



Rationale for the Use of the Cluster Approach to the Formation of Localities in the Regional Economic System

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ABSTRACT

With the growing divergence in the level of formation of regional territorial localized sub-national economic space is a priority for the development of the cluster model of development management localities in the economy of the regions of the Russian Federation. Effective direction of solving this problem is the dominant national economic development of organizational and economic instruments of formation and development of clusters in the regional economic systems. Under these conditions, the fundamental importance is the interaction of government, business and institutional structures of civil society as the three key actors of the process clustering economy, as well as networking between the partner companies themselves. Their effective cooperation achieved in the framework of spatially localized economic systems - clusters, representing the totality of the territorial concentration of interconnected business interests of companies as well as government and public economic and social institutions necessary for the development of competitive advantages of clusters and regional economies as a whole.

Keywords: Cluster, Approach, Regional Economy, Locality

JEL Classifications: C38, R12

1. INTRODUCTION

A study of the cluster approach to create new forms of economic relations in the region's economy is due not only to the possibility of adaptation of international practice, which has proven the effectiveness of the use of the innovative capacity of enterprises, but also determined the necessity of implementation at the regional level, the basic principles of the draft Federal Law "On Innovation and State Innovation Policy of the Russian Federation" and the Federal Law "On Amendments to Certain Legislative Acts of the Russian Federation Regarding Formation of Favorable Tax Conditions for Financing Innovation" from 19.07.2007 No. 195-FZ (Federal Law "On Amendments to Certain Legislative Acts of the Russian Federation Regarding Formation of Favorable Tax Conditions for Financing Innovation," 2007. It should be noted that to date, approved by the Chairman in 2005,

the Russian Government "Fundamentals of Development of Innovative Activity in the Russian Federation until 2010" still do not have the status of legal documents and therefore cannot be fully utilized for the creation of methodological apparatus development of cluster technology. In these circumstances there is an urgent need to adapt the theoretical apparatus on the subject of innovation and the creation of methodological tools for the implementation of clusters in the practice of economic turnovers.

2. THE MAIN PART

Problems of development of cluster technology devoted to the works of many well-known scientists-economists: Alabugina, Ansofa, Kapelyushnikov, Kleiner, Mihranian, Rubtsov, Chi Hai, Yalova. From foreign authors should be allocated a number of researchers whose works are devoted to the development of both

innovative management and technology related to its development: Porter, Drucker, Kotler, Reyporta, Jaworski, Levitt et al.

It should be noted that the cluster organizational techniques may be implemented in the form of projects and programs, using standard conditions for the implementation of strategic planning and project approach (plan - a schedule of activities, responsible executors, and expected results - quantitative indicators).

In our opinion, a necessary condition for the effectiveness of the cluster approach is to match the projects developed the basic principles of strategic planning, taking into account the specifics of enterprises cluster type and a thorough analysis of the factors external and internal environment. In our view, the primary assess implementation of cluster technology is to optimize the trade balance of the region is to increase exports of goods and services and at the same time import substitution. In this regard, we believe that the key performance indicators of the project can be clustered as follows:

- Optimization of the main indicators of production - economic activity (sales volume, profitability, capital productivity, etc.) From the main enterprise - cluster members (over time and in comparison with the average for the industry);
- An increase in tax revenues;
- An increase in the volume of attracted investments, including foreign funds and private investment;
- Increase in the proportion of enterprises and organizations involved in the cluster, including small and medium enterprises;
- Increasing the number of skilled jobs, including through the involvement of experts of high technologies.

It should be noted the need for small and medium businesses in the implementation of mechanisms for the active involvement of the cluster is to create the infrastructure of the cluster, and at the stage of intermediate projects.

Based on theoretical developments, the most detailed in the works of Kotler (2006), it should be noted that the first step for the realization of methodological research unit cluster mechanism is to conduct a preliminary study, whose main task is to identify the potential for the development of clusters and identifying the points of focus.

In our view, the preliminary study of regional development is a first step for the implementation of cluster technology in a particular market.

In this connection, it can be used statistics on the totality of the region's enterprises (small, medium and large) in dynamics with the release of shares of individual segments of small businesses (according to the balance sheet) (Prokopiev et al., 1998).

It is necessary to pay attention to another, no less important information, including: The spatial distribution of the groups of companies chosen segments across industries (technology and market), competitive advantages and disadvantages for development of individual sectors of the economy; analysis

of the scientific and technical potential for the development of cluster technologies (dynamic set of entrants compared to the corresponding specialty with the dynamics of development of industries involved in the creation of the main product, as well as an analysis of research conducted at the regional level) (Problems of innovation management: Thematic, 1995).

The outcome of the first stage will be to identify and primary identification of regional clusters, including "the internal" analysis regions: Assessment of the strengths, weaknesses, challenges and opportunities for the whole of the regional economy (analysis SWOT-matrix). To determine the importance of the cluster for the regional economy using the above analysis of statistical data, a set of quantitative characteristics, including employment in the cluster or a cluster of turnover (as well as the dynamics of the period), the share of exports of the cluster in the regional economy, the pace of new companies.

However, from the perspective of a number of researchers: Koloshin, Razgulyaev, Timofeeva, Rusinov (Analysis of Foreign Experience to Increase the Industry, Regional and National Competitiveness Through Cluster Development, www.politanaliz.ru/articles_695.html), the most effective analysis of the cluster should consist of a set of qualitative methods (in particular, the peer review of the regional economy) in combination with a set of quantitative methods. The indicators used for the analysis should reflect not only the internal capacity of the cluster in relation to the rest of the economy, but also its position on foreign markets, particularly in comparison with other regions. In his writings, the authors have attempted to justify this conclusion and have developed a comparative classification of conventional methods of cluster analysis, highlighting their strengths and weaknesses. It is presented in Table 1.

Exploring the advantages and disadvantages of each method, the authors considered in great detail each of them. Thus, Rusinov says: "A common method for determining regional clusters is the use of expert evaluations and other mechanisms to collect the necessary economic information. While the collection of expert information on the regional economy can be effective in terms of cost and volume of such information, the lack of sufficient systematic does not allow profound generalizations. Expert estimates are most commonly used in the microanalysis of regional industrial clusters" (Rusinov, 1996; Bulu and Yalçintaş, 2015).

One of the popular methods to identify regional industrial clusters is the use of localization factors. Localization ratio - the ratio of specific weights of employment in certain industries, for example, the share of industry in total employment in the region in relation to the relative weight of the sector in total employment in the country as a whole. Localization ratio (CR) of 1.0 means that the region has the same proportion of the industry in terms of employment, and the country as a whole. Localization ratio exceeding a value of 1.25 means that we can talk about the beginning of the specialization of the region in this particular sector of the economy (Lazareva, 2007; Korzhenevskaya, 2014).

The traditional use of factors of localization provides little information about the regional industrial clusters. This method

Table 1: Classification of cluster analysis

Methods	Advantages	Disadvantages
Expert evaluation	The relatively low cost; detailed information	The lack of systematic collection of information; the lack of generalized data
Odds localization	Easy settlement; can complement other methods	Focus on industries and sectors, rather than clusters
Production intersectoral balances	They are often the main source of indicators of interdependence of industries and companies; detailed and comprehensive information	The data can become obsolete; It does not reflect the role of related institutional structures
Innovative inter-sectoral balances	They are often the main source of indicators of interdependence of industries and companies	These balances are rarely published or not available as such
Graph theory/network analysis	Visual analysis of the relationship	A set of computer technology limited
Special surveys	Flexibility in collecting the necessary data	High costs conducting

of analysis of the industry and, therefore, does not say anything about the interdependence of the various sectors of the economy. This method is suitable for use in conjunction with other methods of cluster analysis.

Research clusters using IO tables. Experts on Regional Industrial Development have long used such methods of grouping industry sectors, such as graph theory, factor analysis, etc., which are based on inter-branch communications. In some Western European countries inter-branch balances methodology is based on the analysis of the interaction matrices of innovative, not matrices inter-sectoral product flows. Innovative matrix describes the flow of innovation between their producers and consumers. The principal advantage of innovative matrix is truly innovative emphasis on interdependence and interaction between sectors. The disadvantage of these matrices are the high cost of collecting data and statistics, as well as the complexity of the conceptual justification of the surveys (Kobersy et al., 2015; Novikov, 1999; Hu and Cai, 2013).

A relatively new method of identifying industrial clusters is a network analysis of the relationships between companies and sectors of the economy. The most objective statistical data for this analysis are innovative cross-sectoral balances, although it uses surveys of regional experts and other qualitative data on the links between regional branches. The main problem of the graphical analysis of the network of regional industrial clusters identified is the interpretation of complex relationships. The development and the development of better technology and graphical analysis of the relevant software is a potential and promising area in the study of industrial clusters.

Special surveys to identify local, regional and inter-regional exchange models can carry out research activities of regional companies. However, such surveys are expensive industrial clusters. Therefore survey methods should be used to a limited extent and only in conjunction with other quantitative techniques (Novikov, 1999).

In our opinion, the analysis methods to assess the cluster suggests that the most effective of these is the expert assessment method combines advantages such as relatively low cost and the availability of detailed information. However, the disadvantages of this method can be compensated by carrying out systematic research and the collection of the necessary statistics. Thus, in order to conduct

empirical research, you can use the expert evaluation method in combination with the SWOT-analysis (strengths and weaknesses of the regional entity).

This conclusion is consistent with the position Kotler (2006), which says that “to assess the current market demand is necessary to determine the overall potential of the market, the market potential of the region, sales of the industry and its market share. To estimate the future demand for the company’s intention to study the customer, using the expertise of its sales representatives, expert opinions and carry out market testing.”

A similar view is shared by N.A. Nagapetians (Marketing in Industries and Occupations: Proc. Manual, 2007). From his position, “along with quantitative indicators to assess market factors and the situation on a market, it is necessary to use qualitative indicators, based on a point system comparisons, the widespread practice of marketing research through the use of expert assessment method.”

The next step for the implementation of the methodology of cluster technology in the market is to identify the logic of the formation of companies in a single cluster, which may occur on the basis of the production of general merchandise, use similar production processes, the overall value chain, key technologies, the requirements for the qualification of the workforce and proximity to natural resources.

Thus, according to the results of the first phase project of the cluster analysis disaggregated to the level of sub-projects, such as:

- The business climate: Study of normative-legal documents that form the development of entrepreneurship at the regional level; analyzes the relationship of government and business structures;
- Factors of production: Analyzed technologies, human resource capacity, the introduction of integrated management systems, etc.;
- Market: Market analysis, study of the proportion of companies that make up the cluster on the market of goods and services;
- Competition: The study of competition by sector and the main “market barriers” that prevent the exit of the cluster on the market;
- Level of innovation in the industry: Analyzed key scientific and technological developments and the introduction of new technologies in the industry;

- Funding: The possibility of public and private financing of the cluster, investing in the development of new technologies;
- Information exchange of knowledge: An analysis of the possibility of a permanent information exchange between the project participants and involved parties.

For the purposes of establishing the second phase of the analysis of the cluster, we consider in more detail the main factors for the analysis of enterprises cluster type (competition, knowledge and information exchange market).

In modern conditions, the competitiveness of the cluster is determined not only by the external conditions of its development, but also internal factors that are used as resources to achieve the strategic goals of the company. There are a number of internal factors of competitiveness, which form “a portrait” and the vector of the development of enterprises. Modern views on the competitiveness of enterprises based on changing conditions in recent years of their operation. Transitional Economy, a series of national and world crises put before Russian companies rather contradictory requirements. Therefore, objectively necessary to identify the factors of competitiveness of national and international importance, as the realities of the operation and interaction of Russian companies still differ significantly from international standards. Differences are noted not only in the external environment, but also in the internal organization of enterprises.

In the scientific literature (Competitiveness of Russia in the Global Economy, 2003) distinguish the classic type of enterprise and innovative style. The classic type of enterprise is characterized by the following features:

- Capital intensity and material nature of the assets;
- A vivid manifestation of vertical integration and the desire to establish full control over suppliers and customers;
- The dependence of employees from management;
- Insufficient application of innovative technologies;
- Rigid binding regional firms due to any ongoing strategy or objective conditions of the market.

With the development of the global market economy stood out a new format for enterprises characterized as an innovative type of economic relations. It has the following features:

- The intangible nature of the assets, of which the leading advocates of human capital;
- Flexible agreements with suppliers and customers, the employees of the company;
- Expanding the boundaries of the enterprise;
- Competitiveness is ensured not by assets, and their mobility;
- Widespread use of innovative resource-saving technologies;
- Environmentally friendly production (Talib et al., 2012; Finaev et al., 2015; Innovation, Globalization and Competitiveness in the Light of the Economies of Russia and the United States, Stra.teg.ru/lenta/innovation/1137).

It is obvious that a new type of enterprise is more consistent with the characteristics of the enterprise cluster type having all the above criteria and presents an innovative model of development of economic relations.

As already noted, a key element of the global competitiveness of the economic entity is its involvement and active participation in innovative projects, a high level of scientific and technological growth and development of production, the result of which becomes high-quality products.

Relatively strong points of Russian firms, experts (Wolman and Hincapie, 2015; Competitiveness of Russia in the Global Economy, 2003) consider the potential for innovation, product design, availability of production chains that integrate different enterprises in the same industrial complex. The strengths of the Russian business environment include: A high level of research institutes, highly qualified engineers, designers and scientists, an extensive network of railways.

Rather they see weaknesses: Poor customer orientation (including marketing) and the poor quality of the production process, as well as the poor quality of telephone and fax communications, sluggish competition at regional level and the ineffectiveness of anti-monopoly policy (Porter, 2006).

To explain the nature of competitive advantage, Porter (2006), in their study used the concept of the value chain, which includes not only the activities of the enterprise, but also the contribution of suppliers and channels of distribution and marketing. He believed that despite the overall inter-farm conditions, each company has its own value chain, as all businesses have a different history; a different strategy is carried out and have other differences. These differences can be identified for the formation of new sources of competitive advantage.

Evaluation of competitive advantage within the cluster, based on the theory formulated by M. Porter, is presented in Table 2.

Thus, a detailed investigation of the above factors led to the conclusion that in the conditions of the development of cluster technology competition plays a special role at the stage of the business combination as an independent cluster, because not only

Table 2: Evaluation of competitive advantage within the cluster

Competitive advantage	Measurement method
Qualified staff	Study level staff within the cluster Given the need for skills The research capacity of local structures to meet the needs in skills
Technological development	The international reputation of the specialized research within the cluster The extent to which entities in the cluster can conduct research The commercialization of university research
System to support the creation of new businesses	Measuring the availability of venture capital for the formation of new companies Evaluation accessibility (cost) of assets Review of institutional support (or support in economic policy) cluster development and the relationship to the business

creates the market value of the enterprise itself, but also enables the development of innovative potential of the industry.

Information exchange of knowledge: An analysis of the possibility of a permanent information exchange between the project participants and involved parties.

N.A. Nagapetians in their research notes: “The market innovation creates its additional filters: Horizontal when different filter quality of the various higher education institutions and relevant to young professionals in the labor market develops depending on the institution, which he completed, and vertical when the company put additional conditions: Of workers required practical experience, additional recommendations, a separate confirmation of computer skills or a foreign language, etc.” (Marketing in Industries and Occupations: Proc. Manual, 2007).

In his works, Kotler also notes the special role of the information exchange of knowledge, believing that it forms the competence of personnel in the performance of the basic functions and ultimately create “image” of the company (Kotler, 2006).

Ēriashvili notes that knowledge is a critical element in the practice of modern enterprises. He identifies the provision of knowledge of the real choice of features meet the needs of consumers. These tasks, in his view, based on the following procedures for marketing:

- To understand customers and identify their area of interest - the work carried out on the basis of special studies, market segmentation, modeling of consumer behavior;
- To ensure the availability of choice - are the preferences and priorities, based on the differences between consumer goods features, prices and producers, as well as places and conditions of sale;
- Provide information on a choice of goods - used media, advertising, and various methods of sales promotion (11).

Thus, the information exchange of knowledge is the link between the enterprise cluster and the end user. The higher level of knowledge, the greater the innovation activity of the enterprise and the image of the entire cluster. The flow of knowledge is the basis for the functioning of the cluster technology.

Market: Exploring the market factor should be noted that the development of market relations generates the internal environment of the enterprise.

Kotler segmented the market structure with respect to consumers and identified three types of structure of preferences (Kotler, 2006).

- Uniform (homogeneous) structure of preferences - the structure of the market buyers, which are about the same preferences. Natural market segments are absent, so the goods in said structure have approximately the same demand and have similar characteristics.
- Broken (diffusion) the structure of preferences. The opposite homogeneous structure. Consumer tastes vary considerably, so if the market several brands, they are likely to be located around the market space and will be significantly different from each other to meet the different needs of customers.

- Group (cluster) structure of preferences. The market can be identified distinct groups of customers with similar preferences, called natural market segments. The company, the first to enter the market, there are three possibilities. Firstly, its products can draw attention of all groups of buyers. Secondly, the company may choose the largest segment of the market, i.e. the goods takes place in the center (concentrated marketing). And thirdly, it is able to develop several brands oriented to each market segment.

In our view, the use of a group (cluster) structure of preferences is possible when analyzing the market for all companies in the cluster, with the purpose of segmenting the needs of customers (consumers) in certain products or services.

Robert and Bes (2000) and Mori and Smith (2015) propose to divide the process of segmentation into seven phases: Segmentation; certain segments; the attractiveness of the segments; the profitability of the segments; positioning segments; critical evaluation of the segment; of the marketing strategy. Due to the fact that over time, the segments may be modified, the procedure for determining the market segments should be repeated periodically.

One way to detect new market segments, from his point of view is the study of the hierarchy of signs, that is, the selection of the dominant characteristics that determine the buyer’s decision. For example, some car buyers dominant feature is the country of manufacture (the hierarchy with the dominance of origin), the other is the first choice brand (hierarchy with the dominance of the brand), the third - the type (sports or family; hierarchy with the dominance of the type), the fourth - the price (with the dominance hierarchy of prices). Thus, one segment may consist of buyers, guided type/price/brand, and the other - from customers, quality management/service/type.

R. Best believes that with any method of segmentation, each segment should have a distinct demographic, psychographic, and geographic characteristics. The tabular data, we present the stages of the process of market segmentation proposed best (Table 3).

3. CONCLUSION

Thus, the analysis of this factor in the context of the research problem of formation of cluster technology led to the following conclusion: The market segmentation with respect to the attractiveness, profitability, production, based on the group (cluster) structure of preferences allows you to identify the most flexible companies in the cluster, in terms of product positioning and services on the market. The following two phases of analysis of the cluster are allocated as certain group of enterprises whose characteristics correspond most enterprises with an innovative component, which ultimately forms the creation of cluster technology at the regional level.

However, despite the obvious prospect of the use of cluster technology innovation to increase the competitiveness of the Russian economy (both at the federal and regional levels), there are several problems that limit the use of this approach. The

Table 3: Stages in the process of market segmentation

Steps	Description
Segmentation	Group the customer segment, based on the needs on the basis of similar needs and benefits sought by the client to solve a specific problem of consumption
Definition of segments	Determine what factors are demographic, lifestyle and use of the product characteristics making each segment allocated on the basis of needs, special and identifiable
Attractive segments	Determine the overall attractiveness of each segment using certain criteria attractive segments (such as the growth of the market, the intensity of competition and market access)
Profitability segment	Determine the profitability of the segment
Positioning	For each segment are developing “value proposition” and positioning strategy with a focus on product and price and based on the unique needs and characteristics of the representatives of this segment
Critical assessment of segment	Create a “file segments” to assess the attractiveness of the positioning strategy, focused on each segment
The strategy of the marketing mix	Expanding detailing positioning strategy with a view to the inclusion of all aspects of the marketing mix (marketing mix): Product, price, promotion and distribution of features

most serious problem at the moment can be considered the lack/shortage of effective and tailored to specific Russian conditions methodological developments, lack of practical experience in the implementation of cluster projects and trained professionals able to implement cluster projects, the lack of effective schemes of cooperation between authorities of different levels in the implementation of cluster projects. These reasons, in our view, form a major obstacle, which is expressed in the absence/lack of socio-economic conditions generated by the policy of the federal and local authorities for the organization of cluster technology.

Since the formation of cluster initiatives is on the one hand, in the area of federal sectoral development strategies, on the other - in the strategies of development of the regions and territories, the feasibility and effectiveness of their implementation is largely dependent on the coordination of agencies and levels of government in the development of relevant policy documents.

Considered in the questions section allowed to formulate the following conclusions:

1. At present, there is an urgent need to adapt the theoretical material on the subject to the creation of innovative methodological tools needed for implementation of clusters in the practice of economic turnover.
2. A necessary condition for the effectiveness of the cluster approach is to match the projects developed the basic principles of strategic planning, taking into account the specifics of enterprises cluster type and a thorough analysis of the factors external and internal environment.
3. A preliminary study of regional development is a first step for the implementation of cluster technology in a particular market.

4. The most effective method of assessment of the cluster is an expert method that combines advantages such as relatively low cost and the availability of detailed information. Disadvantages of this method can be compensated by carrying out systematic research and the collection of the necessary statistics. Thus, in order to conduct empirical research, you can use the expert evaluation method in combination with the SWOT-analysis (strengths and weaknesses of the regional entity).
5. The second phase for the implementation of the methodology of cluster technology in the market, is to define the logic of the formation of companies in a single cluster.
6. In the context of the development of cluster technology competition factor plays a special role at the stage of the business combination as an independent cluster, since it significantly affects the determination of the market value of the enterprise and enables the development of innovative potential of the industry.
7. Information, sharing knowledge is the link between the enterprise cluster and the end user. The higher level of knowledge, the greater the innovation activity of the enterprise and the image of the entire cluster. The flow of knowledge is the basis for the functioning of the cluster technology.
8. Use of a group (cluster) structure of preferences is possible when analyzing the market for all companies in the cluster, with the purpose of segmenting the needs of customers (consumers) in certain products or services.
9. Market segmentation with respect to the attractiveness, profitability, production, based on the group (cluster) structure of preferences allows you to identify the most flexible companies in the cluster, in terms of the positioning of products and services on the market.
10. The most serious problem at the moment can be considered the lack/shortage of effective and tailored specific Russian conditions of methodological developments, lack of practical experience in the implementation of cluster projects and trained professionals able to implement them, the lack of effective schemes of cooperation between authorities of different levels in the implementation of cluster projects.

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