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Cluster – Definition and Stages of formation

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Abstract. Infrastructure development should be in accordance with the principles of social equality and taking into account the social labor. Deserves special attention as the development of science and culture. What needs to achieve the performance of other countries in the near future to meet all kinds of social economy.

Keywords: Cluster, technology development, resources, regional cluster, cooperation, subclusters

Introduction. Efficiency of the national economy, the use of its resource capabilities depend largely on regional development. As world practice shows, the most powerful tool to stimulate the regional economy, a means of achieving the objectives of industrial policy, including structural changes, innovation, and as a consequence, increased competitiveness, is the cluster approach [8, 13]. Thanks to cooperation and competition as the basic principles of operation of cluster networks, to ensure complementarity between industries, technology development, dissemination of information relevant to the business. For the strategic management of enterprises formed due prove decisive in determining the direction of innovation, improving employee performance, reduce production costs and as a result, in the competition. Clusters "in better agreement with the very nature of competition and achieve competitive advantage sources" [9]. Clusters vary in size, breadth of coverage, the level of development, depending on the industry. Nature clusters allows you to change their boundaries as new companies and industries with the development and changes in business conditions. According to M. Porter, clusters are equally effective in large-scale, and in a small economy, urban or rural area. Recently, particular attention is paid to the search criteria, which can diagnose the presence of clusters in the economic environment. Most often the following features called cluster [6, 8, 9, 11]:

- clearly defined boundaries (region) is located of the cluster;
- you can select the final product group;
- market share of the cluster corresponding production exceeds the average proportion of the gross regional product (GRP) this market;
- growth rate of production cluster above average GRP growth rates;
- competitiveness of the cluster does not yield corresponds to sectors other countries and regions;
- in the cluster includes companies supported refining industry;
- participants cluster common threats and opportunities;
- between enterprises cluster develop Institute formation- and marketing communications based on modern technologies within interregional economic integration formed the deficient links in the value chain;
- exist in the system properties of common standards for the production and management, actively developing cluster ITATION brands.

In essence cluster is a network structure formed on the basis of cooperation between enterprises and organizations in the creation of a particular product, so the scale of cluster formations are essentially dependent on the specifics of the final product. Porter [9] emphasizes the funda-

mental difference between the clusters of other hybrid forms of coordination, consisting in large numbers of repetitive informal contacts that promote the establishment of trust, effective communication, reduce transaction costs. A cluster is a form of industrial networks, the characteristic frequency and strength of interaction between enterprises, resulting in an additional "social capital" facilitating access to resources. The essence of the cluster – the development of effective communications. the formation of clusters is heuristic, that is held by the generalized heuristic search algorithm technical solutions, which subsequently leads to the emergence and development of an efficient network structure capable of producing a highly competitive product.

Methods of determining the cluster, according to Porter [9], consists of three stages:

1. Set the cluster: it is determined by the kernel - a large firm or a group of similar firms from which vertically built workflows mutually interrelated with them below and parent companies; defined production passing through general canals or create by-products and services; formation with ethyl additional horizontal chain based on the use of common factors of production, technology and supplies. Experience shows that definition Borders of clusters is one of the most difficult tasks and always reflects the goals and conceptual approach of the study;

2. Distinguished group of education within the cluster pa, especially organizations that provide specialized skills for him, those information, capital and infrastructure - all that is the basis of competitive advantage;

3. Determined by the government and other laws confi structures that influence the behavior of participants cluster (forming rules, regulations, incentives to depends on the nature and intensity of competition).

Clusters are used for the diagnosis, as a rule, high-quality tools: Delphi technique, focus groups, local surveys, gap analysis, strategic cross-sectorial analysis, etc., and to evaluate the results of their development - quantitative factors localization, economic modeling, network analysis and so on.

1. Preliminary work:

- analysis of the region or industry to determine the relevance of measures for their innovative organizational and project development;
- compiling customer (usually administration) technical specifications for the development of programs of organizational innovation- Project Development sectoral / regional the cluster;
- familiarization with the legislation in force in support of innovation in the region industry.

2. Analiz sectoral / regional cluster:

- providing evidence that the selected cluster does meet all the requirements of sectors left / regional cluster;
- conducting clustering (emphasis sub clusters in the cluster) and drafting by its results you sectorial / regional cluster.

3. Obrabotka results of the analysis of sectorial / regional cluster:

- definition of goals, objectives and functions of top managers Cluster and sub clusters;
- development and justification of specific innovativation infrastructure elements of the cluster and sub-clusters [2].

At the stage of preparatory work going on to identify the strengths and weaknesses in the operation of all business entities (CX); confirmation synergies between them; presence or absence of potential for development of the region or industry.

During the analysis phase of sectorial / regional cluster must be proven compliance highlighted the main features of the cluster (synergy, cooperation ties, homogeneity). In a prospective cluster determine the nature of the links between SH: cooperation (partnership), competition (Paperback - rivalry between homogeneous economic entities operating on the same level with rigid - it is based on the struggle for the buyer's choice); presence or absence of a synergistic effect between the CX.

Mapping of regional / sectorial cluster conducted in accordance with the following requirements: sub clusters separated based on the type and level of activity of CX; they must meet all the characteristic features of the cluster: homogeneity, the presence of cooperative ties and synergies, to interact with each other to form the innovation chain. With this in mind, is applied to the CX identified region map. When all groups according to organizations, businesses or institutions featured cluster, they are considered as sub clusters interconnected through innovation chain (development - development testing - industrial production).

It is generally accepted that the cluster is inherent synergies. By definition, it arises from the use of the features of partnership: cooperation mechanisms such as business networks, strategic alliances, a combination of cooperation and competition. Interacting enterprise benefit by having the opportunity to share best practice and reduce costs by sharing the same services and suppliers. In [14] identified the main conditions that allow the cluster formations pursue synergies: flow of knowledge in the cluster; increment cash flow due to the addition of cash flows enterprises in the cluster; joint use of infrastructure; reducing transaction costs.

Based on the theory I. Ansoffa [1], can be attributed to a cluster of four types of synergy: synergy of sales (the same channels of distribution, warehouse management, sales in one center); operational synergies (efficient use of fixed and working capital, labor, overhead distribution costs, etc.); investment synergy (sharing of fixed assets, total stocks of raw materials, transport costs from one product to another, and so on); synergy management (leadership competence, manifested in the development of new products or entry into a new strategic economic zone).

Synergies difficult to quantify, but a way to measure its individual aspects. According to I. Ansoff [1], synergistic effects are grouped by functional departments: general

administration, research and development, marketing and operational activities.

Approach to identification and formation of clusters includes assessing the growth potential of the cluster enterprises and improve their operation generates 4 stages.

At the first stage, the analysis and diagnosis of conditions of formation of the cluster, the definition of motivation of potential participants, their state capital and resources, assessment of the prospects of further development of the participating enterprises.

At the second stage the mechanism of formation of the cluster structure: Identify actual and potential participants interested in the integration process, outlines strategies for cluster - corporate strategy and culture cluster, complexity, integration relationship.

In the third stage the cluster structure, set its organizational structure, the extent of joint activities, norms and rules of interaction between the participants.

In the fourth stage, the assessment of the socio-economic benefits and further development of the cluster structure.

To create clusters proposed comprehensive assessment of development and production industries in the region. Classification of industries and industries on the regional economy developed and the least developed on the basis of the complex criterion, calculated using the sum of places and absolute and relative indicators characterizing the activity of the studied plants. To determine the degree of development of industries and sectors in the region by the expert established indicators: profitability, labor productivity, capital productivity of capital and the number of advanced manufacturing technologies. Highlighted in the following stages of development of a comprehensive assessment of production and industries in the regional economy:

1. Specification of goals and objectives of a comprehensive comparative evaluation of the Executive Development manufactures and industrial sectors in the regional economy;
2. Selecting the original scorecard for wire integrated assessment based on one-pointedness evaluated parameters, providing influence on increased development of industries and enterprises;
3. Collection and processing of initial information on the activities of production and completely industries, finding in the region;
4. Values calculated on the basis of particular indicators used output data within the parameters that have influence on improving the efficiency of the development of industries and enterprises;
5. Determination of reference values of parameters subject to the conditions: select the maximum (minimum) value of all aggregate.
6. Identifying and ranking rank sum places indicator values by Species economic The activities of.

Such a study of the economy of the region to determine the necessary conditions and the priority sectors of the cluster formation.

Of particular interest in the concept of cluster management of regional economies noted in light of the increasing role of foreign trade in the socio-economic development of the regions, as it allows you to define the

priority sectors with economic potential and contribute to improving the competitiveness of foreign trade.

Evaluation of sectorial specialization of the region and its development trend analysis conducted including factors localization output, employment, productivity, investment in fixed assets, foreign investment, exports and imports. On the basis of factors determine the value of the industry to the regional economy: export-oriented, import-substituting industry or for regional needs. To assess the commodity structure of foreign trade proposed use coefficients Grubel - Lloyd (level of foreign trade by commodity groups), Balassa (level of intra-industry specialization in foreign trade by goods) and comparative advantage index - KSA (structure of foreign trade) [3]. The calculations formed by a group of goods whose production is a priority for the region, and identifies basic enterprise, enterprise suppliers and subcontractors. Identification of regional opportunities involves the assessment components of a business climate or determinants model "Diamond." Based on the analysis of regional opportunities and evaluate the structure of foreign trade turnover is the formation of clusters.

Thus, the above approaches to the construction of clusters in varying degrees, can accommodate both algorithms, determining the attractiveness of and prerequisites for the development of the cluster "top - down", and the identification of clusters "bottom - up." All of them are variants of methods M. Porter and include [2, 4, 5, 7, 12]

- setting goals and objectives of a cluster as a basis for the development of enterprises production region;
- comprehensive comparative evaluation of the development of production and industries in the region to identify the most competitive and containing preconditions for development cluster structures;
- clustering algorithm development on the regional level, diagnostics already existing sub cluster formations, revealing their structure and relationships;
- typology composition participants cluster (scientific, territorial, sectorial) and the formation of the cluster structure, depending on its type;
- establishment of spatial boundaries of the cluster;
- definition of scientific innovation bases times the cluster development;
- develop a mechanism for effective development of clusters, (aggregate economic justification processes directed on achievement purposes);
- establishing the extent of joint activities, norms and rules of interaction between the participants.

Goal. Discusses the advantages of cluster structures, in particular the cooperation of production, the list of basic mechanisms which follows:

1. Expensive - distribution, allowing rationally use the productive capacity of all firms involved in the process of co-operation on the basis of sub-contracting and outsourcing.
2. Co-operative credit-based on firms mutual crediting cluster members, as well as guarantees and warranties in the case of long-term stable cooperative relations;
3. Tax and optimization.

4. Innovation, involving use mechanisms concessional Technology Transfer and well as cooperation in the R & D process.

5. Information that has two aspects: brand mechanism allows the use of the pre property famous brand all stakeholders cooperation; Communication - involves the formation of a common information space for both sintered effective communications.

Measurement of cooperative effects may be achieved by a system of indicators, such as increasing profits, reducing costs, reducing the need for investment, reducing the time the goals, etc.

At the regional level of government may use the mechanisms that contribute to the formation of cluster formations. In this case, there will be a reactive clustering - clustering as a reaction to the economic system to change the business environment by creating conditions for their development in the priority areas. Every major cluster may represent a system of small clusters, which compete on a limited regional market, but may join forces under the influence of external factors, such as for entering the national and international markets. In this case there is a projective clustering initiated by participants in economic activities in order to improve the competitiveness of each of them on the basis of synergy benefits. [10]

Result and discussion. Thus, the methodology of diagnosis and cluster development should include principles of strategic objectives, a conceptual model of a cluster, stages of development and implementation of the mechanism of cluster initiatives. In view of the proposed approaches can identify the main stages of clustering of the national economy:

- justification of the priority sectors, regions and technologies, based on which the cluster can be created;
- search existing microclusters and the definition of the indicative list of the most competitive enterprises capable of (existing in the region, created, border), which may be included in the clustercluster design and management structure based on public-public partnership;
- forecasting economic, social, and ecological scientific information the efficiency of the cluster based on public, private domestic and foreign investment;
- development and approval at all levels of strategic energy cluster development and appropriate incentives (special economic zones, participation Institute investment funds, tax and other benefits);
- development and implementation of a plan to create a cluster as an investment program involving financial instruments, construction of infrastructure, government contracts for the development of new technologies, training.

International practice shows that the clusters do not arise out of nowhere, their success is due to the presence of objective presuppositions, budgetary, fiscal, monetary and customs incentives, favorable investment climate. Policy formation of regional clusters as the basis for improving the competitiveness of countries have already brought positive results in a number of countries with economies in transition.

REFERENCES TRANSLATED AND TRANSLITERATED

1. Ansoff AND. The new corporate strategy / And. Ansoff. - SPb.: Piterkit, 1999. - 416.
2. Arutyunov A. Formation of a regional innovation system based on the cluster model of the regional economy // Corporate Governance and innovative development of eco-economy.
3. Georgieva N. Ability to create industry clusters in the region ditch / N. Georgieva // Socio-economic and innovative development of the region in 2006. - C. 224 - 243.
4. Georgieva N. Methodological aspects of formation of clusters of industries left in the regional economy / NN Georgieva // since the Russian management: status, problems and development: Sat Articles V Intern. Nauchn. - method. conf. Penza - 2006. - C. 47 - 50.
5. Egorov S.A. Industrial cluster as an advanced form of industrial cooperation // Problems of the modern economy oh. 2008. - № 3 (27).
6. Melman A. Network features of the cluster organization production // Modern aspects of the economy. - 2005. - № 19 (86).- C. 101 - 110.
7. Models of the organization of regional industrial clusters moat: a review of international experience / 2008. - № 2. - 41.
8. Porter M. Competition: Per. with Engl. - Izd. House "Williams", 2005. - 608.
9. Proskura D. V. Teoreticheskie aspekty formirovaniya regionalnogo klusternogo politika // Problemy sovremennoy ekonomiki. - 2008. - № 4 (28). -
10. Prokhorov NG clusters in the national economy // electronics magazine 2007. - № 3.
11. Ryzhakov ED cluster approach as a tool for enhancing the competitiveness of the region // 2008. - № 1. - S. 457 - 462.
12. Skoch A. International experience of cluster formation // Cosmopolis. - 2006/2007.- № 2 (16). - C. 118 - 136.
13. Hasanov R.X. Synergistic effect of the cluster // Problems of the modern economy. - 2009. - № 3 (31).

Войтків Т.І. Кластер – определение и этапы формирования

Аннотация. Развитие инфраструктуры должно осуществляться в соответствии с принципами общественного равенства или с учётом общественного труда. Особого внимания заслуживает также развитие науки и культуры. Что должно обеспечить достижение показателей других стран и в ближайшее время удовлетворять все виды общественных хозяйств.

Ключевые слова: кластер, развитие технологии, ресурсы, региональные кластерные, сотрудничество, субкластер