets of its banking sector. The national regulators of the EU member states, which recognize the requirements of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM) on their territory, have joined the strategy of maintaining financial stability due to the emergence of new risk factors of various origins.

The implementation of the concept of sustainable financing in the activities of credit institutions (CIs) and the ECB's introduction of new regulatory requirements for them requires, on the one hand, significant resources for their implementation, and on the other hand, there is a need for financial support for the ecologically oriented economy of countries Eurozones.

A lot of publications of foreign scientists are devoted to the problems of regulating the activities of European credit institutions. In particular, these are Oliver Wuensch, Kai Truempler, and Leticia Rubira (2023), Christos V. Gortsos (2023), Nadège Jassaud (2012). Among the numerous publications of domestic scientists on this issue, it is worth highlighting the works of Kiniv B. Yu (2015), Drachova O.V. (2023). At the same time, the paradigm of "sustainable" finance is receiving more and more attention in world scientific circles. The authors estimate that in 2023 Google Scholar will list about 17.000 publications on this topic, and for the entire period – 4.3 million. Among foreign researchers on this issue, it is appropriate to single out the scientific works of Satish Kumar et al. (2022), Muneer M. Alshater Osama F. Atayah (2023), U. Atz, T. Van Holt, Z. Liu, C Bruno (2023), among Ukrainians – Lyubich, Bortnikov (2022), Bystryakov, Klynovy (2021), for the social aspect of ESG – Savluk & Dubas (2023). However, an important scientific and practical problem remains unresolved regarding the adaptation of banking regulation to the goals of sustainable financing, the solution of which will contribute to the formation of incentives for banks to finance only those projects that involve reducing the negative impact of business entities on the environment, in particular, greenhouse gas emissions. The ECB also emphasizes the importance of solving the outlined problem, which intends to improve the regulation of banks' activities taking into account ESG risks. At the same time, it is very important to introduce such a regulatory mechanism of ESG risks, which would not create obstacles for investment and lending by banks of green technologies. Solving the dilemma of "regulating ESG risks and revitalizing the activities of banks in the contours of "sustainable" financing" is an extremely difficult task that is still unresolved.

The aim of the research is to reveal the key provisions of the regulation of banks in the EU countries, to determine the vectors of their change in accordance with the goals of sustainable financing, as well as to develop recommendations for the banking sector of Ukraine.



In the course of the research, a hypothesis was put forward regarding the need to implement the concept of sustainable financing into the regulatory mechanism of banks. In order to justify it, a study of existing developments and new initiatives regarding the regulation and supervision of the activities of banks in the EU was conducted, and the feasibility of their coordination with the ESG risk management system, which is a key determinant of sustainable financing, was proven.

In the course of the research, standards, directives, regulations and guidelines of European financial institutions, materials of the National Bank of Ukraine were used; scientific achievements of foreign and domestic scientists; various methods of scientific research, in particular theoretical generalization – in the interpretation of the Single Book of EU Financial Regulation Rules; abstraction – when identifying problems that arise in the process of implementing the concept of sustainable financing into the regulatory mechanism of banks' activities, induction and deduction – when formulating conclusions and providing recommendations.

The main part of the article consists of four interrelated sections. The first of them is devoted to the disclosure of the Directive on the capital requirements of CI. In the second, the key provisions of the capital adequacy regulation of CI are given. In the third, the essence of harmonious finance and the stages of its transformation in the EU countries are revealed. In the fourth, the environmental vector of the regulation of banks' activity is considered, the difficulties and prospects of its implementation in the banking sector of Ukraine are determined.

In order to ensure a stable and transparent EU banking sector, the European Banking Authority (EBA) has developed the Interactive Single Rulebook (2023), a key component of which is the Single Supervisory Mechanism (SSM), which is planned to be aligned with the goals of sustainable finance. In this context, it is appropriate to consider the existing documents, according to which the banks' risks and the capital to cover them are regulated in the Eurozone countries. These include: the Capital Requirements Directive (Directive 2013/36/EU) and the document on the Regulation of Capital Adequacy (Regulation (EU) No 575/2013).

## **1. Directive on bank capital requirements**

According to the Capital Requirements Directive, a number of requirements are defined.

First, the minimum amount of the bank's own funds must be EUR 5 million (in exceptional cases, from EUR 1 million); only credit institutions are allowed to collect funds from the public. In European legislation, the term "credit institutions" is more often used, which, in addition to banks, includes various types of investment companies.

Secondly, the regulatory authorities of the countries are allowed to apply a wide range of sanctions both to the CIs themselves and to the participants of the relevant financial group in case they do not comply with the capital requirements, namely: to impose fines of up to 10% of the annual profit on legal entities – owners of banks, to EUR 5 million – for natural persons and limited voting rights of shareholders who can transfer their duties to another member of the financial group; depriving shareholders of receiving dividends. Supervisory authorities may require the bank to activate a recovery plan in the event of trigger events; fine, according to the authors' calculations, for 17 types of violations, 7 of which are related to the mislead in reporting, which should be reported on the website of the regulatory body.

Thirdly, CIs should have a clear and transparent organizational structure with a focus on countering risks and an effective internal control system in accordance with the business model of their activity; effective mechanism of risk identification, management, monitoring and reporting; combine internal and external independent assessments of credit and other types of banking risk. CI employees can directly inform the regulatory authorities of their countries about undisclosed risks using dedicated communication channels.

Fourthly, CIs should form an effective and transparent management remuneration system aimed at countering risks, ensuring capital adequacy and their long-term development. In general, the reward system is presented in *Figure 1*.

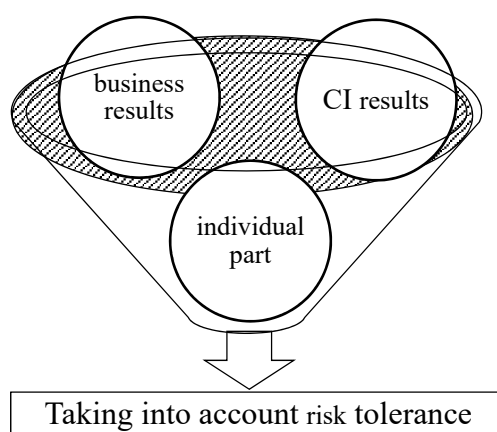


Figure 1. Reward system in credit institutions of the European Banking Union

*Source:* compiled by the authors based on (Directive 2013/36/EU, 2013).

According to the Capital Requirements Directive, certain requirements are imposed on the CI remuneration system:

- comply with the principle of gender equality;
- the remuneration procedure must be approved by the Remuneration Committee, which is established at the level of the Supervisory Board and published on the websites of CI;

- aimed at the implementation of financial and non-financial indicators, taking into account CI's tolerance for risks;

- have a fixed and variable component. The variable part of the remuneration should not be guaranteed and affect the level of capital adequacy, does not exceed the fixed part, and 50% of it should be paid in the form of shares or other capital instruments;

- take place on a multi-year basis, i.e. bonuses are not paid in the reporting or next year, but at least 40% of its total amount – based on the results of stable work over several years (4–5 years);

- provide for the obligation of CI managers to return paid bonuses or pay a significant fine in case of non-compliance with legal requirements or causing significant losses and capital loss to it. Part of the bonuses must be directed to pension funds and reimbursed to bank employees within 5 years after their retirement or dismissal.

Supervisory bodies should evaluate the effectiveness of the CI reward system, as well as receive information from it about officials who received more than EUR 1 million in bonuses per year.

Fifth, it was established that the supervision of CI activities is carried out on the basis of the SREP methodology, according to which supervisory bodies conduct inspections based on the principles of proportionality, compliance with business models, business geography, risk profile and systematicity. At the same time, the following are also taken into account: the results of stress testing, the risk of concentration; availability of clear methods and policies for risk management in CI; sufficiency of own resources to cover losses due to the occurrence of risks and liquidity buffers; level of risk management; results of assessment of the speed of transformation of assets into a liquid form based on the market situation, as well as the effect of other factors.

Sixth, in the process of evaluating CI, supervisory bodies (Supervisory examination program) are given the right to:

- increase the number of inspections;
- be present in the governing body of CI;
- oblige to provide additional reporting;
- carry out thematic inspections of significant risks;
- demand capital increase, limitation of types of risky operations and regions of CI presence;
- cancel rewards;
- limit interest payments on deposits to stakeholders;
- set increased requirements for the risk management system;
- demand the submission and activation of a plan for the restoration of banking activity;
- oblige to direct profit to capital;
- demand the formation of additional liquidity and capital buffers;
- set special requirements for liquidity standards depending on the nature of the CI business model, the quality of liquidity risk management, the

results of the SREP methodology assessment and the action of other factors that lead to the escalation of liquidity risk.

Seventh, CIs must form level 1 capital buffers (conservation, countercyclical, systemic importance, which can be combined with the systemic risk buffer according to the principle of the greatest value). The total level of capital conservation buffers can be up to 2.5% of the volume of risky assets. An individual approach to the formation of capital buffers is established depending on the results of stress testing of various types of risks in accordance with the selected CI business model, assessment of their activity according to the SREP methodology, the leverage indicator, the effectiveness of the risk management system, and the level of liquidity risk.

The Capital Requirements Directive is to some extent comparable to the Law of Ukraine "On Banks and Banking Activities", primarily in terms of legal status, but it covers a slightly different range of issues.

## **2. Key provisions of the document Regulation of Capital Adequacy**

The document is to some extent comparable with the NBU Instruction on the procedure for regulating the activities of banks in Ukraine. It includes requirements for:

- capital, taking into account standardized elements of credit, market, operational risks, leverage;
- asset concentration limits;
- standardized liquidity standards (short-term coverage and long-term funding);
- financial reporting and public disclosure of information.

CIs should form 3 levels of capital: first-level core capital (share capital and general reserve funds, possible inclusion of current profit with the permission of the supervisory body minus the amount of forecast dividends); additional capital of the first level, containing capital instruments; additional capital consisting of instruments not included in the core capital, primarily subordinated debt, as well as reserves provided for covering losses due to the occurrence of credit risk (general credit risk adjustments) in the amount of up to 1.25% of risk-weighted assets. It cannot be more than 50% of Tier 1 capital.

In order to strengthen the financial stability of banks, the introduced indicator of eligible liabilities (eligible liabilities) is a part of liabilities that are equated to capital and are not returned to depositors in the event of their bankruptcy. As estimated by the authors, their level together with the capital for systemic banks should be at least 18% of risk-weighted assets and at least 6.75% of all assets. Also, the leverage ratio is set as the ratio of first-tier capital to total assets and cannot be less than 3%.

Regulation 575/2013 set the requirements for CIs, which must disclose data on their risk management system, Internal Capital Adequacy Assessment Process (ICAAP), capital buffers, assessment of all material

risks, amounts of overdue debt. A separate block must disclose information about the remuneration system, namely: policies, reconciliation of the results of the banks' activities and the amount of remuneration paid, the ratio of fixed and variable parts of remuneration, the amount of payments in shares, non-monetary remuneration, the number of persons with remuneration over EUR 1 million, etc.

### **3. Harmonious finances and stages of their transformation in EU countries**

In June 2023, the European Commission issued Recommendation 2023/1425 of June 27, 2023 on the mobilization of finance for the transition to a sustainable economy (Commission Recommendation (EU) 2023/1425), which states that the Directive 2013/36/EU and documents regarding Regulation of Capital Adequacy 575/2013 are under review. Although the nature of this revision is not specified, it can be assumed that they will be amended in the light of Recommendations 2023/1425.

Before considering them, let's dwell on the definition of the concept of sustainable development, economy, finance, credits. Mostly, it is translated as sustainable development, economy, finance, credits. But the phrase "sustainable" (steady, stable) development is an oxymoron. In the Cambridge Dictionary (2024), sustainable, in addition to stable, is also interpreted as one that does not cause harm to the environment and can continue for a long time. One of the variants of the translation of sustainable is the word harmonious, therefore, in our opinion, it is better to use the following terms: "harmonious economy", "harmonious finance", "harmonious development" or "sustainable harmonious development", "harmonious credit".

Recommendations 2023/1425 are aimed at the implementation of harmonious finance in the development of the economy. By 2050, the EU plans to transition to a harmonious economy, to reduce greenhouse gas emissions by 55% already in this decade. The volume of investments in the harmonious development of the economy should increase by EUR 700 billion annually compared to the average similar costs in 2011–2020. The direction of greening the economy and society was also confirmed at the UN Climate Summit in Dubai, during which on December 13, 2023, almost 200 countries signed communiqué on the gradual abandonment of fossil fuels, the complete cessation of carbon dioxide emissions into the atmosphere by the middle of the century, the tripling of the number of renewable energy sources by 2030 and the reduction of methane emissions, which is more powerful than carbon dioxide (TSN, 2023).

Harmonious finance consists of 2 large parts:

- "green" finances are investments made in the development of a "green" economy, that is, friendly to the external environment (currently,

"green development" funds have already reached 116 billion (clause 24 Commission Recommendation (EU) 2023/1425);

- transitional (transition) finance is an investment in the conversion of existing harmful technologies into environmentally friendly production.

The scheme of transformation of harmonious finance over time is presented in *Figure 2*.

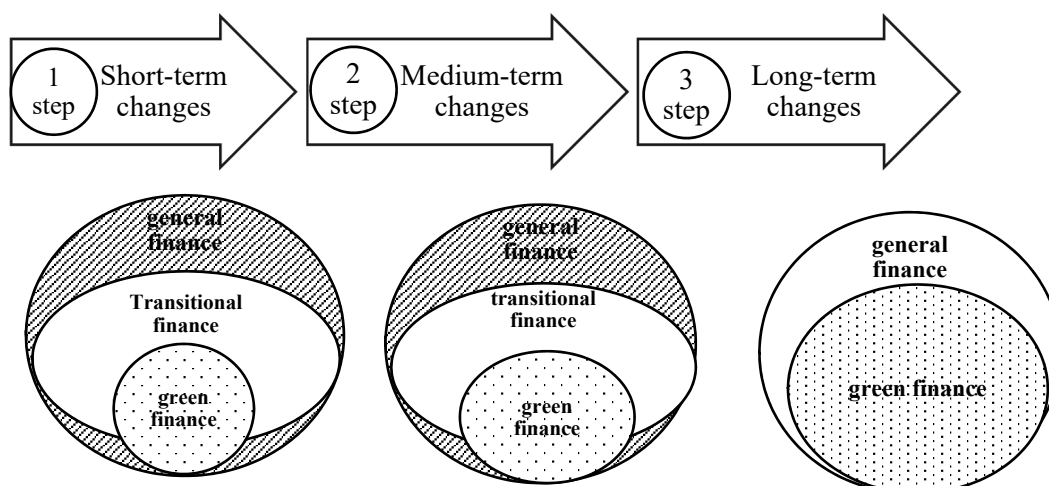


Figure 2. Stages of transformation of harmonious finance in EU countries

Source: compiled by the authors based on Commission Recommendation (EU) 2023/1425.

Large and medium-sized companies, and if possible, small ones ("economic actors" as defined in this document) must have an Activity-based transition plan, and financial institutions must provide financing for its implementation, even if their physical risks are higher traditional The risks of financing non-environmentally friendly enterprises automatically increase due to the application of environmental fines and taxes to them and the loss of their competitive position relative to competitors that are harmonious with the external environment. The risk of non-return of ecologically inharmonious investments was called transitory.

Recommendations 2023/1425 define 4 types of harmonious finance:

- green loans, harmonious development loans, other similar types of long-term loans with a reduced rate and the possibility of their refinancing;
- European green bonds and similar debt instruments, especially for large transitional projects;
- long-term capital instruments to achieve the key parameters of the taxonomy;
- special finance: leasing of the latest equipment, structured and project finance.

An important role in the transition to a harmonious economy is assigned to the so-called ecological taxonomy. In essence, this is a universal metric for investors, which was developed in the EU back in 2018 with further improvement, in order to determine the compliance of their investments with environmental requirements and to calibrate harmonious

projects from harmful ones. The regulation on taxonomy establishes 6 environmental goals: mitigation of consequences and adaptation to climate change, rational use and protection of water and marine resources, transition to a renewable economy, prevention and control of pollution, protection and restoration of biodiversity and ecosystems (Ekolog.UA. Taxonomy EU, 2022). It is planned that the "economic actors" of the EU should fulfill the requirements of the taxonomy in 5–10 years. At the same time, banks are entrusted with the task of developing plans for their transition to environmentally friendly entrepreneurship together with clients. Starting in 2022, banks must disclose information regarding the compliance of their investments with the requirements of the taxonomy. Yes, lending risks are considered ecologically acceptable if the borrower’s activity meets the requirements of the taxonomy by more than 50%. We will consider the definition of environmentally friendly investments on the example of an energy company (*Figure 3*).

stage 1	stage 2	stage 3	stage 4	stage 5
Production structure: coal energy – 25%; hydropower – 25%; wind energy – 50%	Coal is not invested.  For hydropower plants, the emission limit is up to 100 g of CO <sub>2</sub> per 1 kW of energy.  Wind energy is not limited	Only wind energy is financed, if it is not accompanied by strong noise, composite materials are used and it is observed reducing the risk to birds	Minimal support for coal and hydropower is based on the results of independent examinations. In the process of using wind energy, compliance with eco-conventions is checked	At least 50% of the volume of electricity production must be in accordance with the taxonomy
Description	Coal power is excluded from the taxonomy, hydropower cannot be financed if the company’s compliance with the CO <sub>2</sub> limit is not clearly proven	Investor must check whether the industry meets the ecological criterion. If not, request documentation and check it	If no information is provided, the investor makes an independent assessment and provides minimal financial support	

Figure 3. An example of determining environmental investments

Source: compiled by the authors according to Report Taxonomy (2020).

#### 4. Ecological vector of bank regulation

In the course of the research, a hypothesis was put forward regarding the need to implement the concept of sustainable financing into the regulatory mechanism of banks’ activities.

Regarding the expediency of "greening" the regulation of bank activity, there are opposing positions on some of scientists and the European financial community. In particular, John H. Cochrane, a senior fellow at the Hoover Institution, expressed the opinion that financial regulation of the climate will not help, but will only further politicize central banks. The source of the next crisis will not be climate change, but other risk factors. The essence of financial regulation is to impose certain policies that will not pass through ordinary democratic lawmaking. It is impossible for some catastrophic climate-related event to trigger systemic change within the next ten years, and no hypothesis in modern science or economics describes such a development. But, if this is an ordinary fear, the only logical way to protect the financial system is a sharp increase in the amount of equity capital, because this is what protects the financial system from any risks. Identification of risks and technocratic regulation of climate investments cannot protect against unknown factors or unmodeled "tipping points" (Mind.ua, 2021).

The authors of this article do not fully share the point of view of John H. Cochrane regarding the inappropriateness of financial regulation of climatic, social and managerial risks in the banking sector, which is due to such considerations. The world community is concerned about the deterioration of the environmental situation, which has become a driver of increased risks for the normal functioning of economic entities, as well as the health of the population. The UN, international financial institutes, governments of most countries of the world, public organizations, etc., immediately responded to these challenges, which adopted a number of important documents aimed at reducing threats to the environment. Central and commercial banks have also not remained aloof from the process of supporting sustainable development. At each of these levels, a set of measures is implemented that will contribute to the formation of an ecologically clean economy through the implementation of an effective mechanism for its financing. On the other hand, at the same time, another important strategic task arises for central banks, how to create preferences or form stricter requirements for ESG risk management through regulatory procedures. Fine-tuning of the "ecological component" of the regulatory mechanism for CI is of fundamental importance. The search for a compromise solution between regulatory requirements for CI and active financing of the ecological economy turned out to be very difficult. The ECB and other international financial institutions continue to actively work on it.

The ecological vector of European development makes it possible to assume that European financial legislation will be improved in the direction of stimulating harmonious investments. Fairly high requirements for assessing ESG risks, collateral for loans, the level of equity capital taking into account buffers and other anti-risk requirements of regulators to some extent inhibit the process of banks investing significant amounts of financing in long-term environmentally friendly projects.



At the same time, for the development of harmonious lending, it is necessary to improve the risk assessment system taking into account environmental, social, and management factors, optimize the capital requirements of banks in relation to the financing of "green" projects, ensure the availability of long-term, inexpensive investment resources, and create a system of securitization of ESG risks. It is expedient to include in the incentive system of the top management of banks criteria for the harmonious development of both the CI itself and its clients, taking into account ESG risks.

In order to ensure the transparency of sustainable development in the EU countries, from 2022, CIs will form reports in accordance with the requirements of the TCFD (Task Force on Climate-Related Financial Disclosures) – an obligation to disclose "climate finance", which allows interested parties to get to know not only their environmental policy, but also to evaluate real steps regarding its practical implementation. The specified approach to reporting should also be introduced for Ukrainian banks in the post-war period.

Conducted research on the expediency and possibilities of implementing an "ecological component" in the regulation of Ukrainian banks allowed us to come to the conclusion that the simultaneous introduction of the European format of "ecological" regulation into the domestic banking sector turns out to be problematic. This is due to the lack of sufficient informational, methodical, instrumental, personnel, technical and financial support for the implementation of European developments in the activities of domestic banks. In this regard, we offer a "chain" of phased implementation of regulatory requirements taking into account the "environmental" component for Ukrainian banks.

At the first stage, it is appropriate to spread the European approach to the system of remuneration of top management for the stable work of banks. In this context it is domestic one. The National Bank of Ukraine (2023) has already developed the Regulation on remuneration policy in the bank, which was approved by the Board Resolution No. 189 of December 27, 2023, which entered into force on December 29, 2023. The NBU has updated the requirements for the remuneration policy for members of the bank's management bodies and influential persons in order to ensure their compliance with the standards of the European Union. From now on, the remuneration policy of Ukrainian banks will be aligned with EU principles of sustainable development. In our opinion, ESG factors must be taken into account in the remuneration system. For example, auditors of banks, based on the results of the assessment of their reporting according to the TCFD standard, issue a rating of A, B, C, D. If the rating is A, then the bonuses of the bank management can be increased, for example by 5%, if B – then they remain unchanged, if C – reduced by 3%, if D – reduced by 10% or not paid at all.

In authors' opinion, it would be worthwhile to introduce a methodical approach to the assessment of bank loans in view of their environmental

friendliness in the banks of Ukraine. The results of such an assessment can be translated into the correction of credit risk determined according to the NBU methodology and/or the state subsidy of environmentally friendly loans or, conversely, the taxation of "environmentally unfriendly" projects. In the process of such assessment, it is advisable to apply the "ecological traffic light" matrix in the borrower-credit format (*Figure 4*).

Borrower	"Green" borrower	The borrower fulfills the requirements of the taxonomy (+/-) 10%	The borrower does not fulfill the requirements of the taxonomy
Loan	-1%	-1%	-2% if taxonomy is performed - 5%
"Green" credit	0%	0%	+1%
Neutral credit	+1%	+2%	+5%

Figure 4. "Environmental traffic light" lending terms

Source: compiled by the authors.

The negative values shown in *Figure 4* mean a decrease in the level of credit risk/providing subsidies from the budget, and positive values mean an increase in the level of credit risk and the payment of an additional environmental fee to the budget. For example, if the borrower does not meet the requirements of the taxonomy by more than 10%, but thanks to the "green" loan will meet its general requirements, the state can compensate him with up to 5% of the loan amount, and the bank can reduce the amount of assets weighted for credit risk by 5%, which will be taken into account when calculating regulatory and core capital adequacy standards. If the borrower does not comply with the requirements of the taxonomy, but positive dynamics of its environmental indicators are observed, then the level of loan compensation due to budget funds and risk reduction will be lower, for example by 2%. In such situations, it is most appropriate to apply the exponential function, which increases the compensation and reduces the risk when the loan results approach the requirements of the taxonomy. Conversely, if the implementation of the loan project leads to the deterioration of the borrower's environmental indicators, then he pays a contribution to the budget, for example 5% of the loan amount. At the same time, the bank increases the amount of assets weighted by the borrower's credit risk by the same amount. Environmental assessments should be carried out by the banks themselves and by specially trained rating companies

that have become widespread in the world and have developed comprehensive methodologies for assessing environmental risks, such as Sustainalytics (2023).

At the same stage, with the support of the NBU, banks should develop internal regulations, rules, recommendations and other documents, according to which ESG risk management would be carried out, and conduct staff training. For banks of Ukraine, there is a need to develop: methods of quantitative measurement and qualitative characterization of ESG risks, determination of their impact on capital; methods of harmonizing the system of bonus rewards with the "greening" of granted credits, etc.

At the second stage, the NBU should develop procedures for supervising the management of ESG risks; information transparency standards in the context of sustainable financing; a single method of ESG rating.

In addition, with the direct participation of the NBU, the harmonization of the financial legislation of Ukraine with the requirements of the EU regarding sustainable financing should take place in the following areas:

- minimization of banking risks and maintaining the financial stability of the banking system and increasing the level of trust in it;
- ensuring stable financing of the economy in conditions of war and post-war recovery;
- the development of green banking and investing based on the formation of a long-term, inexpensive resource, which is problematic in conditions of high inflation, as well as the formation of a system of prudential incentives for ecological banking.

To solve these, not always one-vector, tasks, it is necessary to develop the Policy of Harmonious Finances and the Harmonious Taxonomy based on EU standards and defines the road map for their implementation in Ukraine.

At the same time, banks need to conduct internal testing of the regulations and recommendations of the National Bank of Ukraine, as well as their own efforts, based on the results of which it will be possible to identify key problems and draw a conclusion regarding the possibilities and deadline for their elimination.

At the third stage, it is expedient to introduce most of the European options for the regulation of "environmental" banking activity into the domestic banking sector, with the exception of establishing strict capital requirements. In our opinion, increasing the capital requirements of banks operating in a country at war will create additional "financial stress" in the economy, which currently needs significant investments in the revival of Ukraine's environment. In addition, in conditions of a high degree of uncertainty of the surrounding environment, it makes no sense for banks to form additional capital buffers. After all, due to the occurrence of extraordinary events (floods, hurricanes, wars, acts of terrorism, etc.), which are impossible to predict, banks' losses will be covered not only by capital, but also by all their own funds at their disposal.

**Conclusions**

As a result of the global financial crisis, European banks began an active phase of prudential reform of their risk management system. The regulatory directives adopted by the European Commission were aimed at strengthening the financial stability of CIs on the basis of increasing capital requirements, improving risk management, and increasing the transparency of their activities. Special attention was paid to the formation of the reward mechanism with an emphasis on minimizing risks and ensuring continuous activity, introducing a three-level system for assessing capital adequacy, establishing requirements for capital buffers, minimizing liquidity risk with the introduction of new regulations, starting stress testing of banks' activities, increasing the efficiency of corporate management and responsibility stakeholders for the results of CI activity.

In recent years, the European Union has taken a course to implement the main postulates of sustainable financing and minimize the negative impact of environmental risks on the environment. At the same time, excessive prudential regulation (taking into account the "ecological component") can complicate the long-term financing of the transition of the economy to harmonious development paths for nature and society. The outlined problem also faces Ukraine, to which is also added the task of uninterrupted financing of military needs and post-war reconstruction of the country. In this regard, a "chain" of step-by-step implementation of regulatory requirements, taking into account the "ecological" component for banks of Ukraine, is proposed, a list of measures recommended to be taken at the level of the Regulator and banks is defined, which will contribute to the continuous movement in the direction of the European vector of sustainable development, taking into account domestic realities

The main vectors of future research can be the development of the Bank Capital Regulation Standard taking into account the "ecological" component for banks of the Eurozone countries, as well as the methodology of "ecological" rating of industrial enterprises in Ukraine.

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**BELIANKO Lidia,**  
PhD in Economics, Senior Lecturer of the  
Department of Banking  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0001-9986-261X  
l.belyanko@knute.edu.ua

## POTENTIAL FOR THE DEVELOPMENT OF FINANCIAL LEASING IN UKRAINE

*In modern conditions, the market of financial leasing services occupies a prominent place in the economy of developed countries. Financial leasing is a kind of symbiosis of lending and renting, it has a number of significant advantages for ensuring and expanding the activities of business entities due to the replenishment of their investment income, a convenient source of financing, the possibility of using modern and often expensive equipment without significant costs, modernization of production and normalization of the financial and economic state of business, which invigorates the development of the country's economy as a whole. In Ukraine, despite 30 years of development, financial leasing has repeatedly encountered difficulties, including the problems of the origin and formation of the leasing services market (90s), imperfect legislation, the decline during the financial crisis and post-crisis recovery, and currently – functioning in the conditions of war. The economic instability of the past years and the conditions of the present significantly affect the pace of development of the leasing industry, and therefore its recovery is currently a matter of time. The growth of the financial leasing market in conditions of a pandemic, economic recession and martial law makes it necessary to have a clear mechanism for regulating leasing activities. The priority reference point is the European experience, the study of which in the framework of strengthening the innovative focus of the development of the domestic economy will make it possible to choose a relevant model of the functioning of the modern financial leasing market. The aim of the article is to determine the*

**БЕЛЯНКО Лідія,**  
к. е. н., старший викладач  
кафедри банківської справи  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0001-9986-261X  
l.belyanko@knute.edu.ua

## ПОТЕНЦІАЛ РОЗВИТКУ ФІНАНСОВОГО ЛІЗИНГУ В УКРАЇНІ

*У сучасних умовах ринок послуг фінансового лізингу займає чільне місце в економіці розвинених країн. Фінансовий лізинг є своєрідним симбіозом кредитування й оренди, має ряд суттєвих переваг для забезпечення та розширення діяльності суб'єктів господарювання завдяки поповненню їх інвестиційних надходжень, зручному джерелу фінансування, можливості використання сучасної та часто дороговартісної техніки без значних витрат, модернізації виробництва та нормалізації фінансово-економічного стану бізнесу, що пожевавляє розвиток економіки країни в цілому. В Україні, попри 30-річний розвиток, фінансовий лізинг неодноразово наражався на труднощі, серед яких проблеми зародження і становлення ринку лізингових послуг (1990-ті роки), недосконалість законодавства, спад у період фінансової кризи та післякризове відновлення, а наразі – функціонування в умовах війни. Економічна нестабільність минулих років та умов сьогодення суттєво впливає на темпи розвитку лізингової галузі, а тому її відновлення наразі є питанням часу. Зростання ринку фінансового лізингу в умовах пандемії, економічної рецесії та воєнного стану робить необхідним наявність чіткого механізму регулювання лізингової діяльності. Пріоритетним орієнтиром є європейський досвід, вивчення якого у рамках посилення інноваційної спрямованості розвитку вітчизняної економіки дасть змогу обрати релевантну модель функціонування сучасного ринку фінансового лізингу. Метою статті є визначення регуляторних вимог у сфері лізингової діяльності, ключових векторів*



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*regulatory requirements in the field of leasing activity, the key vectors of the development of the domestic market of financial leasing services in the context of European integration. To achieve the aim, scientific methods of analysis, synthesis, systematization, graphic and generalization were applied. It was established that, despite a number of problems, the leasing market of Ukraine still has all the prospects of becoming one of the powerful markets of the Central and Eastern Europe region. In this direction, it is urgent to strengthen financial literacy among the population and business entities regarding the understanding of leasing as an innovative way of purchasing equipment and a flexible business financing tool, ensuring an increase in the level of penetration of leasing into the domestic economy, expanding the spheres of attracting external financing, developing state programs, developing vendor financing.*

*Keywords:* financial leasing, regulation of leasing activity, leasing agreement, leasing portfolio, Ukrainian Association of Lessors, Federation of European Associations of Leasing Companies Lease Europe.

*розвитку вітчизняного ринку послуг фінансового лізингу у контексті євроінтеграції. Для досягнення поставленої мети застосовано наукові методи аналізу, синтезу, систематизації, графічний та узагальнення. Встановлено, що, попри низку проблем, лізинговий ринок України все ж має всі перспективи стати одним із потужних ринків регіону Центральної та Східної Європи. У цьому напрямі актуальним є посилення фінансової грамотності серед населення та суб'єктів господарювання щодо розуміння лізингу як інноваційного способу придбання обладнання та гнучкого інструменту фінансування бізнесу, забезпечення підвищення рівня проникнення лізингу у вітчизняну економіку, розширення сфер залучення зовнішнього фінансування, розробка державних програм, розвиток вендорного фінансування.*

*Ключові слова:* фінансовий лізинг, регулювання лізингової діяльності, договір лізингу, лізинговий портфель, Асоціація "Українське об'єднання лізингодавців", Федерація європейських асоціацій лізингових компаній Lease Europe.

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## **Introduction**

The modern market of financial services of Ukraine in the period of increased volatility and significant transformations should become a prerequisite for further social and economic development of the country. First of all, the support and development of financial leasing as an effective mechanism for investing in the renewal of the material and technical base and financing the real sector of the economy is currently one of the effective tools of the domestic economy and a priority in post-war reconstruction.

Leasing tools are quite actively used in the developed countries of the world, first of all, almost a third of investments in fixed assets are made through them. In particular, small and medium-sized enterprises of the countries of the European Union prefer leasing after such a source of financing as credit lines (Potrivaeva N., Kozachenko L., 2019, p. 381). Domestic economic realities show that business entities are cautious about using financial leasing services, which is due to little experience in this field, the long-term imperfection of the legislative framework, and currently, the unstable state due to functioning in wartime conditions.

The legal nature and peculiarities of financial leasing operations, the current state and prospects of its development in Ukraine are the subject of research by many scientists.

The main approaches to defining the essence of the concept of "leasing", the conceptual provisions of the leasing agreement, the analysis of



legislation in this area are thoroughly researched in the works of Karpenko R. (2020), Lepeh S. (2021), Malyshko V. (2015) and others, in particular, the authors emphasize the importance of the successful development of leasing relations in Ukraine, primarily due to ensuring their proper and transparent regulatory regulation. Bestuzheva S., Kozub V. and Dobryn S. (2023) reveal the importance of modern legal regulation of financial leasing services and methodical approaches to the organization of international leasing operations (2023), noting that in the domestic economy, increasing the volume of financing of foreign economic operations requires the search for optimal methods and sources, among which a significant place is occupied by leasing.

The current state, trends in the development of the world market of financial leasing services, as well as the peculiarities of its regulation in different countries have been studied in a number of important scientific works. In particular, Netudikhata K. (2017, p. 93) defines the development of leasing as one of the macroeconomic factors of profound positive changes in national economies. The active use of this financial instrument makes it possible to solve the most important economic problems related to the modernization of the main production assets, the stable development of industries and regions, the expansion of the domestic production market and the increase in sales. The analysis of international experience in supporting the development of leasing during its formation and the level of ensuring its regulation, the need and effectiveness of state support for leasing relations in developed countries are reflected in the works of Amelin S. (2009), Potriveva N., Kozachenko L. (2019), Sytnyk N., Dunets I. (2021) and others. Scientists claim that in modern conditions the functioning mechanism of the leasing market of Ukraine needs updated approaches and development, and therefore the issues of studying the experience of foreign countries in regulating leasing operations and additional opportunities from the use of financial leasing as a form of updating the material and technical base are relevant.

Questions related to the processes of organization, budgeting and planning, financing and efficiency of leasing activity were studied in a number of scientific works by Gordienko T. and Sydorenko V. (2017), first of all, the authors noted the peculiarities and importance of leasing in the development of the country's economy.

The role of financial leasing in supporting the agricultural sector, the problems and prospects of its use for agrarian business entities were outlined by N. Sirenko, T. Gannichenko, K. Mikulyak and A. Polishchuk (2021). First of all, it is important for Ukraine today to widely use this financing tool to stimulate economic growth and development of small and medium-sized enterprises. It has been proven that the development of enterprises in the agricultural sector is possible under the conditions of the implementation of financing support programs and tax incentives for lessees and lessors.

At the same time, the issues of regulatory aspects and features of the development of financial leasing in Ukraine in the conditions of financial market transformations and threats caused by the state of war in the country require further research.

The aim of the article is to establish regulatory requirements in the field of leasing activities, the features of the European financial leasing market and to determine the key vectors of the development of the domestic market of financial leasing services in modern conditions.

The theoretical and methodological basis for writing the article was the research of domestic scientists on the issues of regulation and development of leasing, legislative acts of Ukraine in the field of financial leasing, as well as official statistical data of the European Federation of leasing market participants Lease Europe, the Ukrainian Association of Lessors (UAL), the State Statistics Service and The National Bank of Ukraine as a regulator of the financial market. Such methods as analysis, synthesis, systematization, graphic, generalization are used to present and interpret the indicators of the European and domestic markets of financial leasing services.

The research of the current state of the market of financial leasing services of Ukraine made it possible to single out the vectors of its development, which are described in four sections of the main part of this article.

### **1. Harmonization of the legislation of Ukraine with the legislation of the European Union and international standards**

In some countries, there is no special legal regulation of leasing relations; it is provided by the general norms of tax, civil, economic, commercial and criminal law in such countries as Belgium, Spain, Germany, Hungary, Bulgaria, Japan, USA, Denmark. In a number of countries, including Great Britain, Portugal, France, Sweden, and Austria, there are special laws and by-laws that regulate the provision of financial leasing services (Cheberyako O., Hnatiuk O., 2020, p. 126).

Financial leasing is also usually characterized by an obligation to sell the property at the end of the agreement at a pre-agreed price (Belgium, France), while operating leasing is synonymous with renting and is an unregulated activity (Portugal, Hungary) (Legal regulation of leasing: the experience of Spain, of Portugal, Bulgaria and Hungary, 2016; Netudikhata K., 2017, p. 93).

In Ukraine, the provision of financial leasing services is regulated by the Economic, Civil and Tax Codes of Ukraine, the laws of Ukraine "On Financial Leasing" (2021), "On Financial Services and Financial Companies" (2021), "On Banks and Banking Activities" (2000), and as well as the UNIDROIT Convention (1988) on international financial leasing, which generally corresponds to the peculiarities of regulation in European countries.

The norms of the Civil and Economic Codes of Ukraine establish the legal regime of leasing as a separate type of contractual obligations that mediate relations regarding the transfer of property for temporary use and as an economic activity aimed at investing one's own or borrowed financial funds, which consists in providing property under certain conditions (CCU, 2003; GCU 2003).

The general conditions and procedure for carrying out leasing operations by banks are defined in Art. 47 of the Law of Ukraine "On Banks and Banking Activities" (2000): leasing is one of the banking operations that banks have the right to carry out on the basis of a banking license of the National Bank of Ukraine.

Special national legislation in the field of leasing relations – the Law of Ukraine "On Financial Leasing" is actually built exclusively on a civil law basis; its subject is primarily the regulation of contractual relations. Adopted in 1997 as the Law "On Leasing", in 2003 it was renamed to the Law "On Financial Leasing" to regulate civil-law relations arising from the contract primarily of financial leasing, since operating leasing is equated with rent and it's the activity is not subject to specific regulation.

Morally outdated, not adapted to the realities of the modern concept of the market of financial leasing services, in June 2021 the new law "On Financial Leasing" entered into force, aimed at creating an appropriate competitive environment in the field of financial leasing, which allowed to harmonize the legislation of Ukraine with the legislation of the European Union and international standards, namely:

- inconsistencies in the definitions and interpretations that describe leasing legal relations in various normative legal acts of Ukraine have been eliminated;

- features of financial leasing are detailed;

- the National Bank of Ukraine was defined as the body of state regulation, supervision and control in the financial leasing market and a unified procedure for regulating relations in the field of financial leasing was approved;

- clear requirements for the form of the financial leasing contract and its essential conditions, as well as the consequences of declaring the contract invalid;

- it is prohibited to finance individuals with a reference to the monetary equivalent of a foreign currency;

- the issue of the notarial form of contracts for vehicles with natural persons has been settled;

- the concept of "advance payment" is fixed not as the lessor's funds, but as a component of the leasing payment, which compensates part of the value of the object of financial leasing;

- the protection of the rights and legitimate interests of the subjects of the leasing agreement is ensured, and the supplier's responsibility to both the lessor and the client is strengthened (About financial leasing, 2021).

Therefore, the updated special legislation in the field of financial leasing will increase the demand for the use of this financial instrument, strengthen the protection of the rights of consumers of this service, and reduce the risks of related transactions.

The Law of Ukraine "On Financial Services and Financial Companies" (2021), effective from 2024, significantly changed the appearance of the non-banking financial market. In terms of financial leasing, the Law provides for a number of innovations and advantages, in particular:

- simplified procedure for obtaining a license – each financial service will not need to be registered separately, a single license will specify all financial services to which the NBU has granted the right;
- with the acquisition of the status of a financial company, lessors will not be subject to restrictions on exclusive activity, that is, they will have the right to perform other economic activities, in addition to the provision of financial services;
- implementation of the declarative principle of acquisition of significant participation and appointment of a manager in a leasing company;
- the possibility of outsourcing part of the functions.

At the same time, there are a number of difficulties for lessors. First of all, there are increased requirements for corporate management and internal control, which were not previously applied in this activity and require the development of a significant array of internal documentation, an increase in human and time resources, which, in turn, may be reflected in an increase in the price of the leasing service. Secondly, strict requirements for the business reputation and professional suitability of the head of the leasing company and the owners of a significant share – in case of non-compliance with all requirements, the regulator will be able to demand the termination of their powers. Thirdly, the regulator will have the right to adjust the activities of not only the financial institution itself, but also the providers of accompanying services; in particular, it will have the right to demand documents about them from the lessor. And, fourthly, a wide list of grounds for canceling a license has been established (About financial services and financial companies, 2021).

In general, the constructive changes that the financial leasing market is waiting for should have a positive effect on its development, increase the transparency and quality of the provision of leasing services.

As evidenced by the study of international best practices, almost all countries have from one (Germany, Belgium) to two (Great Britain, France) professional associations of lessors, which cover almost the entire market of leasing relations.

In Ukraine, the Association "Ukrainian Association of Lessors" (UAL), which began its activities in 2005 as a voluntary non-commercial association of professional leasing companies, is also established and successfully functions, which is the only leasing association in Ukraine.

UAL is a member of the Lease Europe Federation of European Associations of Leasing Companies, which unites 43 national associations from European countries and represents the interests of about 1 500 leasing companies

(92% of the European leasing market). UAL members participate in Lease Europe working groups on issues related to the countries of Central and Eastern Europe. Today, the association can provide important services to its members (for example, training courses, statistics and information on the website, exchange of experiences and conferences, news of the legal and regulatory field).

For example, the Polish Leasing Association receives leasing data from its members according to the Lease Europe templates and publishes this data quarterly during press conferences. The data is considered official, used and cited in all research, business reports, newspaper reports, etc. Similarly, UAL has the opportunity to draw attention to this industry by publicizing the results of its participants to the public and the business community (Official website of the Ukrainian Association of Lessors, 2021).

## 2. Revival of the European leasing business and decline in the domestic market of leasing services

According to Lease Europe, Great Britain has the largest share of the leasing market in Europe. The next important countries in terms of the volume of concluded leasing agreements are Germany and France. Ukraine is part of the cluster of the Central and Eastern Europe region, which covers 8–9% of European leasing (*Table 1*).

*Table 1*

The value and share of new leasing agreements in certain European countries in 2018–2022

Country or region	2018		2019		2020		2021		2022	
	EUR billion	%	EUR billion	%	EUR billion	%	EUR billion	%	EUR billion	%
United Kingdom	91.9	23.8	96.9	23.4	78.8	22.4	90.6	23.3	95.5	23.6
Germany	57.6	14.9	69.8	16.8	58.7	16.7	71.6	18.4	69.9	17.3
France	56.2	14.5	63	15.2	54.3	15.4	61.4	15.8	61.9	15.3
Italy	29.8	7.7	27.9	6.7	22.9	6.5	28.8	7.4	31.5	7.8
Austria, Benelux, Switzerland	42.2	10.9	46.9	11.3	42.4	12.0	42.2	10.9	*	
Nordic countries, Baltic countries	33.9	8.8	33.6	8.1	30.4	8.6	37.8	9.7		
Greece, Portugal, Spain, Morocco	19.4	5.0	20	4.8	16.1	4.6	20.1	5.2		
Central and Eastern Europe	37.4	9.7	34.9	8.4	31.1	8.8	36.2	9.3		
Russia**	18	4.7	21.9	5.3	17.2	4.9	–			
In total	386.4	100	414.9	100	351.9	100	388.7	100	404.0	100

\* aggregated data are not available;

\*\* excluded from Lease Europe in March 2022 due to the aggression of the Russian Federation in Ukraine.

Source: compiled by the author based on official data from Lease Europe (n.d.) for 2018–2022.

In 2017, the portfolio of new leasing agreements reached EUR 384.1 billion (9.4% growth compared to the previous year), with around a third of national markets experiencing double-digit growth compared to the previous year – especially the Netherlands, Poland, Russia and Bulgaria. In 2018 it was noticed an increase in the leasing business by 7.7% compared to the previous year, with most participating countries having positive results, with the exception of Greece, Slovakia, Turkey and the Czech Republic. The largest increase was observed in the Netherlands, Poland, and Bulgaria. In 2019, the volume of new leasing agreements increased by 6%, positive results are observed in many countries, except Italy and Portugal, parts of the Central and Eastern Europe region and the Baltic countries (Lease Europe, n.d.).

The total value of new leasing agreements in 2020 amounted to EUR 351.9 billion, decreasing by 14.2% compared to the previous year. Due to the global COVID-19 pandemic, most national leasing markets in Europe showed deterioration in performance, with around 3/4 of countries recording double-digit declines in 2020 compared to the previous year.

The Baltic countries, Croatia, Portugal, Spain and Morocco suffered the biggest losses, with total new leasing volumes falling by more than 20%. In contrast, Ukraine, Turkey and Greece were the only countries to indicate growth in new volumes in 2020, while recovering from the low levels reached in previous years (Lease Europe, n.d.).

In 2021, the total volume of new leasing agreements amounted to EUR 388.7 billion, which shows an increase of 15.8% compared to 2020. Great Britain continues to occupy a leading position on the European leasing market with new volumes worth EUR 90.6 billion, followed by Germany and France (Lease Europe, n.d.). According to the latest published statistical data, at the end of 2022, the volume of new leasing agreements amounted to EUR 404 billion, which is 3.9% more than the previous year.

In general, recent years have been marked by a significant revival of the European leasing sector: most national markets have received positive results, including more than three-quarters of countries recorded double-digit growth. Thus, the countries of the Baltic region, Turkey, Slovenia and Sweden showed the highest increase in the total volume of new agreements – the increase was more than 30%. It is important to note that the main leasing sectors, which are related to automotive, engineering and industrial equipment, are improving their performance in all directions.

Along with the revival of European leasing, the data of the *Table 2* indicate negative trends and a decline in activity on the leasing market of Ukraine in recent years, which was caused by the introduction of martial law in the country and the risks that accompany business entities in these conditions.

*Table 2*

The main indicators of the non-bank market of financial leasing services  
in Ukraine in 2013–2023

Indicator	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
The value of current financial leasing contracts, UAH billion	67.1	58.6	26.3	23.2	22.8	25.2	29.0	42.0	48.8	43.9	42.3
The value of new financial leasing contracts, UAH billion	31.6	7.4	6.3	9.8	13.0	22.2	26.2	26.1	10.6	3.3	2.1
GDP (real), UAH billion	1410.6	1365.1	1430.6	2034.4	2445.6	3083.4	3675.7	3818.5	4363.6	3865.8	2800.1
Share of the value of current financial leasing contracts in GDP, %	4.76	4.29	1.84	1.14	0.93	0.82	0.79	1.10	1.06	1.14	1.5
Share of the value of new financial leasing contracts in GDP, %	2.24	0.54	0.44	0.48	0.53	0.72	0.71	0.68	0.91	0.09	0.08

\* as of the 3rd quarter.

*Source:* compiled by the author based on official data of the National Bank of Ukraine (Official website of the National Bank of Ukraine, n.d.) and the State Statistics Service (State Statistics Service of Ukraine, n.d.), 2013–2023.

In connection with the deterioration of the situation in the economic and financial spheres, military and political events in the Crimea and in the East of Ukraine in 2014–2015, a decline was observed in the market of leasing services. Since the demand for leasing decreased, the credit-worthiness of lessees deteriorated, the equity capital of leasing companies decreased due to the appearance of systemic losses and the cost of the resources involved increased (Transformation of the financial sector, June 2018). The value of current leasing contracts, after a sharp reduction in 2015, showed certain stability over the next four years (from UAH 23.18 to 29 billion).

The first positive year in terms of indicators in Ukraine after the crisis was 2016. According to statistical data, the number of new lessor contracts in the non-banking sector increased to 9 160 in 2016 (by 22%), before decreasing in 2017. to 7 752 (Leasing industry in Ukraine, June 2018). In 2021, the value of leasing agreements increased by 9.8% compared to 2020 and by 58.8% – since 2019. At the same time, despite the positive dynamics of the growth of the value of contracts in recent years, this amount did not reach the value of UAH 67.1 billion in 2013, the historical maximum of the studied decade.

Penetration Rate is one of the important indicators of the financial leasing market. This indicator can be calculated by two methods. The first is

the ratio of the value of leasing contracts to the total investment in fixed capital reflects the competition of leasing with alternative forms of financing. According to studies (UAL, 2021; Netudikhata, 2017, p. 94), this indicator has the highest values in Australia (about 40%), Canada (32%), Great Britain (31.1%), and the lowest (4%) is in China.

The second indicator, the ratio of leasing to GDP, is more reliable, as it is based on a broader calculation denominator and takes into account the sectoral structure of the economy. The highest values of this indicator (in terms of new leasing contracts) are observed in Sweden (about 3.03%), Great Britain (3.02%), the USA and Australia (2.08%), and the lowest (0.77%) in Italy (Netudikhata, 2017, p. 94). As we can see, in Ukraine since 2015, the values of the share of leasing in GDP have been low, both from the point of view of newly concluded contracts and from the perspective of all current leasing contracts. Only in 2013, it was almost 5% (4.76%), and in subsequent years it only fell, which indicates the decline in the role of financial leasing as an investment tool and the reduction of the scale of its use in the country's economy. Also, according to the results of the military year 2022, the volume of newly concluded leasing agreements on the domestic market decreased by 68.4%, and their share over the past ten years has a record low value of 0.09%.

The rate of leasing penetration can also be calculated in a part of the market, for example, according to UAL data, the largest number of vehicles leased in Ukraine is passenger cars. The degree of leasing penetration in the domestic automobile market is 13%, and in the car market – 11.4% (Leasing industry in Ukraine, June 2018).

### **3. Strengthening the positions of Ukrainian banks in the field of providing financial leasing services**

Banks and non-bank financial institutions can provide leasing services in Ukraine. Although financial companies with the right to carry out leasing activities are more numerous, they are not the main players in the market – it is legal entities lessors who form the main part (90%) of financial leasing contracts. According to the Ukrainian Association of Lessors, its 16 members make up about 80% of the Ukrainian market (UAL, 2023).

Despite the fact that a large number of financial institutions are registered in Ukraine with the right to conduct factoring and leasing activities, in reality they may not conduct leasing activities. As stated in the report "Leasing industry in Ukraine: trends and recommendations for growth", the data of the National Financial Services Agency (the regulator of the non-banking sector until 2020) does not show a clear picture of the market due to outdated reporting forms for data processing. It is also practically impossible to distinguish between companies that are registered to provide



services, but do not actually conduct activities, and those that are active lessors (Leasing industry in Ukraine, June 2018).

Banks, as well as financial companies that have the right to provide leasing services, do not position themselves as the main players in the financial leasing market. At the same time, the study of bank financial leasing shows the increase in the number and value of leasing agreements in the banking sector in recent years.

The number of banks that actually provide financial leasing services is stable and ranges from 17 to 19 institutions, including Privatbank, Ukrgasbank, PUMB, Kredobank, Taskombank, Ukreximbank, Poltava-Bank, etc. In 2020, Ukrainian banks concluded financial leasing agreements in the amount of UAH 6.7 billion, which is 14% less than in the previous year, and the portfolio of banking leasing agreements increased by 10% during the reporting period. In general, the three largest banks by the size of the leasing portfolio have a share of 63% of the total value of the banks' portfolios, and the ten largest banks – 98%. In 2021, the value of new agreements concluded by banks amounted to UAH 9.22 billion, which indicates an increase of 37.5% compared to 2020.

According to official data, the Bank "Investments and Savings" took the lead in terms of annual indicators, the increase in the value of its new transactions amounted to 64 66 3% compared to the same period last year, and reached the mark of UAH 212 million. Ukreximbank also increased its efforts, which grew by 10 323%, concluding deals for a total of UAH 156 million. The three leaders in terms of growth dynamics are completed by Poltava Bank, which increased the value of new transactions by 1.724%, or up to UAH 7.5 million. The growth of the segment was also facilitated by the activity of several new players who were not active last year. Among them there is Cominvestbank, Pivdenny Bank, Bank Sich, Yunex Bank. In general, the bank's portfolio of leasing agreements as of the reporting date amounted to UAH 11.3 billion, i.e., its volume increased by 3% over the year. The three largest banks by the size of the leasing portfolio have a share of 53% of the total value of bank portfolios (UAL, 2021).

Thus, the dynamics of bank leasing remained impressive in the conditions of the "Covid" economy, ahead of macroeconomic indicators, which confirms the huge potential and sustainability of leasing as a financial instrument.

According to the latest official data, as of the third quarter of 2023, the banking leasing sector continues to maintain positive dynamics in terms of the number and value of new leasing agreements. Thus, over the last year, banks concluded 36.5% more new financial leasing agreements, while at the same time, the total banking portfolio of leasing agreements decreased insignificantly. Privatbank, Ukrgazbank, Ukreximbank, PUMB and Kredobank continue to remain in the top five in terms of portfolio size (UAL, 2023).

#### 4. Orientation of leasing services in Ukraine to the spheres of agriculture and the transport industry

In recent years, representatives of the transport industry and agriculture have been the largest lessees in Ukraine, the volume of active contracts under which as of the 3rd quarter of 2023 amounted to UAH 9 334.3 million and UAH 11 091.4 million, respectively. These two industries have the largest share (almost 50% of the total) in the value of current contracts, and the third place is occupied by the service sector, the share of which has doubled in recent years (*Figure 1*).

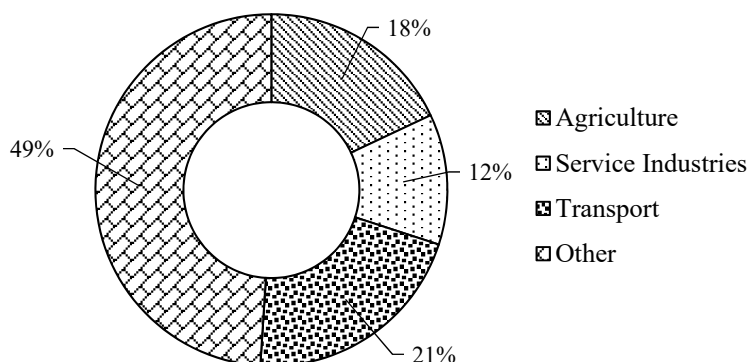


Figure 1. The structure of the leasing portfolio of Ukraine by the largest industries in 2023

*Source:* compiled by the author based on NBU data (Official website of the National Bank of Ukraine, n.d.), 2023.

Leasing in the field of agriculture has become highly developed in Ukraine, as our state is one of the leading agrarian countries in the world and is among the ten largest exporters of agricultural products. According to the latest UAL data, OTP Leasing is the undisputed leader in this field. The Ukrainian Agricultural Business Club (UKAB) in the information on the structure of leased assets in the agricultural sector notes that the main equipment for which leasing contracts were concluded were tractors (50%), combines (25%) and cultivation equipment (25%) (Leasing industry in Ukraine, June 2018).

The data suggests that lessors are also interested in leasing highly liquid equipment that can be easily returned and resold, with cars being a prime example. In the portfolios of most leasing companies, cars are usually the dominant subject of financial leasing.

Car leasing is certainly the most developed part of the Ukrainian leasing market. Some larger companies operate with "full service agreements" where the lessor manages the company's vehicle fleet. The experience of international companies in providing this type of leasing (AVIS-Ukraine or ALD Automotive) is successfully used by other companies, such as "ULF-Finance" or "OTP Leasing". According to official data, the number of leased cars in 2016 was 6 thousand units, which is 70% more compared to 2015, and in 2017 the total number of leased cars was 5 871. The leaders were the companies "

OTP Leasing" (1 615 cars), "ULF Finance" (1 249) and "Porsche Leasing Ukraine" (1 117) (Leasing industry in Ukraine, June 2018). The sectors in which leasing is only gaining momentum in our country are the computer and telecommunications spheres, as well as the health care sector, the share of which does not even exceed 1%.

At the same time, the structure of leasing in the economic sectors of individual countries is quite different, which is related to the specifics of economic activity. For example, in Japan, which is one of the leaders in the field of high technologies, the largest share is IT and telecommunications leasing (32%), transport, followed by trade and service equipment with a share of 14%. The situation is significantly different in Germany, where the leasing portfolio consists of 77% of transport, 8% of industrial equipment and 6% of IT and office equipment. In Poland, 45% of leasing is cars and light commercial vehicles, trucks and buses – 26%, industrial equipment – 20%, agricultural machinery – 7.3% and IT – 3% (Leasing industry in Ukraine, June 2018).

The results of the analysis of the pan-European leasing portfolio structure show that the largest leasing sector in recent years has remained transport (Figures 2, 3).

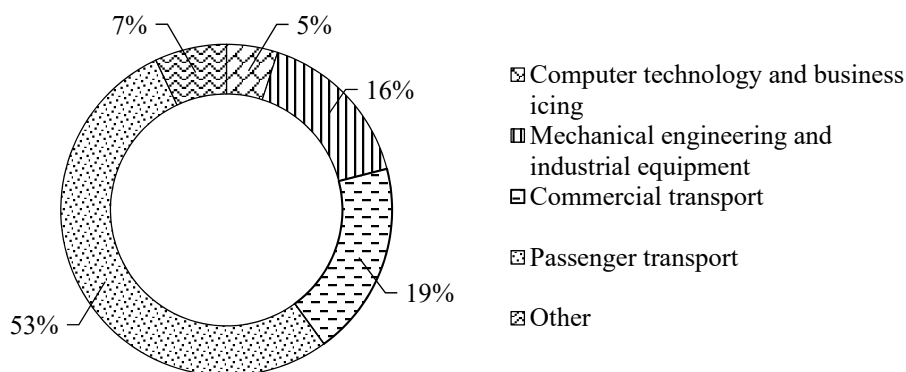


Figure 2. Volumes of new leasing equipment by types of assets in European countries in 2019–2022

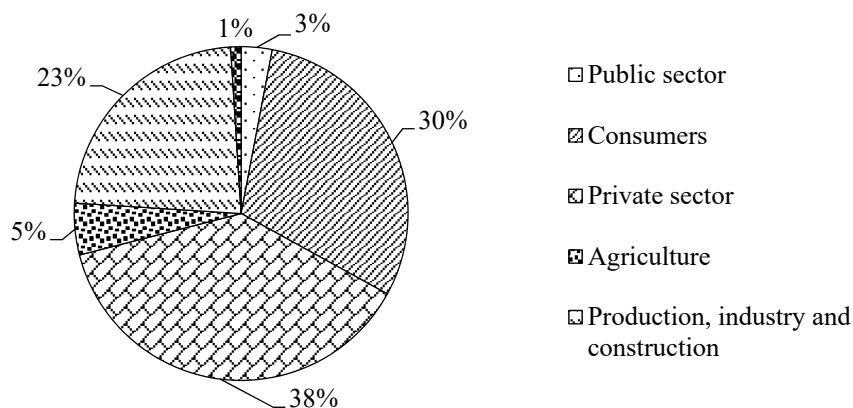


Figure 3. Leasing volumes by customer category in European countries in 2019–2022

Source: Compiled by the author based on official data (Lease Europe, n.d.).

Cars and commercial vehicles account for 72% of the total volume of new services provided in recent years, remaining the largest single segment of assets in the European leasing market. Leasing of industrial equipment takes the third place (16%), and leasing of computer equipment and business equipment – the fourth position (5%). About two-thirds of new equipment leasing (including vehicles, 38%) was to the private sector (business), with 30% to consumers and 3% to government. The agriculture, manufacturing, industry and construction sectors use leasing the least (Lease Europe, n.d.).

Thus, today leasing is a very important way of financing for many companies around the world. The share of leasing is particularly important for the development of small and medium-sized businesses: it is an actual source of financing for 48% of business entities in the EU. Among the companies that consider leasing an important source of financing, there are companies from Germany, Great Britain and Poland (third place in Europe with 60% of companies that indicate that they are interested in using leasing in the future) (Leasing industry in Ukraine, June 2018).

### **Conclusions**

Just as the Ukrainian leasing market began to recover from another crisis, a full-scale invasion by the Russian Federation took place, which was a shock to the country's economy. The leasing market suspended its full-fledged work in the first month, and only in April 2022, after a break of more than forty days, it resumed financing primarily the agricultural sector – agricultural clients of medium and small businesses.

Despite a number of problems, the leasing market of Ukraine has every prospect of becoming one of the powerful markets of the Central and Eastern Europe region. First of all, the attraction of external financing and the support of the state from the development of various development programs will allow to increase the volume of leasing in such areas as equipment for road construction, medical equipment, passenger transport and real estate.

The development of vendor financing is no less important for the domestic market of financial leasing services. Currently, the most popular scheme in which the leasing market operates in Ukraine is through consumers, that is, the initial contact is formed at the level of the lessee and the lessor. In a vendor scheme, the potential lessee approaches the manufacturer or dealer of the asset and accesses the lease through him. Using the vendor scheme, the lessee has access to the lease at the point of sale of the asset rather than at the point of financing. According to a report prepared for Lease Europe by Oxford Economics, the most popular leasing option in Europe is vendor financing.

Thus, the market of financial leasing services of Ukraine has significant potential and opportunities for development, which may open up during the recovery of the post-war economy thanks to the joint efforts of the state, the regulator, lessors and business.

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**KULYK Mariia,**

PhD in Economics, Associate Professor,  
Associate Professor of the Department of Hotel and  
Restaurant Business  
State University of Trade and Economics  
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0001-8732-7441

m.kulyk@knute.edu.ua

**LIPOWSKI Marcin,**

Doctor of Sciences (Economics), Professor, Head of  
the Department of Marketing  
Maria Curie-Skłodowska University  
20-031, Plac Marii Curie-Skłodowskiej, 5,  
Lublin, Poland

ORCID: 0000-0001-7318-5286

marcin.lipowski@mail.umcs.pl

**BOIKO Margaryta,**

Doctor of Sciences (Economics),  
Professor, Head of the Department of Hotel and  
Restaurant Business  
State University of Trade and Economics  
19, Kyoto St., Kyiv, Ukraine, 02156

ORCID: 0000-0003-0249-1432

m.boyko@knute.edu.ua

**ACCOMMODATION FACILITIES  
FOR MIGRANTS: POLISH  
EXPERIENCE**

*The social properties of the hotel business are objectively determined by the course of phenomena and processes that reflect, on the one hand, the relevance of the increase in the economic activity of the social component, which is focused on the social needs of the consumer, and on the other hand, the strengthening of the importance of the social factor in the conditions of humanitarian crises. The trigger that led to the growth of the social function of the hotel business was the full-scale invasion of Russian troops into Ukraine, which caused a wave of migration of the Ukrainian population. In these conditions, the Polish hotel business implemented the function of social responsibility towards Ukrainian refugees, offering temporary shelter and organizing needs. The research aim of this paper is to analyze the role of hotels in the direction of Ukrainian refugees support during 2022.*

**КУЛИК Марія,**

к. е. н., доцент, доцент кафедри  
готельно-ресторанного бізнесу  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0001-8732-7441

m.kulyk@knute.edu.ua

**ЛІПОВСЬКИЙ Марчин,**

д. е. н., професор,  
завідувач кафедри маркетингу  
Університет імені Марії Склодовської Кюрі  
Плас Марії Curie-Skłodowskiej, 5,  
20-031, Lublin, Poland

ORCID: 0000-0001-7318-5286

marcin.lipowski@mail.umcs.pl

**БОЙКО Маргарита,**

д. е. н., професор, завідувач кафедри готельно-  
ресторанного бізнесу  
Державного торговельно-економічного  
університету  
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0003-0249-1432

m.boyko@knute.edu.ua

**ЗАСОБИ РОЗМІЩЕННЯ  
МІГРАНТІВ:  
ДОСВІД ПОЛЬЩІ**

*Соціальні властивості готельного бізнесу об'єктивно обумовлюються перебігом явищ та процесів, які відображають, з одного боку, актуальність наростання в економічній діяльності соціальної складової, що орієнтована на соціальні потреби споживача, а з іншого – посилення значущості соціального чинника в умовах гуманітарних криз. Тригером, який зумовив зростання соціальної функції готельного бізнесу стало повномасштабне вторгнення російських військ в Україну, що спричинило хвилю міграції українського населення. У цих умовах польський готельний бізнес реалізував функцію соціальної відповідальності щодо українських біженців, пропонуючи тимчасовий прихисток та організацію задоволення потреб. Метою статті є дослідження особливостей соціальної підтримки українських біженців готельним бізнесом Польщі в умовах*



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*General scientific and special methods of cognition were applied: abstract-logical and comparison; analysis and synthesis, analogies, questionnaires; theoretical generalization and formulation of conclusions. The obtained results of the research on the peculiarities of providing temporary accommodation and food services to refugees indicate that the satisfaction of their primary needs intensified the determination of the importance of the social functions of the hotel business in the conditions of humanitarian crises. It has been proven that it is expedient to include informational and social services (assistance in employment) in the structure of hotel services. It has been established that the needs and expectations of refugees will require the hotel business to develop a certain algorithm of actions to attract external funding, which is a factor in ensuring (growth) of revenue and the ability of hotels to increase the amount of support to refugees without reducing key indicators of economic activity. The relevance of the topic of gender is confirmed by the coverage of the issue of providing guarantees to the hotel business by the United Nations Refugee Agency in order to create proper conditions for refugees in the conditions of military conflicts. Support for migrants is, on the one hand, "search for sources of funding" and, on the other, "assistance in the integration process." The article describes the areas of support offered by hotels to refugees seeking temporary shelter in Poland. Taking into account the experience of the social activities of Polish hotels will allow to increase the level of social responsibility of national hotel chains, gives them the opportunity to be involved in the decision-making process that will restore the hotel business in Ukraine.*

*Keywords:* hotel business, social support, social responsibility, funding, revenue, integration process.

**JEL Classification:** A13, F35, M14.

## **Introduction**

Since the beginning of Russia's full-scale invasion of Ukraine on February 24, 2022, hundreds of thousands of civilians have been forced to flee their homes and seek safety due to the threat of constant bombing, destruction, and life-threatening war-related threats. A significant movement of military migrants left the borders of Ukraine. Many countries in Europe are actively trying to offer shelter and help for the urgent needs of those who have left their homes. The social properties of the hotel business are objectively determined by the course of phenomena and processes that reflect, on the one hand, the relevance of the increase in the economic activity

*війни. Застосовано загальнонаукові та спеціальні методи пізнання: абстрактно-логічний, порівняння; аналізу і синтезу, аналогії, анкетування; теоретичного узагальнення і формулювання висновків. Отримані результати дослідження щодо особливостей надання послуг тимчасового розміщення та харчування біженцям вказують, що задоволення їхніх першочергових потреб активізувало визначення вагомості соціальних функцій готельного бізнесу в умовах гуманітарних криз. Доведено, що у структуру готельних послуг доцільним є долучення таких видів, як інформаційні та соціальні (допомога у працевлаштуванні). Встановлено, що потреби та очікування біженців вимагатимуть від готельного бізнесу розроблення певного алгоритму дії щодо залучення зовнішнього фінансування, яке є чинником забезпечення (зростання) доходів та спроможності готелів збільшувати обсяги допомоги біженцям без зменшення ключових показників господарської діяльності. Актуальність тематики статті підтверджена висвітленням проблематики забезпечення гарантій готельному бізнесу з боку Агентства ООН у справах біженців з метою створення належних умов для біженців за військових конфліктів. Підтримка мігрантів – це, з одного боку, "пошук джерел фінансування", а з іншого – "допомога в інтеграційному процесі". Дослідження розкриває напрямки підтримки, які готелі пропонували українським біженцям у пошуках тимчасового притулку в Польщі. Врахування досвіду соціальної діяльності польських готелів дозволить підвищити рівень соціальної відповідальності національних готельних мереж.*

*Ключові слова:* готельний бізнес, соціальна підтримка, соціальна відповідальність, фінансування, доходи, процес інтеграції.



of the social component, which is focused on the social needs of the consumer, and on the other hand, the strengthening of the importance of the social factor in the conditions of humanitarian crises. The trigger that led to the growth of the social function of the hotel business was the full-scale invasion of Russian troops into Ukraine, which caused a wave of Ukrainian population migration. In these conditions, the Polish hotel business implemented the function of social responsibility towards Ukrainian refugees, offering temporary shelter and organizing needs. The study of the experience of the social activities of the Polish hotel business is relevant in view of the nature of Russia's war against Ukraine, which determines the need for the implementation of social functions by domestic hotels in conditions of humanitarian crises.

The United Nations Refugee Agency (UNHCR) estimates that around 103 million people are forcibly displaced worldwide. The number of refugees from Ukraine registered for temporary protection or similar national protection schemes in Europe is 4 004 895 (UNHCR, n. d.). According to UNHCR 69% of refugees and other people in need of international protection lived in countries neighbouring their countries of origin. Poland is playing the most important role among the countries receiving war refugees from Ukraine, with around 3.5 million persons who arrived in Poland between 24 February and mid-May 2022 (Duszczuk and Kaczmarczyk, 2022). Now the official number of refugees from Ukraine in Poland is 993 755. The year of the war intensified the problems associated with forced migration, in particular the definition of competences in the labor market (Duszczuk et al, 2023). Hotels play a big role in housing refugees and people fleeing war. In addition, the Polish government provided Ukrainian refugees with access to the labor market and social benefits that were previously unavailable to most migrant workers. Many of them are ready to work in the field of hospitality (European Commission, 2022). According to the experience and needs of refugees, this study will demonstrate the vision of the directions of their support by Polish hotels. It is important to determine sources of funding and develop rules for the interaction of Polish hotels and Ukrainian refugees.

The aim of the article is to justify the social role of the Polish hotel business in supporting Ukraine during war. To achieve the set aim, the following tasks must be completed: research peculiarities of migration processes and conditions for refugees in hotels; discover the peculiarities of services offered for Ukrainian refugees in Polish hotels; research the structure of provision free or reduced-price accommodation and meals for Ukrainian refugees in Poland in 2022.

Regarding the realization of the set aim, a hypothesis was formulated that experience of the social activities of the Polish hotel business is relevant in view of the nature of Russia's war against Ukraine, which determines the need for the implementation of social functions by domestic hotels in

conditions of a humanitarian crisis. In the conditions of military conflicts, one of the urgent problems, facing any business entity, is the determination of the prerequisites for the implementation of social functions to overcome the consequences of military actions on the civilian population, which is actively analyzed in discourses on the performance of social functions by business.

To test the hypothesis, the following general scientific and special research methods were applied: survey methodology (data collection from a diverse sample), abstract-logical analysis and comparison (migration processes and refugee needs identification); logical generalization (formulation conclusions from the conducted research).

In the main part of the article, the expediency of studying the experience of Polish hotels that scaled the process of providing services to Ukrainian refugees in 2022 is actualized, the studying the peculiarities of the organization of the process of providing services to refugees is provided. The sources of covering costs, which creates a praxeological basis for the further development of the concept of social responsibility of the hotel business, are determined.

### **1. Peculiarities of migration processes and conditions for refugees in hotels**

History remembers various types of migration flows of the past and present centuries associated with crisis phenomena and processes. Namely, in Europe, immediate post-war resettlement migration, mass migration of "workers", a phase of economic restructuring and family reunification, asylum seekers and illegal migration were observed (King, 2019).

Other sources discuss "Circular migration" from Ukraine based on the "temporary migration". For example, Fihel et al (2012) provides that labour immigration and foreign employment in Poland have been increasing constantly over years.

A separate challenge for the labor market regarding the outflow/inflow of migrants was the pandemic Covid 19, during which problems arose related to labor migration management and the latest legislation regulating the employment of migrants (Matusz and Aivaliotou, 2020).

In mid-March 2022, Poland introduced a special law that allowed refugees from Ukraine apply for a newly created legal status valid for 18 months after arrival (with possibility of extension). After receiving this status, refugees had the right to learn the Polish language, receive social assistance, and legal employment in Poland. Of the 2 million refugees who arrived by April, 1 million applied for special status. Other refugees have either migrated to other EU countries or chose not to apply for status because they were considering early return to Ukraine (Gromadzki and Lewandowski, 2023).

According to the Act on Assistance to Citizens of Ukraine in Connection with the Armed Conflict on the Territory of Ukraine it was established the right of co-financing of the costs of stay and meals in collective accommodation centres by Ukrainian citizens. Temporary shelter programs financed by international charitable organizations, private companies and directly by hotels were opened throughout Poland. Refugees from Ukraine got access to free housing in Poland.

Migration processes, a challenge for the Europe of the future, unite the interests of solidarity and the fight against economic recession and unemployment of all kinds. Tourism and hospitality is a determinant of economic development and participation, as well as a necessary condition for access to the labor market and social benefits, as well as the opportunity to work and participate fully, freely and autonomously in the life of the community. According to (Mazaraki, A. et al., 2018) the main problems and challenges that need to be addressed to develop a national tourism system are forming strategic development priorities for the tourism sector.

However, in Ukraine since February 24, national surveys have shown a constant number of people willing to work in hotels, about 10% of internally displaced persons (IDPs).

The economic capabilities of the hotel and the region played a decisive role in making decisions regarding the accommodation of refugees. Regionally, the ratio of the number of refugees to the population is influenced by the following factors, namely: unemployment rate, income per capita (proportionate personal income tax (PIT)), social networks, availability of hotel rooms (Gromadzki and Lewandowski, 2023).

Hotels are not just a place for temporary accommodation and food for refugees from Ukraine. The need to obtain information and find places for refugees to stay longer creates new situations and gives rise to new challenges for hotels in their operational activities. One of them is the need to find data on sources of funding and opportunities to support people who are forced to leave their homes and seek temporary protection, while using opportunities for communication and providing information in the Ukrainian language. This peculiar and different from other operational processes in the hotel direction of activity (or, speaking more broadly, social focus on support and assistance) becomes the modern reality of the development of entrepreneurship in a turbulent environment (Skokic et al., 2016).

This trend can also be seen in many i global hotel organization for employing migrant labor, including Hilton, Accor, Radisson (Zheleznyak, 2017), as well as some national Arche chain. However, there are no wider studies in the field of determining the sources of funding and directions of support for refugees in Poland, so the definition of the structure of support and assistance is considered worthy of careful analysis. Such a research need is especially important in the context of discussions about the need to integrate Ukrainian refugees into public life in Poland.

The aim of the research is to identify the mechanisms that lead to the establishment of a new social and collaborative strategy, looking at the decisions, information and actions required to carry out the contracting process, turning it into a real strategic plan, to identify the mechanisms that lead to the creation of a cooperation strategy that allows to implement the social function of business, provides formalisation of managerial decisions and actions necessary for the process of concluding social contracts, turning them into a real plan. The basis of research is general scientific methods of cognition: theoretical generalization, comparative analysis and synthesis for processing factual information, induction and deduction. The materials of the research and its results are illustrated by structural and logical diagrams.

## **2. Peculiarities of services for Ukrainian refugees in Polish hotels**

It will question the impact of defining the roles and responsibilities of the different players involved – particularly by using inclusion and weighing proactivity, innovation and collaboration, and establishing effective mechanisms that can be observed and interact with economic or locational difficulties. The survey was conducted on 100 hotels using the CAWI method (computer assisted web interview). The survey was conducted between April and May 2023, and focuses on the period from 24 February to the end of 2022, as it is covered by the available data from the hotel reports we use. Approximately 300 hotels were invited to participate in the survey, of which 100 replied to the questionnaire. The questions were most often answered by people employed as managers in the hotel. Hotels from every voivodship took part in the survey sample. Three-star hotels participated most frequently in the survey, and the average number of rooms in the surveyed hotel was 41. It should be noted that the hotels participating in the survey were unwilling to provide information about them, and a lot of missing data was identified in the hotel metrics.

Hotels from every voivodship took part in the survey sample. The numbers of hotels from the different voivodeships of Poland are presented in *Figure 1*. As a result of the analysis of a priori information regarding the answers by chosen cohort to the questionnaire items, 6 incomplete answers were identified, accordingly reducing the number of questionnaires (N = 94).

The average occupancy rate of the hotels surveyed was 61% in 2022. Of the total guests, refugees from Ukraine accounted for an average of nearly 23% of the number of people staying in the hotel in 2022. As the research shows, the increase in the number of visitors from the Ukraine in 2022 also affected prestigious, historic hotels (Sala, 2022). Poland's hospitality industry reported an increase in guest numbers to a level comparable to pre-pandemic 2019, but at the same time experienced a decrease in foreign guest interest due to the ongoing war in Ukraine (Rynek hoteli i condohoteli w Polsce, 2023).



Figure 1. Number of hotels surveyed in each Polish voivodship

Source: compiled by the authors based on on survey results.

The majority of hotels surveyed declared that the outbreak of the war did not have a negative impact on hotel occupancy, probably from an increase in hotel occupancy due to the end of the pandemic. Thousands of Ukrainian refugees were housed in hotels in Poland. The structure of hotel guests in Polish hotels is illustrated in *Figure 2*.

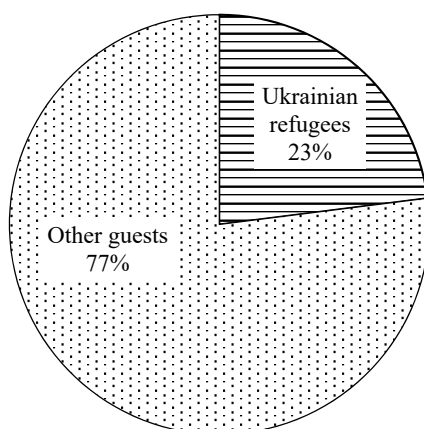


Figure 2. Percentage of Ukrainian refugees in the total number of hotel guests in Poland in 2022

Source: compiled by the authors based on on survey results.

Among the hotels participating in the survey, only 13% declared that they did not provide support to refugees from Ukraine. The vast majority of hotels – 87% – declared various types of support.

The number of refugees in hotels was generally higher in Western than in Eastern Poland. In the largest cities, such as Warsaw, Krakow, Wroclaw and Gdańsk, the number of hotels that supported Ukrainian refugees is greater, which is due to the capabilities of large chain hotels. The average length of stay of Ukrainian refugees in hotels for free or at reduced rates is about 5 days in hotels along the coast of the Baltic Sea and the southern and western borders of Poland, due to further migration to other countries.

The survey examines the spatial distribution of hotels supporting Ukrainian refugees, the sources of funding that determine their decision to provide free or reduced accommodation and meals, employment in the hotel, and finally, the consequences of changing orientations and strategies of Polish hotels.

In times of a turbulent environment, when there are risks of losses for hotels, it is necessary to look for sources of funding for social projects that are based on the possibilities of creating a positive image and reputation, to choose new communication channels aimed at a radically new segment of visitors, cross-cultural and charitable activities, at the same time while maintaining high standards of hotel services.

The hotel business is directly related to investments, but with the beginning of hostilities on the territory of Ukraine, the majority investment projects from both investors and banks had to be frozen. Corporate social responsibility has become a priority (Farmaki, 2019). Among the stakeholders involved in the financing of refugee accommodation are international charitable foundations and organizations, which, in turn, determine the orientation of hotels towards the realization of a social function, while the influence of stakeholders, largely formed by the interdependent, multifaceted nature of the provision of services, determines the implementation of new strategies for supporting refugees. However, from the point of view of investments, foreign investors who wanted to enter the hotel market of Poland have suspended their activities and are watching the further development of events.

An example of a hotel's strategy change to a socially oriented one is a self-organized housing project for homeless refugees in the center of Athens, known as the City Plaza Refugee Accommodation Center. The City Plaza Hotel, as a practical alternative to a classic hotel, is an example of autonomous solidarity on a local scale. According to Agustín et al. (2019) hotel accommodation cannot be seen as a single solution to the "refugee crisis", but as a micro example of how solidarity work can provide alternatives and a "utopia" of how the crisis can be managed.

In Poland, large international and national hotel chains have launched assistance services for refugees from Ukraine under martial law. Information and assistance was provided both to individual refugees and to companies looking for a place for the families of employees, to crisis teams created by voivodeship administrations, to foundations and societies that help the needy.

Hotel teams of major international brands directed their efforts to support Ukrainian refugees. In particular, Hilton, Hayatt, Radisson provided shelter for a period of 5 days and accepted migrants from Ukraine. The structure of the guests was dominated primarily by female migrants with children, who either temporarily lived in accommodation facilities, and then returned home, found permanent housing in a new city for themselves, or moved further afield.

In addition to the standard range of services, hotels support Ukrainian refugees in their adaptation in Poland. In cooperation with other organisations and volunteers, the hotels provide free adaptation programmes such as Polish language courses, qualified vocational training, animation for children and necessary psychological assistance. Information support consists of support and control of formalities related to legalisation of stay, benefits, access to education and other issues.

Despite the fact that the main purpose of hotels is to generate income (Helmold, 2020), today, finding sources to finance social projects is becoming an increasing problem, mostly caused by the large number of refugees who need free accommodation and food (Schmelter, 2019). Most research on this issue highlights several different approaches to finding sources of funding. Among them are financing from large international charitable organizations, reimbursement of expenses under government programs, and assistance from private entrepreneurs. The most widespread type of sources for financing social projects related to refugees are those that accumulate funds from charitable funds in partnership with large international organizations (Mayblin and James, 2019).

An exemplary model as a welcoming nation to refugees was developed in the United States of America, which was later destroyed by the Trump administration (Mathema and Carratala, 2020). This follows a simple principle: "Trump administration dramatically reduced the apparatus of resettlement of refugees both inside the country and abroad" (La Corte, 2019).

In Turkey, it was found that the driving force behind the formation of refugee policy is an instrumental interest in maintaining political power, rather than humanitarian concerns (Mccarthy, 2021).

Analysing the provision of free or reduced-price accommodation and meals for Ukrainian refugees in Poland we illustrate the structure of hotels that provided support to refugees in 2022. It was prepared based on the analysis of primary and secondary data – publicly available information contained on [hospitalitysupport.org](https://hospitalitysupport.org), supplemented by the results of a survey

of hotel managers in Poland conducted by the authors of the article from 30 April to 30 May 2023. The results of the study showed that 28% of hotels in Poland have provided free accommodation to Ukrainian refugees since the start of the full-scale invasion of Ukraine. In March 2022, global hoteliers joined in to help internally displaced persons from Ukraine who needed a short-term stop and rest. Hilton, Le Meredien, Hyatt, Kempinski, Radisson and other hotel chains provided free rooms in their hotels for Ukrainians forced to flee the country.

Management and employees of Polish hotels were sent a questionnaire asking them to participate in the study. Data collection was carried out in 2023; the electronic questionnaire was distributed via e-mail or completed by conducting a personal or telephone survey. Respondents were guaranteed full confidentiality. Studies show that hotels in Poland are actively involved in the process of supporting Ukrainian refugees, which mainly consists in providing free or reduced-price accommodation and food services, informational assistance and employment. First, questions were included to select hotels that housed and fed Ukrainian refugees free of charge. Then hotels that provided services at reduced prices. Thirdly, the volumes and sources of funding provided to hotels to cover expenses incurred in connection with the provision of support were determined. The survey mostly contained closed questions to get a larger number of responses. Hotel responses were used as the dependent variables of interest for this study.

### **3. Provision of free or reduced-price accommodation and meals for Ukrainian refugees in Poland**

The analysis of the structure of services provided by hotels that supported Ukrainian refugees was mainly descriptive, with reference to the volume of this support, sources of funding or compensation. This was due to the potential risk that an overly quantitative approach would not capture the social strategy and areas of support offered by hotels, which cannot be measured by quantitative indicators. Another limitation is that the demand for hotel services is constantly changing in terms of functional and targeted purpose, which corresponds to the location and duration of service provision. Therefore, it is difficult to record statistics on the stay of Ukrainian refugees in hotels, the number of which often changes. Thus, all the numbers look completely different in a few months. Therefore, the above figures were taken for the period from 24 February to 31 December 2022. *Figure 3* shows the percentage of hotels offering free accommodation to refugees from Ukraine. In Poland 38% Ukrainian refugees in 2022 free accommodation in hotels, and 79% hotels, received compensation of costs providing accommodation and meals.



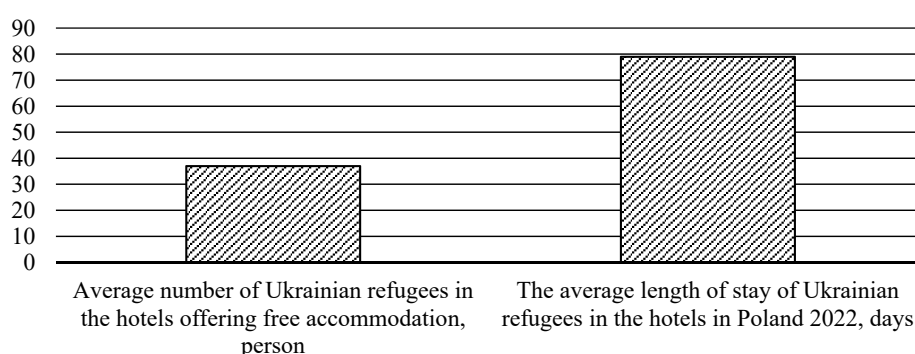


Figure 3. Percentage of hotels offering free accommodation to refugees from Ukraine

Source: compiled by the authors based on on survey results.

The research described in this section is based on the responses provided by the hotels, namely: number of hotels offering free accommodation and meals to refugees from Ukraine, number of hotels offering reduced price accommodation and meals to refugees from Ukraine, the amount of support that was compensated/subsidised by another entity to the hotel. It is worth noting that 38% of the hotels that took part in the survey provided such support free of charge, while the costs of providing accommodation and meals were mostly compensated by 79%. Hotels in Poland for Ukrainian refugees mainly provided accommodation and food support, but some of them were limited to informational support only. Regarding the localization of hotels and areas of support, two main trends were observed. The first group of hotels, namely five- and four-star hotels, located in large cities offered programs for short-term stay of refugees and the provision of services related to it with all the necessary areas of support. The number of hotels of this group and the average length of Ukrainian refugees stay indicates that accommodation in large hotels is of a short-term nature. It is used as a temporary shelter for a while until the refugees find housing for a longer period or go on to another region or country. Large hotels, within the framework of the social responsibility policy, had the opportunity to provide a comprehensive service to refugees, including family members of hotel employees, without seeking sources of external funding. Gradually, towards the end of 2022, programs of free accommodation of refugees began to be replaced by accommodation at reduced prices. The flow of refugees gradually decreased until the end of 2022, the system of their support by hotels was improved, new sources of financing were found, but hotels, realizing the importance of integrating refugees into Polish society, found the possibility of their employment. The second group of hotels are two- and three-star hotels and hostels located in small towns that provided services for longer accommodation of Ukrainian refugees for up to 120 days with simultaneous compensation from local and state budgets.

The ratio of the average number of Ukrainian refugees and the duration of their free accommodation and meals in hotels in Poland in 2022 is shown in *Figure 4*. The demand for free accommodation and meals since the beginning of the full-scale invasion significantly exceeded the capacity of hotels. However, it is worth noting that most hotels received external financing, which allowed to provide services in a larger volume and for a longer period. The average number of Ukrainian refugees used free accommodation in 2022 was 37 people per hotel.

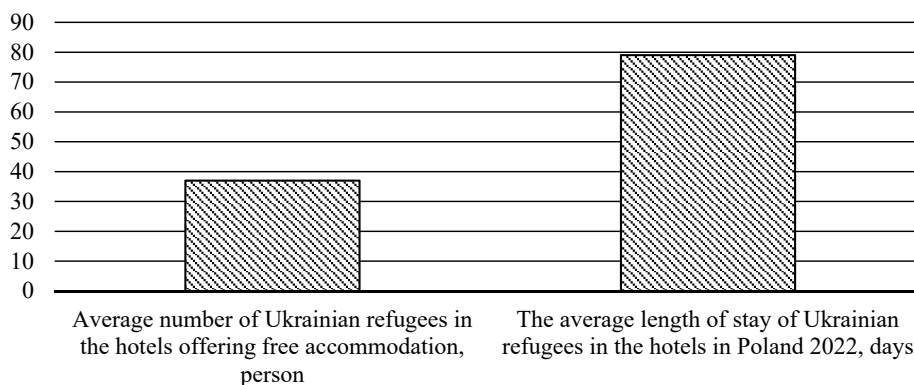


Figure 4. Average number of Ukrainian refugees in the hotels offering free accommodation and their length of stay in 2022

*Source:* compiled by the authors based on on survey results.

The average length of stay of Ukrainian refugees in hotels of 79 days is directly related to the 40+ compensation program, which provides support for hotel owners and reimbursement of expenses for a period of 120 days. Depending on the sources of funding, hotels made decisions either to accommodate refugees or to find employment opportunities with partial compensation for staying in the hotel. More than 50% of the hotels that participated in the study employed Ukrainian refugees.

**Conclusions**

The increase in hotel occupancy in 2022 occurred in particular due to the accommodation of refugees from Ukraine in hotels. According to the study, out of the total number of guests, refugees from Ukraine accounted for almost 23% of the number of people who stayed at the hotel in 2022. As the study shows, the growth in the number of visitors from Ukraine in 2022 also affected prestigious historical hotels. Most of the hotels surveyed said that the start of the war did not have a negative impact on hotel occupancy, probably due to an increase in hotel occupancy due to the end of the pandemic. It was found that the length of stay of war migrants in hotels in Poland was generally higher in Western Poland than in Eastern Poland. The number of hotels that provided support to Ukrainian refugees is higher in the largest cities, such as Warsaw, Krakow, Wrocław and Gdańsk, due to the capacity of large networks. The average length of stay of Ukrainian refugees

in hotels for free or at discounted rates is about 5 days in hotels on the Baltic Sea coast and the southern and western borders of Poland due to subsequent migration to other countries. Chain hotels of major international brands played a significant role in sheltering Ukrainians fleeing the war in 2022. The programs developed by them were aimed at temporary support of Ukrainian refugees in Poland. In particular, Hilton, Hayatt, Radisson provided shelter for five days and accepted migrants from Ukraine.

The study of cases of Polish hotels regarding their performance of social functions proved that social responsibility is a multifaceted process, which is considered as a source of resources for social investments. In difficult conditions, the hotel business acquires completely new qualities and functions, thanks to which the public perception of the hotel business is transformed through the prism of social partnership. Taking into account the experience of the social activities of Polish hotels will allow to increase the level of social responsibility of national hotel chains, gives them the opportunity to be involved in the decision-making process that will restore the hotel business in Ukraine.

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