

PROSPECTS FOR UKRAINE'S PARTICIPATION IN ADVANCED PROGRAMS OF MILITARY-TECHNICAL COOPERATION OF EUROPEAN STATES

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1. The burden of the past.

Prior to assessing the prospects of the Ukrainian defense industry in the context of cooperation with the European defense industry, we should define our starting points. Having inherited a substantial share of the Soviet military-industrial complex in the nineties, the independent Ukrainian state has failed to manage this inheritance rationally. Thirty years of chronic lack of funds, theft of property, corruption, and neglect of innovation have corroded the Ukrainian defense industry. Due to the poor understanding by state institutions of its role in the national security and defense system, systemic problems have been accumulating for years, leading to the degradation of the national defense industry.

Before 2014, experts believed that the main obstacles to the development of Ukraine's defense industry were the lack of a state strategy for its development aimed at increasing the capabilities of the state's security and defense system, and the limited and unstable markets for defense enterprises and organizations. Due to the meager amount of the state defense order, which did not even meet the needs of the Ministry of Defense, the domestic market for the defense industry was virtually non-existent. In foreign markets, despite success in certain areas of military-technical cooperation, Ukraine was generally positioned as a seller of obsolete weapons and military equipment released as a result of the reduction of the Armed Forces¹.

As a result, there is a shortage of investment in research and development and, consequently, a lack of high motivation of engineering and design personnel and influx of young talented and proactive personnel. Another problem is the aging of the defense industry's workforce, especially administrative and technical staff whose average age is 54 years. This hinders the development of enterprises and negatively affects the competitiveness of their products. The average age of managers of structures that are potential investors is much lower than the age of managers of defense enterprises. The new generation of managers is more adapted to modern conditions and has a different vision of

¹ Akimova I. Export orientation and its impact on the restructuring of the country's enterprises (in Ukrainian) // Ukraine on the way to Europe / Edited by L. Hoffman, F. Möllers - Kyiv: Phoenix, 2001. - P. 205-215.

the prospects and ways of developing the industry than the specialists whose worldview was formed during the Soviet era.

A chronic systemic problem was and still is the unreformed monopolist, Ukroboronprom. The enterprises of the concern remained overloaded with excessive territories and property, lacking funding for production modernization—it is impossible to create modern weapons using equipment that remembers the Soviet era and is about 80% worn out².

2. Russian aggression: shock (de)activation.

The occupation of the Crimean Peninsula by Russia and the invasion of Donbas in 2014, logically, should have radically changed the state's attitude to its own defense industry. Yet, unfortunately, this did not happen. Over the past eight years, up until and including the large-scale invasion, there have been no systemic changes in the structure of the national defense industry—the concept of “roads instead of tanks” has remained almost invariably politically dominant.

With the beginning of the large-scale invasion of Ukraine in February 2022, defense industry enterprises became one of the aggressor's priority targets for missile and bomb attacks in the interior of the country and for looting in the temporarily occupied territories. National joint-stock, private, and state-owned plants of the Ministry of Defense were subject to destruction. According to estimates by Hennadii Kasai, MP, member of the Verkhovna Rada Committee on National Security, Defense and Intelligence, out of a hundred defense companies that had the best financial performance in the years before the invasion, at least one third were shelled, destroyed or were in the combat zone in 2022. The direct and indirect losses of the Ukrainian military-industrial complex from the Russian invasion have not yet been made public, but we can already talk about staggering amounts. The assets of each of the attacked defense companies are estimated at at least UAH 1-2 billion. Even if each of them is partially destroyed or looted, the total losses for the industry will reach at least several tens of billions of hryvnias and, in all likelihood, already exceed UAH 100 billion³.

Ironically, even given this catastrophe, Ukraine is now entering a period of new opportunities for its defense industry. Firstly, against the backdrop of large-scale hostilities, after the stage of supplying Ukraine's Ramstein partners with mainly Soviet weapons and military equipment, in just a few months there was a gradual transition (and in historical terms, an “explosive” one) to providing the Armed Forces with Western weapons, equipment and machinery, and, accordingly, ammunition and components for them. Weapons systems that are new to us require new algorithms and technologies for maintenance, repair and supply of weapons and military equipment. These technologies are available in the defense industry of partner countries and they are interested in these

² It is time to change the philosophy of defense: Yurii Husiev on draft law 3822 (in Ukrainian) // ArmyInform. March 19, 2021 [Electronic resource] / Y.V. Husiev: <https://armyinform.com.ua/2021/03/19/chas-zminyuvaty-filosofiyu-oboronky-yurij-gusyev-pro-zakonoprojekt-3822/>.

³ Hennadii Kasai. How not to lose the potential of the Ukrainian military-industrial complex (in Ukrainian) // Ekonomichna Pravda. February 16, 2023 [Electronic resource] / H.O. Kasai: <https://www.epravda.com.ua/columns/2023/02/16/697129/>.

processes taking place as quickly as possible, preferably as close to the theater of operations as possible—that is, in the neighboring countries of Ukraine, and ideally on our territory. Today, we have extensive expertise in the use, modification, and repair of a wide variety of weapons from around the world.

Under the current circumstances, it is often not the ruling political groups but arms manufacturers that motivate national governments to make decisions on the transfer of certain modern and advanced systems to Ukraine—this is the actual testing of weapons in real combat operations, a real advertisement for their products. They can't do without cooperation with the Ukrainian defense industry, and this is our competitive advantage. As Deputy Minister of Defense of Ukraine Volodymyr Havrylov noted in his June interview with ArmyInform, Ukraine has managed to organize effective cooperation with both countries supplying equipment and its manufacturers in the repair of weapons and military equipment⁴.

In this context, it is worth recalling that the British defense giant BAE Systems has announced plans to open an office in Ukraine, and subsequently plans to deploy its weapons repair and production facilities in Ukraine. And also that the German arms holding Rheinmetall is entering Ukraine, with ambitious plans to set up a joint venture in the armored sector, primarily to organize the repair and maintenance of equipment, and later, possibly, production⁵. The Turkish company Baykar is launching a project to build a plant in Ukraine to produce Bayraktar TB2 attack drones, and later Bayraktar Akıncı and Bayraktar Kizilelma (a new unmanned fighter)⁶. Obviously, these are not the last signals. On the sidelines of the Paris Air Show 2023, Deputy Minister for Strategic Industries of Ukraine Serhii Boiev told Reuters that Ukraine is negotiating with arms manufacturers from Germany, Italy, France, and Eastern Europe to launch defense production in Ukraine, and may sign contracts in the coming months⁷. Another way is to localize joint production in neighboring countries, such as the organization of production of 122-mm shells for the Ukrainian Armed Forces by Ukroboronprom together with a NATO country.

The second major point is that the country has seen an unprecedented and fully supported demand for high-quality, modern, powerful weapons for the Armed Forces. In the wake of volunteering, private producers have stepped up to support the army alongside cumbersome government agencies. It should be noted that they are not regulated by departmental instructions and are focused on quick results, having achieved significant success in this regard. In particular, they have been effective in the production of drones—airborne and maritime, electronic equipment and software for them.

⁴ The Ministry of Defense reported on changes in the supply of weapons and military equipment for the Armed Forces of Ukraine (in Ukrainian) // ArmyInform. June 19, 2023 [Electronic resource] / V.V. Havrylov - Access mode: <https://armyinform.com.ua/2023/06/19/zminy-shhodo-postachannya-ovt-dlya-zsu/>.

⁵ The Ministry of Defense explained the most important thing in the operation of Western equipment: how the repair of weapons from allies is organized (in Ukrainian) // Defence Express. June 19, 2023 [Electronic resource] / V.V. Havrylov: https://defence-ua.com/news/u_minoboroni_rozpovili_pro_nadvazhlivu_rich_v_ekspluatatsiji_zahidnoji_t_ehniki_jak_organizovano_remont_zbroji_vid_sojuznikiv-11939.html.

⁶ <https://hromadske.ua/posts/v-ukrayini-vzhe-buduyut-zavod-z-virobnictva-bajraktariv-ministr>

⁷ Rostyslav Vons. Three countries will build military plants in Ukraine (in Ukrainian) // Glavkom. June 20, 2023 [Electronic resource] / R. Vons. - Access mode: <https://glavkom.ua/country/politics/tri-krajini-zbudujut-vijskovi-zavodi-v-ukrajini-935873.html>.

The state's task in this process is not to interfere, to promptly create and refine the legislative and regulatory framework. The point is to simplify all bureaucratic procedures to establish mass production of weapons, ammunition and software in the domestic market⁸. All this requires international cooperation and appropriate diplomatic support.

3. From the arms “menagerie” to a systematic approach.

The main competitive advantage of the Ukrainian defense industry after the war should be our knowledge of what weapons are needed in modern warfare, and, accordingly, our understanding of how to produce them. Incorporated into the international arms business, the defense industry is one of the few sectors of Ukraine's economy, along with the IT sector and agriculture, that has the potential to accelerate economic growth.

However, there are pitfalls here that need to be addressed in order to avoid them in a timely manner. Today, the Armed Forces of Ukraine's weapons and military equipment are a kind of menagerie that includes dozens and hundreds of models and items of equipment that are the same in purpose but have very different characteristics. This is a nightmare for logisticians. Moreover, most of this equipment is not even formally in service with our army. On paper, we have completely different types of weapons and military equipment in service, some of which have never actually been delivered to the troops. The current situation can be explained by the state of hostilities, as the urgent need for any military equipment and weapons forces us to follow the “every little bit helps” approach. But this is not appropriate for building up the armed forces in peacetime. Foreign Minister Dmytro Kuleba emphasizes: “Yes, this is not an ideal solution, but these are the realities of war. We are now pulling everything we can from all over the world... The problem of the “menagerie” will remain relevant. Over time, it will crystallize. The Ukrainian Armed Forces will say: we are leaving two types of armored personnel carriers; this is our basic tank; this is our basic aircraft.”⁹

In the post-war period, the Ministry of Defense will have to choose the main types of regular equipment of the Armed Forces of Ukraine, and gradually switch to them. This is a twofold task—on the one hand, the need to provide units and formations with the equipment that will best meet the tasks assigned to the Armed Forces (and other formations of the Defense Forces), and on the other hand, to have sufficient modernization potential for many years to come.

In such circumstances, it would be optimal to choose not the most expensive and fancy models, but those that we can maintain, modernize and update. The only realistic way out is to choose models that, in cooperation with our partners, can be repaired, modified, and produced by the national defense industry. And it's not just about adapting “old” production

⁸ Development of the production of Ukrainian UAVs - the Government supported the relevant resolution (In Ukrainian) // Government portal. March 24, 2023 [Electronic resource] / Ministry of Defense of Ukraine - Access mode: <https://www.kmu.gov.ua/news/rozvytok-vyrobnytstva-ukrainskykh-bpla-urad-pidtrymav-vidpovidnu-postanovu>

⁹ Yurii Liashchuk. Kuleba explains why a "menagerie" of military equipment appeared in the Armed Forces of Ukraine (in Ukrainian) // Glavkom. January 13, 2023 [Electronic resource] - Access mode: <https://glavkom.ua/country/politics/kuleba-rozpoviv-chomu-v-zsu-zjavivsja-zoopark-vijskovoji-tehniki-901911.html>

facilities to this, but also about creating new ones in cooperation with partners. Obviously, the competition for the Ukrainian arms market will be quite fierce. And in this competition, Ukraine, the Ukrainian defense industry with the support of the state, should not take the position of a passive consumer, but a proactive, partner position. As a user and a manufacturer. Moreover, as a promising member of the North Atlantic Alliance, this is not only our right but also our duty.

An example is our Black Sea neighbor, Türkiye, a NATO member, which, from a much weaker starting point than we did, has gone from being a consumer of weapons provided by its allies to an exporter of modern weapons in almost all areas of military-technical cooperation in a relatively short period of time.

First, in order to develop its own defense industry, Ankara has created and keeps developing legislative conditions to attract foreign investors, mainly from NATO partner states, to locate their production facilities on its territory. Starting with direct purchases with elements of assembly localization, Türkiye has been constantly and consistently borrowing the modern technologies it lacks, as well as creating conditions for their localization. Ukraine also needs a significant amount of modern technologies that it does not yet possess. Secondly, systematic and targeted financing of the defense industry by the state is a well-intentioned strategy of Ankara—Türkiye is systematically expanding its own military and technical capabilities by creating a closed-cycle production.

For example, in the 1990s, Türkiye had no military aircraft industry of its own. Starting with the purchase of American F-16 fighters, the Turks mastered their assembly and production of individual parts under American license for this aircraft. Including cooperation with General Electric and Rolls-Royce, Turkish manufacturers mastered the assembly and then production of F110 engines for the F-16. Later, Turkish engineers developed their own version of the F-16 OZGUR modernization, an aircraft with a Turkish engine and weapons¹⁰.

This is not an isolated case. Similarly, Ankara has cooperated with German companies to develop its naval capabilities from scratch. Türkiye's example is exemplary. Today, Turkish production is characterized by a high degree of automation, and technological processes are not inferior to those of the world's leading countries.

4. Shortcomings of the military and technical cooperation.

The need for a rapid response to the needs of the Armed Forces of Ukraine in the context of Russian aggression against Ukraine has highlighted a number of deficiencies in military and technical cooperation with foreign partners. According to generalized assessments by defense attaches of Ukrainian embassies abroad, the following problems can be identified:

¹⁰ Ihor Kopytin. Development of the Turkish defense industry: what can be useful for Ukraine (in Ukrainian) // Livyi Bereh. January 14, 2021 [Electronic resource] / I.V. Kopytin: https://lb.ua/blog/ihor_kopytin/475201_rozvitok_turetskogo_opk_shcho_mozhe_buti.html.

- lack of a unified approach to the development of the defense industry, with due regard for the critical time constraints and future needs of the Armed Forces;
- inactivity (corruption) by bodies that should control the process of implementing foreign economic contracts in the defense industry;
- unwillingness of some manufacturers of the weapons and military equipment to respond quickly and efficiently to the needs of the Ukrainian Armed Forces, and a desire to spend the state's financial resources on projects that are not competitive in foreign markets;
- selection of incompetent, inexperienced management personnel with low moral and business qualities;
- lack of a systemic state policy on the real integration of Ukrainian defense companies of all forms of ownership into the production chains of partner countries;
- the existing legal framework for export control regulation hinders the effective implementation of projects for the repair and modernization of military equipment of the Armed Forces of Ukraine at specialized foreign enterprises;
- poor quality of admission of foreign weapons and military equipment, which may be received in unsatisfactory technical condition and without a proper set of technical documentation, which greatly complicates its further maintenance and purchase of spare parts;
- unregulated mechanism of cooperation between the military reception of the Ministry of Defense of Ukraine and authorized quality control bodies of partner countries, which complicates the quality assurance of military equipment intended for supply to the Armed Forces of Ukraine;
- the lack of clearly defined duties and responsibilities of Ukraine's diplomatic missions and, in particular, defense attachés to support and secure contracts for the repair and modernization of military equipment in the interests of the Armed Forces of Ukraine at foreign enterprises.

This list of problems is incomplete, but these are the main ones that need to be addressed immediately; otherwise, the prospects for military-to-military cooperation will look bleak.

5. Prospects for military and technical cooperation.

5.1. Bilateral formats.

Speaking about the prospects for Ukraine's involvement in advanced programs of military-technical cooperation in Europe, the case of Türkiye can be used as an example, especially given that Ukraine still has certain advantages for the deployment of production—a fairly strong scientific and technical base, a significant number of qualified labor resources.

The largest volume of foreign military aid to Ukraine comes through neighboring Poland, which has become the most important logistics hub for the Ukrainian Defense Forces. Poland also plays an integral role as one of Ukraine's largest arms donors. According to the Polish side, as of the end of May this year, Poland's military assistance to Ukraine exceeded €3 billion. Recently, according to media reports, Poland handed over 10 Mi-24 attack

helicopters to the Ukrainian Armed Forces¹¹.

In April, during President Zelenskyi's official visit to Warsaw, Polska Grupa Zbrojeniowa (PGZ), a leading Polish defense company, and Artem State Joint Stock Company signed a cooperation agreement on the production of 125-mm tank shells for the needs of the Armed Forces of Ukraine¹². According to the Center for Eastern Studies, the decision to purchase weapons made during the aforementioned visit to Warsaw means that the Polish defense industry is becoming the main supplier of modern weapons for the Ukrainian Army. Most of the weapons for the ground forces that Ukraine can expect to receive are or will be coming from Poland: 155-mm self-propelled Krab howitzers, Rosomak wheeled armored personnel carriers, Rak self-propelled mortars, Piorun man-portable air defense systems, and GROT carbines¹³. In the future, the supply of the latest Borsuk infantry fighting vehicles is not excluded. The result of Polish-Ukrainian cooperation (Luch and Mesko design bureaus) was the Pirat ATGM. There are a number of other promising areas of defense cooperation between the two friendly countries.

The military-technical cooperation with the **Czech Republic** appears to be promising. The Czech Republic provides active support to Ukraine. According to Prime Minister Petr Fiala, the Czech Republic has already transferred nearly 700 pieces of heavy equipment and more than 4 million pieces of ammunition to Ukraine since the start of Russia's full-scale invasion. On July 7, during the visit of the Ukrainian delegation headed by the President of Ukraine to the Czech Republic, a Memorandum of Understanding on military-technical cooperation was signed, which implies joint production of weapons and ammunition and modernization of armored vehicles. In addition, the memorandum provides for the conclusion of individual contracts between the two states¹⁴. In June, the Ministry of National Defense of the Czech Republic announced that a Czech company would repair Ukrainian T-64 tanks that had been in storage for a long time. The contract for the repair and modernization of T-64 tanks was signed on the basis of a memorandum between the Czech state-owned enterprise VOP CZ and the Ukrainian state-owned concern Ukroboronprom, signed in February this year. This project is one of the first concrete results of cooperation after the establishment of the so-called defense cluster, which should support the creation of new Czech-Ukrainian joint ventures. It is planned to be used to increase the production of military equipment for the needs of the Ukrainian Defense Forces. The Czech Republic also announced that it plans to transfer combat helicopters and artillery ammunition to the Ukrainian Defense Forces, as well as to train Ukrainian pilots for F-16 fighters. There are intentions to transfer Mi-24/35 combat helicopters to Ukraine, which are currently being decommissioned by the Czech Armed Forces. In May 2022, the Czech Republic already handed over Mi-24 attack helicopters to Ukraine. During the visit of Czech President Petr Pavel to Ukraine in April, cooperation was agreed on the future

¹¹ If Poland has indeed given Ukraine Mi-24s, there may be some nuances (in Ukrainian). https://defence-ua.com/army_and_war/jakscho_polscha_spravdi_dala_ukrajini_mi_24_tam_mozhut_buti_svoji_osoblivosti-12154.html

¹² The Polish-Ukrainian military partnership. Day 407 of the war. Andrzej Wilk Jakub Ber <https://www.osw.waw.pl/en/publikacje/analyses/2023-04-07/polish-ukrainian-military-partnership-day-407-war>

¹³ Ibid.

¹⁴ <https://mil.in.ua/uk/news/ukrayina-ta-chehiya-pragnut-spilno-vyrobyaty-zbroyu-i-boyeprypasy/>

production of the promising light attack aircraft F/A-259 Striker, which the Czech aircraft company Aero Vodochody developed jointly with Israel Aerospace Industries¹⁵.

Regarding Ukrainian-Slovak cooperation, it should be noted that as a member of NATO and the EU, Slovakia did not consider Ukraine to be one of its main partners in military-technical cooperation. In turn, Ukraine also did not consider Slovakia as a viable market for Ukrainian defense industry products.

Yet, an analysis of the Slovak defense industry's capabilities shows that there are certain types of weapons and technologies that can enhance the combat capabilities of the Armed Forces of Ukraine, facilitate the implementation of joint projects for the production of promising, competitive weapons and military equipment (in accordance with NATO standards) with further entry into arms markets. Besides, establishing cooperation with the SR will allow Ukraine to gain access to modern technologies.

At the same time, one should keep in mind that a certain part of the Slovak defense industry is actually controlled by a foreign arms holding, which complicates direct cooperation. In turn, Slovak manufacturers of weapons and military equipment complain about the presence of a large number of intermediaries, which often created competition between Ukrainian companies.

Furthermore, over the years, Russia has built an extensive network of agents of influence using the business environment, including in the defense industry, which has increased distrust between the Slovak and Ukrainian sides.

The misunderstanding and poor assessment of the potential of bilateral cooperation between Ukraine and the Slovak Republic in the context of open Russian aggression not only prevents the Armed Forces of Ukraine from strengthening their capabilities (through promising projects), but also indirectly helps pro-Russian forces in the Slovak Republic to influence the socio-political situation in the country and threatens to form a pro-Russian government following the September parliamentary elections and a possible adjustment of Slovakia's foreign policy.

Nevertheless, the agreement between Slovakia and Ukraine on the joint development of a new type of artillery systems and ammunition production, as announced by Slovak President Zuzana Čaputová following her meeting with Ukrainian President Volodymyr Zelenskyi during his visit to Bratislava¹⁶, should be viewed as a promising vector of cooperation. Slovak self-propelled artillery systems Zuzana 2 proved to be effective in the Armed Forces of Ukraine's combat operations against the Russian invaders.

Romanian arms factories will quadruple their ammunition production and become key suppliers to NATO countries. According to Romanian Economy Minister Florin Spătaru, his ministry has already approved some projects for the construction of new lines for the production of ammunition of both small and large caliber. In early April of this year,

¹⁵ <https://www.defensenews.com/industry/2023/06/15/ukrainian-defense-firms-seek-ties-to-europes-industry/>

¹⁶ <https://www.dw.com/uk/ukraina-ta-slovaccina-domovilisa-pro-spilne-virobnictvo-gaubic-ta-boepripasiv/a-66159607>

Warsaw expressed its dissatisfaction with the fact that the German defense group Rheinmetall decided to create a huge service and logistics center for tanks, howitzers, and military equipment supplied by NATO countries for the needs of the Ukrainian army in Romania, rather than in Poland. According to the approved schedule, the center is to be set up in Satu Mare, near the Romanian-Ukrainian border, and will employ several hundred people. The service center will play a key role in maintaining the combat capability of Western combat systems used by Ukrainian troops and will be engaged in their logistics.

In Poland, this was perceived as a lost opportunity to receive additional orders for the repair of military equipment. *“This is also a lost chance to make profit for transport and railroad companies. The question remains, how could it be that tanks and military equipment delivered from all over the world to Polish ports use only Polish railroad infrastructure, while the profits from the reconstruction will go to the Romanian budget?”¹⁷*

5.2. Euro-format.

Against the backdrop of Russian aggression against Ukraine, the EU has outlined the need to strengthen European defense capabilities. The situation in Europe, unprecedented since World War II, requires urgent decisions from the EU. The new geopolitical context, when Russia, which until recently was called the EU’s strategic partner, has become a strategic threat, requires a revision of European approach to the defense industry. Although manufacturing cooperation between defense companies of different EU countries has long existed, each member state pursues an independent policy in the production and procurement of weapons and military equipment, with the vast majority of countries focusing on American models. The U.S. defense industry, as NATO’s largest power, is in better shape than the European one.

Politicians in Europe, calling for countering Russian aggression, are demanding that defense companies accelerate the production of weapons and military equipment. However, decades of cuts in spending on the armed forces and the renewal of weapons and military equipment, as well as small military budgets, have resulted in underinvestment by defense companies, and this has an effect. Companies are demanding long-term contracts for the production of weapons and military equipment from their governments. Talks in Brussels about urgent investments in the defense industry are slowly turning into long-term contracts for weapons and ammunition.

The EU’s purchase of 1 million rounds of ammunition for Ukraine can serve as an example of the first successful joint initiative. Yet, when it comes to the production and supply of more complex types of weapons and military equipment, it is clear that the EU is not the best option. And the problem here is not the lack of political will, but the overregulation and numerous bureaucratic obstacles within the EU, which extremely slows down the rapid implementation of contracts, which is exactly what is needed, given the needs dictated by the high pace of hostilities.

This state of affairs has practically led to the fact that national governments of EU member

¹⁷ <https://bintel.org.ua/analytics/u-yevropi-po-spravzhnomu-perejmayutsya-trivayuchoyu-rosijsko-ukrainskoyu-vijnoyu/>

states prefer to order the weapons and military equipment and cooperate with manufacturers outside Europe, primarily in the United States, but not exclusively.

The Association Agreement between Ukraine and the EU and the December 07, 2015 Administrative Agreement between the Ministry of Defense of Ukraine and the European Defense Agency (EDA) provide for the development of cooperation with the EDA and involvement in projects under the Permanent Structured Cooperation in the field of security and defense (PESCO). In 2020, Brussels decided to involve Ukrainian specialists in the European Defense Standardization Committee and EDA expert groups (Expert Group 10 Ammunition, Expert Group 14 Life Cycle Technical Documentation, Expert Group 15 Quality of Electric Power Supply – Portable Electric Power Generators), as well as to join the Ukrainian side in the work of the Project Team Logistic Support¹⁸. These areas of cooperation are necessary and important in peacetime, but other areas are prioritized in wartime.

The European Union plans to invest about €8 billion in defense research and development by 2027. The largest project is the development of a medium-sized semi-autonomous surface vessel called EUROGUARD (Baltic Workboats)¹⁹. The project will develop the next generation of the vessel prototype, which will improve the efficiency of maritime operations and cooperation between European states in the maritime sphere. The total budget of the project is €95 million, of which €65 million is from the European Commission and €30 million is from the participating countries. This project is vital for Ukraine as a Black Sea state.

5.3. Non-European format in the European context.

Unlike sluggish European companies, their South Korean competitors demonstrate miraculous responsiveness to the situation on the weapons and military equipment markets. South Korea's experience also shows that there is no such thing as lifelong military support from allies, and it is always necessary to move away from direct imports of the weapons and military equipment towards production cooperation with localization of production on the territory of the state. In the early 2000s, Seoul launched a 10-year strategic plan for the development of the defense industry. The emphasis was placed, among other things, on the gradual replacement of direct purchases of weapons and military equipment from allies, and on the partial localization of its production, repair and modernization on its own. It is this path that has brought Korea into the ranks of countries with the most powerful defense industry potential over the past twenty years²⁰. Moreover, Korean arms manufacturers continue to work in partnership with their parent companies in the United States and Europe. A striking example is the close cooperation of the American arms giants Lockheed Martin and Raytheon Technologies with the leading Korean aerospace manufacturer Korea

¹⁸ Ukraine's cooperation with the EU in the military-political, military and military-technical spheres. <https://ukraine-eu.mfa.gov.ua/posolstvo/spivpracya-ukrayina-yes-u-sferi-zovnishnoyi-politiki-i-bezpeki/spivpracya-ukrayina-yes-u-ramkah-spilnoyi-politiki-bezpeki-i-oboroni>

¹⁹ <https://armyinform.com.ua/2023/07/09/proyekty-yevropejskogo-fondu-oborony/>

²⁰ Kahn D. S. Evolution of the U.S. policy towards Korea (in Ukrainian) // Bulletin of Vasyl' Stus Donetsk National University, Political Science Series, 2020. - P. 40.

Aerospace Industries²¹. Similar examples can be cited regarding collaboration between the defense industries of the two countries in the shipbuilding industry and the production of armored vehicles.

The maneuverability of the Korean defense industry, combined with the high quality of the weapons and military equipment versus the slowness of the German defense industry and political rigidity of Berlin, led Poland to reorient itself to South Korea in purchasing tanks, howitzers, and fighter jets under long-term contracts that provide for the localization of production in Poland. For obvious reasons, South Korea avoids direct arms sales or cooperation with Ukraine in the defense industry, but indirect cooperation may take place within the framework of trilateral cooperation in the Ukrainian-Polish format.

Cooperation with Taiwan through a third party within the framework of a limited but important range of projects to produce “brains” for high-precision “smart” weapons also holds some promise. Unfortunately, the unique window of opportunity that opened in the first months of the Russian invasion in 2022 to launch such cooperation was wasted by the Ukrainian side due to Kyiv’s inertial bias toward Beijing and inability to rethink approaches. A number of European countries, primarily the Czech Republic, Slovakia, Poland, and Lithuania, have established fruitful cooperation with Taiwan, which is undoubtedly a positive factor for Ukraine in the future.

5.4. Trajectory of progress.

The war, despite its destructive nature, sets a strategic vector for determining Ukraine’s place in the regional and global security architecture. The trajectory to a new defense status looks like this:

- 1) guarantees of military and technical support for the period before joining NATO;
- 2) de jure accession to NATO;
- 3) internal transformations, with due regard to the experience of war in the period before and after accession, to acquire the necessary defense capabilities²².

Launching these transformations is a practical task that has to be addressed even during the active phase of the war. After the partners decided to create an “aviation coalition” in May of this year, all requests for weapons were closed at the political level. Now, a new set of military and political tasks is coming to the fore: the creation of a Future Force Concept for the Ukrainian Defense Forces in dialogue with partners, i.e., a vision of the Ukrainian “army of the future.” As Oleksii Reznikov noted: “Without external assistance, we will not be able to carry out rapid rearmament and acquire capabilities in the optimal time frame... Our partners will obviously not invest in a model that, on the one hand, differs significantly from NATO principles and standards and conflicts with their interests in the military-technical and economic spheres, on the other. This defines the general framework of our movement.”

²¹ Raytheon will equip South Korean FA-50 aircraft with PhantomStrike radar (in Ukrainian). *Militaryni*. May 17, 2023. [Electronic resource] - Access mode: <https://mil.in.ua/uk/news/raytheon-osnastyt-pivdennokorejski-litaky-fa-50-radarom-phantomstrike/>.

²² <https://www.mil.gov.ua/news/2023/07/07/konturi-ukrainskoi-oboroni-majbutnogo-kolonka-oleksiya-reznikova-informacijnomu-agentstvu-interfaks-ukraina/>

In early June this year, the Ministry of Defense submitted a concept for the transformation of Ukraine's defense sector to the government. The timing of Ukraine's invitation to join NATO will determine the plans for long-term defense planning and the inclusion/exclusion of Kyiv's needs in the defense planning of partners on a bilateral and multilateral basis. This also implies new outlines of cooperation in the military-technical sphere, which should be aimed at overcoming the isolation of the defense industry, its de-Sovietization, and the creation of clusters of defense enterprises, in particular with the Czech Republic and Poland.

6. Focus areas, conclusions, recommendations.

Preparations for the post-war restoration of our defense industry and its integration into international production chains must begin today, even before the victory. The most important are priority programs for the development and production of the following:

- ammunition of all types;
- UAV lines of various classes;
- missile equipment lines;
- electronic signals intelligence equipment and electronic warfare equipment;
- marine surface and underwater unmanned systems

This requires international cooperation of Ukrainian defense companies with foreign partners.

In the context of military-technical cooperation with Europe, it is crucial to develop partnerships with countries such as the Czech Republic, Poland, Slovakia, and Romania, which are logistically well connected to Ukraine and can be seen as convenient platforms for trilateral or multilateral projects involving third countries.

Germany's clear definition of Russia in its National Security Strategy, adopted in June for the first time in German history, as "the greatest threat to peace and security in the Euro-Atlantic region in the foreseeable future" expands the possibilities for Ukraine to develop military and technical cooperation with this country, if it does not look back at Russia inertially. The United Kingdom, France, Italy, Sweden, Norway, the Netherlands, and Belgium are all promising partners for military-to-military cooperation.

Austria and Switzerland are difficult to cooperate with because of their neutrality, pacifism, and Russian influence. The country that should be avoided in terms of military-technical cooperation is Hungary, both because of its insignificance in the European defense industry and in the context of Russia's role as a "Trojan horse" in the EU and NATO.

It is important that the G7 Declaration adopted in Vilnius supports the further development of Ukraine's defense industry: "...security assistance and modern military equipment, across land, air, and sea domains – prioritizing air defense, artillery and long-range fires, armored vehicles, and other key capabilities, such as combat air, and by promoting increased

interoperability with Euro-Atlantic partners.”²³

To achieve these goals, a number of **basic positions** are essential:

1. The priority is UAVs. As the hostilities in Ukraine and earlier in Nagorno-Karabakh have shown, modern warfare is also a war of drones. Russia underestimated the role and importance of UAVs, so it is now trying to make up for lost time. The task of establishing mass production of drones has been declared Russia’s priority number one. By September 1, 2023, a national project for the production of a line of UAVs must be approved with appropriate priority funding from the budget for both 2024 and 2026²⁴.

The delay of partners in providing Ukraine with long-range weapons and ammunition, the requirement not to use the provided weapons on the internationally recognized territory of Russia, makes the issue of Ukraine’s own drone production facilities a strategic one.

In this context, it is important for Ukraine’s defense industry to establish, in cooperation with foreign partners, both the mass production of its own UAVs and electronic warfare equipment to suppress enemy drones in accordance with the laws adopted by the Verkhovna Rada of Ukraine to support drone production, which came into force on June 22, 2023.

To this end, Ukraine’s diplomatic missions in the host countries should provide maximum assistance to speed up the necessary procedures for the import of both finished products and components for subsequent production in Ukraine.

2. Development of public-private partnerships. The Ministry of Defense, the Ministry of Strategic Industries, and Ukroboronprom need to realize that the private sector and small business initiatives are not competitors but partners, especially if they find appropriate forms of international cooperation in the production of certain types of weapons and/or components that are technologically relatively simple and inexpensive. The flexibility and mobility of small businesses and the small size of enterprises is an advantage that complements the capabilities of the defense industry giants. Therefore, the task of Ukraine’s diplomatic missions abroad is to find potential partners in the host countries for private Ukrainian arms production.

3. Preserving human resources. Experienced engineering and technical staff and skilled workers of the enterprises destroyed in the course of hostilities should not be lost. Instead, they should be engaged in work at other defense industry enterprises, including not only those located in other regions of Ukraine, but also through business trips to enterprises localized in neighboring countries, as well as through their participation in the preparation of equipment abroad that is transferred by partners to Ukraine. An important personnel reserve for the post-war period is the military of the Armed Forces’ repair and restoration

²³ G7: Joint declaration of support for Ukraine. <https://www.consilium.europa.eu/en/press/press-releases/2023/07/12/g7-joint-declaration-of-support-for-ukraine/>

²⁴ Putin demanded that a national project to develop drones be approved by September 1 (in Russian). July 13, 2023 <https://www.rbc.ru/rbcfreenews/64b00c3c9a79473897671f59?from=newsfeed>

units that service foreign equipment, logistics officers, and those directly involved in receiving foreign weapons from partners.

4. Reducing production risks. Today, this means mainly (partial) localization of production abroad. This is a positive thing. However, in the postwar environment, one of the conditions for partners to invest in the Ukrainian defense industry will be to ensure production security (including through the experience of the current war). Hence, even now, when concluding agreements and designing production, appropriate security standards should be laid down: construction of new facilities taking into account the “threat from the east,” deployment of production facilities in underground or specially protected premises, covering critical industrial facilities with air and missile defense (including, possibly, at the expense of partner states), etc. The safety of people is the safety of investments.

5. Unmanned fleet. Implementing the concept of Anti-Access/Area Denial in the Black Sea with the help of maritime drones is a promising area of military-technical cooperation with partners. A fleet of maritime drones could help unblock the grain corridor and limit the use of the Russian Black Sea Fleet for missile attacks, and be used to clear the coastline of mines. Cooperation with the UK remains key in this regard. Last year, the UK handed over six Remus-100 drones (Remote Environmental Measuring Units). It is recommended to start negotiations with the UK to establish a joint venture for the production of drones.

Given the need to create a flotilla of maritime drones in Ukraine, diplomatic efforts should be directed at joining a pool of 10 European partner states (Estonia, Poland, the Netherlands, Belgium, Italy, Norway, France, Spain, Denmark, and Sweden) that aim to develop a strategy for protecting critical infrastructure at sea and the relevant technical means.

6. Strengthening the military-diplomatic direction. The MFA, together with the Defense Ministry, should work on expanding defense attachés to countries that are strategically important for both current supplies of weapons and military equipment and long-term military-technical cooperation projects. Simultaneously, counterintelligence protection of Ukraine's diplomatic missions in these countries should be enhanced.

The above measures will make it possible to lay the foundation for a powerful integrated defense industry of an equal European power—Ukraine—in challenging times for the entire state.

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