Cluster Form of Production Organization [1]

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The nature, content and conceptual apparatus of clustering processes, their relationship with the concept of new regionalism is uncovered. The methods of determination and competitive advantages, while creating cluster development enterprises, which constitute its structure, the formation of cluster policy in depressed regions are formulated. The criteria's that can be the basis of target selection clusters are adduced. The importance for the formation of industrial cluster atmosphere in the region and humanitarian infrastructure are presented.

Keywords: *Agglomeration, institutional saturation, institutional forgetfulness, infrastructure, cluster, competitive advantages, new regionalism, provincial region, industrial area theory.*

Problem setting. In economics there is a lot of "eternal" problems in all ages and for all people those problems do not lose their relevance. Production, land, wealth, labor, capital, demand, supply, price, income, expenses - these and several other categories of ages studied, deepening knowledge about them with reference to the conditions of human existence for some time. Among them equal place on the value of performance is problematic due to the organization of production, which since the days of Platon representatives of Social Sciences showed great interest. However, it gave new meaning to Adam Smith, his system of production included the territorial factor and substantiate the thesis that the division of labor opens the possibility of public welfare within a limited area. He showed the existence of a threat to nations that lack the capacity for organization or for other reasons are not able to use the most appropriate advantages of their residence.

Factors that encourage progress in local border production systems, were investigated Marshall in the second half of the XIX century. In "Principles of economics» (Principles of Economics, 1890-1891), he showed that reasons of localization may be the natural conditions and the patronage of the court. Last thing nowadays can be interpreted as the creation of conditions of the government for capital inflows. Around specialized subsidiary companies arising from the supply of basic tools, materials and means of communication. This simplified considerably complicated today, but in a general sense it is obsolete. Moreover, in the context of globalization has worsened the territorial organization of production, creation of alliances and mergers of companies which are able to integrate the universal and local-territorial advantage and achievement.

Analysis of recent research and publications. Problem development of cluster based territorial distribution attracts many foreign workers, especially those working in the concepts of "new international economics", "new international trade" and "new economic geography". Among them Becattini, Boschma, Brennan, Breschi, Duranton, Elsner, P. Krugman, Cooke, Lundvall, Malerba, Audretsch, M. Porter, Puga, Storper, Feser, M. Feldman, Hill and others. Mostly - its researchers which in their publications covered certain secluded area of cluster organization.

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Problems of cluster policy has caught the attention of Ukrainian scientists and practitioners. For the implementation of clusters most famous work represented by A. Annenkov, A. Varyanychenka, M. Voinarenko, N. Vnukova, V. Geets, B. Zheruha, V. Zaremskoho, V.Zakharchenko, V. Ivchenko, I. Kosach, A. Kuzmin , A. Melnuk, A. Olejnik, B. Paton, S. Sokolenko, C. Stupak, L. Fedulov, O. Himenka, O. Yashkin. Clustering covered in publications of regionalists, especially in the cross-border cooperation, particularly by I. Bakushevych, N. Blazhevych, N. Vnukova, V. Demchenko, T. Miller, N. Mikula, V. Podvysotskui. However, existing works not systematically analyzed and summarized the results of studies of foreign scientists. Nevertheless, the analysis of the fundamental issues associated with the theory and methodology of cluster formations functioning and adaptation of Western models for Ukraine is not performed.

The purpose of the article. The development of theoretical and methodological principles of cluster operation production systems and their integral representation.

The main material statement. The globalization of economic processes not softened the importance of the relationship, consisting locally. Vice versa, the need for finding new forms of localization of economic relations in the sphere of production, capable being organic, but also a relatively autonomous part of the global economy was intensified. These currently include such form as clusters, which although there been in economic history, but gained significant importance in our time and require new thinking to meet the challenges of today. This task is implemented within the concept of "new regionalism», which is particularly popular among economic geographers and representatives of related sciences [6, 327-344, 19, 379-395, 21, 804-829, 22, 293 - 311]. This is a statement that regional development should be based primarily internal competitive advantages that are realized in the local economy and the benefits of cross-sector production under transfer of significant powers of regional authorities. They reborn in diversified corporation that competes with other regions in creating favorable conditions for economic activities according to the laws of science, information and innovation potentials.

However, according to some estimates, yet has been not enough deep publications that would be critically analyzed the theoretical and practical components of the cluster concept in the system of new regionalism [8, 959].This lack of research is partly due to the present situation, which remain "cluster" in a row of fuzzy number and randomly interpreted concepts, which lacks scientific clarity and consistency. Finally, in terms of Steiner, "pretty fuzzy nature of clusters creates problems of developing their theoretically sound definition, empirical evaluation, recommendations for policy and evaluation of its effectiveness" [33.1]. Despite this situation, the generally successful practice of using cluster approach in the management of regional and local economies gives enough reason to give it priority in comparison with previous forms of local production systems.

The relationship of new regionalism concepts and cluster system of spatial organization of production takes place in terms of general and special. Theory and practice of new regionalism developed primarily as a global trend that manifests itself at the international level. Its form is a collaboration of governments and non-state actors from the field of business and civil society [See. 39, 26]. The concept of new regionalism reflects multilevel processes in international relations in certain segments of the global space. They are versatile and can develop both breadth (like BSEC) and deep (according to the movement of the "Europe of regions" within the European Union). Cluster form of

production systems organization in the concept of new regionalism should be seen as the economic component of the territorial distribution of production due to the interests of the region in terms of providing a high quality life.

Cluster organization of production under current conditions gets acknowledgment at national and supranational levels, confirming the growth of its role in the world economy. This was reflected in legislative and governmental decisions of a number of European and North American countries. Among them Government's Department of Trade and Industry of Great Britain [10], Organisation for Economic Cooperation and Development [28], and the European Commission [12]. These measures directed to support R&D [2], forming staffing cluster organization, attracting venture capital, development the cluster identity among joint ventures. September 4, 2012 came into force the Law of Ukraine "About the industrial parks," over which the Parliament lasted four years and it works within the rules which would create the first ten industrial parks.

People, that supports cluster form of economic relations focusing their efforts primarily on the use of the competitive advantages of geographical proximity entities to ensure high productivity and its growth and leadership in innovation. The basis of all discussions about the meaning of the cluster were identified by M. Porter, which was formulated by him back in 80th years of the last century. In his vision, "clusters - a geographic concentration of interconnected companies and associated institutions in a particular field. Clusters encompass a series of connected industries and other entities important from the point of view of competition. They include, for example, suppliers of specialized inputs - components, equipment and services, and providers of specialized infrastructure services. Clusters also often extend vertically - down the value chain - all the way to distribution channels and buyers, and horizontally - to manufacturers of complementary products and companies in industries related by type of labor, technology and production resources. Finally, many clusters include governmental and other institutions - universities, agencies on standardization, think tanks, suppliers from the field of vocational education and trade associations - that provide specialized education and professional services, information, research and technical support "[30, 78] . Taking as a starting point the determination by M. Porter, we can develop the idea of a cluster due to variations in a business combination for local or regional, sectoral or intersectoral, national or international, knowledge oriented or applied principles. In the same time, it should be accepted viewpoint of M. Porter, that clusters can be tied to the region or appear at the national level.

Development of cluster production organization in the qualitative and quantitative aspects attracted the attention of various specialists. It is clear that the first thing it was the object and subject for researchers in economics and geography, which in their multitude more members of other branches of knowledge investigating clusters. It is noteworthy that in the studies of economists emphasis is done on sectoral and intersectoral relations and inherent in competition [1, 630-640, 29, 30, 76-90, 38, 121-140]. On the other hand, for geographers with regard to professional competence, is important the issue of agglomeration economies in industrial area and the spatial concentration of production and business [9, 225-237, 25, 293-313] cluster policy of peripheral (depressed) regions.

Looking on the history of economic thought the concept of geographical cluster theory grew out of the industrial area (Industrial Districts) and formed on the idea of development within the rigid

[2] Research and development work.

territorial limitations. This solved the problem of finding such competitive advantages, which cover the competitive benefits of an open economy. Authorship of industrial area theories recognized by Alfred Marshall, who identified two efficient production system: large, vertically integrated production unit and the concentration of many small factories that specialized in carrying out certain phases of the overall production process within a defined territory. Deepened development problems in the area of industrial research “postford” flexible specialization G. Bekattini. In his interpretation, they take the form of functional density in industrial agglomerations, in which are integrated interests of society and business. [3] For industrial agglomerations, their benefits under the concept A. Marshall formulated modern researchers in three positions to reduce costs of local origin: the growth of intermediate and ancillary industries that provide specialized services, the development of a pool of skilled labor, creating the necessary infrastructure and other collective resources [24 , 429-449]. Being somewhat beyond generally accepted economic theory, agglomeration has become a major theme in studies of cities and regions. According to the traditional concept Marshall agglomeration advantages lie in lower costs arising as a result of three types of "economies of placement": the growth of various intermediate and ancillary industries, providing supply specialized resources production growth of skilled labor, creating targeted infrastructure and other collective resources. This approach is complemented by factors present knowledge and information spillovers [24, 429-449, 37]. However, in the context of the intended transition to a knowledge economy, in more modern works a different approach is used, which emphasizes the effects of knowledge and information flow.

Organization of cluster production systems in our time requires determining their competitive advantages and creating the system of using them. The current practice of solving this problem is based on the so-called "Diamond" model of competitive advantages also known as the "diamond of competitive advantage", developed by M. Porter, which is based on statistics of more than 100 companies. [29]. M. Porter system defines the key elements of the environment that affect its international competitiveness. It is clear that the formation of the cluster and process management has explored the potential of competitiveness, which is provided by elements of diamond. Their interpretation in relation to the cluster identified by K. Shtainle, G. Schiele, and K. Mittsner which follows [34, 237]:

1. Factor conditions can be divided into "basic factors" such as natural resources and unskilled labor, and "higher-order factors" such as highly qualified personnel, for example engineers and scientists. Competitive advantage depends largely on the availability and effectiveness of higher order factors that are unique to clusters and are difficult to imitate by other actors.

2. Terms of domestic demand, which are reflected in its size and complexity. This is a knowledgeable buyers with information on international trends, are able to influence the quality standards, the amount of innovation and technological progress of the state as a whole.

3. Related and supporting industries, which can be used for the exchange of ideas, knowledge and skills. Availability of local suppliers and companies that use similar or identical technology to produce complementary products, provides the ability to create cost-beneficial cooperation, such as joint ventures to develop R&D projects.

4. Firm strategy, structure and competition play an important role in the diamond model of M. Porter. A strong base of local competitors is one of the main incentives for innovation and modernization.

These four determinants are forming a correlated and dynamic complex where each element affects the other three. The simultaneous presence of all factors and dual direction interdependence between all determinants leads to the formation of an environment conducive, which promotes the formation of clusters.

Creating clusters - this is not a mechanical process that provides a change of participants partnerships, giving priorities to regional or local firms to place orders and so on. Cluster organization causes usually a need of greater or lesser change in the internal organization of enterprises-members of the association, its goals and mission. First, enterprise leaders trying (and often unsuccessfully) to assume the additional orders. At the same time, they form or enlarge to themselves and in certain forms of subordinate subcontractors. Relatively new in this process is the formation of business groups acquired or newly single owner businesses, despite industry and quantitative differences between them.

By economic science at present time there is no developed theory under which it would be possible to predict the impact of cluster organization for the development of enterprises that constitute its structure. Apparently, more for the firm this development reflected in changes of the internal organization, size, number of employees, management and so on. They carried mainly by empirical analytical calculations and studies, which are based on experience and organizational knowledge. Often the changes are not perceived by available resources of company and its management. Therefore, many enterprises usually from which formed a certain cluster, despite their different subject specialization, legally belong to the same owner. This provides acceleration of cluster formation and adjustment of its effective functioning.

Therefore, studies show that the formation of business groups occurs in two ways: the creation of new companies or acquisition of existing, which is a testament to the impact of industrial agglomeration on organizational forms. This trend wider prevalence groups within industrial areas than abroad. In addition, groups in industrial districts are less diversified and more spatially concentrated than groups beyond [4, 508].

Cluster forms of organization have not yet reached this level of development, which can not take into account national peculiarities, as is typical for the economy of multinational companies, the difference between them is determined mainly sectoral factors. That is why economics popularized the idea of "templates - emplates» national cluster that developed by Fezer and Bergman [13, 1-19]. The basis of their theory is providing “faktorocreating” values prevailing in the region linkages defined by M. Porter [30, 76]. When you create a cluster, they serve as a "roadmap" for planners of regional development as those who have mastered the strengths of the area and can "cooperate" with companies new to it’s sectors. Thus all members of the cluster are able to do receive an effect that has triple sources: industry competitive advantages, competitive advantages of the region and synergistic derivatives. This cluster strategy should be based on competitive advantages of the region without losing the advantages of sectoral with the obligatory "cultivation" and the formation of new activities.

As the U.S. experience shows, the use of national cluster patterns has great prospects in regions experiencing fewer clusters. For the U.S., this are textile clusters in the south-eastern regions [18, 317]. Center for Economic Education and Research of Cincinnati (Cincinnati) Ohio State that has identification of industrial clusters in order to focus efforts on economic development, formulated six criteria that can be the basis of selection of target clusters [is given by source: 18, 317-318]:

• cluster should provide a high average wages, positively impacting local revenues;

• cluster should provide a strong base of employment (percentage of employees in a particular cluster region) for success (except for those regions that are trying to shift to another industry);

• cluster should cover the area that are not limited to the development of local economy and create or expand export base to attract outside capital to the region, contributing to its economic development on the basis multiplier;

• cluster should include highly public enterprises and local authorities, indicating its strong presence in the region in relation to the national economy;

• cluster should contribute to the growth of employment population. Connectivity cluster development of nationwide process creates conditions in order to "catch the wave", which will boost the local economy;

• cluster should contribute to a significant increase in the economy, due to the use of local factors (local national growth minus growth).

In developing of cluster policy local level are taken into account the size of the country, branch branching economy and regional specialization. This causes the need for determining the number of clusters and their specialization. For cases when certain areas of the country is concentrated placing the majority of the industry, thereby previous economic development by itself causes based cluster policy. Especially this condition is important for well-known and internationally competitive clusters. This technique has been successfully used in Brazil for large clusters, and for local production systems regarding aviation cluster EMBRAER in São José dos Campos, in the field of telecommunications equipment in Campinas and several other clusters in traditional industries such as footwear, furniture, ceramics, textiles and clothing. For Ukraine it can be adopted in clusters aviation, metallurgy and some manufacturing industries. In general, the formation of organizational associations cluster type true in science-oriented sectors and sectors with real growth prospects on the use of the ideology of "economies of scale". Concerning the traditional sectors, for them this legal form is not essential.

In the development of cluster problems undeservedly little attention is paid to the territorial aspect. Today we can not entirely satisfied with reference to M. Porter regarding limited cluster certain territory. As a rule, this statement is hidden subtext that the creation of the cluster is elected defined administrative unit. Epistemological roots of this understanding lies in the practicality of the founders, which is easier to deal with a minimum range of officials. However, the success of the cluster should take as basis for flexible approach. Since their premise should determine its own territory, the borders may not coincide with the administrative division. In the spatial approach should prevail delimitation of territorial competitive advantage that you can use for the successful functioning of the cluster. Among them may be such next: avoiding high costs in the dense urban environment, transport facilities, availability of skilled labor, access to information resources and more.

A.Marshall has noted the tendency of transition from dominant significant relations firms of one industry to the formation of small, committed to each other and vertically integrated group of companies, which, through collaboration form a kind of "export economy". Marshall Cook summarized the idea as one that is based on three key elements of proximity: territorial concentration subcontractors; freely available skilled labor, rapid formal and informal communication through shared knowledge base of firms, employees and society. Marshall described the concept of collective knowledge within industrial zones term "industrial atmosphere", which you can also define using the phrase "knowledge [about production] hovers in the air." [See.: 5].

Pondering the meaning of the concept "industrial atmosphere", it should be noted that for A. Marshall, it has predominantly intellectual and spiritual content. For him it is predominantly socio-economic climate that exists in a particular location with its formal and informal customs, traditions, direct and indirect involvement in production and business. For example, in Ukraine this kind of knowledge in the field of coal industry characterized population of Donbass, marine affairs - Odessa, forestry - Ivano-Frankivsk, vegetables - Kherson, sugar beet and potato - Ternopil and so on. Without rejecting the industrial components of the atmosphere of the past, nowadays territorial space constraints in the form of clusters is crucial, provided in the "industrial atmosphere" prevails pervasive taste of creativity. Movement of capital and manpower focused on attractive "industrial atmosphere" and its territory directed their streams.

Understanding the feasibility of creating an attractive investment climate expands orientation of government in setting up the conditions for business on a national and regional or even narrower - local areas. In this respect, developing a form clusters, in which area and administrative area forming systems achieve the best results in the competition for the development of high-tech industries and products. Active participation in the cluster are primarily of small and medium enterprises. However, multinational clans are not remaining aloof of this form of production organization, looking for cooperation with cluster companies new competitive advantages of local character.

Cluster form of production is particularly after it found very effective in the use of new knowledge and the development of innovative technologies and products. Experience in USA Silicon Valley showed that within the global circulation of scientific and technological achievements to local leaders singles out areas around which formed highly local production systems that become successful in global competition. Lesson in Silicon Valley provides an understanding that in innovation clustering advantages for firms can be detected in the formation of specialized agglomerations with a sufficiently broad geographic network. Firms with the location in the center of the cluster should use local assets, borrowing both global resources with the key flows of knowledge, information and skills.

The viability of innovative clusters is largely dependent on humanitarian infrastructure. Particularly important role in the functioning of clusters play a scientific and educational institutions that have a unique value for local development. Ideally, in those areas, covering a cluster of scientific and educational institutions to establish itself among the global leaders. Besides offering for cluster firms the new ideas they get from business orders, experimental basis and funding for the development of research and training activities.

Above showed quality of cluster organization can be particularly important for Ukraine. With the reduction of funding for science and education, on the one hand, and increasing accountability of local authorities by reducing unemployment and creating new jobs, especially for young people, should focus on the search for reserves formation of local industrial structures regional character. The most promising in this respect is to promote and encourage university research in the development of innovative new products and forming on the basis of their results of new productions. In this regard, cluster policy should take into account international experience on the development of regional centers around a new generation of professional research firms and universities. A key factor may be the inclusion of trans-disciplinary research networks that have sufficient resources to develop as a significant component of its regional policy in the field of science.

Considering the relationship of cluster organizations, scientific and educational institutions, we can’t absolute values of the local dimension in their relationship. Studies show that a high level of

competitiveness can be ensured if well developed external, including international relations [7, 1689-1706]. Thus, analyzing the activities of the cluster software Oslo Isaksen shows that at the initial stage of the association very important are a direct contact and interaction between consulting firms, customers and suppliers. Spatial proximity facilitates knowledge sharing face-to-face. However, these benefits for the "new" cluster should be considered as "embryonic", those who are at an early stage of development, provide access to specialized labor markets and local infrastructure, suggesting that gradually created the potential to be used and further growth will require the development of foreign economic and broader institutional support [8, 966].

In economics "white" spot remains the problem of cluster policy peripheral (depressed) regions. The vast majority of scientists focuses on finding the forms and mechanisms of creation and functioning of clusters in developed regions, with strong R&D and manufacturing resources. Concerning depressed regions or regions that through some new trends emerging from crisis and need revival at least in the traditional areas of activity, the adaptation cluster forms to their enlargement objectives developed too weak. Currently, in the literature on regional issues one of the dominant point of view is that the economy can revitalize disadvantaged areas through appropriate policy knowledge and innovation [Top of this research work was carried out in 5, 14, 527-536, 27, 491-504]. Developed as research in restoration of old industrial regions. For them, as the analysis problem is often not so much the lack of adequate institutional saturation (institutional thickness), as the legacy of collective thinking, based on old technology and "production routine» («ways of doing») [See.: 2]. Hit to this point by G. Hrabherom defined notion of "cognitive lock" [16, 1-31]. Way out is clear: cluster must adopt innovative solutions to a higher level, providing a way out of its traditional creative fields. It means, that should be taken away old habits, that kind of release from the past, that in his authorship Johnson called “institutional forgetfulness” [20, 20-43].

The initial conditions for the development of regional clusters often have to play the classic version of their origin or creation [11, 99-129, 25, 293-313, 26, 410]. For this should be clarified the possibilities of cooperation within metropolitan business region, despite the presence of competition between them. An important part of cluster policy should be the formation of a network of local service providers and customers for large enterprises from outsourcing to a certain range of their functions. A special role is played with universities and research institutions, which must involve the formation and implementation of innovation policy businesses and the wider region. As a consequence of these processes we should expect of all sorts of small and medium enterprises. Finally, composed a system of vertical or horizontal cooperation within the region.

New theoretical approaches on which the shares are made to create a cluster of production systems are based on the concepts of evolutionary and institutional economics and transaction. With this in mind, often used theoretical system of flexible specialization, social construction, domestic, local or regional labor markets, regional networks and focused on the environment model. According to the regional level, can be used three approaches to create clusters. In publications of Hanson, Hlezera, Scott, Shtorper develops the idea of functional organization, in which dominated flexible specialization and cooperation in scientific and technological development [15, 83-98, 17, 477-494, 32, 215-232;]. Another option presented in the researches by Bramanti, Harrison, Gordan, Johnson, Gregersen, Morgan, Ratti, Shtorper [27, 491-503, 31, 35, 407-422, 36, 479-490]. It consists in introducing of social and creative collaboration that focuses on regional patriotism based on exchange of information in personal relationships and building an environment of trust. Among scholars of

economic geography disputed locally-dimensional shape of cluster systems [23, 40]. They give priority to physical factors and cultural advantages of territory, taking into account its business climate and the willingness of the general public to change.

Conclusions:

1. Discussions around the issue of cluster organization production systems functioning developed in the European and American scientific literature with a focus on new challenges that characterize the world economy. They are associated with theories of "new regionalism" and "new geography". This produces an organizational mechanism in which, without losing the advantages of using the benefits of globalization, utilized the competitive advantages of geographical proximity entities to ensure high productivity, its growth and leadership in innovation.
2. Formation of clusters necessitates changes of partnerships for the benefit of local enterprises subordinate enterprises-allied leaders, business groups with acquired and newly established firms.
3. The criterias that determine the feasibility of establishing cluster are including providing high average wage, expanding employment base, creating export potential, involving its members business leaders of the national economy, and the growth of the local economy.
4. In clustering politics the focus should be provided for using of new knowledge and the development of innovative technologies and products that are suited mainly by humanitarian infrastructure, especially scientific and educational institutions.
5. Clusters are considered as an effective form for depressed areas development and revitalization of old industrial regions.

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