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Oleksandra Zolotova

PhD Student, School of Economics and Management, Shaanxi University of Science and Technology, Xi'an, China;
e-mail: 90020@sust.edu.cn
ORCID: [0000-0001-5737-0801](https://orcid.org/0000-0001-5737-0801)
(Corresponding author)

Viktoriia Ivanova

Candidate of Economy Sciences,
Doctoral student of Global and National Security Department, Educational and Scientific Institute of Public Management and Public Service, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine;
ORCID: [0000-0003-4980-0765](https://orcid.org/0000-0003-4980-0765)

Dmytro Symak

D.Sc. in Engineering, Associate Professor at the Department of Accounting and Taxation, Institution of Higher Education "Lviv University of Business and Law", Lviv, Ukraine;
ORCID: [0000-0002-9256-7981](https://orcid.org/0000-0002-9256-7981)

Oleksandr Kudinov

PhD Student, National University "Yuri Kondratyuk Poltava Polytechnic", Poltava, Ukraine;
ORCID: [0000-0003-3196-2520](https://orcid.org/0000-0003-3196-2520)

Olena Slavuta

PhD in Economics, Associated Professor of the Department of Economics and Marketing, Academic and Research Institute of Economics and Management, O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine;
ORCID: [0000-0002-3597-9816](https://orcid.org/0000-0002-3597-9816)

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ECONOMY DURING MARTIAL LAW: PROBLEMS AND WAYS TO OVERCOME THE CRISIS (UKRAINIAN EXPERIENCE)

ABSTRACT

The aggressive invasion of the Russian Federation accumulated Ukrainian society and business in particular. External threats did not live up to the expectations of the bloody neighbour, who was betting on the economic collapse of Ukraine and, as a result, the collapse of our society. Accordingly, the purpose of this study is a systematic analysis of the main factors of the decline in economic indicators since the beginning of the full-scale invasion and the determination of means and mechanisms for overcoming the economic crisis, in particular by making effective state decisions. The analysis of foreign publications gave a clear understanding that the economic situation in Ukraine has a direct impact on the international economy and world geopolitics. In this study, the main factors that influenced the fall of GDP in Ukraine in 2022 and the circumstances that caused its stabilization were analyzed, individual branches of the economy, which, despite the devastating economic losses, showed resistance to the challenges of the war, were singled out. A separate assessment is given to the IT industry, which in modern realities has turned out to be the most adaptable for Ukraine. This led to the conclusion that the future of Ukraine lies in digital transformations with gradual integration into the smart economy. At the same time, in the course of the study, the specific stages that Ukraine must go through on the way to its economic recovery were determined, and the negative factors that prevent it even today were singled out. In particular, it was unequivocally established that corruption is a key inhibiting element of Ukraine's economy, it existed before the war and exists now, but it must disappear after the war, as its existence will reduce to zero the prospects of creating a legal, economically stable society and make real Ukrainian integration to the European community impossible.

Keywords: agro-industrial complex, anti-corruption policy, economy, international support, overcoming the crisis, smart economy, world markets

JEL Classification: F51, H60, O11

INTRODUCTION

Russia's military aggression against Ukraine caused large-scale destruction of production capital and infrastructure, bringing human casualties and social losses. The war led to a reduction in jobs and incomes, a reduction in purchasing power, and the amount of accumulated assets. The destructive consequences of the war manifested themselves in virtually all spheres of the economy. At the same time, the economic situation in any country is a clear marker of its position on the world stage. And what place it will take depends undoubtedly on government decisions. Even before the war, Ukraine's economy was not sufficiently developed and integrated into the world economy. Undoubtedly, certain sectors of the Ukrainian economy were successful players on the world market before the war. Ukraine has at its disposal about 30 per cent of the world's black earth, so everything related to the agricultural industry has great potential in Ukraine. The aggression presented the specified industry with significant challenges, however, as our research showed, even under such difficult conditions, Ukraine showed considerable adaptability and remained an exporter of grain to world markets. At the same time, during the analysis of the problem, it was established that the development of the processing industry from raw materials grown in Ukraine is the most relevant for Ukraine

today. Also, world experience indicates that the future lies in digital technologies, therefore, after conducting research, we proved that the implementation of IT technology in all branches of the economy of Ukraine is a strategic task already today.

LITERATURE REVIEW

Analysis of the latest research and publications indicates that the issue of Ukraine's economy during the war and its post-war reconstruction is quite relevant in scientific circles. For example, Gladynets and Kozar (2022) paid special attention to the issue of the fall of the gross domestic product in Ukraine and identified the key factors that influenced this fact, in particular, the occupation of certain territories, the destruction of infrastructure and production facilities, the blockade of Black Sea ports. Foreign authors Ihle, Bar-Nahum, Nivievskyi and Rubin (2022), who studied the specified issue in the context of the shutdown of Ukrainian Black Sea ports, gave a separate assessment of the international export chains of Ukrainian goods. Steinbach (2023) analyzed the decrease in grain trade flows from Ukraine to world markets. At the same time, Umar, Polar, Choi and Teplova (2022) investigated that the consequences of the war in Ukraine had a negative impact on the global fuel and energy markets, which presented global financial markets with new challenges. Chortane and Pandey (2022) reached a similar conclusion in their study.

Military realities of the banking system are reflected in the work of Rybalchenko, Lukianykhina, Alamanova, Saienko and Sunduk (2022). In particular, the authors outlined the main stabilization measures taken by our state to maintain the banking system and gave a separate assessment of the international financial support of this segment. In the research of Dyachenko (2022), it was established that the IT sphere became one of the most stable economic sectors for Ukraine during the war. Also, the already-formed experience of post-war economic recovery is of great importance for Ukraine, in fact, this kind of experience can be borrowed by Ukraine in the future. In scientific circles today, there is a debate about the introduction of a reconstruction plan in Ukraine by analogy with the Marshall Plan, which became an ambassador for the economic recovery of European countries after the Second World War, in particular, Kharovska (2022) also investigated this issue and established that the specified plan had such a brilliant implementation in the past precisely because the countries that were recovering had a stable pre-war economy, which is completely unrelated to Ukrainian realities, and came to the right conclusion that our country should have its own plan, which is not identical to the Marshall Plan.

Snigova (2022) noted in her research that post-war economic recovery should be carried out in three stages: stabilization, recovery and modernization, and came to the conclusion that without the full completion of one stage, a real and objective transition to the next final stage is impossible. In this study, on the basis of the phasing proposed by the author, it was established that a substantive anti-corruption policy should definitely be implemented in the first two stages.

Khmarska, Kucheryava and Klimova (2022), investigating the issue of post-war economic recovery, determined that this is impossible without effective reforms. At the same time, we established that such reforms should be implemented in the first two stages proposed by Snigova (2022).

According to the results of the research, there was determined one of the promising directions of Ukraine's development, which can become the basis for the formation of the newest economic ecosystem of Ukraine - this is the smart economy, in particular, the effective implementation of Industry 4.0, which includes the Internet of Things, artificial intelligence, digital doubles and many others technologies. Oneshko and Pashchuk (2021), as well as Ovcharova (2022), prove that Industry 4.0 is already actively implemented and gives its results in the global digital industry, and considering the rapid jump in digitalization in Ukraine in recent years, Ukraine has quite encouraging forecasts and in this direction.

AIMS AND OBJECTIVES

During the 14 months of full-scale war, Ukraine has shown quite encouraging economic resilience, despite significant daily financial losses from the war. Under such circumstances, the purpose of this study is to reveal the peculiarities of preserving the relatively stable economic situation of Ukraine in the conditions of martial law and to determine the mechanisms and methods of overcoming the economic crisis. To achieve the goal, the following tasks should be defined:

- to determine the main sectors of the economy that suffered losses from the war, as well as industries that showed resistance to the challenges of wartime;
- to establish methods and state decisions that helped to stabilize the economic situation in Ukraine, to investigate the relationship between such stabilization and international financial support;

- propose effective mechanisms for overcoming the economic crisis in Ukraine, in particular, at the stage of post-war economic stabilization;
- to determine individual stages of reconstruction of the economy of Ukraine, to characterize the problems that may arise at each stage and to propose mechanisms for solving them;
- to reveal the potential of Ukraine on the way to global digital transformations and the development of the smart economy.

METHODS

During the study of the issue of the state of the economy in the conditions of wartime realities, the following research methods were used: general theoretical, analytical, synthetic, method of analogy and generalization, formal and legal, system analysis, structural and functional, and content analysis.

Quantitative processing of the materials of scientific conferences with further interpretation of the results was carried out using content analysis. On the basis of analytical and synthetic methods, information was processed from official websites, in particular government websites and websites of international organizations, from which information was obtained on certain types of international support, and with the help of the method of analogy and generalization, it was concluded that such assistance occupies a key role in stabilization of the economy of Ukraine. According to the structural-functional method, the stages of recovery of the economy of Ukraine were structured. The analysis of normative legal acts, in particular by-laws, which were important for this study, was carried out with the help of formal legal and analytical methods.

RESULTS

The military escalation from February 24, 2022, led to the fact that the export chains of Ukrainian goods, which mainly use sea transport, were suddenly disrupted; goods could no longer leave the country via the Black Sea. Thus, the complex web of international supply chains that were expecting wheat, barley, corn and sunflower seeds, and oil from Ukraine came to a sudden halt. The ties between Ukraine and the countries that process these goods to meet consumer needs were severed (Ihle et al., 2022). It should be noted that a global supply chain is a network that has a worldwide reach. In this network, a business buys or uses goods or services from abroad to produce and distribute a particular product or service. An ideal supply chain requires close interaction between participating enterprises, in particular concerning international trade (Nguyen et al., 2022; Cui, Yue, Nghiem & Duan, 2023). Ukrainian realities had a negative impact, in particular, on international supply chains, which hurt both the Ukrainian economy and the economies of foreign countries. Moreover, due to economic globalization, the basic primary industry - the food system and the main secondary industry - energy are also interconnected and have a key impact on the entire economic system of a certain country, and as a result, the failure of one system leads to the disruption of the other, which leads to global economic changes (Zhou et al., 2023). The situation in the European markets gives a clear understanding that the Ukrainian economic situation has also affected global supply chains. International scientific circles are of the opinion that the russian-Ukrainian conflict is a unique challenge for international trade since russia played a key role in the energy markets and was a fairly large world economy (Chortane et al., 2022; Umar et al., 2022). Due to the invasion of the aggressor country, world prices for food, fuel, and fertilizers rose sharply in the first half of 2022, in particular, due to the sanctions imposed against russia (Arndt, Diao, Dorosh, Pauw & Thurlow, 2023). Such a situation has an impact, in particular, on international financial markets. Although tensions between Ukraine and russia have existed for a long time, the reaction of stock indices to the conflict has been more pronounced since the russian invasion of Ukraine on February 24, 2022. However, the reaction of global stock markets was weaker in the first weeks after the invasion. At the same time, it should be noted that the stock market indices were weaker for the countries bordering Ukraine and russia, as well as for the UN member states, which demanded an end to the russian offensive against Ukraine (Boungo & Yatié, 2022).

The russian-Ukrainian war not only caused trouble in the world financial markets but also exacerbated the rapid increase in global energy prices and energy shortages in some regions. The European Union, the United States and other developed countries, as well as major corporations, have focused on suppressing russia's energy trade to counter its military actions. Even at the beginning of the full-scale invasion, the US announced a ban on the import of russian oil, liquefied natural gas and coal. In general, according to the assessment of international experts, the blocking of russian energy resources increases the pressure on sources of energy supply in other countries. Such processes have a significant impact on the global economy and lead to a geopolitical crisis. At the same time, some scientists believe that the geopolitical crisis is a

necessary driving force for energy security strategies based on reducing dependence on Russia (Ali, Azaroual, Bourhriba & Dadush, 2022).

So, the Russian-Ukrainian war has had a significant impact on the economic situation in the world in general, at the same time, returning to the economic realities in Ukraine, it can be stated that despite the devastating infrastructural, energy, agro-industrial and other losses, the economy of Ukraine had to undergo a complete collapse, but Ukraine showed its stability not only on the battlefield but also on the economic front. Of course, the situation in our country cannot be idealized. Gladynets et al. (2022), investigating the issue of the drop in gross domestic product (hereinafter - GDP) at the beginning of the war, predicted its drop at the level of 10% in the event of a quick end to hostilities. At the same time, using the experience of other countries, and based on data from the International Monetary Fund, the author assumed a drop in GDP in Ukraine in 2022 in the range of 25-35%, the author made such assumptions predicting a protracted war. According to the author's research, budget losses amounted to about 2 billion hryvnias per day, and infrastructure losses at the beginning of the war amounted to about USD 119 billion per month, that is, USD 4.25 billion every day. If we take into account military losses, increased military and social spending, support programs, and losses to the economy and enterprises, this is another USD 565 billion (Gladynets et al., 2022).

Analyzing the data of the National Bank of Ukraine, we observe that the author's pessimistic forecasts have come true. Thus, in 2022, the real GDP decreased by 29.1% compared to 2021. This is the deepest annual decline of the economy in the entire history of Ukraine, and the full-scale war was definitely the reason for this. It is, in particular, about the occupation of certain territories, the destruction of infrastructure and production facilities, the blockade of Black Sea ports, the severing of logistical connections, and large-scale migration. The combination of these consequences led to a sharp reduction in consumer demand, investment activity, exports, and harvests (National Bank of Ukraine, 2023).

The greatest losses were experienced by the economy, unprepared for the challenges of war, precisely in the first months of the war, in Figure 1 we can observe the fall in GDP during 2022.

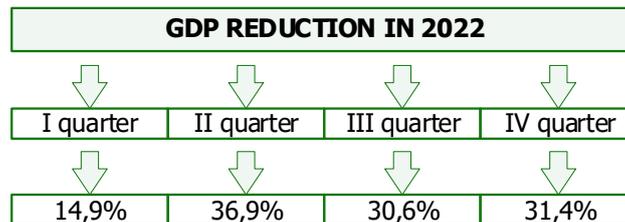


Figure 1. Fall in GDP during 2022. (Source: compiled by the authors based on data (National Bank of Ukraine, 2023))

As can be seen from the above figure, the GDP experienced the sharpest drop in the II quarter of 2022, at the same time, the military successes of the armed forces of Ukraine, as well as the anti-crisis measures of the National Bank of Ukraine and the government with the support of international partners made it possible to gradually stabilize the macroeconomic situation. Contrary to the negative expectations of its bloody neighbour, Ukraine was able to achieve stabilization in the third quarter of 2022, this phenomenon can be attributed to effective state decisions. Thus, at the beginning of the war, the government urgently introduced a number of important regulatory innovations designed to reduce the fiscal burden on business and stimulate the development of small entrepreneurship. It was allowed to switch to the third group of the simplified taxation system for taxpayers with a turnover of up to UAH 10 billion with an unlimited number of employees. Under the new rules, taxpayers must pay a 2 per cent income tax instead of income tax and VAT. The list of transactions for which the payer of the single tax of the third group is exempted from VAT tax liability has been expanded. The period during which the taxpayer may not fulfill the tax obligation without the application of sanctions has been increased, if he does not have the appropriate opportunity. A certain liberalization of customs legislation took place, in particular, mandatory payments for the import of goods and cars were partially abolished (Reun, 2022). The improvement of logistics, the relocation of enterprises, the reorientation of a number of activities to military needs, and the opening of the "grain corridor" made it possible to slow down the real fall in GDP already in the third quarter of 2022 and keep it at a relatively stable level until the end of the year.

Samaeva (2022), researching the economic situation at the beginning of the war, established that during the first month of the war, only 17% of large enterprises continued to work without any restrictions. Only 30% of enterprises were able to work online. The rest of the businesses have either suspended their activities temporarily or completely stopped their economic activities.

In the context of this study, it would be appropriate to focus on the agricultural sector of the economy, because Ukraine has always held a leading global position in this segment. Of course, the agro-industrial complex was not an exception when it comes to losses from the war. The Kyiv School of Economics conducted studies according to which the amount of direct losses caused to the agro-industrial complex of Ukraine during the year of the full-scale war is USD 8.7 billion, in Figure 2 we can see the specific directions of such losses.

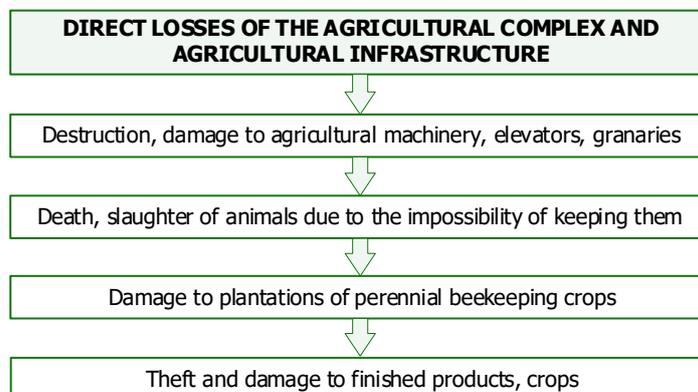


Figure 2. Losses in the agro-industrial complex for 2022. (Source: compiled by the authors based on (Kyiv School, 2023))

According to the assessment of the experts of the KSE Institute project "russia will pay", the following losses in quantitative and material terms were:

- 109.6 thousand units of agricultural machinery were damaged or destroyed, and the cost expression of losses amounted to more than USD 4.65 billion;
- 4 million tons of destroyed and stolen finished agricultural products, for an estimated amount of USD 1.87 billion;
- 3.25 million tons of capacity of destroyed granaries for simultaneous storage. The cost of restoring the destroyed facilities is estimated at USD 1.33 billion;
- Luhansk, Kherson, Donetsk, Kharkiv and Zaporizka regions suffered the greatest damage to the agricultural sector. The same regions are in the top 5 in terms of the number of damaged and destroyed objects (Kyiv School, 2023).

The combination of the above factors does not add to the optimism, in particular, they are the reason that manufacturers around the world are looking for ways to increase production and provide an alternative to the fall of Ukrainian supply since the russian-Ukrainian war had significant trade consequences for the countries directly involved, and did not have global consequences (Steinbach, 2023). At the same time, the supply in other regions cannot increase instantly and, of course, cannot completely replace high-yield crops from the Black Sea region (Hrebnyk, 2022). At the same time, taking into account the adaptability of Ukraine to the challenges of the war, the ability to quickly and effectively respond to the negative consequences, the increase in prices on the world grain markets, the share of Ukraine in global world trade at the end of 2022 was: wheat — 11%, corn — 16%, barley — 15%. Donetsk and Luhansk regions, where military operations are particularly intense, are the source of 8% of Ukrainian wheat production and 9% of sunflower seeds (Maryna & Yankovska, 2022; Ali et al., 2022). In this way, regardless of the devastating losses of the agro-industrial complex, Ukraine confirmed and consolidated its status as a guarantor of food security on world markets. The dynamics of indicators of various types of activity during 2022 were primarily determined by high-security risks. The construction sector experienced the deepest decline, due to reduced investment and a sharp decline in demand for housing. As a result of the destruction of production facilities and infrastructure, the reduction of consumer and investment demand, the economic and industrial results also deteriorated significantly. Power outages at the end of the year due to russian shelling of critical infrastructure deepened the decline in industrial production. At the same time, some types of processing industry, in particular machine building, light and food industries, were supported by state financing of military orders. The reorientation of agricultural producers to Ukrainian fertilizers in the conditions of the termination of the import supply of fertilizers from the russian federation and Belarus supported the chemical industry, and the sustainable production of energy resources - mining (National Bank of Ukraine, 2023).

By assessing the role of the state in maintaining the functioning of the economic sector during the war, we can see that such stabilization occurred thanks to specific government decisions aimed at economic recovery. In this regard, we can distinguish between internal and external methods of stabilization. The internal method of stabilization relied solely on

state regulation of necessary stabilization measures. The external method involved engaging international partners and receiving their financial support.

For instance, stimulating entrepreneurship development and ensuring their functioning and adaptation to new realities were achieved through internal regulation. Tax changes were implemented, particularly regarding the payment of a single tax. Starting from April 1, 2022, until the cessation of martial law, individual entrepreneurs and legal entities whose annual income does not exceed 10 billion hryvnias were granted the right to use a simplified tax system. Additionally, taxpayers in groups 1 and 2 could voluntarily pay the single tax. Changes were also introduced by the state regarding the payment of a single social contribution for individual entrepreneurs. From March 1, 2022, until the end of martial law in Ukraine and within twelve months thereafter, they had the right not to pay a single social contribution for themselves. Furthermore, to reduce the administrative burden at the onset of the war, inspections by controlling bodies were abolished (Melnyk, 2022).

The Ukrainian Government also issued Order No. 246-p on March 25, 2022 (Order, 2022), which outlined an emergency plan for relocating the production facilities of economic entities from territories affected by combat operations and/or under the threat of such actions to safe areas. Under this plan, "Ukrzaliznytsia" (Ukrainian Railways) and "Ukrposhta" (Ukrainian Postal Service) provided free transportation of equipment for enterprises. Such transportation was carried out based on Government Resolution No. 305 dated March 17, 2022 (Resolution, 2022).

The external method of stabilization involved engaging international partners and receiving financial donor support. Funds provided by other countries were directed toward stabilizing the most critical economic needs. In the first six months of 2022, Ukraine received grants and loans totalling USD 17.4 billion from foreign partners, which covered 55% of the budget's additional financing needs and accounted for 36% of all expenditures of the state budget of Ukraine since the beginning of the full-scale invasion (Moroz & Kosyk, 2022). Such involvement of international partners contributed to the stabilization of Ukraine's GDP in the second half of 2022.

Also, in the conditions of the war, the banking sector of the economy suffered significant negative consequences, in particular socio-economic problems, and rapid rates of inflation created unfavourable conditions for the functioning of banking institutions. In order to stabilize the banking system, the state introduced preferential lending systems for businesses and created a supervisory committee to ensure the stability of the banking system. At the same time, informational and technical attacks on the services of the largest banks created a number of significant threats that affect the level of security of banking institutions. The fight against the deficit of capital circulation is carried out through lending because the country's economy has fallen by 35%. The restoration and stabilization of the banking system in Ukraine became possible thanks to the investment and financial support of Ukraine by international partners. Today, the issue of credit restructuring is strategic for the further activity of the banking sector (Rybalchenko et al., 2022).

One of the most stable branches of the economy of Ukraine in wartime conditions was the IT sphere. Dyachenko (2022) researched this sector of the economy and established that it is the most solvent. So, according to the results of 2021, this industry grew by 36% and brought the country 6.8 billion US dollars in export revenue. More than 285,000 specialists are employed in the IT sector. Today, some of the largest IT companies operating on the Ukrainian market are GlobalLogic Ukraine, EPAM Ukraine, N-iX, ELEKS, Intellias, etc. IT companies quickly responded to the challenges of the war by relocating personnel, taking into account the specifics of this type of activity, it was less traumatic than for manufacturing enterprises. Some companies made early payments of taxes in order to stabilize the economic situation in the country. Thus, the country's largest IT company "EPAM Ukraine", which has more than 11,000 specialists, paid UAH 50 million in advance. taxes to the budget of Ukraine. The undeniable benefit to the military economy is brought by Ukrainian IT companies, which pay taxes on the wages of employees because the IT sector is famous for its high level of wages. Taking into account the peculiarities of carrying out the above activities, in particular in a remote format. At the same time, after the start of the war, the volume of orders has hardly changed, even on the contrary, some clients are expanding the scope of cooperation (Dyachenko, 2022).

At the beginning of 2023, the economy of Ukraine continues to recover, this is due to the improvement of the situation in the energy sector, the further adaptation of business and the population to the conditions of war, and international support. A number of donor countries and international organizations have announced or are already providing support to the economy of Ukraine, in particular:

- The United States of America announced its intention to provide Ukraine with USD 9.9 billion in 2023. The first tranche in the amount of USD 1.25 billion has already arrived in February 2023. The funds are coming within the framework of the World Bank project "Supporting public expenditures to ensure sustainable public administration in Ukraine." Also, the partner country allocated a new package of military aid in the amount of USD 400 million (Bohdanyok, 2023).

- Ukraine will receive 10 million euros from Austria, which will be used to finance restoration work in the energy sector (Government Portal, 2023b).
- The Japanese government will provide about USD 170 million (22.44 billion yen) for emergency recovery projects, in particular for the reconstruction of critical infrastructure necessary for the return of Ukrainians' home and the development of the economy. It is envisaged that these funds will be used for the immediate improvement of equipment for humanitarian demining; transport service; energy equipment and destruction waste management; water supply and drainage; medical equipment and equipment for providing educational services; to support the agricultural sector. Also, the agreement provides tools for monitoring the transparency and efficiency of the use of funds (Government Portal, 2023b).
- The International Monetary Fund (IMF) reached an agreement with the Ukrainian authorities regarding the new program. Ukraine will be able to receive USD 15.6 billion. US credit financing over the next 48 months. It is expected that the agreement will help mobilize large-scale financing on preferential terms from international donors and partners of Ukraine for the duration of the program. The new IMF program for Ukraine is called unique because the Fund provides funds to the country for the first time in conditions of unprecedented economic uncertainty (International Monetary, 2023).
- The World Bank announced support for Ukraine's budget by allocating an additional grant of USD 2.5 billion, which will have a social purpose, including health care, education, pension payments, assistance to internally displaced persons, social assistance programs, and wages for workers who provide essential government services. To date, the World Bank has mobilized more than USD 20.6 billion in the form of emergency funding to support the people of Ukraine, including the commitments of donors from Western countries (The World Bank, 2023).
- The European Bank for Reconstruction and Development plans to allocate funds for the restoration of railway connections, this is an emergency support loan under sovereign guarantees for EUR 200 million for JSC "Ukrzaliznytsia". The final decision will be made in May this year. Thanks to this proposal, Ukrzaliznytsia will be able to increase cross-border traffic capacity with the EU, eliminating bottlenecks at border crossings, as well as repairing sections of the railway track that were damaged by the full-scale invasion of Russia. In addition to the above, the specified program provides for the renewal of rolling stock (European Bank, 2023).
- At the beginning of the year, Ukraine received the first tranche of EUR 3 billion from the European Union, the next tranche of EUR 1.5 billion arrived in March of this year. These funds are received on preferential terms for Ukraine within the framework of the large-scale Program of macro-financial assistance, the total volume of which is EUR 18 billion, and will be directed to financing the most urgent expenses of the state budget. Ukraine will receive the next tranches within the framework of the large-scale MFD program in 2023, taking into account Ukraine's fulfilment of the conditions agreed by the parties. Since the beginning of the full-scale invasion, the European Union has provided Ukraine with EUR 11.7 billion of macro-financial assistance (Ministry of Finance, 2023).

According to the National Institute of Strategic Studies, the financial assistance of the countries of the world is not exhausted by the above-mentioned countries and international organizations. Thus, Australia, Spain, Belgium, Sweden, Poland, Canada, Slovakia, Luxembourg, Denmark, Spain, Lithuania, Finland, Estonia, and Saudi Arabia announced financing of various spheres of the Ukrainian economy during 2023 (National Institute, 2023).

From the above, it can be concluded that international financial aid plays a key role in the relatively stable existence of the Ukrainian economy, and lays the foundation of the post-war economy, because it is necessary to prepare for peaceful life during war.

Today, the economic community is debating the topic of overcoming the economic crisis in Ukraine and trying to find a way to the so-called Ukrainian economic miracle. In political and scientific circles, there is an active discussion of the Ukrainian Marshall Plan, which at one time helped the countries of Western Europe to recover and gave a powerful impetus to their further prosperity.

Domestic and foreign experts and politicians have been discussing this issue for several months and are inclined to think that the development of an adaptive Marshall Plan for Ukraine is an appropriate and even necessary solution. Ukrainian economists define it as a chance for a complete "reset" of the economy and an opportunity to get rid of entrenched Soviet postulates. This is undoubtedly a good sign for us, especially against the background of significant multifaceted assistance already provided by the countries of Western Europe and the USA.

At the same time, everyone is inclined to the opinion that in the conditions of Ukrainian realities, there are significant difficulties for the implementation of the so-called Marshall Plan. The implementation of the specified plan after the Second World War concerned countries with fairly developed pre-war economies, which cannot be said about the pre-war economy

of Ukraine, nor too much about its state during the war. Today, we are witnessing incredible cohesion and activation of Ukrainian society and politics, which gives rise to somewhat encouraging forecasts. At the same time, the level of economic stability, pre-war GDP, and corruption inhibit the implementation of the Marshall Plan in its classic form (Kharovska, 2022).

In April 2022, the President of Ukraine, Volodymyr Zelenskyi, issued Decree No. 266/2022 on the creation of the National Council for the Reconstruction of Ukraine (Decree of the President, 2022), whose task was to create the Ukrainian Marshall Plan. In fulfilment of this order, in 2022, a project of the country's post-war reconstruction and development plan was presented. Ukrainian economists and international experts were involved in the development of the document. The general concept of this document envisages the final integration of Ukraine into the European economy.

According to the proposed project, the main emphasis is placed on those areas of economic activity where Ukraine had significant competitive advantages even before the war, in particular metallurgy and food, while the basis of Ukraine's post-war industrial policy should be the stimulation of further processing of raw materials and the production of finished products, which will be exported in the future. The activation of such processes will also contribute to foreign investments, the construction of new factories, and as a result, a significant increase in the number of jobs within the country. The incentive for this should be complete deregulation of the economy and minimal state intervention in the work of business structures. At the same time, the implementation of this ambitious plan is unlikely without an increase in the energy capacities of Ukraine, and the development of nuclear energy will play a leading role in this, given the devastating blows to the energy infrastructure of Ukraine in 2022, this sector will require significant capital investments (Kazyuka & Sheketa, 2022).

At the same time, Snigova (2022), investigating the issue of state measures for the post-war recovery of Ukraine's economy, identified several stages by which it is advisable to carry out economic recovery – stabilization, recovery and modernization (Table 1).

Table 1. Stages of economic recovery. (Source: compiled by the authors based on data (Snigova, 2022))

STAGES	FEATURES
STABILIZING	Concerns the implementation of urgent measures for the restoration of critically important social and economic infrastructure, ensuring the restoration of the work of industrial enterprises
RENEWABLE	Concerns economic recovery, aimed at ensuring employment in the short term, as well as building infrastructure, production taking into account the goals of the modernization stage of the economic recovery of Ukraine
MODERNIZATION	Concerns the technological, digital and structural modernization of the production sector, the transition to modern high-tech production

Summarizing the information given in Table 1, it can be concluded that the stage of stabilization and recovery is impossible without state regulation by making changes to separate legal acts or adopting new ones, thereby bringing Ukraine's legislation closer to European legislation, which will help the transparency and efficiency of the implementation of the recovery plan. Investments in recovery will help more effective implementation of European Union law in clusters such as environment, energy, transport or communications. The EU recovery plan should also help ensure the stability of Ukraine's public finances. At the same time, joining the European Union will ensure the effective use of allocated resources, and the prospect of this membership will become a key factor in attracting new investors to modernize Ukraine's economy and reveal its growth potential. In particular, for this, it is necessary to create a national development bank, the shareholders of which will be donor governments and international financial institutions. Also, Ukraine's joint actions with the European Union should increase the stability of Ukraine's banking system. During the recovery period, Ukraine will need a variety of assistance, such as currency swaps, deposit guarantees, etc., which will allow the banking sector to overcome the losses incurred during the war.

Also, in stages I-II, and in order to effectively transition to the modernization stage, Ukraine together with the European Union should create the necessary bodies and procedures to jointly administer large-scale long-term projects and apply the necessary financial instruments of the European Union to attract public and private investments. For this purpose, it would be appropriate to create the Agency for the Reconstruction of Ukraine, as was the case with the reconstruction of the Western Balkans. This agency could be co-managed with states and donor agencies (Kubilius, 2022).

The above-mentioned changes are not possible without the proper reformation of certain spheres. Reforms should also be carried out at the stages of stabilization and recovery since the modernization stage can only begin if there are effective state mechanisms and favourable conditions.

So, Khmarska et al. (2023) researching the implementation of post-war reforms on the basis of a structural analysis of the project of the Recovery Plan of Ukraine, identified their main directions, in particular:

- reconstruction of the structure of the economy, which consists in the post-war acceleration of the development of the processing industry, and the transition from trade in resources to trade in goods with high added value. Stimulation of innovation-oriented entrepreneurship;
- reforming mechanisms for regulating small and medium-sized businesses through deregulation, reducing the tax burden, expanding access to knowledge, markets, capital, and creating comfortable conditions for doing business;
- reforming the labour market, through the introduction of market principles of relations between employees and employers, the liberalization of labour legislation and the transition to modern models of interaction of labour market participants, in particular, thanks to the development of the job market place "e-Robota", the development of programs for rapid retraining of employees, etc.;
- the reform of state property management consists in the post-war privatization of all state non-strategic assets, completion of the centralization of the owner's function and consolidation of state strategic assets by increasing the efficiency of management of such assets;
- market reform, reducing the influence of monopolies and de-oligarchization of the economy;
- reform of law enforcement bodies through the formation of effective mechanisms in the field of investigation of economic crimes. Support for the full-fledged activity of the Bureau of Economic Security, development and adoption of a draft law on relaunching the competition for the Bureau of Economic Security of Ukraine with the involvement of international experts and the possibility of conducting a pre-trial investigation of economic crimes exclusively by one body (National Council, 2022; Khmarska et al., 2023).

However, the above-mentioned reforms will not achieve their goal if real anti-corruption work is not carried out in Ukraine. Even before the war, Ukraine managed to create an effective legal and institutional basis for fighting corruption. The anti-corruption infrastructure includes a number of state bodies covering various aspects of anti-corruption activities.

Thus, according to the project of the Plan for the Recovery of Ukraine proposed by the National Council for the Recovery of Ukraine from the Consequences of the War, the recovery plan "Anti-corruption Policy" provides:

- ensuring compliance with Ukraine's international obligations in terms of combating corruption, in particular, those related to the process of European integration (bringing national legislation into line with international standards and best practices for preventing and countering corruption, its proper implementation, increasing the effectiveness of the system of monitoring the activities of political parties and conducting election campaigns, improving the effectiveness of prevention of corruption and conflict of interests);
- ensuring the independence and effective work of anti-corruption bodies for the prevention, detection and punishment of manifestations of corruption (ensuring the effective work of the National Agency for the Prevention of Corruption (NACP) in all areas of the body's activities, strengthening the institutional capacity of the National Anti-Corruption Bureau of Ukraine (NABU), ensuring the effective work of the Specialized Anti-Corruption Prosecutor's Office (SAP)) and the creation of an effective system for the search and return of assets obtained through corruption, as well as the use of these assets for the post-war reconstruction of Ukraine (increasing the effectiveness of the Agency for Investigation and Asset Management (ARMA), the system for preventing the legalization of assets obtained illegally, systems of tracing and management of illegally obtained assets, prevention of corruption abuses during the implementation of procedures related to the forced seizure and collection of assets of Russia and its residents into the state income);
- promoting a culture of integrity in the public and private sectors (developing a culture of zero tolerance for corruption among citizens of Ukraine, improving corporate governance in the state and private companies, ensuring transparency during privatization, creating an honest alternative to common corrupt practices, including legislatively enshrining the work of business institutions ombudsman, reducing the level of tolerance of corruption in the private and public sector of the economy);
- elimination of corruption risks arising during recovery measures during martial law and post-war reconstruction: planning, receipt, distribution, use of funds (prevention of corruption abuses during the provision, receipt and use of aid during martial law, creation of special mechanisms to minimize manifestations of corruption during Ukraine's receipt of international aid for post-war reconstruction, improvement of the state audit and monitoring system to minimize corruption manifestations during the post-war reconstruction of Ukraine) (Ukraine Recovery, 2022).

In addition to the above, the specified program provides for 26 draft laws necessary for the implementation of an anti-corruption policy. A number of laws are proposed to be amended and supplemented. Overcoming oligarchic influence occupies a key place in the program. On this path, Ukraine has already taken certain steps, in particular, on September 23, 2021, the Law of Ukraine "On prevention of threats to national security associated with the excessive influence of persons who have significant economic and political weight in public life (oligarchs)" No. 1780 was adopted – IX (Law of Ukraine, 2022), the implementation of effective mechanisms, regarding its implementation, is key in the first two stages of the recovery of the Ukrainian economy, the levelling of anti-corruption programs will nullify the transition to the stage of modernization and flourishing of the Ukrainian economy. The need for further implementation of this law was also emphasized in the recommendations of the European Commission when granting Ukraine, the status of a candidate for membership in the European Union (Ukraine Recovery, 2022).

The final stage of the recovery of the economy of Ukraine proposed by Snigova (2022) is the stage of modernization, it consists in the technological, digital and structural modernization of the production sector, the transition to high-tech production. This involves the creation of production of goods with high added value, the creation of production aimed at increasing the efficiency of agricultural production, increasing the degree of processing of agricultural raw materials, with a special emphasis on export-oriented agricultural products; development of high-tech industries and production of knowledge-intensive, energy-saving, export-oriented products (nanotechnology, nuclear energy, aircraft, rocket, shipbuilding, etc.); the development of the equipment processing industry, the restart of the aerospace industry on the basis of state support and private companies, with foreign financing and ensuring the integration of the rocket industry (Snigova, 2022). All this should be implemented alongside the active development of digital technologies and the gradual transition to a smart economy.

As noted by Matiushenko (2013), investments without innovation are pointless and dangerous, as they mean investing in the reproduction of outdated technologies, deliberately creating uncompetitive goods and services. Innovations without investments are unrealistic, because the results of scientific and technical research, the possibilities of a technological breakthrough remain unrealized, which also leads to a drop in the competitiveness of goods and services, and their displacement from domestic and foreign markets (Matiushenko, 2013). Since investments are an important resource for the successful creation and development of innovations, it is necessary to create a rational, effective and well-founded financing system at every enterprise to ensure this condition. The effectiveness of innovative activity largely depends on the timeliness of financing. At each stage of the innovation process, you need to have a certain amount of investment resources. Thus, the main sources of financing innovation and investment activity can be both internal (own funds of business entities) and external (domestic and foreign) sources (Dotsenko, 2022, p. 284).

Considering that Ukraine is in a state of war and the time frame of its duration is not known to anyone, the use of own funds for the development of innovations will occupy an insignificant share. At the same time, in order for Ukraine to be attractive for foreign investments, innovative proposals must be unique and competitive. As we have already established in Ukraine, the IT industry is quite developed, so one of the priority areas of economic development of Ukraine can be defined as the path to a smart economy.

Assessing the state and prospects of further digital transformations, it can be argued that today the IT industry in the field of military technologies has become one of the most promising sectors in this segment. Considering that military technologies already receive significant support from state funds, we can confidently state that after the war, the knowledge and experience gained will elevate Ukraine to a high level in the field of military IT technologies (Ustinov, 2023). It should be noted that state funds currently provide support not only to the military sector. According to information from the Minister of Digital Transformation of Ukraine, Mykhailo Fedorov, during the war, the Innovation Development Fund came under the management of the Ministry of Digital Transformation of Ukraine, which allowed the government to become the largest investor in startups in the country. Over 250 startups in Ukraine and Eastern Europe have been invested in by the Fund, with the total investment exceeding USD 6 million. Additionally, the American venture fund Blue&Yellow Heritage Fund has started operating in collaboration with the venture company ffVC, which has already accumulated USD 50 million. This fund is specifically focused on the Ukrainian dimension (Fedorov, 2022).

Experts in the field of digitalization make optimistic forecasts regarding the potential of the post-war IT industry in Ukraine, particularly in improving monitoring and management systems for agricultural enterprises. Furthermore, experts agree that through artificial intelligence technologies, it will be possible to enhance diagnostic and treatment systems for diseases, while digital technologies enable improving the quality and accessibility of education for a wider audience (Ustinov, 2023).

At the same time, Ukraine's IT ecosystem can be attractive only under favourable tax conditions. One of the key projects planned by the Ministry of Digital Transformation of Ukraine for 2023 is the launch of an e-Residency. This will allow IT professionals from around the world, upon obtaining e-resident status, to conduct business in Ukraine online (Fedorov,

2022). For foreign IT professionals, this essentially means that they can conduct their business in Ukraine without residing in the country and pay only a 5% tax on their income, which is significantly lower than the taxation of IT businesses in European countries, Israel, the United States, or Canada. These initiatives aim to develop Ukraine's attractiveness in the global IT industry market, opening new opportunities in the field of global digital transformations and having a favourable impact on the overall economy (Baytelman, 2023).

In scientific circles, there is currently a clearly formed opinion that the most developed countries of the world function as information societies and define such a state as the result of systemic development and social progress with a clear vector - informational and innovative progress. In such countries, economic well-being is directly related to production, processing, preservation, dissemination of information and clear recognition of the priorities of interaction between the state and business (Finagina, Kovalenko & Pryhodyuk, 2019). Modern civilizational, dynamic and universal changes have a significant impact on the development of mankind. They take place under the influence of such trends as scientific and information technologies and globalization. The use of information has significantly affected the world economy. The digital economy, having integrated into the real economy, significantly transformed and developed traditional industries and gave new impetus to economic development (Vdovichena, Vidomenko, Tkachuk, Zhuzhukina & Lukianykhina, 2022, p. 8). In the information society, special attention is paid to digital transformation technologies, which involve the development and implementation of information strategies for the development of business and markets; information modelling and programming; information marketing. Digital transformations change the vision of modern management and consider it as the further development of breakthrough technologies – blockchain, the Internet of Things, virtual reality, and artificial intelligence (Finagina, Kovalenko & Pryhodyuk, 2019).

Currently, Ukrainian regional management already involves cloud technologies, in particular, statistical and analytical support; e-government; communication of government, business and population; remote provision of services; provision of educational services; cooperation with enterprises of the region and other directions, in particular by borrowing world experience.

Today, the world is at the stage of the so-called Industry 4.0 (or full automation of production with the help of technology), which began to gain momentum back in 2011. Its essence is that the material world can merge with the virtual one. The main concepts of Industry 4.0 are the Internet of Things, artificial intelligence, digital doubles and many other technologies. Considering Ukraine, its IT potential should not remain aloof from this global process and be a direct participant in it.

An important component of Industry 4.0 and 5.0 concepts is the Internet of Things (IoT), the main driver of which has become the Industrial Internet of Things (IIoT). IIoT is a system of connected computer and digital networks with production facilities. Thanks to built-in sensors in production facilities and unified software for data collection and processing, remote control capabilities are implemented in an automated mode without human intervention. The Internet of Things and the Industrial Internet of Things enable the creation of automated systems and product lines. IoT and IIoT definitely require significant investment, but in the long-term retrospect are more economical to use, in particular, this is due to the reduction of pressure from the payment of wages to employees, and accordingly, the reduction of the tax burden. Undoubtedly, the absence of these costs significantly reduces the cost of goods and services produced by such automated production. Accordingly, it can be argued that IIoT makes it possible to increase the efficiency of economic processes under certain favourable circumstances by several dozen times, which significantly shortens the production payback period, bringing this indicator to several months. Special advantages are demonstrated by IIoT-based technologies used in the energy sector of the economy and car manufacturing. Such innovations provided their effective implementation, can become the basis of economic growth for Ukraine (Ovcharova, 2022).

Of course, the ability to demonstrate effective results in the real sector of the economy is crucial for all economic innovations. In other cases, even the most sophisticated models are worthless if they cannot be implemented. Industry 4.0 is flexible, which ensures the mobility of the economic system, this is due to the consensus between human and automated resources. Automation in the context of Industry 4.0 involves not only technological improvement but also adaptation to the digital format. According to the statistics of economic activity in the European Union, creative industries are in a state of active development. At the same time, the number of employees involved in the creative cluster of the economy is growing. In the world, Industry 4.0 technologies are successfully implemented at the real economic level, in particular, local production systems of small and medium enterprises have already assimilated the advantages of ICT clusters in the real sector of the economy. However, next to the advantages, we observe certain difficulties of this format of economic activity, since Industry 4.0 is inherently a global dimension, therefore, the implementation of its principles at lower levels requires skilful organizational and logistical skills, which is possible with the presence of appropriate ICT and digital competencies of employees (Oneshko, 2021).

According to the website *Industry 4.0 in Ukraine*, our state already has experience in this sector, particularly in the transport, industrial, and construction spheres (Fedak, 2022), and purposefully continues work in this direction. Moreover, as early as July 2021, the Cabinet of Ministers of Ukraine approved resolution No. 750 "On promoting the implementation of the technological approach "Industry 4.0" in Ukraine" (Resolution of the Cabinet, 2021). Pursuant to the said resolution, Industry 4.0 in Ukraine provides for complex digitization and automation of production processes and management in the real sector of the economy, for this purpose, Industry 4.0 implementation centres were created by the resolution, the main tasks of which are:

- popularization of Industry 4.0 in the real sector of the economy;
- promoting the development of cooperation between enterprises, institutions and organizations implementing Industry 4.0 (initiators);
- coordination of actions of enterprises, institutions and organizations that can be developers of innovations in the field of high-tech production, and training of their specialists;
- ensuring innovators' access to the knowledge and experience of international digital innovation hubs in the field of Industry 4.0 implementation;
- promotion of commercialization of the results of innovative activities and scientific research in the field of implementation of Industry 4.0;
- popularization of tasks related to technical regulation and assessment of compliance with international and European technical regulations of Industry 4.0, assistance in defining standardization as a priority of the technical policy of business entities;
- provision of consulting services regarding Industry 4.0 implementation projects, cooperation with local self-government bodies, in particular on projects within the framework of development strategies of territorial communities and regional development strategies, taking into account smart specialization of regions;
- cooperation with subjects of innovation and research infrastructure, international funds and organizations, in particular with the aim of attracting investments, as well as international technical assistance (Fedak, 2022).

Thus, despite the high military risks, the promotion of "Industry 4.0" in Ukraine is a strategic marker for improving the technology of the real sector of the economy. For its rapid introduction, a consolidated combination of three factors is needed: the state apparatus, business and the educational system. For this, Ukraine needs programs tested in EU countries for the training of expert consultants on issues of audit, digitization, and technology implementation priorities, as well as to improve the legislative field, which will stimulate investments, in particular, by crediting industrial digitalization, provided that the national software and its providers are used, transparent rules must also apply and high-quality personnel potential must be ensured.

DISCUSSION

Summarizing the researched information, we can observe the formation of a unified opinion in scientific circles regarding the causes of economic decline during the war. In this study, individual initiatives of international partners regarding financial assistance to Ukraine in 2023 were analyzed in detail, which gave reasons to agree with the opinion of individual authors that the rapid decline of the economy in 2022 was contained thanks to significant international financial support because as soon as the world saw the stability of the Ukrainian of the people and the insignificance of the plans of the bloody neighbour regarding the blitzkrieg, the decision to provide financial support to Ukraine was made quickly, which made it possible to stop the fall of the economy already in the III quarter of 2022. Regarding the prospects for overcoming the crisis, the authors' opinions differ, some believe that Ukraine should have their own Marshall Plan. According to Kharovska (2022), the implementation of the Marshall Plan in Ukrainian realities in its classical form is unlikely to be successful because the pre-war level of economic development in Ukraine was in a state of stagnation. Meanwhile, Kazyuka and Sheketa (2022) come to the conclusion that the future economic growth of Ukraine lies precisely in the processing of raw materials and the sale of finished products. We agree with the opinions of the mentioned authors and believe that the Marshall Plan had a brilliant implementation in the past, taking into account the realities of the world at that time, at the same time, overcoming the economic crisis in Ukraine is possible exclusively on the basis of Ukrainian realities and with an orientation to the European dimension. Khmarska (2022) expresses the opinion that effective reforms are needed to stabilize the economy in Ukraine, At the same time, Dotsenko (2022), Matiushenko (2013), and Finagina et al. (2012) point to investments and digital modernization, these components should definitely exist at the stage of overcoming the economic crisis, however, this study found that their implementation will be impossible without a real overcoming of corruption, which international partners actually insist on. For this, in addition to effective state decisions, in particular, at

the legislative level, a culture of zero tolerance for corruption should be developed among the citizens of Ukraine, condemnation of such actions at all levels, ensuring the independence and effective work of anti-corruption bodies, eliminating corruption risks, in particular through the digitalization of individual processes which will reduce the direct contact of business with state bodies.

CONCLUSIONS

From the above, it is evident that the full-scale invasion of Ukraine by the Russian Federation has brought many negative consequences and suffering. The Ukrainian economy experienced a rapid decline at the beginning of the war, hampering the development of all sectors in the country. Export and import capabilities were reduced, and infrastructure, particularly the energy sector, was destroyed, leading to a potential economic collapse. Despite unprecedented damage, the industrial sector continues to function and demonstrate adaptability in conducting business activities during wartime.

During the research conducted, it was found that the construction sector suffered the most losses due to decreased demand for housing. The agricultural sector also experienced significant losses, but agricultural workers were able to adapt to the realities of wartime and ensure the food needs of the Ukrainian population while maintaining a leading position as a supplier of agricultural products in global markets. Furthermore, the research revealed that the IT sector emerged as one of the most resilient sectors in the Ukrainian economy during the war, thanks to remote work and relocation opportunities.

The stabilization, recovery, and modernization stages were identified as the key phases of post-war recovery. To facilitate the rapid recovery of Ukraine, proposals and mechanisms were established to overcome the economic crisis. The state must develop a clear action plan that promotes swift economic recovery and defines priorities with a European orientation. However, achieving this orientation towards Europe requires amendments to existing regulations or the adoption of new ones, with a focus on combating corruption playing a pivotal role in legislative changes.

In the current reality, it can be unequivocally stated that the world is on the verge of a global digital transformation, where IT technologies will be integrated into all aspects of human activity and business, including Ukraine. The research indicates that Ukraine has a high potential for global digital transformations, supported by effective state decisions. Considering the resilience of the IT sector to the challenges of wartime, Ukraine has significant potential on its path toward global digital transformations, particularly in aligning its business with Industry 4.0, which is a driver of the smart economy.

The research also revealed that even before the war, Ukraine had already regulated the promotion of Industry 4.0. Moreover, Ukraine has made progress in the industrial, transportation, and construction sectors within this domain. However, the question of overcoming the economic crisis in Ukraine remains relevant as the war continues, and economic losses persist. Thus, further research on this topic will be valuable, particularly in the context of implementing Industry 4.1 and its impact on the development of the smart economy. In this study, it was established that alongside the development of the agricultural sector, Ukraine should shift towards raw material processing and the sale of finished products, with digital transformations playing a significant role in this process.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

Conceptualization: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

Formal Analysis: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

Methodology: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

Resources: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

Investigation: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

Writing – review & editing: *Oleksandra Zolotova, Viktoriia Ivanova, Dmytro Symak, Oleksandr Kudinov, Olena Slavuta*

REFERENCES

1. Ali, A. A., Azaroual, F., Bourhriba, O., & Dadush, U. (2022). The Economic Implications of the War in Ukraine for Africa and Morocco. Policy Brief, 11/22. https://www.policycenter.ma/sites/default/files/2022-02/PB_11-22_Dadush-.pdf
2. Arndt, C., Diao, X., Dorosh, P., Pauw, K., & Thurlow, J. (2023). The Ukraine war and rising commodity prices: Implications for developing countries. *Global Food Security*, 36, 100680. <https://doi.org/10.1016/j.gfs.2023.100680>
3. Baytelman, Ya. (2023). IT business in Ukraine: challenges and prospects. *SCIENTIA FRUCTUOSA*, 14(1), 55–73. [https://doi.org/10.31617/1.2023\(147\)05](https://doi.org/10.31617/1.2023(147)05)
4. Bohdanyok, O. (2023, February 15). *The United States will transfer \$9.9 billion in budget support to Ukraine in the coming months*. Suspline news. <https://suspline.media/386978-ssa-peredadut-ukraini-99-mlrd-dolariv-budzetnoi-pidtrimki-protagom-najblizciv-misaciv/>
5. Boungo, W., & Yatié, A. (2022). The impact of the Ukraine–Russia war on world stock market returns. *Economics Letters*, 215, 110516. <https://doi.org/10.1016/j.econlet.2022.110516>
6. Chortane, S. G., & Pandey, D. K. (2022). Does the Russia-Ukraine war lead to currency asymmetries? A US dollar tale. *The Journal of Economic Asymmetries*, 26, e00265. <https://doi.org/10.1016/j.jeca.2022.e00265>
7. Cui, L., Yue, S., Nghiem, X.-H., & Duan, M. (2023). Exploring the risk and economic vulnerability of global energy supply chain interruption in the context of Russo-Ukrainian war. *Resources Policy*, 81, 103373. <https://doi.org/10.1016/j.resourpol.2023.103373>
8. Decree of the President of Ukraine "Issues of the National Council on the Recovery of Ukraine from the Consequences of the War" No. 266/2022. (2022). <https://zakon.rada.gov.ua/laws/show/266/2022#Text>
9. Dotsenko, I. O. (2022, March 22-23). *Innovative and investment activities of the development of modern business entities*. The fourth international scientific-practical internet conference "Actual problems of modern business: accounting, financial and managerial aspect". Lviv: Lviv National University of Nature Management.
10. Dyachenko, K. S. (2022, March 22-23). *The role and importance of the IT sector for the economy of Ukraine in wartime conditions*. The fourth international scientific and practical Internet conference "Actual problems of modern business: accounting, financial and management aspect". Lviv: Lviv National University of Nature Management.
11. European Bank. (2023, March 7). *Ukraine Railways (UZ) Emergency Support*. <https://www.ebrd.com/work-with-us/projects/psd/54150.html>
12. Fedak, M. (2022, November 11). *VOJEXT - fundraising for infrastructure solutions with collaborative works*. Industry 4.0 in Ukraine. <https://industry4-0-ukraine.com.ua/category/4-0-%d0%b2-%d1%83%d0%ba%d1%80%d0%b0%d1%97%d0%bd%d1%96/>
13. Fedorov, M. (2022, December 30). IT During War: Challenges, Achievements, Prospects. *Interfax Ukraine*. <https://interfax.com.ua/news/blog/881572.html>
14. Finagina, O. V., Kovalenko, Yu. O., & Pryhodyuk, O. M. (2019). Smart economy of Ukraine: the future of regions and entrepreneurs. *Problems and prospects of ensuring stable socio-economic development*. Mariupol: Donetsk State University of Management.
15. Gladynets, N., & Kozar, Y. (2022, April 6-7). *Economy during the war*. IV International scientific and practical conference "Management of socio-economic transformations of economic processes: realities and challenges". Mukachevo, Ukraine: Mukachevo State University. http://dspace.s.msu.edu.ua:8080/bitstream/123456789/9281/1/Econom_%20of%20Ukraine%20during%20the%20war.pdf
16. Government portal. (2023a, March 9). *Ministry of infrastructure: Japan will provide more than 170 million US dollars*. <https://www.kmu.gov.ua/news/vidnovlennia-ukrainy-iaponiia-nadast-ponad-170-milioniv-dolariv-ssha>
17. Government portal. (2023b, March 2). *The Prime Minister of Ukraine held a conversation with the Federal Chancellor of Austria*. <https://www.kmu.gov.ua/news/premier-ministr-ukrainy-proviv-rozmovu-z-federalnym-kantslerom-avstrii>
18. Hrebenyk, A. (2022, March 22-23). *The functioning of agriculture in wartime conditions*. IV International Scientific and Practical Internet Conference "Actual Problems of Modern Business: Accounting, Financial

- and Management Aspects". Lviv, Ukraine: Lviv National University of Nature Management.
19. Ihle, R., Bar-Nahum, Z., Nivievskiy, O., & Rubin, O. (2022). Russia's invasion of Ukraine increased the synchronisation of global commodity prices. *The Australian Journal of Agricultural and Resource Economics*, 66(4), 775–796. <https://doi.org/10.1111/1467-8489.12496>
 20. International Monetary Fund. (2023, March 21). *IMF and Ukrainian Authorities Reach Staff Level Agreement on a US\$15.6 Billion Extended Fund Facility (EFF) Arrangement*. <https://www.imf.org/en/News/Articles/2023/03/21/pr2388-ukraine-imf-and-authorities-reach-staff-level-agreement-eff-arrangement>
 21. Kazyuka, N. P., & Sheketa, E. Y. (2022). Directions and reserves of the post-war economic recovery of Ukraine. *The Actual Problems of Regional Economy Development*, 2(18), 256–264. <https://doi.org/10.15330/apred.2.18.255-264>
 22. Kharovska, A. V. (2022). *Ukrainian Marshall Plan: opportunities and obstacles*. Eighth All-Ukrainian scientific readings in memory of S. I. Yuriy. Ternopil: West Ukrainian National University. <http://dspace.wunu.edu.ua/handle/316497/46269>
 23. Khmarska, I., Kucheryava, K., & Klimova, I. (2022). Peculiarities of the post-war economic recovery of Ukraine. *Economy and society*, (42). <https://doi.org/10.32782/2524-0072/2022-42-31>
 24. Kubilius, A. (2022, May 6). *Reconstruction plan together with membership: what the post-war reconstruction of Ukraine should look like*. European Pravda. <https://www.euointegration.com.ua/articles/2022/05/6/7138992/>
 25. Kyiv School of Economics. (2023, April 19). *Damages to the agricultural sector and land resources of Ukraine from a full-scale war amount to \$8.7 billion*. <https://kse.ua/ua/about-the-school/news/zbitki-agrosektoru-ta-zemelnim-resursam-ukrayini-vid-povnomasshtabnoyi-viyni-skladayut-8-7-mlrd/>
 26. Law of Ukraine "On prevention of threats to national security associated with excessive influence of persons who have significant economic and political weight in public life (oligarchs)" No. 1780-IX. (2021). <https://zakon.rada.gov.ua/laws/show/1780-20#Text>
 27. Maryna, A. S., & Yankovska, Y. R. (2022). *The agricultural sector of the economy of Ukraine in the conditions of war*. Materials of the All-Ukrainian Scientific Conference: "Ukrainian Present - 2022: Realities of the War and Prospects for the Restoration of the Country." Lutsk. http://dspace.wunu.edu.ua/bitstream/316497/45896/1/%D0%97%D0%B1%D1%96%D1%80%D0%BA%D0%B0_.pdf
 28. Matiushenko, I. Yu. (2013). *Investment (in the context of Ukraine's international integration)*. Kharkiv: V. N. Karazin Kharkiv National University. https://ndc-ipr.org/media/ndc_old/documents/1_Matyushenko_I_nvestuvannya.pdf
 29. Melnyk, T. (2022). State support and business development stimulation in Ukraine during the state of martial law. *Economics, Management, and Administration*, 2(100), 3-11. [https://doi.org/10.26642/ema-2022-2\(100\)-3-11](https://doi.org/10.26642/ema-2022-2(100)-3-11)
 30. Ministry of Finance of Ukraine. (2023, March 21). *Ukraine received EUR 1.5 billion in macro-financial assistance from the EU*. https://mof.gov.ua/uk/news/ukraine_received_eur_1_5_billion_of_eu_macro-financial_assistance-3897
 31. Moroz, H. V., & Kosyk, B. M. (2022). Financial assistance to Ukraine from international partners during the war. *Problems of Modern Transformations. Series: Economics and Management*, 5. <https://doi.org/10.54929/2786-5738-2022-5-08-01>
 32. National Bank of Ukraine. (2023, April 14). *Commentary of the National Bank on changes in real GDP in 2022*. <https://bank.gov.ua/ua/news/all/komentar-natsionalnogo-banku-schodo-zmini-realnogo-vvp-u-2022-rotsi#:~:text=%D0%9A>
 33. National Council for the Restoration of Ukraine. (2022). *The draft Plan for the recovery of Ukraine from the consequences of the war*. <https://www.kmu.gov.ua/storage/app/sites/1/recoveryrada/ua/economic-recovery-and-development.pdf>
 34. National Institute for Strategic Studies. (2023, April 11). *Assistance of international financial institutions to Ukraine. Monitoring 25.02-25.03.2023*. <https://niss.gov.ua/news/komentari-ekspertiv/dopomoha-mizhnarodnykh-finansovykh-institutiv-ukrayini-monitorynh-2502#:~:text=%D0%9>
 35. Nguyen, M. N., Dinh, T. V., Nguyen, H. T., Phuoc, M. H., Nguyen, T. A., Le, D. H. A., & Le, T. H. T. (2022). Russia-Ukraine war and risks to global supply chains. *International Journal of Mechanical Engineering*, 7(6), 633-639. <https://kalaharijournals.com/resources/JUNE-73.pdf>

36. Oneshko, S., & Pashchuk, L. (2021). Industry 4.0 and creative economy (globalization challenges of the time). *Futurity Economics & Law*, 1(4), 4–11. <https://doi.org/10.57125/FEL.2021.12.25.01>
37. Order of the Cabinet of Ministers of Ukraine "On Approval of the Plan of Urgent Measures for the Relocation of Business Entities' Production Facilities from the Territories where Hostilities are Taking Place and/or There is a Threat of Hostilities to a Safe Territory" № 246-Fig.p (2022). <https://zakon.rada.gov.ua/laws/show/246-2022-%D1%80#Text>
38. Ovcharova, S. (2022). On the relationship between digitalization and the national smart economy model to achieve strategies of innovative progress. *Futurity Economics & Law*, 2(3), 28–38. <https://doi.org/10.57125/FEL.2022.09.25.04>
39. Resolution of the Cabinet of Ministers of Ukraine "On promoting the implementation of the technological approach "Industry 4.0" in Ukraine" No. 750. (2021). <https://zakon.rada.gov.ua/laws/show/750-2021-%D0%BF#Text>
40. Resolution of the Cabinet of Ministers of Ukraine "On the Features of the Operation of the Joint-Stock Company 'Ukrposhta' under the Conditions of Martial Law" № 305 (2022). <https://zakon.rada.gov.ua/laws/show/305-2022-%D0%BF#Text>
41. Reun, A. (2022, April 1). Tax and customs reform 2.0. *Mirror of the week*. <https://zn.ua/ukr/business/podatkovu-mitna-reforma-20.html>
42. Rybalchenko, S., Lukianykina, O., Alamanova, C., Saienko, V., & Sunduk, T. (2022). Anti-crisis management of banking institutions: current problems and prospects for improvement. *Financial and Credit Activity-Problems of Theory and Practice*, 5(46), 29-39. <https://doi.org/10.55643/fcaptop.5.46.2022.3907>
43. Samaeva, Y. (2022, March 13). How does the rear work? *Mirror of the week*. <https://zn.ua/ukr/macrolevel/jak-pratsjuje-til.html>
44. Snigova, O. Y. (2022). *Post-war recovery and structural modernization of the economy of Ukraine*. All-Ukrainian Scientific Conference "Ukrainian Present - 2022: Realities of War and Prospects for the Restoration of the Country." Lutsk: Donetsk National Technical University. http://dSPACE.wunu.edu.ua/bitstream/316497/45896/1/%D0%97%D0%B1%D1%96%D1%80%D0%BA%D0%B0_.pdf
45. Steinbach, S. (2023). The Russia–Ukraine war and global trade reallocations. *Economics Letters*, 226, 111075. <https://doi.org/10.1016/j.econlet.2023.111075>
46. The World Bank. (2023, February 24). *Additional \$2.5 Billion Mobilized by the World Bank to Support Continuity of Government Services and Recovery Efforts in Ukraine*. https://www.worldbank.org/en/news/press-release/2023/02/24/additional-2-5-billion-mobilized-by-world-bank-to-support-continuity-of-government-services-recovery-efforts-in-Ukraine?cid=eca_tt_eca_en_ext
47. [Ukraine Recovery Conference](https://ua.urc-international.com/plan-vidnovlennya-ukrayini). (2022, July). *Ukraine recovery plan*. <https://ua.urc-international.com/plan-vidnovlennya-ukrayini>
48. Umar, Z., Polar, O., Choi, S.-Y., & Teplova, T. (2022). The impact of the Russia-Ukraine conflict on the connectedness of financial markets. *Finance Research Letters*, 48, 102976. <https://doi.org/10.1016/j.frl.2022.102976>
49. Ustinov, Ya. (2023). The Role of the IT Industry in the Structural Transformation of the Ukrainian Economy. *Grail of Science*, 27, 42-44. <https://doi.org/10.36074/grail-of-science.12.05.2023.003>
50. Vdovichenko, O., Vidomenko, O., Tkachuk, S., Zhuzhukina, N., & Lukianykina, O. (2022). The use of information in the world economy: globalization trends. *Futurity Economics & Law*, 2(4), 4–11. <https://doi.org/10.57125/FEL.2022.12.25.01>
51. Zhou, X.-Y., Lu, G., Xu, Z., Yan, X., Khu, S.-T., Yang, J., & Zhao, J. (2023). Influence of Russia-Ukraine War on the Global Energy and Food Security. *Resources, Conservation and Recycling*, 188, 106657. <https://doi.org/10.1016/j.resconrec.2022.106657>

Золотова О., Іванова В., Симак Д., Кудінов О., Славута О.

ЕКОНОМІКА ПІД ЧАС ВОЄННОГО СТАНУ: ПРОБЛЕМИ Й ШЛЯХИ ПОДОЛАННЯ КРИЗИ (УКРАЇНСЬКИЙ ДОСВІД)

Агресивне вторгнення російської федерації об'єднало українське суспільство та бізнес зокрема. Зовнішні загрози не виправдали сподівань країни-агресора, яка робила ставку на економічний крах України та, як наслідок, скорення

нашого суспільства. Відповідно, метою цього дослідження є системний аналіз основних чинників зниження економічних показників від початку повномасштабного вторгнення та визначення засобів і механізмів подолання економічної кризи, зокрема й шляхом ухвалення дієвих державних рішень. Аналіз закордонних публікацій дав чітке розуміння, що економічна ситуація в Україні має безпосередній вплив на міжнародну економіку та світову геополітику. У цьому дослідженні проаналізовано основні чинники, які вплинули на падіння ВВП в Україні у 2022 році, та обставини, які стали причиною його стабілізації; виокремлено окремі галузі економіки, які, незважаючи на нищівні економічні втрати, виявили стійкість до викликів війни. Дано окрему оцінку IT-галузі, яка в сучасних реаліях виявилася для України найбільш адаптивною, що дозволило дійти висновку, що майбутнє України – саме за цифровими трансформаціями з поступовою інтеграцією до смарт-економіки. Водночас у ході дослідження визначені конкретні етапи, які має пройти Україна на шляху до свого економічного відновлення; виокремлено негативні чинники, які заважають цьому вже сьогодні. Зокрема однозначно встановлено, що корупція є ключовим гальмівним елементом економіки України; вона була до війни, існує і зараз, однак має зникнути після війни, оскільки її існування зведе до нуля перспективи створення правового, економічно стабільного суспільства та внеможливить реальну інтеграцію України до європейської спільноти.

Ключові слова: антикорупційна політика, агропромисловий комплекс, економіка, подолання кризи, міжнародна підтримка, світові ринки, смарт-економіка

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