

SUPPORT FOR CLUSTER INITIATIVES AND CLUSTER POLICY (CASE STUDY OF THE EUROREGION "THE LOWER DANUBE")

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Abstract. The purpose of the article is to investigate the essence and significance of the cluster initiative and the cluster policy as tools for strategic development and increasing of the economy competitiveness of the Euroregion "The Lower Danube" based on the analysis of factors providing state support for cluster initiatives in the context of the promotion of the European Union Strategy for the Danube Region. *The theoretical and methodological background* is the works of Ukrainian and foreign academic economists studying general systems theory, systemic analysis, and also strategic planning methodology at enterprise, regional and national levels. The research is based on the fundamental provisions of economic theory, the theory of strategic planning, institutionalism, regional and global economics, cluster theory, the location theory, the growth pole theory, M. Porter's competitive theory, networked economy theory, spatial economic agglomeration, as well as modern theoretical developments on the problems of formation and implementation of the Euroregional policy of the EU. *The research hypothesis* is the assumption that the cluster approach is the most effective mechanism for the development of international economic cooperation in modern conditions and, eventually, the meso-level of competitive cross-border integration systems and a necessary requirement for qualitative growth of Ukraine's integration into the European Economic Area. *The goal statement* can be described as a meso-economic synthesis of concepts of the development of innovation clusters and international integration associations. Based on the analysis of problems of formation and development of clusters, the methods and tools of state support of cluster initiatives are explained, and the most important strategic directions of activity of executive bodies aimed at stimulating the processes of formation and development of clusters in the Euroregion "The Lower Danube" are formulated. Cluster policy aimed at stimulating cluster initiatives with a further formation of cross-border innovation clusters can be considered as one of the effective tools for intensifying innovation activity in the Euroregion "The Lower Danube". The authors *conclude* that the creation of cross-border clusters in the Euroregion "The Lower Danube" with the participation of Odesa region of Ukraine is associated with the necessity to form a united cross-border area. At the same time, the state is given a leading role in ensuring a favorable cluster environment (including the reduction of barriers to trade) and stimulating international cooperation. *It is proposed to develop meso-level integration processes* within the Common Economic Space of Euroregions, with the active participation of Ukraine on the basis of a cluster approach, forming cross-border cluster systems based on competition, cross-border cooperation, virtualization of interinstitutional networks and formation of "clouds" of highly efficient intercluster interactions.

Key words: cluster initiatives, international cluster, cross-border cluster genesis, cluster-based policy, competitiveness.

JEL Classification: M16, F23

1. Introduction

New vector of economic integration of European states influenced Ukraine's foreign policy which underwent significant changes requiring the development of an economic strategy in the Euroregional aspect. Being a border country with the EU,

Ukraine has both the prospects and the responsibility to develop cross-border relations in order to fulfill the tasks set by the EU-Ukraine Partnership and Cooperation Agreement, which provides for the intensification of economic growth in border regions. The priority of the European Union Strategy for the

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Danube Region is to support the competitiveness of enterprises, including the formation of clusters in the countries of the Danube region, taking into account different levels of innovation in the Euroregion "The Lower Danube". In this connection, transnational cooperation is extremely important, as well as cooperation between companies and institutions on the both sides of the border, supporting the business environment as a result of cross-border clustering, which determined the urgency of the research.

The process of progressive advance of the economy is closely interconnected with the use of various integration forms of interaction and with the formation of international partnership. The formation and functioning of cluster structures in the Euroregions make it possible to get economic, industrial, communication, infrastructural, social benefits and goodwill, both for their immediate participants and for the territories where clusters are located. The cluster approach is an effective tool that ensures the innovative development of the economy based on the formation of most preferable interaction between representatives of business, government, science and education. The functioning of cluster incorporation of organizations plays an important role in the long-term development of the Euroregions and member countries (Ukraine, Romania, Republic of Moldova). Cross-border clusters are recognized to provide an increase in competitiveness, both in traditional and new knowledge-intensive sectors of the economy of the Euroregions. Foreign experience proves the effectiveness of cluster policy and its positive impact on the level of competitiveness of the economy of the Euroregions. Integration processes in Eastern Europe create preconditions for the formation of international clusters in cross-border states, including Ukraine, Romania and Moldova, in order to increase the international competitiveness of commodity producers (State regional policy of Ukraine, 2007).

Support for cluster initiatives is an effective tool for stimulating the economic development of depressed cross-border regions, as well as accelerating innovative growth in both high-tech and traditional sectors of economic activity of the Euroregion "The Lower Danube". The positive results of the formation of cross-border clusters are the development of cooperation and the establishment of partnerships between companies, which, in their turn, intensify the generation of innovations, reduce transaction costs and, consequently, create additional competitive advantages for the Euroregions (Cluster policy in Europe, 2008).

Network clusters have become a new source of competitive advantages of the Euroregions with the participation of Ukraine and have essentially changed not only the system of location factors, but also the structure of the economic space itself. The intro-

duction of a cluster form of business organization in the cross-border dimension contributes to the development of the network structure of the economic space, strengthening its unity and integrity. Under modern conditions, both national and regional cluster policy is needed, and efforts in this direction are made by the states within the framework of established Euroregions. However, being initiated from above, such a policy should be implemented from below, and the proposed regulatory measures require adequate reasons, analytical and methodological support.

2. An overview of the relevant publications

The term "cluster initiative" was introduced in 2003 by economists C. Ketels, G. Lindqvist and O. Solwell. According to the scientists, this concept implies work on increasing of the cluster competitiveness and its growth rates together with the involvement of cluster firms, state and research institutes in the process. The cluster initiative is defined as "coordinated actions aimed at increasing the competitiveness and growth of the regional industry cluster with the involvement and direct participation of key cluster members: companies, associations, educational institutions, etc." The French economist F. Perrault was a pioneer who introduced the scientific concept of "growth pole" in the early 50s of the twentieth century. In his opinion, economic growth does not occur evenly, but resembles cells. He defines "poles of growth" as agglomerations of enterprises concentrated in certain places, where economic growth, business activity and innovation process are of the greatest intensity. F. Perrault and his successors I. Wallerstein, T. Gegerstrand, and J. Budville noted that regional centers, where enterprises of core industries are located, attract factors of production leading to the development of regional growth points. Government institutions can purposefully facilitate these processes, in particular with the aim to revive the economic development of backward regions of the country. H. Richardson, J. Friedman, P. Potier, H. Lasuen, and H. Hirsch also belong to the most prominent representatives of regional growth theories. The models proposed by above-mentioned researchers are based on such basic provisions as the emergence of growth centers, their expansion channels, the formation of agglomerations, the processes of diffusion of innovation, to avoid uneven growth under conditions of free competition in the spatial economy of the region. Michael Porter in his work "Competitive Advantage of Nations" concludes that while setting the policy of expanded investment economy, it should be focused toward the development of interconnected industrial clusters based on

the transplantation of economic institutions, the development of cooperation and competition (Porter, 1998). The approach to assessing the competitiveness of a cross-border region can be defined using the concept of competitive advantage of the country, offered by M. Porter. The idea of industrial clusters, defined by M. Porter, includes "the union of companies in one industry, linked by a strategy of vertical integration of suppliers, manufacturers, financial institutions". According to Porter, this concept means "geographically concentrated companies, firms in related industries that both compete and cooperate with each other, creating a single process of interaction" (Porter, 1990). Another researcher, S. Rosenfield, understood cluster as "a group of territorially concentrated companies that share common values and technocultural orientations, directly or indirectly operating in a single regional market in terms of cooperation and competition." In opinion of M. Enright, a cluster is "a group of commercial and non-commercial organizations that have an interconnected sphere of productive and non-productive activities and services, concentrated around key production, and for which group membership is an important element of individual competitiveness" (Enright, 2000).

3. Previously unsolved aspects of the problem

During recent years, Ukraine has attempted to create a legal framework for the clustering process. The concept of cluster policy as a type of innovation has been developed in the European countries (Declaration concerning regionalism in Europe, 1996). O. Tersina believes that a cluster revolution is currently taking place in Ukraine – any community seeks to create a cluster, often not having the slightest notion of what it is. In Ukraine, the issues of cluster development have attracted interest over the past ten years. As for scientific research concerning Odesa region, there are only a few of them. Nowadays, the task is to develop theoretical and methodological principles of strategic planning for the creation and development of cross-border cluster systems in various branches of economy, taking into account their potential role as a problem-solving system focused on modernizing peripheral regions of Ukraine. It should be noted that the mechanisms of formation of Ukrainian cross-border cluster systems have not been studied yet. C. Ketels proved that the implementation of cluster initiatives promotes cluster growth, increases competitiveness, strengthens ties between industry and academic community, helps firms to become more competitive in international markets, and contributes to the emergence of new technologies. According to foreign experience, four out of five cluster initiatives are successful in meeting

the set goals. It is necessary to analyze the institutional mechanisms of development of cross-border cluster systems in Europe, including the example of cluster systems of the Black Sea macroregion and the Euroregion "The Lower Danube", to single out opportunities, barriers and prospects for Ukrainian-Romanian cross-border clusters, to identify key characteristics and evaluation parameters of their effectiveness in modern economic conditions and provide rationalization for the key principles of the analysis of the amount of state support and stimulation of clustering processes.

4. Problem statement

The purpose of the article is to investigate the essence and significance of cluster initiatives and cluster policy as tools for strategic development and increasing of the economy competitiveness of the Euroregion "The Lower Danube" on the basis of an analysis of the factors providing state support for cluster initiatives in terms of promoting the Strategy of the European Union for the Danube region, the task of which is to promote competitiveness of enterprises associations, including the development of transborder clusters.

5. Research methods

The theoretical and methodological framework of the study is the works of Ukrainian and foreign economists on general systems theory, systems' analysis, as well as the methodology of strategic planning at the enterprise, regional and national levels. The study is based on the fundamental provisions of economic theory, the theory of strategic planning, institutionalism, regional and global economics, cluster theory, the production allocation theory, the theory of growth poles, M. Porter's theory of competition, network economics, spatial economic agglomeration, and modern theoretical developments on the formation and implementation of EU Euroregional policy. The scientific hypothesis of the study is the assumption that the cluster approach is the most effective mechanism for the development of international economic interactions under modern conditions and, at the final result, is the meso-level of competitive cross-border integration systems and a necessary condition for qualitative growth of Ukraine's integration into the European Economic Area.

The problem statement can be characterized as mesoeconomic synthesis of the innovation clusters development concepts and international integration associations. In our opinion, it allows cultivating both a mechanism and a scientific understanding of the development of modern integration systems (Hayek, 1945).

M. Porter investigated the most successful companies on a global scale and found out that regularly enough firms from one or more countries achieve greater results than their competitors. This was the beginning of the theory of industrial clusters. An important feature of the development of industrial innovation clusters, from the point of view of M. Porter and many other researchers, is the combination of cooperation and competition: firms cooperate and compete with each other at the same time. This paradoxical effect of coexistence within the cluster is called co-competition (coopetition). In this case, clusters of companies compete with each other in the markets of goods and production factors and cooperate to obtain funding from governments, in the development of new markets and technologies (Perroux, 1950).

6. Results

Many researchers have attempted to structure the basic theoretical background causes of the cluster concept. For example, M. Enright points at the connection of the observed spatial clustering with the theories of business externalities, savings from agglomeration, labor unions and knowledge spillover.

The national cluster policy of the countries of the Danube-Black Sea region is aimed at the development of regional innovation clusters as centers for increasing innovation development and competitiveness of institutions in the region. The creation and development of organized international clusters is the basis for the implementation of pan-European programs for cross-border and transnational cooperation of separate Euroregions. The possibility of creation cross-border clusters in the Odesa region on the borders with Moldova and Romania in the Euroregion "The Lower Danube" deserves special attention (Iermakova, 2017).

Reducing the importance of the territorial component of the location of production with the development of information technology leads to the formation of virtual inter-firm networks and the ability to create international cluster systems that can evolve rapidly in modern conditions. Thus, the cluster approach becomes broader and allows involving more companies and countries in the information exchange.

The creation of maritime, tourist, wine clusters in the Euroregion "The Lower Danube" with the participation of entrepreneurs from the Ukrainian Danube region, Romania and Moldova is the most advanced. The attraction of foreign investments in the economy of the Danube region and the creation of competitive conditions for the national capital would help to solve the following problems:

1. Renovation of the technological base of enterprises in the region, modernization of existing and re-profiling of idle industries.

2. Development of transport networks, ports, and creation of new revenue lines.

3. Extension and diversification of export potential and development of import-substituting productions in separate branches.

The investment program of the Euroregion "The Lower Danube" provides:

- development of strategies for participatory development of cities and villages of the region in the framework of cross-border cooperation;

- improving of the investment environment (legal harmonization, tax discrimination, removal of customs barriers, legitimization of income);

- creation of foreign-owned business;

- creation of business and information centers on cross-border cooperation;

- creation of an international free economic activity zone;

- creation of international all-purpose exchange;

- transport and infrastructure development;

- carrying out of joint marketing research.

Cluster strategy of cross-border cooperation provides for the formation of territorially localized cluster associations of border regions around foreign companies-innovators, the network agents of which (manufacturers of innovative products and services, suppliers, infrastructural facilities, research-and-development centers, academic institutions) cooperate on the basis of competition and interaction, generating a synergistic effect, complementing each other and enhancing the competitive advantages of both the companies themselves and the cluster as a whole.

Worldwide and domestic experience shows clear evidence that clusters provide favorable conditions for innovative development, manufacturing of competitive products, new job formation. Therefore, promoting the formation and development of cross-border clusters should be the basis of the strategy of socio-economic development of the Euroregion "The Lower Danube". If Euroregions are considered as a form of cross-border economic cooperation, which is very important for the Ukrainian Danube region, they will contribute to strengthening good neighborly relations between countries and will be a kind of tool for integration into European structures. This is especially essential for Ukraine and Moldova in connection with the range expansion of the EU and Romania's joining the European Union. The European region "The Lower Danube" must become a kind of a receptor area through which the neighbouring countries "grow", so to speak, by their border territories, easing the strain at the border, creating a special investment environment, opening

new vistas of economic prosperity and cultural cooperation.

The location of the Danube region at the intersection of important international routes from Europe to Asia contributes to the development of the marine and transport complex potential, which includes three commercial sea ports (Reni, Izmail, Ust-Dunaisk), 2 ship repair facilities, State Shipping Company – "Ukrainian Danube shipping company", 4 railway stations; locomotive facility, a number of road transport enterprises, airport "Izmail". The conclusions of the segmentation of the region lie in the fact that the created training and information-analytical cluster will have a technical base, a program for further promotion of cluster systems, skills and experience in the analysis and implementation of clusters. Besides a long-term result of the activity is the sharing of cluster systems implementation methods with the help of training and information-analytical cluster on the territories of the Euroregion "The Lower Danube" (Ukraine, Romania and Moldova) (Kovalenko, 2019).

The development of the Euroregion "The Lower Danube" is aimed at solving the following tasks: achieving a harmonious and balanced development of economic activity in the border regions of our countries; solving a number of issues and problems in the field of environmental protection; ensuring an appropriate level of employment and social protection of the population; improving the life quality in our regions; taking steps to integrate transport infrastructure between the countries-participants of "The Lower Danube" into a single network of European transportation corridors; the formation of a single cultural space in the Danube region; solution of a number of issues related to the elimination of the consequences of natural and human-made disasters. It is planned to open joint trade centers and centres providing services to the population in Odesa (Ukraine) and on the territory of the counties of Cahul (Moldova), Galați, Brăila and Tulcea (Romania), as well as to create an association of free trade zones on the basis of the special economic zone of Reni (Ukraine), free trade zones Galați (Romania) and Giurgiulești (Republic of Moldova). The idea of the latter is to combine the elements of foreign trade, tourist, recreational and export-production zones. Its activities should be aimed at delivering of freight flows, handling of export-import and transit cargo, developing of transport and communication infrastructure, intensifying of industrial production and processing of agricultural raw materials, developing of entrepreneurial initiative of the local population. The actions to open international ferry freight-and-passenger service Izmail (Ukraine) – Tulcea (Romania) are carried out, as well as the actions to open an international railway

freight-and-passenger service Reni (Ukraine) – Giurgiulești (Moldova) – Galați (Romania). It should be noted that these projects are considered not only as local and important only for the development of the transport and communication infrastructure of the Euroregion "The Lower Danube", but also as a prospective element of international transport corridors (in particular, the Cretan ITC No. 7 – "Danubian Waterway" and the transport ring The Black Sea Economic Cooperation) (Kovalenko, 2020).

We understand the term "cluster initiatives" as measures to activate and develop a cluster, an instrument of regional cluster policy, implemented together with the subjects of cluster associations of organizations, and, in a narrow sense, it is a project carried out by cluster members aimed at developing this integrated structure in the region (Mikula, 2004). The following factors contribute to the development of cluster initiatives: concentration of business entities on the territory of the region, availability of labor resources of appropriate qualifications and the basis for their development, quality of the education system, availability of a base for R&D, the tradition of industrial cooperation and territorial economic planning.

Classification of cross-border regions of Ukraine according to the contact-morphometric principle allows referring the Odesa region to regions with a high degree of boundary contact (Figure 1).

For a more detailed description of the degree of "boundary contact" of the regions of Ukraine, we offer the following:

– morphometric boundary coefficient I_{mbound} , which is calculated by the formula:

$$I_{\text{mbound}} = L_{\text{ext}} / L_{\text{tot}}, \quad (1)$$

where L_{ext} – length of the external (state) border of the region in kilometres,

L_{tot} – the total length of the region's borders in kilometres.

– coefficient of administrative-territorial border I_{adbord} , which is calculated by the formula:

$$I_{\text{adbord}} = N_{\text{ext}} / N_{\text{tot}}, \quad (2)$$

where N_{ext} – the number of administrative districts of the region that cross the state border,

N_{tot} – the total number of administrative districts of the region.

During the years of independence, no incentives have been created to increase imports of high technology, purchase of a license, know-how for the production of nationally competitive goods (Table 1). In this context, it is advisable to identify ways to increase the efficiency of foreign goods trade from the Odesa region, taking into account the specifics of modern economic conditions.

These ways include:

– implementation of diversification of the commodity structure of exports. This will minimize the risks

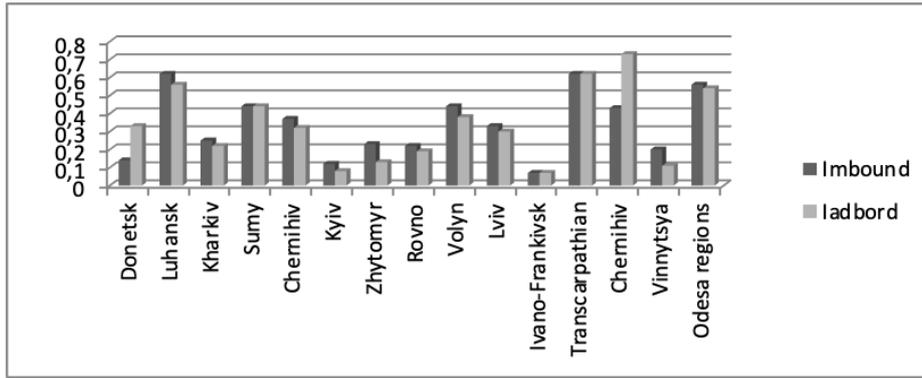


Figure 1. Classification of cross-border regions of Ukraine according to the contact-morphometric principle

associated with export earnings shortfalls in case of deteriorating external environment;

- to balance the structure of exports and imports in terms of trading partners of the Odesa region. These structures should not be dominated by the shares of separate countries in order to avoid political and foreign economic risks;
- the direction of import substitution policy to strengthen the orientation of certain categories of industrial manufacturing (competitive primarily in price parameters) to meet the needs of the domestic market in both consumer goods for the population and industrial products (intermediate goods).

The necessity to cluster the cross-border economy of the Euroregion "The Lower Danube" is caused by the main task of forming the export potential of the Odesa region, namely, the reorientation of the national

economy to achieve a more uniform and balanced export return of its regions. Cluster initiatives are intended to launch an anti-recessionary mechanism for enhancing foreign trade with Romania and Moldova. The current state of foreign trade is characterized by disequilibrium and stagnation. There is a negative trend of reducing export-import volumes with Romania and Moldova (Figures 2-6).

As we see, trade and economic relations between the Odesa region and Romania and between the Odesa region and the Republic of Moldova have significantly weakened recently, having a negative impact on the state of cross-border cooperation in the Euroregion "The Lower Danube".

The Odesa region and Ukraine as a whole see great strategic interest in the functioning of this Euroregion. The strong points of this Euroregion include:

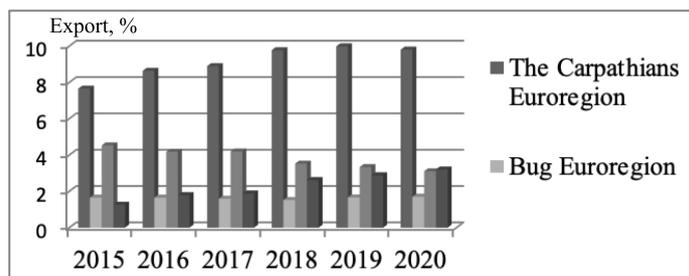


Figure 2. Ratio of the Ukrainian Euroregions in export of goods

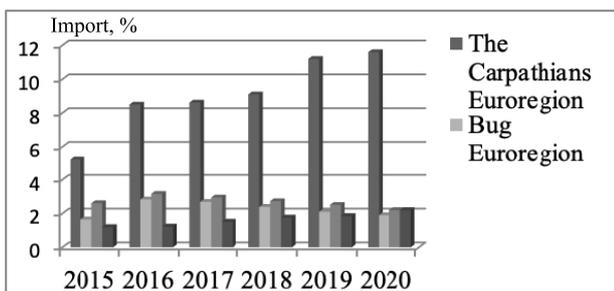


Figure 3. Ratio of the Ukrainian Euroregions in import of goods

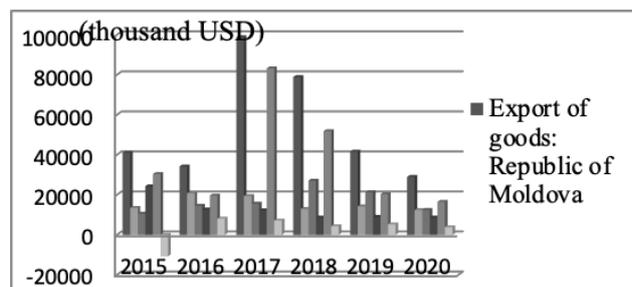


Figure 4. Figures of foreign trade between Odesa region and Romania and between Odesa region and Moldova

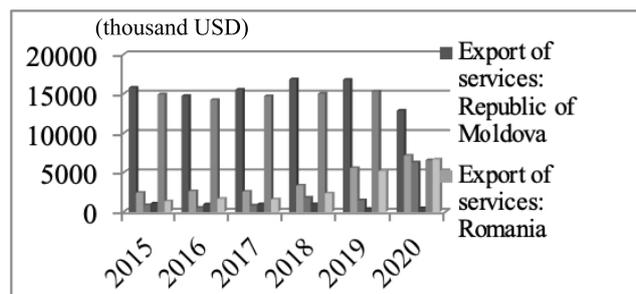


Figure 5. Figures of foreign trade in services between Odesa region and Romania and between Odesa region and Moldova

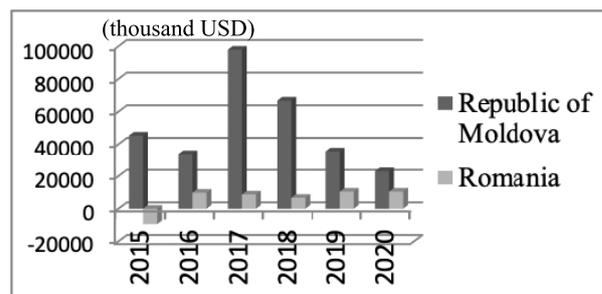


Figure 6. Export surplus of Odesa region (Moldova, Romania)

advantageous geographical position of the Ukrainian part of the Euroregion; availability of three ports (Reni, Izmail, Ust-Dunaisk); putting into operation of Orlovka ferry; Romania's joining the EU since 2007; favorable geographical environment for the development of the agro-industrial complex; availability of research centers, strong system of higher education. There are a number of untapped opportunities in the Euroregion that can improve the effectiveness of cooperation. For example, the emergence of the new ferry will increase the flow of freight and traffic. It is advisable to create specialized agro-industrial, tourist, transport, energy clusters; cooperation in the field of ecology and environmental protection, in particular, cleaning of the Danube riverbed; formation of integrated tourist products, creation of a single tourist network; improvement of financing instruments for cross-border cooperation projects.

The main provisions that contribute to improving the quality of justification and the subsequent process of implementing cluster initiatives in the Euroregion "The Lower Danube" include:

- 1) training of qualified personnel for the development and implementation of cluster projects;
- 2) the formation of a cluster policy focused on the specifics of certain cluster structures, the choice of appropriate instruments of state support;
- 3) improving of the clustering processes management, which implies the following:
 - including of predictive-analytical and organizational-economic blocks in target programs for the implementation of cluster projects, as well as ensuring the variability of measures due to the instability of the external environment;
 - formation of a regional agency to manage clustering processes;
 - developing of a problem-oriented monitoring system.

Cluster policy helps to increase the competitiveness of the region, besides, creation of a common or single cluster at the border has all the benefits of clustering for the regions of neighboring countries. Cross-border regions gain additional socio-economic and

environmental synergetic effect from the functioning of the cluster, helping to increase the value chains that will be created by servicing a single complex of two parts of the cluster, involving all areas of production and economic activity of the cross-border region. A joint cluster for neighboring states, using the primary competitive advantages, receives additional impetus to create new factors that later become functions. But the creation and functioning of joint clusters of cross-border regions depend largely on the state policy of the countries in which they are created. It is possible to single out the basic directions of a cluster policy of cross-border regions concerning their creation and functioning: creation of a favorable investment, tax climate; application of the principle of subsidiarity, according to which tasks should be considered at the local or remote from center level, at which their solution is possible and effective; combination of interests of central and local authorities.

National regional cluster policy includes the following directions:

- identification and monitoring of the situation of economic clusters development at the territorial level, as well as determination of the cluster structure;
- territorial localization of its separate links, co-financing of analytical experiments of clusters development prospects in the foreign market, an estimation of a cluster detection on the territory and social sphere;
- formation of communication sites for potential participants of territorial clusters, as well as through their integration into the process of development and evaluation of regional development strategy;
- promotion of the consolidation of cluster members (as well as through associative forms), implementation of programs to promote cluster enterprises in foreign markets, conducting joint marketing research and promotional activities, implementation of educational policy agreed with the main representatives of the cluster, providing communication and cooperation of enterprises and educational institutions.

Table 1

Commodity composition of the trade of Odesa region with Republic of Moldova and Romania (2020) (%)

Code and name of goods	Moldova		Romania	
	export	import	export	import
I. Live animals; products of animal origin	3,5	0	0,1	0
II. Products of vegetable origin	3	11	5,4	0,8
III. Fats and oils of animal or vegetable origin	3,5	0	10	0,6
IV. Ready-made food products	17	10	1,3	4,3
V. Mineral commodities	0,4	14,5	0,4	32
VI. Products of chemical and related industries	6	0,19	0,2	17,4
VII. Polymeric materials, plastics and articles made therefrom	7	2,4	1,4	2,5
VIII. Raw hides and skins	0,3	0,01	0	0
IX. Wood and wood products	0,7	0	1,9	6,5
X. Mass of wood or other fibrous cellulosic materials	2,4	2,7	0,3	2
XI. Textile materials and products	2,5	0,3	1	0,1
XII. Footwear, headwear, umbrellas	3,2	0,2	4,6	0,3
XIII. Works of stonemasonry, gypsum, cement	4	2,9	0,1	2,3
XIV. Natural pearl, cultured pearl, gemstones	0	0	0	0
XV. Base metals and articles made therefrom	8,9	53,5	13	13,2
XVI. Machines, equipment and mechanisms	30,8	0,9	5	11,6
XVII. Vehicles for land transport, aircrafts, floating crafts	2,6	0,2	55	4
XVIII. Optical and photographic devices and apparatus	0,7	0	0	0
XIX. Various industrial goods	3,5	1,2	0,3	2,4
Total:	100	100	100	100

The conducted analysis revealed the peculiarities of the development of support mechanisms and outlined the directions of state regulation of clusterization. The majority of scientists understand cluster policy as the actions of state bodies at the national and regional levels aimed at supporting the processes of clustering the economy in order to increase the competitiveness of production. Cluster policy is defined as measures carried out by municipal and state authorities to create and support the development of clusters in certain areas and includes regulatory measures, investment, financial and budgetary mechanisms, information support. The objectives of the cluster policy are to increase the competitiveness and innovation potential of enterprises and individual industries, to develop small and medium enterprises and to promote the diversification of the national economy by means of stimulation and development of regional industry clusters. The main direction of the cluster policy is to strengthen the interrelations between economic entities-members of the cluster in order to simplify the access to new technologies, to guarantee optimal risk sharing, joint access to foreign markets, joint R&D, sharing knowledge and fixed assets, accelerating learning processes by intensifying the contacts of leading specialists, reducing the transaction costs of interaction by increasing trust between cluster members.

According to some scholars, cluster policy is a set of measures that can help in solving the main problems, such as:

- increasing of the competitiveness of the economy by means of development of competitive markets;
- increasing of the innovation of various sectors of the economy;
- accelerated small and medium enterprise development;
- encouragement of local initiative and intensification of cooperation between the state, business and the scientific community.

Cluster policy is defined as a system of state measures and mechanisms to stimulate and support clusters that ensure sustainable balanced economic development of peripheral regions and the country as a whole, innovation promotion, implementation of comparative (competitive) advantages of these territories. Government cluster policy should support the growth of existing or emerging regional clusters, rather than trying to create entirely new ones. At the same time, cluster policy involves shifting of the center of gravity from individual firms to regional systems of firms. This policy is based on the idea of "election of winners", as in the focus of attention there should be stimulating of the strong or potentially strong points of regional industry, as well as stimulating of social processes, such as cooperation between local partners based on trust, by means of knowledge sharing. The cluster strategy allows forming an all-round view of the state development policy taking into account the growth potential of the territories of economic entities. Moreover, it is based on the dialogue between key players in the cross-border region, the formation of an overall vision of common goals. The following groups

(blocks) of criteria are accepted as the main target parameters during realization of current competitive selection of pilot innovative territorial clusters: scientific-technological and educational potential of cluster; production potential of the cluster; quality of life and level of development of transport, energy, engineering and housing infrastructure of the cluster base territory; level of organizational development of the cluster. State support of the creation of innovation clusters means the following: creation of legal norms, development of specific forms and methods, interaction of government agencies, economic agents and all stakeholders that contribute to this process.

Support for the innovation clusterization should be carried out in order to: develop private initiative, growth of the intellectual potential of the region; sprawl the financial base of local budget formation; support skilled labor workforce, improve employment and life quality; create conditions to ensure economic, technological and information security of the region (Kovalenko, 2017).

On the basis of analysis of problems of cluster formation and development, it is possible to formulate the most important strategic directions of executive authorities aimed at stimulating cluster formation and development processes: creation of communication platforms and conditions to organize processes of coordination and mutual approval of cluster participants' interests; formation of an institutional environment that ensures free flow of information, people, assets and services between cluster members; development and implementation of small and medium business development programs forming the economic environment of services provided for the main enterprises of clusters; promoting of the formation of human potential which meets the requirements for the quality specification of personnel from enterprises of the cluster (training and retraining of personnel, attracting highly qualified personnel, development of the education system); maintenance and development of infrastructure necessary for the development of clusters: social, innovative, industrial, transport, information; creation of a regulatory environment providing transparency of the competitive environment, stability and transparency of market, including property relations, lowering of barriers to market entry, reduction of corruption costs, compliance with property rights; development of innovation environment: support for the creation of venture funds, technology transfer centers, business incubators, innovation and technology centers, technology parks, etc., stimulation of the development of small high-tech firms, improving their infrastructure; support of innovative potential of fundamental and applied research on the basis of state organizations; general assistance in the commercialization of R&D, etc.; financial support

(creation of state investment companies having interest in the reconversion of crisis enterprises and creation of new ones; granting preferences and benefits, etc.; promoting access to credit resources, providing benefits for the use of state property, etc.); presentation of clusters in the international and domestic markets; promotion of the integration of cluster system enterprises into nationwide economic processes; introduction of supervisory institutes for significant projects in the cluster; stimulation of the processes of cluster enterprises integration into general economic processes. assistance in the implementation of comprehensive technical re-equipment of prospective clusters production (Nordhaus, 1969).

The following methodological support for the formation of cluster development strategies of the Euroregion "The Lower Danube" has been worked out (Figure 7).

Target-focused stimulation of cluster enterprises from regional authorities of regulation and administration (which is practically not implemented today) is necessary at the current stage of economic development. Cross-border regions are characterized by the policy of creating a favorable environment for cluster development, which provides for the removal of administrative barriers, improvement of the business climate and development of infrastructure.

The analysis revealed the peculiarities of the support mechanisms development and outlined the directions of state regulation of clusterization. Cluster continuity can be achieved in terms of formation of such a system of state mechanisms that would contribute to effective

- formation of the state organized area, including the cluster creation, its development networks, business environment (or innovation ecosystem);
- regulation by means of consolidation of the activity of all interested in the effective development of clusters of economic entities of the territory. Coordination can be achieved through the initiation of new projects and support for nuclear cluster enterprises, as well as the use of various economic policy instruments.

- monitoring of the achievement of cluster and territory development targets, as well as the efficient allocation of limited resources.

The strategic goal of modern cluster policy is the development of these network structures on the principles of public-private partnership, where the state and business unite their efforts and interests. While supporting the creation and development of clusters, the state takes part in the implementation of collective projects based on the needs of business and the market, which significantly increases the efficiency of budget spending.

The place and role of clusters in the economy of the Euroregion "The Lower Danube" is determined

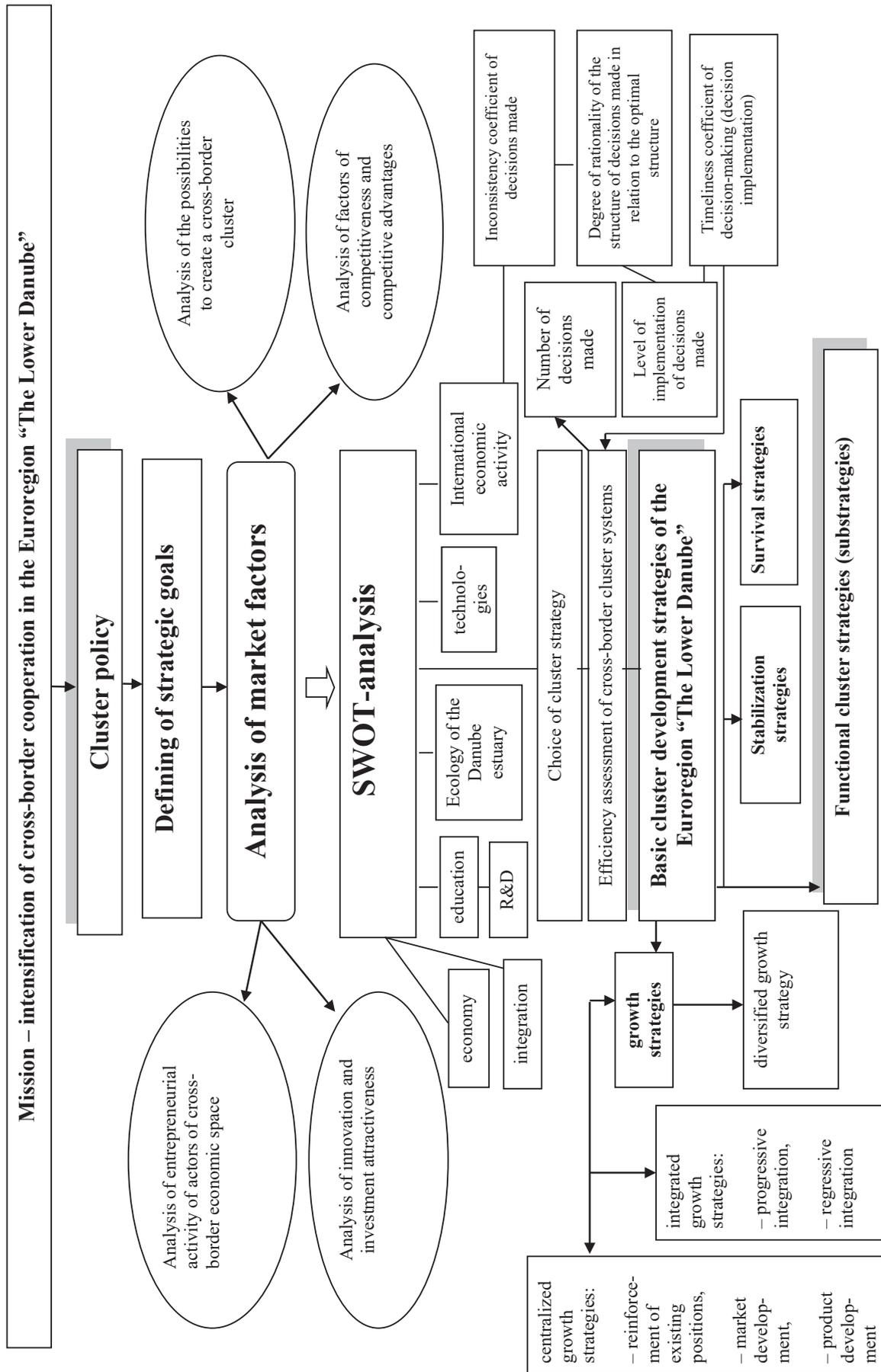


Figure 7. Development model of a cluster strategy for the Euroregion "The Lower Danube"

by their ability to satisfy the interests not only of business and the state, but also of the population. This requires the development of an appropriate task-oriented methodology which will make it possible to identify strategic niches for the development of the cross-border region, defining the priorities and mechanisms of Euroregional cluster policy.

Based on the study of trends in cross-border innovation space of Ukraine, it is proposed to form strategic directions based on cross-border cluster formation for the development of such problem-solving systems as "growth poles" and innovative "growth centers" of the Danube-Black Sea Euroregion. At the first stages of "growth centers" development the basic elements may be residents of free economic zones (FEZ), innovation incubators. For example, the growth ring of the Lower Danube is a cross-border innovation and education cluster that will bring together organizations (university research centers, business incubator, technology park, CCI branch and a number of SEZ venture companies) that will be both customers and core elements of the innovation transfer platform in the field of development of the maritime complex of the Danube-Black Sea Euroregion with the participation of companies from Ukraine (Danube region), Romania and Moldova.

Conceptual basis for cluster policy formation is the embedding in the European process of self-organization of innovative forms of cross-border cooperation based on cooperation, specialization, synergy, competition, which is the core of Euroregional development strategy, where functional and structural effects take place: growth of science-intensive economy, structural modernization formation of a new business culture and as a result – improvement of life quality and formation of a new creatively active personality (Jacobs, Jane, 2009).

The cluster development strategy of the Danubian Subregion (Romania-Ukraine-Moldova) has been set up to meet the common challenges which are faced by Member States and Third Countries located in the Danube Region and taking benefit from improved cooperation by contributing to economic, social and territorial cohesion. These issues cannot be considered at the national level only, taking into account their transnational and strategic nature. The strategy creates synergies and promotes cooperation and interaction of all stakeholders in order to make better use of available resources.

The concept of clustering is a vector of the Odesa region development to create innovative value-added products.

On the territory of the Odesa region 4 clusters are created:

Cross-Border Infrastructure Cluster "The Clean Danube" was created to prevent and eliminate emergencies caused by human-made disasters in

the drainage and sewerage system in the border area of the Danube Delta by means of:

- construction, reconstruction and modernization of the sewerage network and full repairs of water pumping stations in Izmail and Izmail district;
- reconstruction of the sewerage network and sewage treatment plants in Tulcea;
- taking into use the surface and wastewater quality control system based on their biochemical analysis at the Test Center.

Cross-border logistics cluster project "Development of intermodal cross-border communication on route Isaccea – Orlivka – Izmail – Tulcea". The project is worked out as part of the Joint Operational Program "Romania – Ukraine 2014–2020" and is aimed at restoring regular passenger traffic between Izmail and Tulcea (Romania) and creating additional conditions for the passage of goods and vehicles of the International Ferry RO-RO Service Isaccea (Romania) and Orlivka (Ukraine).

The project partners are: Administrative and Territorial Unit of Isaccea Municipal Administration, Romania, (Main Partner); Orlivka Village Council, Ukraine; Executive Committee of Izmail City Council, Ukraine; Administrative and Territorial Unit of Tulcea County through Tulcea County Council, Romania.

This project contributes to the development of the transport network (one of the priorities in the framework of European-Ukrainian cooperation), to the restoring of regular cross-border passenger service between Izmail and Tulcea (Romania) and to the creation of additional conditions for the passage of goods and transport.

The implementation of the planned infrastructure component is expected to increase trade turnover, to strengthen trade relations between Ukraine and Europe, as well as to increase the number of tourists. In general, this project is aimed at implementing a cooperation agreement signed in 2017 between the city of Izmail represented by the Executive Committee of the Izmail City Council and the county of Tulcea represented by the County Council of Tulcea.

Agro-ecological-recreational cluster in Tarutyne district "Frumushika Nova" and "Agro-industrial cluster on bee-farming development".

Agro-ecological-recreational cluster in Tarutyne district "Frumushika Nova" comprises:

- Scientific competency group on the development of steppe territories;
- Center for ethnographic, rural ecological tourism and open-air museum "Bessarabian village Frumushika-Nova".

Besides, in Odesa region, the pilot project "Agro-industrial cluster on bee-farming development" is being implemented, which is expected to improve the level of honey harvesting and processing and increase the marketability of the released product.

The project sites are Bilyaivka and Rozdilna districts for a period of 3 years.

Creation of a honey cluster will help to move to a new level of honey processing and to get the product of a high-quality. The project involves not only bee farmers, but also leading scholars, representatives of local and regional authorities.

The basic concept of creating tourism clusters is the intercoordination which means that different functional characteristics of entities implement a common goal, thereby increasing the efficiency of work, accelerating the achievement of planned results, introducing new technologies, allowing for raising of loan, initiating competitive principles in the distribution of contracts, forming the optimal structure of production, determining the priorities of development.

The tourism industry of Odesa region comprises several forms of clusterization:

- territorial clusters: tourist cluster of Odesa, agro-recreational-tourist cluster Frumushika-Nova, tourist cluster of Odesa region, etc.; it is planned to create a tourist cluster in Vilkove;
- functional tourist clusters according to types of tourism: cluster of rural ecological tourism, cluster of recreational tourism, cluster of wine tourism, ODESSACARD, cluster of medical tourism and others;
- situational (event) tourist clusters created for a specific event: festival, conference, exhibition, congress, celebration, etc.;
- sectoral clusters related to tourism: «Odesa Tourism» Association, Ukrainian Tourism Association, Odesa Association of Travel Agencies, Tourism Development Association «Great Odesa», museums of Odesa, etc.

Many clusters are being created and are operating in Ukraine, and the initiative for their creation comes from the business entities themselves, united into formal or informal groups for a definite purpose. Such clusters are created according to the "communitive initiative" concept and have no additional benefits and guarantees. At the same time, the concept of clusterization at the state level is becoming topical. Although the concept of creating clusters in Ukraine has not been adopted yet (though being developed), in a number of state development programs of certain industries and sectors of the economy, as well as in definite regional development programs, the cluster is recognized as an effective mechanism for economic development and increasing of the competitiveness of a definite industry or region.

7. Conclusions

1. Thus, the implementation of cluster initiatives is an integral part of the modernization of the economy of the Euroregion "The Lower Danube" at the present time. One of the modern concepts of increasing of the competitiveness of the national economy is the cluster

concept based on state incentives for the creation and development of clusters in the Euroregions.

2. Clusterization of the cross-border economy, as shown by the international practice, influences and is at the forefront of the processes of competitiveness strengthening and innovation accelerating. Therein lies a new economic phenomenon providing an opportunity to withstand the pressure of global competition and properly meet the requirements of national and regional development.

3. Transboundary cluster genesis is generally immanent to the Danube-Black Sea basin and is (for a number of peripheral regions of Ukraine and municipalities) a significant factor in their economic growth. The cross-border clusters created in the coastal zones are immanent to the economy of our country; their condition and characteristic features reflect as a mirror its defects of different aspects – either situational or fundamental, problem situations, "weak points" (from the actual unemployment of the "marine factor" in the territorial and economical dynamics, to outsize "raw material lopsidedness", moving out assets and profits outside the national territory).

4. In parallel to the monitoring, there should be built a system of regulation of cross-border cluster genesis, focused on both the support of cluster initiatives and the correction of cluster self-organization processes in order to neutralize their probable negative sides. Especially delicate and priority objective is the state support of possible areas of cross-border activity (tourism, agriculture, shipbuilding and ship-repairing, shipping traffic) in the Danube-Black Sea region.

5. The exclusive location of the Danube region and the low level of innovation potential contribute to the consideration of the region as a kind of "development corridor" between Ukraine and the EU with high importance of international relations, which in its turn requires effective implementation of Euroregional development strategy aimed at deep integration of the region into international processes at the same time preserving their identity as the subject of Ukraine. Cluster policy aimed at stimulating cluster initiatives with the further formation of cross-border innovation clusters can be considered as one of the effective tools for intensifying innovation activity in the Euroregion "The Lower Danube".

6. Thus, the creation of cross-border clusters in the Euroregion "The Lower Danube" with the participation of Odesa region of Ukraine is associated with the necessity to form a united cross-border area including, for example, a united transport and logistics network; a united chain of added value cost; a united scientific-technological and innovative space. At the same time, the state is given a leading role in ensuring a favorable cluster environment (including the reduction of trade barriers) and in stimulating international cooperation.

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