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ANALYSIS OF OPTIONS OF THE NEW ECONOMIC POLICY OF UKRAINE FOR BUILDING AN ECONOMIC POWERFUL STATE DURING THE RUSSIAN-UKRAINIAN WAR AND IN THE POST-WAR PERIOD, AS PRECONDITIONS FOR THE DEVELOPMENT OF THE DEFENSE-INDUSTRIAL COMPLEX

The article analyzes the experience of successful economic reforms and rapid economic growth in different countries of the world and proposes general approaches to building a wartime and post-war model of Ukraine's new economic policy. The authors emphasize the necessity and possibility of building a powerful defense industry only on the solid foundation of a modern, efficient and integrated national economy into global trade chains.

The article describes possible forms of cooperation between the Ukrainian defense industry and the defense industry of NATO and the EU, identifies the advantages of each of them and substantiates the need for their integrated use.

Keywords: defense industry, new economic policy of Ukraine, world experience of post-war economic growth, Marshall Plan, forms of integration of the Ukrainian defense industry with the defense industry of NATO and the EU.

INTRODUCTION

Ukraine's defense industry development strategy cannot be separated from the overall development strategy of the state, because a strong economy is the only reliable guarantee of a powerful defense industry capable of providing the Ukrainian army with the most effective weapons and military

equipment to protect Ukraine's sovereignty and territorial integrity, based on modern production technologies.

Therefore, before moving on to analyze possible ways and prospects of the Ukrainian defense industry, let us try to determine what features and properties of the Ukrainian economy will ensure the formation of an industry that can truly meet the current and strategic needs of the Defense Forces for modern weapons, military equipment and ammunition to provide a powerful response to Ukraine's aggressive neighbor.

For several years now, international and Ukrainian platforms have been discussing possible ways to rebuild Ukraine after the victory.

In the world practice, Ukraine is not the first country that needs post-war recovery and wants to build a modern and highly efficient economic model to ensure the welfare of its citizens and protect them and the territorial integrity of the state. That is why the task of analyzing and summarizing the experience of restoring countries that have suffered destruction because of military operations, building a new powerful and modern economy that should become the basis for the development of the state's defense industry is extremely relevant.

The purpose of the study is to analyze the reasons for the gradual decline of the Ukrainian defense industry since 1991 until the full-scale Russian aggression against Ukraine, to study the experience of successful post-war recovery and economic growth in countries around the world and the possibilities and ways to use it in the post-war reconstruction of the Ukrainian economy and the construction of a powerful defense industry capable of providing the Ukrainian Defense Forces with the necessary weapons and ammunition to protect the territorial integrity and independence of the state.

RESEARCH RESULTS

Analyzing the experience of post-war economic growth in countries around the world

There are many examples of post-war recovery in countries that once suffered from armed conflicts on their territory.

First of all, it is worth mentioning the experience of Germany's postwar recovery after the end of World War II. After the defeat in that war, Germany's economic situation was not the best and it suffered considerable losses. The country was divided into two geopolitical blocs – West Germany, which followed a pro-European democratic path and East Germany, which chose a totalitarian communist regime [1].

Many German cities were largely destroyed, with human losses reaching 5–7 million people. Almost every family lost relatives, often a roof over their heads and all their property. There was a shortage of coal and food. Every second person was unemployed. The economy was in a state of disrepair. About 20 % of industry was lost, production facilities were destroyed, entire plants and echelons of equipment were exported.

Ludwig Ehrhardt, Minister of Economy of West Germany (later the Federal Republic of Germany, FRG) is considered the main architect of Germany's economic success after the war [1]. Undoubtedly, U.S. assistance (under the Marshall Plan) played a role in Germany's economic deve-

lopment, but it was the reforms and rational use of funds that were decisive.

Ludwig Ehrhardt developed the fundamental principles of the «social market economy» on which the new Germany was built [1]:

- 1) development of a market economy, freedom of entrepreneurship, stimulation of investment, preservation of free competition, privatization and protection of property rights. Independence and responsibility of market participants, free choice of activities, profession, workplace, consumption, etc.;
- 2) strengthening and development of the middle class, focus on small and medium-sized businesses. The middle class, not the oligarchy, is the subject of private property;
- 3) state regulation and the active economic role of the state, whereby state regulation was understood not as state interference in economic processes, but as determining development priorities, creating «common and binding rules of the game» for all;
- 4) a balanced social policy, with the state providing assistance to those who need it;
- 5) and perhaps the most important principle without which it is difficult to implement structural changes in the state and economy is the trust of the people in the government and the chosen course. And the less social stratification in society, the greater this trust.

The funds that West Germany received from the United States, were mostly used for technical re-equipment of industries, new technologies, reconstruction and renewal of production, replacement of fixed assets, design development and science. Advanced industries were created on a new technological basis, including petrochemicals, electronics, mechanical engineering, instrumentation, electricity and optics. Export-oriented industries, such as automotive, aviation, electrical, chemical and processing, were developing dynamically and the government supported them with direct funding. The development of new technologies, investment in science, and the creation of the above-mentioned industries became the basis of the defense industry of the restored Germany. It should be noted that the transition of the entire industry to ISO standards was a key factor in ensuring high quality products not only for civilian and general industrial use, but also for the creation of advanced weapons and military equipment.

These principles and the experience of their implementation in the reconstruction of Germany are quite relevant (of course, taking into account current realities) for Ukraine.

It is also worth considering the experience of rebuilding South Korea (the Republic of Korea), whose situation after the war, which lasted from 1950 to 1953 and in which the regular armies of the United States, China and the USSR took part and where the front passed through almost all of its territory three times, was terrible. The country was virtually a complete ruin. Almost all industry remained in North Korea (DPRK). South Korea is still formally under martial law. There are still powerful fortifications and defensive positions on the 38th parallel, on the border with the DPRK. However, this has not prevented the country from making tremendous progress in economic development [2].

Today, the Republic of Korea is one of the world's largest economies and a leader in innovation, which objectively corresponds to its status as an «East Asian dragon» or «East Asian tiger». The Republic of Korea is a member of the G20, a global and regional ally of the United States and has a positive image in the international arena. The country is a global center for startups, especially given the status of Seoul, which is often called the «Asian Silicon Valley». In 2022–2024, the Republic of Korea's human development index was 0,929, which ranked it 19th in the world in this indicator. The country's nominal GDP in 2023 amounted to USD 1712.793 billion, making it the fourth largest economy in Asia and the fourteenth in the world [2].

South Korea needed not just postwar recovery, but also the development of a new postwar economy. Ukraine, too, should not only restore what it had before the war, but also move to a new level, to a new economy based on modern technology. With this in mind, it is relevant to draw historical analogies and highlight the possibilities of applying the South Korean experience to Ukraine.

South Korea has made attracting investment and new technologies a priority of its foreign and domestic policy. A number of state institutions have been created to intensify and regulate these processes. Thus, if in the early 1960s, there were only two state research institutes in the ROK: National Defense Research Institute (1953) and Atomic Energy Research Institute of the Republic of Korea (1959), a number of new research institutes and research centers were established during the 1960s and 1970s, along with the Ministry of Science and Technology (MOST) (1967). These included: The Korea Institute of Science and Technology (KIST) (1966), the Korea Advanced Institute of Science (KAIS) (1971), the Electronics and Telecommunications Research Institute (ETRI) (1976), the Teduk Science City and other research institutes. The Defense Development Agency (ADD) was responsible for the development of defense technologies. These institutions created the necessary conditions for the development of science and technology in the country as a whole and in its defense sector and provided the government with important research and advice, including in the area of policy decisions. The development of scientific research was also facilitated by significant investments, both public and private. The government, in particular, provided funding for large-scale research and development aimed at gaining competitive advantages in high-tech markets [2].

Possible recommendations for Ukraine based on the South Korean experience can be summarized as follows:

- ensuring stability of the political situation as a key factor contributing to economic growth, avoiding social and political upheavals and actively fighting corruption, which is a serious obstacle to economic development;
- ensuring that the state supports an export-oriented development model with parallel import substitution of the most critical and important products for the needs of Ukrainian citizens and national security and defense;
- achieving the competitiveness of the national economy with a focus on technology and innovation in cooperation with the United States and European countries, Japan and the Republic of Korea, in parti-

cular, in the area of cooperation/import/transfer of technology and innovation. This will allow for the development of the processing industry and investment in the production of high value-added goods instead of focusing only on the extraction and export of raw materials (including food);

- attracting foreign investment. Creation of large high-tech enterprises with the participation of foreign capital, including offset programs, to ensure the production of high-tech equipment for general industrial purposes and targeted technological complexes for the defense industry (Slogan – Build factories for the production of modern high-tech plants);
- mobilization of the Ukrainian nation around a common goal during the period of recovery and economic transformation.

In the context of taking into account the experience of the Republic of Korea, the visit of a South Korean delegation led by the Minister of Land, Infrastructure and Transport of the Republic of Korea, Won Hee Ryong, to Ukraine in September 2024 is considered very positive. Among the business representatives in the delegation were the heads of such tech giants as Samsung, Hyundai, Hanwha Solutions, Yooshin and Posco [3].

As a result of the meeting, Ukraine and the Republic of Korea agreed to develop infrastructure rehabilitation projects involving Korean high-tech experience and Korean business investment.

The experience of Turkey's economic growth may be very interesting for Ukraine. There is much to learn from Turkey. Over the past twenty years, it has built a powerful economy. According to the World Bank, Turkey's economy has been confidently ranked among the twenty largest economies in the world in recent years (18th place in 2023) [4].

The economy's rapid growth is largely due to a broad package of reforms that were implemented in the early 2000s. Its most important elements were [5]:

1) fiscal consolidation and a thorough reform of public finances, including, among other things, the harmonization of public procurement with EU standards and strengthening of auditing;

2) reducing the role of the state in the economy through privatization, which primarily included infrastructure facilities: Turkish Airlines, electricity distribution and generation enterprises (according to the World Bank, from 2002 to 2013, 12.7 billion US dollars of private investment was attracted. USD 12.7 billion of private investment in this sector was attracted from 2002 to 2013), the state monopoly in the telecommunications sector, ports, etc;

3) establishment of independent regulators in the real sector of the economy, in particular in the key sectors of energy, telecommunications and agriculture and significant increase in competition and simplification of administrative procedures for doing business;

4) cleaning up the banking system through the rapid resolution of insolvent banks (protecting depositors, not bank owners), making it impossible for «related parties» to obtain loans from their own banks and restructuring, strengthening corporate governance and partial privatization of state-owned banks;

5) granting independence to the Central Bank of Turkey, defining price stability as its main mandate and prohibiting direct financing of public debt. At the same time, its accountability to the public and transparency in decision-making were strengthened.

6) transition to inflation targeting and a floating exchange rate.

This reform package laid the foundation for macroeconomic stabilization and sustainable economic growth. The reduction of legal obstacles and macroeconomic stabilization, as well as progress in harmonizing standards with the EU, has allowed Turkey to attract significant foreign direct investment, including in privatization and to increase its participation in global supply chains.

Turkey has learned to produce high-quality high-tech weapons. It independently produces optoelectronic systems, combat drones, as well as small arms, ships and creates samples of armored vehicles and radio stations.

In addition to attracting foreign developers, the successful development of the defense industry was also ensured by the structural organization. Thus, Turkey has developed partnerships between public and private companies and higher education institutions. The companies operating in the defense industry (TAI, Aselsan and Roketsan, Baykar, Havelsan, YONCA-ONUK, STM and others) are organized into clusters. Turkey is successfully getting rid of its dependence on foreign arms manufacturers and increasing the share of its own technologies in production. Thus, while in 2002, 62 defense projects were implemented, today there are about 700 of them. The number of companies operating in the sector has increased from 56 to 1500. Over the past twenty years, Turkey has increased its budget for its own defense projects from \$5.5 billion to \$60 billion and the industry's turnover has grown from \$1 billion to \$11 billion. Exports of the defense and aviation sectors increased from \$248 million to \$3 billion. In the field of combat aviation, Turkey started with the production of individual weapons components (General Electrics F110 engines for Lockheed Martin F-16 fighters, turbine blades for the Lockheed Martin F-35 engine, etc.). Then, F-16 fighters began to be assembled under an American license in Ankara. Then Turkey began to develop its own fighter jet, which would have a Turkish engine and weapons [6].

The design and construction of Turkey's own KAAN fighter cost Turkey \$2 billion and the first 20 fighters are planned to be delivered to the country's Air Force in 2028, with hundreds of KAAN fighters to come in the future. This was announced in May 2024 by the CEO of the aerospace company Turkish Aerospace Industries (TAI), Temel Kotil [7].

Of course, it is also possible to recall the experience of rapid economic growth and building a powerful defense industry in other countries. Their experiences and paths are very different, but they have something in common: economic freedom, entrepreneurship, protection of private property, attraction of foreign investment, innovation and sound public administration.

Using the experience of economic growth of other countries and creating a Plan for the Restoration of Ukraine

As the American economist and Nobel Prize winner Edmund Phelps noted: «Economic success depends on the

character of the nation» Edmund Phelps's very apt statement fully applies to the economic situation in Ukraine, especially after the start of Russia's full-scale aggression against Ukraine, when we are not talking about the economy, but about the very existence of Ukrainian statehood.

As the investigation by The Washington Post [8] showed, US officials were confident before and at the beginning of Russia's full-scale invasion of Ukraine that Ukraine would fall, although not as quickly as the Russians expected. But here the moral and indomitable spirit of the Ukrainian nation, which had already been clearly manifested during the Orange Revolution of 2004 and the Revolution of Dignity of 2013, came to the fore again.

Ukraine has not fallen and has been fighting for its freedom and right to life for the third year. And here again the will of Ukrainians, who in the most difficult times began to build plans for the restoration of Ukraine during the war and after the victory over the Russian aggressor, was clearly manifested.

On April 21, 2022, President of Ukraine Volodymyr Zelenskyy issued a decree on the establishment of the National Council for the Reconstruction of Ukraine from the Consequences of the War [9]. The main tasks of the National Council for the Restoration of Ukraine were defined as follows:

- development of an action plan for the post-war recovery and development of Ukraine, which, in particular, will include the restoration and development of infrastructure, housing and the military-industrial complex, structural modernization and restart of the economy, measures to overcome unemployment and support for vulnerable groups of the population;
- preparation of strategic initiatives, draft laws and regulations, the adoption and implementation of which is necessary for the effective work and recovery of Ukraine in the war and post-war periods.

Already in July 2022, the National Council for the Restoration of Ukraine presented the Ukraine Restoration Plan, aimed at accelerating sustainable economic growth, which consists of 17 National Programs in various areas of activity and is designed for the period until 2032 [10]. The National Programs include 850 projects worth more than 750 billion US dollars.

One of the first framework international documents for the recovery of Ukraine was the Recovery and Development Plan for Ukraine following the results of the international conference in Lugano on July 5–6, 2022. Subsequent conferences of this format were held in London on June 21–22, 2023 and in Berlin on June 11–12, 2024 [11].

In the expert community, discussions are underway on the choice of two main options for organizing the recovery processes in Ukraine. The first is the creation of program documents and strict adherence to them [12], the second is proposing more revolutionary measures, creative and non-standard solutions [11, 13].

Valeriy Pekar, a lecturer at the Kyiv-Mohyla Business School, believes (and the authors of the article tend to agree with him) that ensuring conditions for the massive influx of private investment into Ukraine is a prerequisite for the restoration and modernization of the Ukrainian economy,

because it was private investment that provided sufficient money to restore the economy of Western Europe, while the Marshall Plan provided 4–7 % of the necessary financing.

In his opinion, after the victory, Ukraine will face five main challenges, without the resolution of which no program will work and a large amount of investment will not come [13].

1. Long-term security. Russia is aggressive and its aggressive policy should not be expected to change. Therefore, Ukraine should be a member of NATO or have adequate security guarantees.

2. Rule of law. According to the World Justice Project (WJP), Ukraine ranked 89th out of 142 countries in the 2023 rule of law ranking, which obviously does not attract international investors who advocate for equal, transparent rules of the UAH [14].

3. Economic freedom. Ukraine ranked 130th in the world (out of 177) in the Heritage Foundation's economic freedom ranking as of January 1, 2022, with a score of 54.1, down from 56.2 in 2021 [15].

4. Demographics. In 2018–2020, there were two deaths for every one child born in Ukraine. Currently, there are three deaths per newborn citizen (of course, we must take into account the number of deaths due to Russian aggression). This ratio is one of the key indicators of the demographic crisis.

During the first half of 2024, 87,655 children were born in Ukraine, which is 9 % less than in the same period in 2023 and one and a half times less than in 2021 (87,655 children compared to 132,595) [16]. The population is aging rapidly. It is not known exactly how many Ukrainian citizens who fled Russian aggression will return from abroad, but it should be expected that the part of Ukrainians who found work and settled down will not return.

A good sign is the adoption of the Resolution of the Cabinet of Ministers of Ukraine dated September 30, 2024 No. 922-r «On Approval of the Strategy of Demographic Development of Ukraine for the Period Until 2040» [17]. Working hard to implement it is becoming one of the top priorities facing the executive branch of Ukraine to build a new economy for the state.

5. Democracy. And yet, Ukraine cannot do without external sources of funds for the implementation of these projects and other forms of assistance from international institutions and partner countries.

Marshall Plan 2.0

For several years, long before Russia's full-scale invasion of Ukraine, the issue of creating an analogue of the Marshall Plan for Ukraine, which has acquired the generally accepted name «Marshall Plan 2.0», has been under consideration [18]. First of all, we would like to emphasize that the so-called «Marshall Plan 2.0» is not (like the first Marshall Plan) a monetary fund for financing projects and activities planned by the recipient country (in this case, Ukraine).

It should be understood that the implementation of the «historical» Marshall Plan of 1947 was a very pragmatic geostrategic process and in financial terms, the Marshall Plan funds were quite insignificant. It is estimated that the aid amounted to about 3 % of the total national income of the recipient countries. Therefore, the accelerating mechanism

of the Marshall Plan through the relevant mechanisms of allocating funds was much more important.

It is important to emphasize that the Marshall Plan achieved the greatest success in countries where it was supplemented by complementary holistic national reconstruction strategies. In this context, it is worth mentioning the implementation of the concept of ordoliberalism, which was advocated by the Economic Council under the leadership of Ludwig Erhard in Germany, or the policy of «dirigism» of Charles de Gaulle in France, which, on the contrary, provided for a significant budget redistribution of funds, the creation of a system of centralized planning [18].

Both approaches worked in their time in the specific conditions of the then world economy and the characteristics of the countries receiving assistance under the Marshall Plan.

The task of Ukraine, with the help of partners, is to define and implement a balanced approach between these two extremes, directing the policy of «dirigism» precisely to define the «rules of the game», the purpose of which is to stimulate the necessary volume of private investment and technology and monitor their compliance.

Accordingly, the «Marshall Plan 2.0» should [18]:

- determine in specific areas and measures the mutual benefit of its implementation for Ukraine and European partners, Western private capital;
- guarantee the formation of a stable predictable space and the creation of comfortable conditions for the work of partners in the Ukrainian market, in particular in the implementation of recovery projects;
- provide for the formation of high-quality financial mechanisms for the precise targeting of international financial assistance resources to Ukraine for recovery;
- formulate a vision of Ukraine's promising place in the European community, including in addressing common European problems – security, demography, climate change, digital revolution, etc.;
- determine ways to implement a common European policy in Ukraine, in particular those related to the agricultural, transport, environmental, energy, regional spheres, competition, etc.;
- delineate specific areas of cooperation between Ukraine and the EU within the framework of recovery goals;
- determine areas for strengthening logistical ties between Ukraine and the EU;
- to establish priorities for technical assistance to state authorities and local governments in implementing European practices;
- to strengthen cooperation in forming institutional mechanisms for interaction between Ukraine and the EU.

A high level of intellectual technology, the intensity and efficiency of their implementation should become a criterion for the development of Ukraine's national economy and an indicator of the success of the implementation of plans.

Technological, financial and advisory assistance from partners is a necessary but not sufficient condition for rebuilding Ukraine on a new technological level. Without the persistence and stubbornness of ordinary Ukrainian citizens and its authorities, this task will remain unrealizable.

Let's move on to the second part of the article, which deals with Ukraine's defense industry.

The history of the decline of the defense-industrial complex of Ukraine

After the collapse of the former USSR, Ukraine inherited a powerful defense-industrial potential, as well as a third of all Armed Forces. In 1991, a powerful military group was located on the territory of our country (720 thousand servicemen, 6500 tanks (a fifth of which were the latest models), 7150 armored personnel carriers and infantry fighting vehicles, 3400 artillery systems, 1430 combat aircraft, 285 combat helicopters). 18 % of the defense-industrial complex of the former USSR was located on the territory of our country (3594 enterprises of the defense-industrial complex of Ukraine in 1991, which at that time employed 3 million people) [19].

Despite such a powerful inherited defense-industrial potential, it was actually not useful for ensuring the national security of the state for certain reasons, some of which can be considered as follows.

1. The influence of the Russian Federation on the policy of Ukraine as a whole and on the actions of individual politicians and its far-reaching plans to make Ukraine a satellite of Russia.

2. The influence of other countries of the world, not interested in the appearance on the map of Europe of a powerful economically and well-armed Ukraine that possesses nuclear weapons.

3. In Ukraine, there were powerful fragments of the defense-industrial complex. There was no defense industry as a system. Significant capacities for the production of finished military products had an extremely small share of closed-cycle products and were actually completely dependent on external supplies of components, materials and raw materials (primarily from Russia, especially given the huge restrictions on the supply of modern electronics from technologically advanced countries of the world). It is worth mentioning the activities of the Coordinating Committee for Multilateral Export Controls (CoCom), which exercised control over exports to the USSR and other countries of the Council for Mutual Economic Assistance during the Cold War (and later to the CIS countries, including Ukraine).

4. The weakness of the Ukrainian economy and its dependence on supplies from Russia of spare parts necessary for the repair and maintenance of Soviet-designed and manufactured weapons.

5. The requirements of international acts on arms control. The existing weapons significantly exceeded the maximum permissible for Ukraine under the Treaty on Conventional Armed Forces in Europe, signed on November 19, 1990 in Paris, which entered into force on November 9, 1992, and was later supplemented specifically for the CIS countries by the Tashkent Protocol of May 15, 1992. According to these documents, our country had significant surpluses of military equipment, accounting for about 60 % of the total amount of weapons available at that time [19].

The Budapest Memorandum, signed on December 5, 1994, turned out to be just a declaration, as it did not provide any legal guarantees for Ukraine's security, but imposed obligations only on Ukraine, which it fulfilled in good faith

by transferring nuclear weapons to Russia. This example clearly demonstrates how cautious one should be when signing such international acts. The analogies are quite obvious today. Ukraine is being massively pressured to give up its territories in exchange for promises to consider Ukraine's accession to NATO at some point.

Russia will clearly conclude that its aggression, reinforced by nuclear threats, is not met with adequate response, i.e., after a little rest and development of new weapons, Russia will start a new aggression, this time setting as a goal a special military operation to capture the remnants of Ukraine, Eastern Europe, the Baltic states, etc.

In addition, it seems that the global consequences of the fact that a state that has renounced nuclear weapons was attacked, as it is threatened with the same nuclear weapons that it handed over, are still ahead. This encourages other countries to create their own nuclear weapons to protect their independence, because it turned out that no international treaty, no international institution has any influence on an aggressor who wanted to seize someone else's territory.

The dominant force in international politics is becoming exclusively the right to force, not limited by international law. According to the authors of the article, this fact significantly increases the likelihood of a third world war. Having renounced nuclear deterrence, Ukraine began to rapidly disarm in the field of conventional weapons, choosing a course for the export of better weapons, leaving only outdated junk for itself.

The technical component of the Ukrainian army was catastrophically reduced. As the publication «Word and Deed» notes [20], only from 2004 to 2014, 2,577 tanks, 3,711 armored personnel carriers/infantry vehicles, 750 aircraft, 138 helicopters, 580 air defense systems, 734 portable anti-aircraft missile systems, 25 Tochka-U missile systems and 434 missiles (tactical and for the C-300 air defense system) were withdrawn from the Armed Forces of Ukraine.

The Temporary Investigative Commission of the Verkhovna Rada of Ukraine, established by Resolution of the Verkhovna Rada of Ukraine No. 2455-VIII of 07.06.2018, to investigate information regarding the facts of embezzlement in the Armed Forces of Ukraine and the undermining of the state's defense capability in the period from 2004 to 2017, concluded that «as a result of Ukraine's accession to the Treaty «On Conventional Armed Forces in Europe», an uncontrolled process of selling off military equipment and property of the Armed Forces of Ukraine from bases, warehouses and arsenals, selling equipment outside Ukraine, as well as the seizure, lease and sale of real estate of the former USSR Ministry of Defense began, which in turn created conditions for a gradual systemic decrease in the level of combat capability of the Armed Forces of Ukraine» [21].

The ways of disarmament of Ukraine are striking in their diversity and significant influence from the Russian Federation (sometimes overt, sometimes slightly hidden). Let us leave the corruption component of this process outside the scope of this article. We will focus on only some of them.

1. Instead of half of the Black Sea Fleet's assets, during the final distribution in 1997, Ukraine received only 18 % of its naval composition and 50 % of weapons and military equipment [21].

2. The signing on 28.05.1997 of the Agreement between Ukraine and the Russian Federation on the status and conditions of the presence of the Black Sea Fleet of the Russian Federation on the territory of Ukraine, which allowed the presence of the Russian Black Sea Fleet at the military base in the city of Sevastopol. On April 21, 2010, in Kharkiv, the Presidents of Ukraine and Russia, Viktor Yanukovich and Dmitry Medvedev, signed the so-called Kharkiv Agreements, according to which the term of the Russian Black Sea Fleet's presence in Crimea was extended for 25 years from May 28, 2017, with an automatic extension for five-year periods in the absence of a written refusal by one of the parties to the agreement. It was from this base that the Russian Federation began its invasion of Ukraine.

3. Organization of the appointment of Russian citizens to key positions in the defense sector, for example, to the position of Minister of Defense of Ukraine Dmitry Salamatin and Pavel Lebedev. D. Salamatin also distinguished himself as the General Director of the State Concern «Ukroboronprom».

4. Determination of the export of munitions and weapons as a priority area of activity of the Ukrainian defense industry. In the 90s, Ukraine was in the top ten countries in the world in terms of sales of weapons and military equipment.

5. An abnormally high number of warehouses, bases and arsenals of the Armed Forces of Ukraine that exploded during the years of independence in Ukraine. The damage caused to the country's defense capability by more than two dozen explosions is difficult to estimate, material losses are estimated at many billions of hryvnias. For example, on October 29, 2015, near the city of Svatove, Luhansk region, an explosion occurred at an artillery depot. 3.5 thousand tons of ammunition of various calibers flew into the air, including for the Smerch, Grad and Uragan multiple launch rocket systems. On September 26, 2017, ammunition was detonated on the territory of the 48th arsenal of the Ministry of Defense (Kalynivka, Vinnytsia region). At the time of the explosion, 188 thousand tons of ammunition were stored there, in particular, the Smerch, Uragan and Grad multiple launch rocket systems [22]. And so on two dozen times. Most of the conclusions of law enforcement agencies are official negligence, fires, short circuits in electrical wiring. Very convenient and timely cases for the Russian Federation.

6. The formal nature and critical underfunding of the adopted state programs for reforming and developing the defense industry. For most of Ukraine's years of independence, defense financing was carried out on a residual basis and ranged from 2.1 % of GDP in 1992 to 0.8 % in 2010. The five-year period of complete financial impoverishment of the military industry fell (and hardly by chance) in the years before the occupation of the Autonomous Republic of Crimea in 2014. The share of Ukraine's defense spending in GDP was 0.8 % in 2009, 0.97 % in 2010, 0.98 % in 2011, 1.1 % in 2012 and 1.11 % in 2013 (open data).

All these and many other reasons led to a critical loss of Ukraine's defense capabilities to protect against an aggressive neighbor.

General assessment of the current state of the defense industry in Ukraine

The situation with the financing of the defense industry began to improve gradually with the adoption by the Verkhovna Rada of Ukraine in 2018 of the Law of Ukraine «On National Security of Ukraine» [23], which, among other things, stipulated that the amount of expenditures for financing the security and defense sector should be at least 5 percent of the planned gross domestic product, of which at least 3 percent should be for financing the defense forces, but full funding for defense needs began to work only with the beginning of russia's full-scale invasion of Ukraine and amounted to ten percent of the total. This was the main factor in the significant improvement of the situation in the Ukrainian defense industry.

The second extremely important factor was the rapid growth of national consciousness and the volunteer movement, which supplied the troops with a huge amount of personal protective equipment, drones, cars, medicines, warm clothes and much, much more.

The combination of a new level of national consciousness and a huge increase in defense funding led to the explosive growth of the private defense industry, which began to fill the gaps in the supply of the Ukrainian Defense Forces with a segment that allowed to some extent to compensate for the aggressor's huge advantage in personnel, weapons, military equipment and ammunition. During this period, this allowed for an asymmetric response, primarily due to the mass production of unmanned aerial vehicles (UAVs), electronic warfare equipment, etc.

The state concern «Ukroboronprom», having transformed into JSC «Ukrainian Defense Industry», also began to actively organize the production of munitions and ammunition, both directly at participating enterprises and in cooperation with Western defense companies.

Ukraine is gradually becoming one of the world's leading arms producers and the defense industry is developing rapidly. Thus, in the first half of 2024, domestic gunsmiths produced 25 times more ammunition for artillery and mortars than in the whole of 2022. As one of the latest examples, it can be noted that during the second International Defense Industries Forum, which took place on October 1, 2024 and was attended by representatives of about 300 companies from over 30 countries, JSC «Ukrainian Defense Industry» reached agreements on cooperation with four Western arms companies from the USA, France and Poland. This concerns interaction in the fields of ammunition and special chemicals, unmanned systems, as well as electronic reconnaissance and electronic warfare [24].

In September 2024, the Minister of Defense of Ukraine Rustem Umerov stated that today every second ammunition on the front is Ukrainian-made and in 2024 alone, the Ministry of Defense contracted drones for more than UAH 21 billion and ammunition for another UAH 9 billion, and together with the State Special Communications Service, more than a million drones were purchased for the army [25].

The situation with the production of domestic weapons and ammunition is beginning to improve, although the advantage of russian troops in these components remains significant.

Possible directions for the development of the Ukrainian defense industry

Let's try to determine what the main promising areas are worth paying attention to when developing a new outline of the Ukrainian defense industry.

The role and place of the private component in the Ukrainian defense industry needs to be reconsidered. The experience of the war with russia has shown that private defense companies respond more flexibly to the needs of the front. During the forum «Innovations in the Defense Industrial Complex» within the framework of the XIII International Festival of Innovation Projects «Sikorsky Challenge 2024: Innovations for Peace and Security of Ukraine», which took place in Kyiv from October 29 to November 1, 2024, representatives of private companies noted that they promptly respond to the needs of the front, comments and suggestions of the military, and the average time from receiving information about the needs to their implementation has been reduced to several months.

It is necessary to work out and ensure the implementation of a strategy for personnel renewal of employees of the defense industry enterprises of Ukraine. As was noted at the aforementioned forum «Innovations in the Defense Industrial Complex», experience shows that increasingly, success in designing the most modern models of munitions is achieved by young engineers and yesterday's students, who have an unbiased view and are armed with modern design tools and achieving a combination of their capabilities with the existing design experience of engineering workers is one of the strategic objectives.

It is important to scale up the activities of Ukrainian platforms such as Bravel and create an effective vertical management system for the implementation of innovative technological solutions in the defense sector.

An increasing number of Ukrainian and Western experts and institutions suggest paying increased attention to the opportunities that the implementation of the principle of purchasing Ukrainian weapons from Ukrainian manufacturers for the needs of the Ukrainian Defense Forces at the expense of Western partners can provide. For example, Ukraine can produce up to 4 million drones annually, of which only one and a half million are contracted in 2024 [26]. This practice can be effective and useful for both the Ukrainian defense industry and the Ukrainian Defense Forces.

Despite certain successes of both the public and private defense industries of Ukraine, it is believed that it is impossible to achieve a leapfrog increase in the production of modern (primarily complex and high-cost) weapons and military equipment for the needs of the Ukrainian Defense Forces without the direct participation of the Western defense industry in its various forms. Possible main forms of such cooperation are shown in Fig. 1.

Among these forms, one of the most acceptable is the localization of Western munitions and ammunition production on the territory of Ukraine. Among the main goals that can be achieved when implementing mass localization of Western munitions production, one can identify:

- ensuring stable supply to the Ukrainian Defense Forces of modern, high-tech, effective and proven samples of munitions and ammunition;



Fig. 1. Main forms of cooperation between the Ukrainian defense industry and the defense industry of partner countries

- rapid increase in the technological level of the Ukrainian defense industry through the introduction of high technologies;
- acquisition by employees of the Ukrainian defense industry of competencies in the field of high defense technologies and experience in working with them, which will be useful in the development and production of its own defense products;
- integration into the defense industry of NATO and EU countries;
- the possibility of transferring modern technologies to the civilian sectors of the state economy;
- increasing the overall technological level of Ukrainian industry, etc.

Localization can be both a part of offset schemes for the purchase of munitions and weapons and an independent process, the terms of which are discussed in the process of negotiations with leading defense companies of partner countries and be carried out in stages from large-scale and small-scale assembly to mastering the independent production of defense products from Ukrainian materials, parts and components.

Another form may be the construction of factories on the territory of Ukraine by large Western defense companies, which will remain the property of these companies, but will be worked on by Ukrainian citizens. Such an approach can even more quickly ensure an increase in the production of munitions and weapons for the needs of the Defense Forces, as well as train Ukrainian personnel to work with modern industrial technologies and influence the increase in the gross domestic product and therefore the welfare of the Ukrainian population.

A striking example of the implementation of this form can be the German arms concern Rheinmetall, which is building four plants in Ukraine, and the first of them is already operating. According to the director of the concern Armin Papperger, by the end of 2024 the first plant will already produce the first ultra-modern Lynx infantry fighting vehicle in Ukraine, adding that the company owns 51 % of the shares of this enterprise. Papperger also noted that Rheinmetall is on the way to building a gunpowder plant, an ammunition manufacturing plant in Ukraine and also plans to establish the production of air defense systems [27].

Another effective form of increasing the production of munitions and establishing strong ties with the defense

industry of partner countries is the creation of joint weapons production (including in the form of clusters as a modern form of quasi-integration associations). The prospects for the creation of joint Ukrainian-French production in our country were announced by the President of Ukraine Volodymyr Zelensky on October 12, 2024. The main advantage of such a form is, of course, the integration of Ukrainian defense industry enterprises into the European defense industry [28].

The introduction of another form of cooperation between Western and Ukrainian defense enterprises was announced by the Minister of Economy of Lithuania Aushrini Armonaitė. She reported that a Ukrainian company will begin construction of a new generation explosives plant in Lithuania in 2025 and added that as a result, the defense potential of Ukraine and Europe will grow, both in terms of weapons and ammunition and in terms of advanced defense and security technologies. Certainly, the key advantage of this form of cooperation is the ability to ensure the safety of ammunition production from bombings and missile attacks [29].

As reported on the platform «Informative Resistance» [30], the defense company Summa Defense is opening a drone production plant in Finland, which will be carried out jointly with Ukrainian partners. The purpose of opening a new enterprise is to quickly increase the production capacity of drones used in combat operations in Ukraine. «The drones will be supplied not only to Ukraine, but also to the countries of the European Union and NATO», said the executive director of Summa Defense Jussi Holopainen.

For the systematic and targeted use of internal budget resources, resources of assistance from partner states and others to create advanced defense technologies and scientific research in the field of high-tech weapons, it is advisable to consider the issue of creating a «Fund for Defense Technologies and Scientific Research in the Field of High-Tech Weapons» [31].

The strategic goals of the Fund's work should be:

- ensuring a change in the level of defense industry technologies from the post-Soviet level to the level of technologies of advanced countries;
- developing and implementing in the practice of building the defense industry of Ukraine criteria-based approaches to choosing priority technologies of the present and the future;
- ensuring scientific research in breakthrough areas of creating weapons and advanced technologies;

- creating a system of checks and balances to minimize corruption risks when financing projects and programs from the Fund.

The sources of financial resources of the Fund should be:

- funds from international financial assistance resources;
- funds from the alienation of illegally obtained material and financial resources;
- part of funds from the assets of the Russian Federation to compensate for the damage caused by the robbery and destruction of the Ukrainian defense industry during the war (reparations);
- budget funds;
- voluntary (charitable) contributions from organizations and individuals – citizens of Ukraine and foreigners.

The fund should include a Supervisory Board, a Scientific and Technical Council and a full-time expert group to select specific works and the main topics of breakthrough research areas. For interdepartmental coordination, it is considered appropriate to restore the position of Vice Prime Minister for Defense Industry.

The implementation of all these and many other projects should be a guarantee of the growth of the industrial and defense capabilities of Ukraine, its Defense Forces, to ensure the repulsion of Russian aggression.

CONCLUSIONS

Based on the results of the analysis of the experience of successful post-war recovery and construction of the economy of different countries of the world and at different times based on the latest technologies, general approaches to building a model of a new economic policy of Ukraine and the creation of a powerful defense-industrial complex of the state are proposed.

It is noted that one cannot neglect the opportunities that can be given to Ukraine by using the approaches tested by other countries, but modernized, to build a new, strong economically and politically successful state. The conclusion is made about the need to use all possible forms of cooperation with the defense industry of NATO and EU countries to build a powerful, modern Ukrainian defense-industrial complex, capable of providing the Defense Forces of Ukraine with highly effective weapons and military equipment. The authors also express confidence that a powerful defense industry can be built only on a solid foundation of a modern, effective and integrated into global trade chains of the national economy.

In the next article on this topic, the authors plan to investigate in detail the economic mechanisms of dependence and influence of the national economy on building the capabilities of the defense-industrial complex, aimed at providing the Defense Forces of Ukraine with modern and highly effective weapons and military equipment.

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**АНАЛІЗ ВАРІАНТІВ
НОВОЇ ЕКОНОМІЧНОЇ ПОЛІТИКИ УКРАЇНИ
ДЛЯ ПОБУДОВИ ЕКОНОМІЧНО ПОТУЖНОЇ
ДЕРЖАВИ
ПІД ЧАС РОСІЙСЬКО-УКРАЇНСЬКОЇ ВІЙНИ
ТА У ПОВОЄННИЙ ПЕРІОД,
ЯК ПЕРЕДУМОВИ ДЛЯ РОЗВИТКУ
ОБОРОННО-ПРОМИСЛОВОГО КОМПЛЕКСУ**

У статті проведено аналіз досвіду успішного проведення економічних реформ та забезпечення стрімкого зростання економіки різних країн світу, запропоновані загальні підходи до побудови повоєнної моделі нової економічної політики України та побудови, ґрунтуючись на можливостях економіки, потужного оборонно-промислового комплексу (ОПК) держави, здатного забезпечити потреби Сил оборони України у сучасному і високоефективному озброєнні та військовій техніці (ОВТ) і боєприпасах.

Зроблено висновок, що саме забезпечення умов для масового надходження приватних інвестицій в Україну є головною передумовою для відновлення та модернізації економіки України.

Вказується, що незважаючи на успішний розвиток останнім часом як державної, так і приватної оборонної промисловості України, досягнути стрибкоподібного нарощування виробництва сучасних (передусім складних і велико вартісних) зразків ОВТ для потреб Сил оборони України неможливо без безпосередньої участі західної оборонної промисловості у її різноманітних формах. Наведена характеристика можливих форм співпраці українського ОПК та оборонної промисловості НАТО та ЄС, визначені переваги кожної з них.

З метою забезпечення системного і цільового використання внутрішніх бюджетних ресурсів, ресурсів допомоги держав-партнерів та інших джерел для створення передових оборонних технологій та наукових досліджень у сфері високотехнологічного озброєння запропоновано розглянути питання створення Фонду оборонних технологій та наукових досліджень у сфері високотехнологічного озброєння.

Вказується на необхідність та можливість побудови потужного ОПК лише на міцному підґрунті сучасної, ефективної та інтегрованої у світові торгові ланцюжки національної економіки.

Ключові слова: оборонно-промисловий комплекс, нова економічна політика України, світовий досвід повоєнного економічного зростання, план Маршала, форми інтеграції українського ОПК з оборонною промисловістю НАТО та ЄС.

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