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AZƏRBAYCAN ƏMƏK VƏ SOSIAL MÜNASİBƏTLƏR AKADEMİYASI



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SOSİOMƏDƏNİ VƏ İQTİSADİ-EKOLOJİ ASPEKTLƏR**

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ON THE PROBLEM OF INTEGRATION OF UKRAINIAN CLUSTERS IN GLOBAL VALUE CHAINS

It is important to assess the political and economic factors influencing changes in global and regional value chains. Clusters in Ukraine have problems with the rupture of production and distribution chains. To solve these problems, it is necessary to correct the activities of clusters under martial law. Violations of transport routes and relocation of business have a significant economic impact on the formation of global value chains. The structure of the modern world economy has features of multilevel and interdependence.

Introduction

In 2022, there have been significant changes in the global distribution of resources. The invasion of Russian troops into Ukraine has prompted the developed world community to push Russian and Belarusian companies out of the global value chain. Such changes provide new opportunities for Ukrainian business. Creating new global and regional value chains can be based on innovative industrial high-tech ecosystems. Developed industry and regional clusters can be based on such ecosystems. It is proposed to consider new proposals to adjust the areas of cooperation of Ukrainian clusters and refocus their activities in the new economic situation. Integration into global and regional businesses may include the development of services, the development of international cooperation between enterprises on global business platforms.

Material and methods

The issues of creation and development of clusters, formation of value chains and consolidation of local community efforts to develop territories were studied on the basis of scientific materials, author's research of Zaporizhzhia cluster "Engineering-Automation-Machinery" and Ukrainian Cluster Alliance. Methods of theoretical generalization, system analysis, comparative analysis, classification were used for publication. These methods justify the directions of further integration into global and regional value chains.

Results and discussion

The direction of supporting the Ukrainian economy is the integration of Ukrainian companies into global value chains. The role of consolidating the efforts of the human community and business is important. This contributes to the development of clusters. Clusters form new areas of cooperation. In this way, value chains are built. Clusters create new opportunities to combine the competencies of different actors (business, education and science, government and the public) and to form value chains. Therefore, the study of the integration of Ukrainian clusters into global value chains is relevant in modern conditions

Competition and changes in world global processes against the background of growing consequences of the military invasion of Ukraine by Ukraine force us to consider economic recovery mainly on an innovative basis in the framework of cluster development. Clusters are formed in order to strengthen the own position of small and medium enterprises and gain market advantage. Clusters allow companies to combine all levels of innovation policy. Clusters provide a concentration of resources and create the conditions for economic breakthrough in the form of innovation. Clusters also increase the competitiveness of

enterprises, facilitate access to resources and technologies, reduce financial risks and promote innovative development of territories [1]. The clusters provide collaboration and synergy of scientists, business, government and the public. This is based on legal support, discipline, trust and responsibility [2].

Ukrainian companies are integrating into global value chains. After the annexation of Crimea (2014), the integration of Ukrainian enterprises into the markets of developed countries accelerated. During the period 2018-2021, Ukraine demonstrated positive dynamics of foreign trade. However, Ukrainian enterprises mainly exported low value-added goods and imported high value-added goods. Ukrainian exports are dominated by metallurgical and agricultural products. A feature of Ukrainian exports is the high share of intermediate goods used as raw material for the production of other final consumer goods. Current circumstances give hope for a change in the situation, as the markets of developed countries are opening up. The development of clusters in Ukraine helps the development of Ukrainian business. This development is ensured by integration into global production and distribution networks with a reduction in the processing of raw materials with low added value.

The development of clusters in Ukraine occurred in 2020. This year, a draft National Strategy for Cluster Development until 2027 was developed. Almost simultaneously, the German Society for International Cooperation (GIZ) supported the cluster development initiative. This support allowed to start a project for the development of EAM (Engineering-Automation-Machinery) clusters in the Zaporizhia and Kharkiv regions. The implementation of this project contributed to the development of cluster processes in these regions, certain changes in innovation ecosystems, the impact on the development of cluster movement in Ukraine [3].

More than 50 clusters are registered in Ukraine. On March 24, 2022, 16 clusters and cluster organizations of Ukraine merged into the Ukrainian Cluster Alliance. This alliance undertook the mission of developing the entire cluster movement in Ukraine [4]. The cluster movement helps increase exports for the business community. There are additional opportunities to include clusters and their members in global value chains.

The basis for Ukraine's successful integration into global value chains should be the development of the cluster movement and innovative ecosystems of industrial high technologies. It is important to develop services and production in the context of global and regional directions. It is also important to promote the formation of international cooperation between enterprises on global business platforms

Ukraine will be one of the emerging markets in Europe. This market provides a wide range of economic opportunities. Location, talented human capital, cost-competitiveness, and the availability of free trade agreements with many global markets can all ensure rapid growth and a high return on investments in key sectors, such as information technology, agriculture, energy, manufacturing, and infrastructure.

The integration of Ukrainian companies into value chains is fundamentally important for the development of Ukrainian industry. Participation in such chains allows the participants to join forces to improve competitiveness. There are international value chains based on Ukrainian companies. Thus, Metinvest uses the full cycle of production of metallurgical products and assets abroad. Metinvest is part of global value chains. Table 1 presents Ukrainian companies participating in GVCs, including with the EU's countries.

Table 1 shows successful examples of integrating Ukrainian big business into global value chains. In fact, these companies are cluster associations. However, successful examples mostly concern big business. And for small and medium-sized businesses, there are few such examples. According to the authors, the solution to this problem is the development of cluster associations. These associations promote further integration into regional ones and global value chains.

Table 1. Examples of integrating Ukrainian companies into international cooperation as of 2021

Company	Sphere of activity	Partnerships with companies in the EU	Partnerships with companies beyond the EU
Metinvest	mining, metals, sales, logistics, service	Bulgaria, Italy	Belarus, Switzerland, the UK, Russia, the United States
Aeromeh	engineering	Bulgaria, Germany, Greece, Italy, Latvia, Lithuania, Poland, Romania, the Czech Republic, Finland, Estonia	Australia, Armenia, Belarus, Bolivia, Brazil, China, Great Britain, Georgia, India, Israel, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenia, Turkey, Switzerland
Motor Sich	aircraft and engine building	Poland, Czechia, Slovakia	Bangladesh, Belarus, Canada, Ethiopia, Myanmar, Pakistan, Singapore, South Korea, Sri Lanka, the UAE, the UK
Ukrainian Automobile Corporation	automobile maker	Poland	Egypt, Uzbekistan
Konecranes Ukraine	cranes, lifting equipment and crane services	Austria, Belgium, the Czech Republic, Denmark, Germany, Greece, Finland, France, Hungary, Italy, Latvia, the Netherlands, Poland, Portugal, Romania, Spain, Slovakia, Slovenia, Sweden	Australia, Bangladesh, Brazil, Canada, Chile, China, Colombia, India, Indonesia, Hong Kong, Mexico, Morocco, New Zealand, Norway, Peru, the Philippines, Russia, Singapore, South Africa, South Korea, Thailand, Turkey, Switzerland, the UAE, the UK, the USA, Venezuela, Vietnam, Japan
Kernel	food processing	Germany, Israel, Latvia, Lithuania, Estonia, Sweden	Bangladesh, Canada, South Korea, Norway, the USA
EKTA	LED displays, imaging equipment/software	France, Estonia, Sweden	Norway, the UAE, the UK
Luxoft	software development	Bulgaria, Germany, Italy, the Netherlands, Poland, Romania, Sweden	Australia, Canada, China, India, Malaysia, Mexico, Russia, Singapore, South Korea, Switzerland, the UK, the USA, Vietnam
Nibulon	grain and oilseeds, shipbuilding, logistics	Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Italy, Latvia,	China, Norway, Turkey, the UK

		Lithuania, the Netherlands, Poland, Romania, Sweden	
Kernel	oilseed processing, infrastructure and trading, farming, logistics	the Netherlands, Spain	China, Egypt, Indonesia, India, Kenya, the Philippines, Turkey
MHP	crop production, poultry, meat processing	Germany, the Netherlands, Slovakia, Slovenia, Romania	Armenia, Azerbaijan, China, Iraq, Hong Kong, Kuwait, Moldova, Morocco, the Philippines, Saudi Arabia, Singapore, South Korea, Tunisia, Vietnam, the UAE, Japan

Source: [5]

Ukrainian company Luxoft develops car-control technologies, including unmanned ones, for German car manufacturers. Ukraine would also be capable of supplying products to the EU from metal to complex components of construction and finished machines, units, vehicles. Ukrainian manufacturers of specialized software and hardware also have the economic potential. It is important to consider the favorable factors for the entry of Ukrainian industrial enterprises into GVCs. These factors include the proximity to European markets, developed transport, energy infrastructure and a high potential for developing information and communication technologies. The cluster "Zakarpattya" is represented by the associations of international chains of brands, such as "Eurocar", "Jabil", "Yazaki", "Fischer", and others. This cluster was one of the first to move to a system model of global integration.

In the Zaporizhzhia region in 2020 the Zaporizhzhia cluster "EAM" was created [6]. This cluster includes 20 companies and organizations. Leading companies in the EAM cluster are sectors of industrial engineering, automation, IT and machinery. Such cooperation allows to increase the economic potential of the Zaporizhzhia region through the formation of competitive advantages of cluster members (table 2).

Table 2 Structure of regional cluster of Zaporizhzhia Cluster "Engineering – Automation – Machinery" (EAM) as of 2021

Name (brand)	Services	Countries where the cluster operates	Market presence (years)	Official site
ZAPORIZHZHIA CLUSTER "ENGINEERING – AUTOMATION – MACHINERY" (EAM)	A platform for companies in the Zaporizhzhia region working in the Engineering, Automation and Machinery sectors to share best practices and create a	all below	1	https://www.iamcluster.zp.ua/

	consolidated industry position			
PRIVATE SMALL INDUSTRIAL AND COMMERCIAL ENTERPRISE "ASSOL"	Production of bulldozers, modernization and overhaul of equipment.	Italy, Slovakia, Ukraine	31	https://asol.com.ua/
LLC "LIZMARK"	Production of freight elevators and cottage elevators.	Ukraine	4	https://lizmark.in.ua/
PLANT OF METAL STRUCTURES LLC "PC KOTLOMONTAZH"	Boilers utilizers, deaerators, gas cleaning equipment, building metal structures	Ukraine	30	https://steel-work.com.ua/
LLC "SATURN"	Production of auto parts and spare parts for agricultural machinery; service services for the production of equipment and machining of metals.	Ukraine	20	https://saturnavto.com.ua/
LLC "TERMOLIT"	Production of innovative equipment for melting, heating and hardening of metals	Azerbaijan, Armenia, Uzbekistan, Estonia, Kazakhstan, Poland, Moldova, Germany, Israel, Turkmenistan, Latvia, Italy, Finland, Lithuania, Ukraine	25	https://termolit.com/
LLC "TAVRIA FOUNDRY COMPANY "TALCO"	Foundry production of aluminum alloys	Italy, Germany, Ukraine	25	https://talco.com.ua/
LLC "THERMO-ENGINEERING"	Design and construction of	Kazakhstan, Mongolia,	61	http://niiterm.com/

	industrial and civil construction facilities; modernization or repair of industrial equipment	Ukraine		ru/kompaniya/onas
WELDING ENGINEERING COMPANY LLC "TRIAD LTD. AND CO."	Development and creation of welding technologies, design of robotic technological complexes. Laser cutting, Metal casting, Metal forming, Plasma cutting, Electroplating services	Kazakhstan, Ukraine	30	http://www.triada-welding.com/
LLC "GLOSS METAL SERVIS PRO"	Production of polypropylene equipment for galvanic processes, supply of voltage rectifiers	Sweden, Ukraine	6	bmservice.pro
LLC "ROLL GRAND"	manufacturer of components for all types of gates	Italy, Ukraine	19	https://rollgrand.com/
PRIVATE ENTERPRISE "YUZHTRANSPOIS PLUS"	Gates of various levels of complexity for domestic and industrial purposes	Italy, Germany, Ukraine	20	https://www.vorotutp.zp.ua/
LLC "GREEN SYSTEM"	Turnkey solar power plants, service in the field of alternative energy and energy efficiency	China, Poland, Ukraine	10	greensystem.com.ua teplonasos.biz electro-auto.com.ua

LLC "INFOCOM LTD"	Automation software development (MES, ERP)	USA, Japan, Germany, Bulgaria, Egypt, France, Great Britain, Zambia	25	https://ia.ua/ru/
LCC "IT PROGECT"	Design and implementation of IOT at facilities of industrial complexes, agriculture, transport, housing and communal services	Ukraine	12	https://www.atiko.com.ua/
HR COMPANY "WORLDWIDE OPPORTUNITIES"	Employment, training and retraining services for specialists.	Germany, Ukraine	3	https://wop.com.ua
NATIONAL UNIVERSITY "ZAPORIZHZHIA POLYTECHNIC"	Basic and applied research; training. The university prepares specialists for the aviation, aerospace, electrical, electric power, metallurgical, machine-building, radio-electronic industries	Austria, Belgium, Bulgaria, Belarus, Kazakhstan, Georgia, Spain, Germany, United Kingdom, Poland, Romania, Slovakia, Turkey, Czech Republic, Ukraine	121	https://zp.edu.ua/
ASSOCIATION OF INDUSTRIAL AUTOMATION OF UKRAINE (APPAU)	development of the local market through set-up of professional standards in technical field and in business development. It represents the interests of the Ukrainian	EU, USA, Ukraine	11	https://appau.org.ua/

	industrial automation community.			
ZAPORIZHZHIA CHAMBER OF COMMERCE AND INDUSTRY (CCI)	Certification of origin of goods Customs broker services ATA carnets Legal Services Translation agency Organization of international economic cooperation Implementation of quality management systems Certification of commercial documents Educational programs Conference service Conference halls for rent Public procurement Commodity expertise Price examination Patent and license services Definition of codes	Argentina, Australia, Bulgaria, Brazil, Czech, Canada, India, France, Finland, Georgia, Germany, Lithuania, Poland, Slovakia, Spain, Syria, Tajikistan, Turkey, Ukraine, Venezuela	81	https://www.cci.zp.ua/

Compiled by authors from open sources

The Zaporizhzhia CCI plays an important role in the development of the Zaporizhzhia EAM cluster. The National University "Zaporizhzhia Polytechnic" is a member of the Zaporizhzhia Cluster "Engineering – Automation – Machinery" (EAM). The aim of this cluster is to become a cross-border excellence organization with high quality services for international demand orientation. This organization is based on a collaboration of a wide variety of players in engineering as well as automation and machinery. Members of the cluster include the Zaporizhzhia Chamber of Commerce and Industry, industrial enterprises (Triada Ltd Co., Blysk metal service pro), IT companies (Infocom Ltd), industrial parks (Konecranes), and other organisations. Infocom Ltd (the city of Zaporizhzhia) offers market products and solutions in the field of specialised software

development, alternative energy, electric vehicles, robotics, computer vision, drones, etc. For this company, it is exports and integration into global value chains that are the source of its innovative development.

Zaporizhzhia cluster "EAM" is included in the regional development strategy until 2027. The draft action program for the development of small and medium enterprises in the city of Zaporizhzhia for 2022-2025 has been included in the action plan. Zaporizhzhia cluster "EAM" has initiated cooperation between all members of the cluster. A joint innovation ecosystem of the region was also created for the purpose of innovation and R&D (research and development), production of new generation products ("Industry 4.0"), as well as joint implementation of engineering projects. Enterprises and organizations of the cluster created more than 1.6 thousand jobs and paid about 70 million UAH taxes (2020). The basis of the cluster formation is the coordination, coordination and synchronization of cooperation of participants in the following areas: definition of common goals and needs; building trust through networking and regular communications; launching a specific action plan, etc.

Members of the Zaporizhzhia EAM cluster regularly hold networking meetings, consult with each other, visit new enterprises, work on joint projects and discuss opportunities to create joint products, constantly study and participate in organized professional events, participate in exhibitions, etc. An important activity of the cluster is the formation of regional value chains and joining the global value chains. In September and November 2021, cluster representatives visited Lithuania and the Czech Republic and signed 2 memoranda of cooperation with two clusters (INDUSTRY CLUSTER 4.0 and Lithuanian Automotive Export Association LAuGEA Cluster) on cooperation and development of global value chains with more than 50 participating companies. The INDUSTRY CLUSTER 4.0 presents the Czech association of engineering and IT companies. Such measures are relevant in terms of developing global and regional value chains in the context of Ukraine's cooperation with the EU's countries.

Clusters are important organizational associations for combining the expertise and resources of small and medium-sized businesses. To this end, the unification of clusters into the Ukrainian Cluster Alliance was Clusters are important organizational associations for combining the expertise and resources of small and medium-sized businesses. To this end, the clusters were united into the Ukrainian Cluster Alliance. This Alliance of Clusters facilitates the ability to integrate into global value chains through Cluster2Cluster meetings.

The cluster community unites about 1800 enterprises from different regions of Ukraine at 35 clusters. These companies have their own specialization, resources and experience, the potential for joint growth. The expert environment expands, acquires new knowledge and initiates exchange and cooperation. Increasing the scale of the cluster community gives results in the search and implementation of projects, the formation of partnerships. Such processes take place in the national and international economy with business and clusters. Coordination of common priorities, loyalty to new participants, building trust against the background of current threats should ensure the development of the cluster movement. Integration into the GVC is able to stabilize economic relations and contribute to the recovery of Ukraine's economy.

Conclusions

In the current situation of rapid changes in the authors consider relevant the interaction of economic potentials of Ukrainian and Azerbaijani clusters in order to integrate into regional and global value chains. The integration of clusters into global and regional value chains is important. The study showed that the enterprises of the Zaporizhzhia cluster have economic ties with the enterprises of Azerbaijan. The authors believe that the integration of Ukrainian and Azerbaijani clusters has great potential. This article examines proposals for

studying the practice of clustering in Ukraine. It is proposed to search for new directions of integration of Ukrainian and foreign cluster associations. The authors propose to organize a business presentation of the capabilities of the Zaporizhzhia cluster EAM (Engineering-Automation-Machinery) and cluster associations of Azerbaijan in order to find ways of mutual integration into global and regional value chains. The mission of EAM cluster is to become a cross-border excellence organization with high quality services for international demand orientation. Achieving new markets, branding and building long-term partnerships is important for the cluster.

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UKRAYNA KLASTERLƏRİNİN İNTEQRASIYA PROBLEMİ HAQQINDA QLOBAL İSTEHSALAT-SATIŞ ZƏNCİRLƏRİ

Xülasə

Qlobal və regional istehsal-satış zəncirlərindəki dəyişikliklərə təsir edən siyasi və iqtisadi amilləri qiymətləndirmək vacibdir. Ukraynadakı qruplar istehsal və satış zəncirlərinin pozulması ilə bağlı problemlər yaşayırlar. Bu problemləri həll etmək üçün klasterlərin fəaliyyətini hərbi vəziyyət şəraitində tənzimləmək lazımdır. Nəqliyyat marşrutlarının pozulması və biznesin yerdəyişməsi qlobal istehsal-satış zəncirlərinin formalaşmasına əhəmiyyətli iqtisadi təsir göstərir. Müasir dünya iqtisadiyyatının strukturu çoxsəviyyəli və qarşılıqlı asılılığın xüsusiyyətlərinə malikdir.