



Clusters4Defense

Uniting our Efforts to Strengthen Common Defense and Security!

The Network of Euro-Atlantic Clusters
in the Fields of Defense, Security,
and Dual-Use Technologie



UKRAINIAN
CLUSTER
ALLIANCE

Clusters4Defense's initiative — a long-term cooperation program for uniting European and Ukrainian clusters in order to jointly respond to security challenges. The document presents the main provisions of the initiative and it is intended for internal stakeholders of both sides, European and Ukrainian.

The document is prepared by expert of the «Dual Use Technologies» Resource Center (RC «Dual-Use») of the Ukrainian Cluster Alliance, including representatives of 14 cluster organizations.

They are APPAU, Kyiv Hi-Tech Cluster, Vinnytsia Cluster of Instrumentation and Automation, Ukrainian Industrial Cluster, Zaporizhzhia Cluster of Engineering and Mechanical Engineering, Maritime Cluster of Ukraine, Lviv Tech Cluster, Lviv Defense Cluster, Rivne Interregional Medical Cluster, Kharkiv IT Cluster, Cyber Security Cluster of Ukraine, Photonics Cluster of Ukraine, Advanced Materials Technologies Cluster and United Space Clusters of Ukraine. The status of the document is confidential.

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1. Relevance and Prerequisites

Market and business

opportunities: there are dozens in the EU of the Dual-Use and Miltec clusters, for which the issue of pan-European consolidation and mobilization is becoming increasingly urgent due to the war in Ukraine. The conference [«Ukraine-EU» in Brussels on May 6](#) vividly showed the beginning of this mobilization on the part of European defense associations. But we have yet to see a similar movement among clusters. UCA believes that now is the time for pan-European cluster initiatives in the field of Defense and Security and strengthening cooperation with Ukrainian clusters. We have common security challenges, and Ukrainian clusters can take an important place in pan-European initiatives for the development of the defense-industrial complex. Ukrainian clusters and their participants already have a strong position in integration into the chains of the domestic defense industry, understanding the needs of the Armed Forces of Ukraine, and therefore, together with the Europeans, they can significantly contribute to solving the key challenges of the Ukrainian and European defense industry.

Relevance to European policies

and priorities: cooperation between European and Ukrainian clusters is already unfolding in a number of non-military directions and it has been significantly intensified since 2022 within the framework of several Euro-programs, such as twin transition, internationalization of clusters, development of integrated chains, etc. The last theme was central within [Košice Conference 2023](#), which the European Commission organized especially for Ukraine. On the other hand, the topic of cluster cooperation in Defense has not (yet) become a top priority in the Directorates of the European Commission, although the majority of stakeholders are increasingly showing an understanding that this gap needs to be closed.

Entry into EDF: Currently, very few Ukrainian military defense manufacturers are ready for this program. The experience of UCA clusters in the Horizon / Digital Europe programs shows that our developers need to prepare carefully for such programs. The Clusters4Defense initiative may include a component of training Ukrainian developers for European regulations and collaboration (the

program of 8 billion euros will be open from March 2025) and in which clusters will play a significant role as facilitators, consultants, and leaders of SMEs.

Inclusion of cluster mechanisms: as in other spheres of activity, the inclusion of cluster practices and collaboration mechanisms is an urgent need for the domestic defense industry. Attempts to create a network of clusters are already coming from the Ministry of

Strategic industries of Ukraine and other State bodies, but currently, their readiness and understanding of «how to do it» in interaction with the public sector and business communities (including UCA) does not seem effective. Therefore, the union with Euro-clusters and support from the European Commission could significantly speed up these processes of clustering of the domestic defense industry.

2. The main challenges on the Ukrainian side

Clusters of the UCA treat with great respect and understanding the policy of many European countries to strengthen, first of all, their own defense complexes. We have even more respect and gratitude for the help that goes to Ukraine every day. At the same time, and from the point of view of consolidation and with regard to the key challenges of the war in Ukraine, we see a huge and still unrealized potential for cooperation. Hence, the essence of our initiative is to **launch cooperation of clusters with an orientation to Ukrainian challenges**. After all, it is Ukraine that is the battlefield today.

The goals and directions of cooperation, which are presented below, come from 5 categories of key challenges fixed up in the clusters of the RC «Dual Use» of UCA.

1. Lack of funding for

Ukrainian SMEs and startups in the following categories

- a. New development of TRL 3–7, which require significant capital investment in R&D and have a strategic perspective (more than 100

thousand euros for development).

- b. Launching new productions and entering serial scale, scaling up productions (investments and grants from 200,000 euros per project)

2. Growing scale, efficiency and innovation of domestic production and development, including

- a. *shortening development cycles of new products: the confrontation with the enemy dictates the requirements for updating products every 4–6 months.*

Such cycles can currently be sustained only for relatively simple products (drones) and small-scale production. However, it is currently very difficult to meet these deadlines for more complex products and medium-high volume production.

- b. *scaling up and entering serial*

production. In addition to a lack of funding, scaling issues relate to a lack of experience and expertise in setting up mass production, staffing shortages, and insuring investment in production.

- c. *weak research infrastructure, in particular, lack of prototyping centers*. With the exception of separate, closed laboratories and testbeds for state-owned enterprises of the defense industry, in Ukraine there are practically no numerous elements of support for SMEs and startups for Dual-use developments, such as prototyping centers, testbeds, technology parks, etc., and all this in the form of networks that cover different sectors and regions. The lack of such centers of collective use slows down the pace of development, increases the cost price, and in a number of cases simply makes it impossible to

complete innovation cycles.

3. **Gaps in Value Added Chains**, where there are 3 categories of needs
- a. uninterrupted flow of electronic components and materials;
 - b. replacing Chinese products with those from Western allies;
 - c. localization of production of individual components in Ukraine.
4. **Personnel training, reskilling-upskilling for the defense industry**
- a. Lack of unified programs and teaching methods.
 - b. In many sectors, the educational base / infrastructure needs significant improvements.
 - c. A faster and more large-scale response to new specialties is needed, for example, in the development of UAVs, or in specialists in launching serial production.
5. **Lack of strategic programs, product and sectoral road maps**. In many cases, the response of the Ukrainian defense industry is spontaneous(ad hoc), it does not correspond to the priorities of

medium-long-term strategies and clearly defined Dual-Use / MilTech sectors, and where, in turn, there is a clear division of roles within the European Defense industrial ecosystem.

The Cluster4Defense initiative proposes to start possible directions of cooperation, starting from these challenges as a priority.

3. Goals and Tasks of the Initiative

3.1. Main Objectives

The initiative considers 3 categories of goals:

1. **Create effective mechanisms for cooperation** between European and Ukrainian clusters Dual-Use / MilTech. These mechanisms should provide solutions to the above-mentioned challenges, primarily related to financing, innovation, and scaling production.
2. **Integrating supply chains and creating sustainable European ecosystems** Dual-Use / MilTech with a focus on replacing Chinese products on the Euro-Atlantic block.
3. Increase **competitiveness and innovative capacity of clusters and their participants**. According to European statistics, SMEs — members of the leading clusters demonstrate

significantly higher labor productivity, export and innovativeness indicators. Accordingly, a strategy to transfer and widely implement these best practices and methods to the industrial ecosystems of the defense industry seems quite logical.

3.2 Specific Tasks

To achieve the goals, it is necessary to run 4 categories of tasks:

1. Establishment of regular exchanges of information and experience in cluster cooperation in the Dual-Use / MilTech sectors
2. Organization of joint projects and initiatives in the scientific, technological and engineering-product spheres.
3. Support in the development of new technologies and dual-use products.
4. Establishing cooperation with international organizations and foundations.

4. Main Areas of Activities

To implement the above goals and objectives, the participants of the Clusters4Defense initiative focus on 5 main areas of cooperation:

1. Development of Technologies and Innovations

It is about special programs of research and development, which are already carried out by clusters within the framework of existing European programs (EDF), NATO programs, as well as on the larger-scale implementation of these innovations in the defense industry of the EU countries and Ukraine.

Activities in this area should balance and close existing gaps or even conflicts of interest between the Ukrainian side, with its great potential of combat experience and innovation, testing capabilities, and the EU countries, with its potential and capabilities for the production of new products, capabilities and potential in development. incl. with research infrastructure.

The initiative envisages a significant increase in the

number of Ukrainian clusters and their participants (SMEs, startups, research centers) within the framework of existing and new EU programs, including technology transfer for Ukrainian enterprises, creation of a network of dual-use prototyping centers, better and joint use of existing research infrastructure of EU countries, mutual exchange of specialists (internships), joint startup acceleration programs, deployment of new grant programs for conducting innovative experiments for the needs of the Ukrainian side, etc.

2. Integration of chains and innovation ecosystems

Cooperation in this direction is intended to contribute to the solution of existing challenges in improving the supply of components and materials, replacing Chinese products with European ones, as well as in the localization of production in Ukraine and Eastern European countries. In particular, clusters can launch

initiatives (cooperation projects) as:

- Research of those components and materials within the EU that are competitive in price with Chinese ones and can be produced on a larger scale.
- Creation (or spread of existing practices) of mechanisms for subsidizing European and Ukrainian producers.
- Joint search for innovative methods of reducing the price of products (following the example of the US).
- Localization of production and creation of joint ventures with distributed links within the framework of single integrated chains.

3. Automation and digitalization of Defence manufactures

Most of the participants of the Ukrainian defense industry lag behind not only European, but also advanced Ukrainian industrial enterprises in terms of

indicators of automation, robotization and digitization of manufacturing. This creates prerequisites for the transfer of experience and technology and, especially, when it comes to scaling up production. Clusters from Advanced Manufacturing segments can share experience and carry out joint projects, for example, in areas such as:

- Creation of road maps of digital transformation for defense industry enterprises.
- Better and more extensive use of key technologies to improve production efficiency as:
 - CAD/CAM/CAE and additive technologies — for rapid prototyping.
 - Modern robotics and CNC machines — to increase productivity and solve personnel issues.
 - MES / APS systems — for flexibility and increased production

efficiency, their faster scaling.

In the context of the transition to serial production and scaling, a much stronger involvement of leading European vendors with the creation of special programs for the introduction of the above products in Ukraine, including staff training, is necessary. Separate initiatives can be created in the field of transfer of experience of advanced production methods for mass production — such as Digital Lean, flexible production, modern quality management systems, implementation of standards, etc.

4. Education and Training of Personnel

Ukraine has extensive experience and educational potential in this area. Especially valuable is the experience of the Ukrainian IT sector, which over the past 20 years, in cooperation with universities, has created a developed system of personnel training for its industry. Ukraine already has a similar experience in the field of defense industry, but it has yet to acquire a wide scale, so the issue of training specialists has arisen very acutely and in many

directions. Cooperation of clusters in this field of activity may concern:

- Transfer of experience, knowledge, methods and training programs already created by European clusters in the field of Dual-Use.
- Creation of joint training programs and double degree programs by universities.
- Development of scientific equipment sharing centers and business science parks in Ukraine.
- Development of internship programs for scientific and pedagogical workers of universities of Ukraine in leading European universities and research centers.

5. Internationalization clusters

This initiative is directly related to the internationalization strategies of European and Ukrainian clusters. Reaching high indicators of product innovation, improving the competitiveness of SMEs participating in clusters will contribute not only to the strengthening of the

European defense industry, but also to strengthen its position in the international arena, and to increase exports to other regions of the world. Joint cluster initiatives may apply:

- Expansion of international cooperation, primarily within the framework of NATO programs
- Participation in international exhibitions, forums.

and conferences, including in other regions of the world.

- Programs to support the unification and standardization of «Made in Europe» products.
- Separate measures and initiatives aimed at the integration of Ukraine into the EU in the Dual-Use / MilTech sectors.

5. Using the best experience of cluster cooperation — instruments and mechanisms

As part of the preparation of this program, it is necessary, first of all, to assess the compliance with its goals and tasks of the existing tools and mechanisms, and the level of their use by the participants of the Ukrainian side, and in general by all Dual-Use / MilTech clusters. In particular, it is about [ECCP platforms](#) and which are still very little used by Ukrainian clusters. In the near future, it is quite possible to imagine the use of instruments for this program as:

- Inclusion **Eurocluster mechanism**, which is already working effectively in the EU. We are talking about consortia of 10–15 clusters that implement grants for 2–5 million euros for 2–3 years in a specific sector of dual technologies.
- Conducting several regional **Clusters meet regions** conferences specifically on Dual-use / Miltech topics

- Mechanism **C2Labs** can be applied for deeper and focused study opportunities. **application of the European potential of clusters to respond to security challenges**, the priority of which is determined by the war in Ukraine.
- **Matchmaking events** can be more focused on solving issues of closing gaps in chains.

Accordingly, other existing tools and programs can be reoriented to Defense needs. There is obviously great potential in the synergy of tools that are now offered separately by various directorates of the European Commission.

Similarly, the Defense Working Group of the European Cluster Alliance, which should include a representative from Ukraine, can also be considered as part of a set of tools and mechanisms to support this initiative.

6. Benefits of participating in the program

In case of full-scale implementation, this initiative has many advantages for all stakeholders:

- **For European and Ukrainian clusters**, their participants, the program will allow to attract a much larger number of market participants who contribute to the solution of security challenges to the needs of the defense industry; improve integration indicators in the Defense industrial ecosystem; to improve the competitiveness of SMEs, and product innovation, and also to raise the role of private companies in this sector. The program will also introduce clusters into the number of key actors – partners of states in the defense complex (which currently does not exist).
- **For the governments of Ukraine and EU countries** the program will open up new opportunities to involve private businesses and communities in solving current challenges and tasks in improving the effectiveness of defense programs, in particular, in improving the innovativeness of products and scaling up production.
- **For the European Commission** this program can become an effective tool for synergy and consolidation of various pan-European programs that are currently running in parallel in several directions but have a single common audience – clusters.

For all stakeholders, the program can serve as a tool for uniting, integrating and consolidating the defense programs of the EU countries (as a counterweight to the current fragmentation), which will contribute to the solution of all European security challenges.

This document is basic for consideration by Ukrainian and European stakeholders. The next concrete steps will be formed after the formation of consensus on the mentioned proposals. At the same time, the general support and willingness to join is important. We would appreciate your feedback on info@clusters.org.ua.