



ROLES OF CLUSTERS IN TIMES OF CRISIS AND IN THE COUNTRY'S ECONOMIC RECOVERY

WHITE PAPER # 1



UKRAINIAN
CLUSTER
ALLIANCE

Context – Economic challenges

In the 10th month of the war*, Ukraine is experiencing complex military and economic challenges. Victories on the military fronts in October were followed with massive enemy attacks on critical infrastructure. Frequent power outages have complicated the already difficult situation of enterprises protecting the economic front. [Exports in October decreased by 8%](#) compared to September, and the overall drop in GDP by the end of the year is estimated as 40%. The country's manufacturing enterprises face challenges that have never been faced on such a scale before. Rapid decline of domestic markets in most economic sectors, logistical problems due to the blockade of sea routes, other restrictions on export activities, both financial and foreign travel ban on men, destruction of internal supply chains, loss of personnel, today also power outages, etc. – all these factors have their own negative dynamics and influence. But more important for understanding the situation is that **these factors work together, and their strength and interconnectedness greatly complicate countermeasures and neutralization strategies.**

Unequivocal winning strategy in this situation should be consolidation of healthy forces at all levels, as well as transition to a military economy. Unfortunately, for unclear reasons, the government is delaying adoption of the relevant provisions of such a transition, which should primarily be dominated by **state orders for critical industries, use of public-private partnership tool, as well as effective coordination of all forces in anti-crisis measures, including central and local government bodies, business.** Sectors responsible for the state of the defense-industrial complex (including basic machine-building sectors), critical infrastructure, food security, health care and medicine, other basic products for provision of basic necessities should have priority government support in the form of government orders. Despite some measures taken by the government to support sectors such as agriculture, a coherent and large-scale program of such orders from the government is not in sight.

One of the biggest challenges that would require government response is **a critical state of domestic supply and value chains (VACs).** Due to loss of enterprises in the east and south, destruction and closure of hundreds of factories, relocation, loss of domestic markets, problems with imports and exports, enterprises in most domestic sectors were forced to radically revise their suppliers and customers in supply chains. This was most clearly manifested in the field of defense industry, where today Ukraine's dependence on external supplies is total.

Focus on strengthening VACs is key and has been traditional in developed countries since onset of COVID-19. Resilience of chains is a top topic for politicians, governments and business associations, and this issue is permanent in the agenda of Western stakeholders of economic and industrial development. Clusters, as economic entities and institutions, are a traditional tool of influence, strengthening stability of VACs and countering crisis phenomena in this area. In this context, cluster organizations should be one of the main partners of government organizations and local governments to strengthen economic ties and increase sustainability level.

However, cluster movement in Ukraine is still quite young, and **most government structures do not understand the role of clusters in solving such challenges.** Accordingly, this document has explanatory and positional nature regarding Ukrainian Cluster Alliance for a number of cluster development stakeholders, primarily for central and regional executive bodies, local authorities and united territorial communities.

Let's consider these roles of clusters on specific examples, both in foreign clusters and in Ukraine.

** Note: The original version of this white paper on Ukrainian has been prepared on October 2022*

Strengthening VACs as the main role of clusters

The main role of clusters since the end of the previous century is to strengthen value added chains (VACs). Strong VACs are the basis of a prosperous and strong economy. According to UNIDO, without strong internal VACs, it is difficult to talk about integration into external VACs. Cluster organizations are created precisely for this purpose, and in this way they differ from other business associations, such as, for example, industry associations.

Why are clusters better able to work with VACs than other structures? There are several reasons, let's name 3 main ones.

1. In their strategies and daily actions, **clusters consciously focus on gaps in internal VACs** and try to close them through purposeful measures to establish internal industrial cooperation.
2. These measures are aimed at close interaction of companies within a single or related industries in the same territory to obtain additional advantages. To achieve this type of connection, cluster initiatives should be supported and focused on creating cluster organizations, using **a whole arsenal of tools**, such as networking, dream-making, innovative brokerage, etc. Clusters consciously, purposefully and professionally develop these tools, as well as create special programs for support and development of industrial cooperation and innovation in VACs.
3. Clusters also use other **tools of influence on integrity and sustainability of value chains**, such as better use of shared resources, help to develop professional standards of quality and personnel training, organize export support and internationalization programs, they connect participants of main chain with local innovation ecosystem, etc. (Fig. 1).

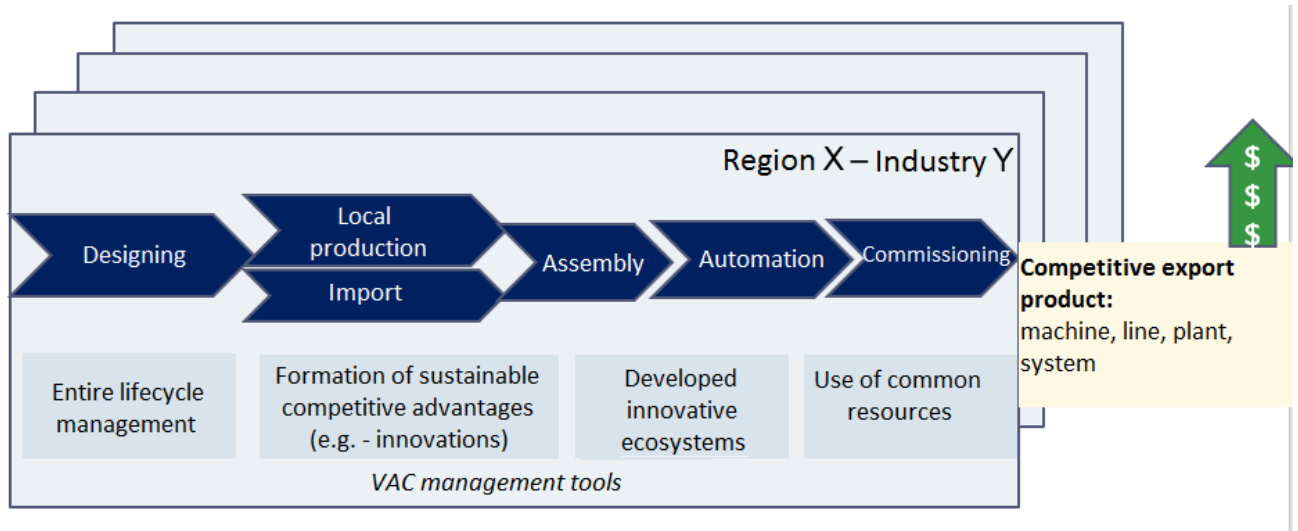


Fig. 1. Example of VAC for engineering–machinery sectors

This conscious focus is very important for understanding clusters, because many civil servants still think that business unites by itself, and this is «its nature», and that no effort is needed to establish industrial cooperation – "everything will be done by the free market". In fact, it is very difficult for businesses within the same industry to merge, as they are competitors. In Ukraine, lack of trust between market actors grew significantly during the 1990s crisis and is still considered the #1 obstacle for any unification processes.

This is exactly why **clusters are traditionally considered drivers of economic development in the world, both at regional and sectoral levels**. According to EU, enterprises united in advanced clusters have twice the labor productivity compared to those that are not united. European clusters today are

40% of all jobs, 55% of payrolls, 50% of exports and 87% of all EU patents.

In Ukraine, this understanding of clusters' role does not yet exist. [The Project of the National Program of Cluster Development](#), developed by the the Industry4Ukraine platform working group, has no support from the government since 2020. Our recommendations for the government regarding Export-Internationalization of Ukrainian SMEs, as well as other proposals in the field of smart specialization and digitalization of industrial SMEs, do not yet have support. Accordingly, cluster organizations (about 60 in Ukraine), most of which are today united in the Ukrainian Cluster Alliance, do not have such support at the regional level either.

The government should take decisive steps towards the cluster movement, but first of all, it is important for state structures' representatives to understand the roles of clusters in times of crisis – this is exactly what our country is experiencing now.

Roles of clusters in times of crisis

In times of crisis, clusters can play other important roles – we will consider some of them using European Cluster Alliance examples, whereof the Ukrainian Cluster Alliance is also a member today.

1. Clusters as a tool for countering crisis phenomena

Clusters in this role were tested on a large scale for the first time during COVID-19. European clusters became part of nationwide movements to support economy, but also played important roles in anti-crisis strategies, in particular in setting up production of vaccines, oxygen equipment and ventilators in their countries. Clusters often served as a bridge between large companies, which were mostly responsible for this production, and SMEs, which took their places in links of production chains.

Picture in Ukraine was completely different – the maximum we achieved in cluster cooperation was to become part of volunteer movement and collect funds for vaccines or oxygen equipment of Chinese origin. Several initiatives to launch production of their own products, in particular the [ALIZE/Breath Ukraine projects](#), have completely collapsed due to lack of government support, but also lack of unity and a single strategy among business associations.

In 2022, the situation changed.

UCA demonstrates unity of Ukraine's clusters and initiates a number of initiatives to combat crisis phenomena.

In particular, consolidated initiatives are being developed in the field of Export-Internationalization, strengthening of internal VACs and innovative fundraising. Some of these activity areas form new and self-sufficient roles of clusters, which are discussed below.

UCA almost from the outset took course on broad internationalization of clusters. About 50 online and 20 offline international meetings were held during 8 months. 13 Memorandums of Cooperation with a number of European clusters and associations have been signed. Among them, the most significant are joining the European Cluster Alliance, the TCI global cluster organization, the International Business Council and the EIT Manufacturing innovation program.

As a result of such alliances, UCA establishes stable relations with a number of EU and US partners, which move to formation of bilateral relations with inclusion of a number of clusters and their SMEs into joint action plans for 2023. In particular, such agreements at the end of 2022 are being developed within the framework of [specific action plans with the Czech Republic](#) and Poland. In November, Czech Republic confirmed its support for 3 large-scale events in 2023, which will include Ukrainian delegations' visits in the fields of Smart Regions, Smart Industry and Cyber-security.



Ukrainian delegation of heads of 6 clusters at the European clusters conference in Prague, together with representatives of the European Commission. The main result of this mission was the decision to hold a large-scale Ukrainian-Slovak cluster forum in Košice in February 2023.

2. Clusters as partners of the government, territorial communities and business in supporting critical infrastructure and critical industries.

UCA has been and remains focused on critical industries, including infrastructure, since the very outset in March 2022. This was also the key idea of the unification – we can win on the economic front if:

1. We will be able to help our own members;
2. We will be united with a high level of trust;
3. We will jointly focus on key economic priorities and sectors. In times of war, industries that provide critical (basic) needs of the population (food security, clothing, medicine and medical services, infrastructure), as well as vital activities of territorial defense and the Armed Forces of Ukraine, where, first of all, support is important for such sectors as machinery and engineering, since they are the basis of defense industry.

UCA has generated or supported many initiatives in this area, including:

- Facilitating establishment of humanitarian aid and establishment of logistics issues in cooperation with the European Cluster Alliance at the beginning of the war;
- Consolidation of support from Euro-clusters within the framework of the joint initiative of the European Union in energy infrastructure support;
- Consolidation with EEN partners in organizing the "[Electric energy matchmaking forum](#)" and matchmaking meetings with European enterprises;

- Assistance to own members by joining the leading European and American associations (APPAU) and receiving support from them;
- Active work of the Agri-Food resource center to support food enterprises, in particular, in export (U-Food cluster);
- Establishment and launch of the Resource Center "Medical Clusters", their (medical clusters) accession to the pan-European EchAlliance;
- Creation of the working group "Dual Purpose Technologies" – establishment of relations with European clusters
- Start of cooperation with European clusters in the field of cyber security.

This list can be continued, and the most important thing in it is the fact that clusters can be not only participants and consumers of services and initiatives provided by the government.

Clusters can significantly complement and enhance government efforts to support critical industries.

Clusters are also drivers of popularization and implementation of modern technologies and formation of new industries.

The Association of Industrial Automation of Ukraine (APPAU) is the leader of UCA resource pool in the field of Engineering-Automation-Machinery. In previous years, APPAU created and implemented many initiatives in the Industry 4.0 field. In particular, it is about launch of 185 Technical Committee "Industrial Automation", where APPAU for the first time raised the issue of international technical standards state in Ukraine, including security field. Since the beginning of the attacks on APPAU critical infrastructure, together with other EAM clusters, UCA mobilizes its members and organizes extensive exchanges with representatives of energy, oil, gas, and utility operators. The result is development of ["Security strategies for critical infrastructure"](#) proposals, which contain a number of project offers for European partners. Such proposals in a more detailed form become project applications for funding and are transferred to UCA fundraising project office. Meanwhile, UCA itself has already launched an [appeal to European clusters with a request for help in equipment supply](#).



UCA call to European clusters. The first electric generators provision proposals were received in December.

3. Clusters as integrators, catalysts and ... "saviors" of innovative development in VACs

Even before the war, individual clusters (in particular, from Kharkiv, Mykolaiv, Vinnytsia, and Zaporizhzhia) proved themselves as real integrators and catalysts of innovative development in their regions. This is clearly documented by the [report of the ClusterRISE](#) project supported by the German federal company Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ) GmbH with financial support from the German government (2020-2021). Another project that provided an understanding of clusters' role in smart specialization was the project implemented by the Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine – "Integration 4.0" (2021). Both projects provided the same conclusions that [it is the clusters that act as real integrators and catalysts of innovative development](#). Without them, individual attempts of state institutions or separate scientific institutes to organize effective interaction between business, government, science and education, and civil society expert environment do not look convincing and effective. On the contrary, precisely thanks to the specified clusters, new cluster initiatives, and those that really contribute to innovative development, became part of regional development programs in the specified regions, formation of interregional cooperation due to the development of inter-branch VACs.

Instead, the war put all actors of innovative development, especially SMEs, in a critical situation, when local financing of innovative developments practically stopped. [UCA offers new SAVE-SURVIVE-WIN narratives](#), where "SAVE" refers specifically to actors of industrial sectors' innovation ecosystem.



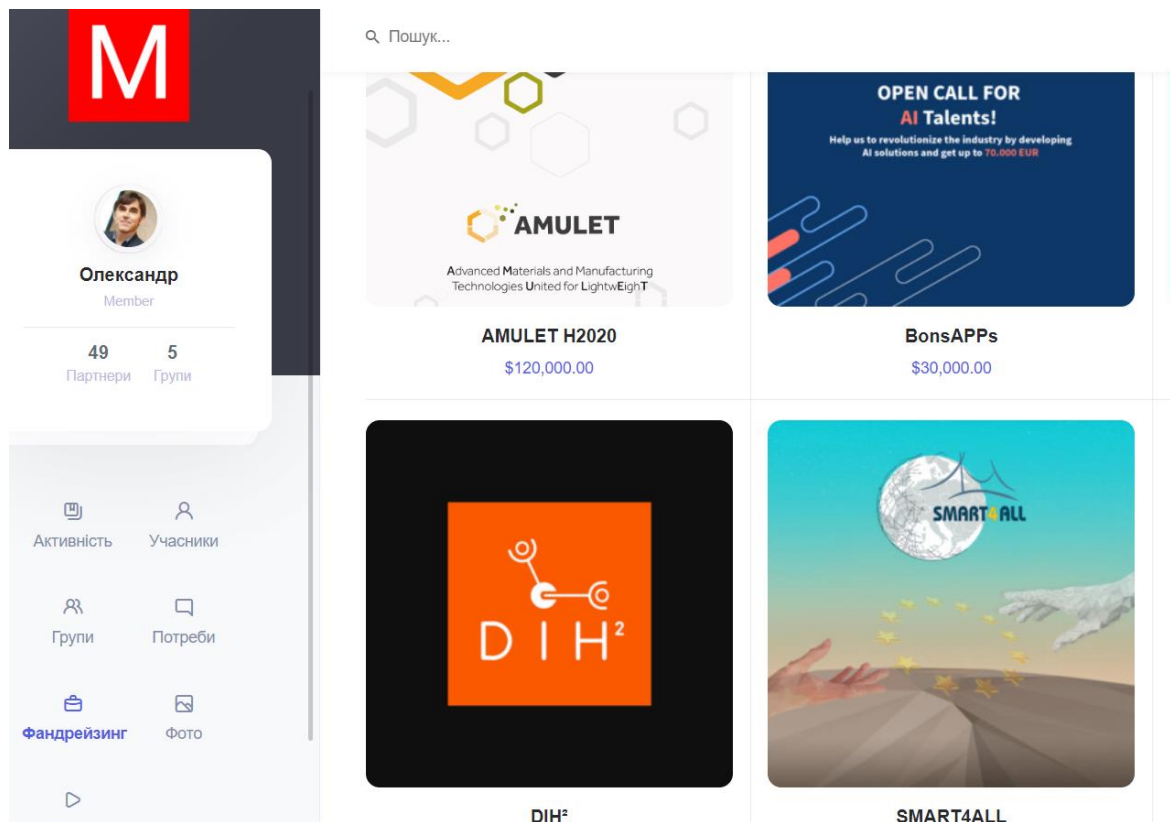
Photo from the conference of the CSIA association (USA), Denver, June 2022. Italian Luigi de Bernardino calls on American integrators to help their Ukrainian colleagues. 4 representatives of the Ukrainian engineering company from Mariupol were present at the conference. This example of international solidarity was widely promoted in UCA and became [one of the success stories](#).

The main action program is the EIF program, which has been transferred from APPAU to all UCA clusters. UCA also coordinates with a number of innovation funds (such as [EIT Manufacturing](#)),

foreign clusters from the Czech Republic, Poland and France, leading experts in Ukraine with the aim of improving entry of Ukrainian innovators and SMEs into the innovative European space. This general program and specific proposals are included in the document "[Export and Internationalization: Recommendations for the Government](#)", published in June 2022.

The EIF program aims to deploy broad internationalization of SMEs and further export through innovative fundraising. That is, the movement begins with F (Fundraising) – through extensive cooperation in innovative development, which is typical for most European programs (Internationalization) and, thus, prepares SMEs for better integration into European value added chains and sustainable export. The essence of the program is debugging 3 key stages of fundraising cycle: information brokerage, technological, and further – writing grant applications. For this, UCA project office engages several dozen consultants and experts, selects them and agrees on terms of cooperation.

*2022 results include accession to the program of 5 UCA clusters, more than 30 SMEs, 10 of which received funding. In total, in the field of innovation, UCA project office monitored more than 70 innovation grants, resulting in preparing 25 (together with SMEs) project applications, and 10 of which received funding. The total amount of grants received for SMEs is **EUR 550,000**.*



The platform of matchmaking and fundraising has become the main instrument of connection and cooperation of the innovation ecosystem actors. All available grants are presented here and market participants can quickly and easily select available experts to help them write a grant.

4. Clusters as important institutions and generators of new initiatives in recovery programs

Today, the government, most of the Ukrainian business community, and our international partners have started discussing post-war recovery programs. Several government presentations on the international arena, among which the forums in Lugano and Berlin stand out, are complemented by many proposals from international agencies and institutes in the spirit of the Marshall Plan for Ukraine. Despite lack of final solutions and unclear time of the war end, the key prerequisites for recovery are already clear to most stakeholders:

- the war will end with the victory of Ukraine;
- restoration of destroyed regions will require investments of hundreds of billions of euros;
- investments will be made with participation of Western funds and will be carried out within the framework of large-scale projects and programs;
- industrial sector development will take place on the basis of a double digital and green transition, which is the cornerstone of European policies.

From May 2022, clusters of Ukraine, together with other business communities, are included in development of relevant programs. We were members of the working groups that submitted proposals for the 1st version of the Recovery Program (for the conference in Lugano), and later UCA was actively involved in other developments and plans.

During August-September 2022, UCA developed a number of proposals in the field of Advanced Manufacturing (Industry 4.0). This document also became the main point in the promotion and negotiations of UCA with European clusters and neighboring countries of Eastern Europe. From November 2022, development and systematization of projects and proposals in the field of critical infrastructure is actively underway.

In September 2022, UCA EAM clusters developed and began promoting ["Top 10 initiatives in the field of Advanced Manufacturing"](#). List of these initiatives includes projects for improvement of state policies in the field of innovative industrial development through benchmarking and exchanges with Eastern European countries, deployment of outsourcing engineering services, creation of situational assistance centres for Ukrainian cities' municipal services, deployment of 4.0 centres and DIH (Digital Innovation Hubs) network, etcetera. "Packaging" of all applications into a separate document is aimed not only at better informing and consolidating UCA clusters and their members, but also at finding external funding. After all, all this concerns industries and regions development projects, and where SMEs' opportunities are very limited. Individual initiatives that have immediate impact on SMEs' survival in war conditions, such as engineering outsourcing, are already being deployed by UCA cluster independently – we are talking about the [Land4Developers project](#).



Marketplace of Ukrainian Developers and System Integrators

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The proposal of outsourcing in development and engineering has been promoted by APPAU and a number of EAM clusters since 2020 and has not yet received response from international donors or the state. Meanwhile, the potential in this field is no less than in the IT field, also connection and influence on internal product lines and VACs, in particular, in mechanical engineering, is much greater.

UCA recommendations for stakeholders of cluster development

The 5 specified clusters' roles clearly position them as the closest partners of the authorities in accepting the war challenges and the post-war period. In these roles, cluster organizations help in solving numerous challenges on the economic front – from closing gaps in value added chains, immediate assistance to critical industries, and improving performance in attracting investments for new projects and programs at the regional or industry level.

At the same time, Ukrainian clusters are young and need attention and support of the authorities themselves. First of all, we are talking about financial support of cluster management, without which cluster organizations simply do not function. Secondly, projects and activities of clusters need support – from recommendations to donors to large-scale events. Thirdly, the government can coordinate a number of projects and activities where it is the main executor today, and it is better to involve local clusters in them.

UCA recommends the executive power bodies and local authorities to consider the following proposals:

1. The central government **needs to consider and adopt the Cluster Development Strategy, [the draft of the Cluster Development Program until 2027](#)**. Although the program was developed in 2020 and some provisions require changes, the main provisions of the document remain constant. First of all, regulatory and legal provisions are needed that institutionalize clusters among subjects of economic development and position them as partners of power structures in regional, industrial, innovative and digital development.
2. Regional bodies are recommended **to clarify cluster potential of their region**, territorial communities with development and inclusion in regional and local programs of action plans for strengthening existing clusters and cluster initiatives, or their creation. For all regions, UCA offers services for assessing cluster potential and carrying out activities related to its promotion and coordination of initial actions to create clusters.
3. Local authorities **are invited to consider projects and project initiatives** their region clusters, territorial communities within the framework of UCA, which are divided into 2 categories: a) for investment attraction; b) aimed at improving ecosystems of industrial sectors, as well as critical infrastructure.

In turn, UCA is ready to provide proposals and services to state local authorities in development of cluster initiatives at sectoral and regional levels. In particular, we are talking about services in starting a cluster (methodology, trainings), assessing regions' cluster potential, integration into regional projects and smart specialization programs, etc.

UCA is open to discussing details of the specified positions. For reference questions, contact info@clusters.org.ua

UCA clusters and many best practices developed during 2022 were broadly presented at the annual clusters' forum, which was held online on December 9-10 – a detailed forum report will be available shortly at <https://www.clusters.org.ua/en>.



* *Best practices of clusters and business associations. How Ukrainian communities react to new challenges. December 9-10, online*

Useful Information

1. [Project of the National Cluster Development Program until 2027](#) (Industry4Ukraine, 2020).
2. [Program of UCA Export-Internationalization – recommendations for the Government](#) (UCA, 2022).
3. [Top-10 UCA proposals in the field of Advanced Manufacturing](#) (UCA, 2022).
4. [ClusteRISE report on development of new clusters in Zaporizhzhia and Kharkiv regions](#) (APPAU, 2021).
5. [Report "Better cooperation between government, business, science and education – as a response to the challenge of de-industrialization"](#) (APPAU, 2021).
6. [How to organize a regional cluster – 10 tips for beginners](#) (APPAU, 2021).

For more information on working in the cluster field, see [UCA Knowledge Base](#).