

STRATEGIC DEVELOPMENT MANAGEMENT OF AN AGRICULTURE-ORIENTED REGION BY THE CLUSTER APPROACH: CASE OF REGIONS IN THE SOUTH OF RUSSIA

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Abstract: The relevance of this study comes from the fact that the spatial organization of economy in Russia's regions is going through the definite crisis in the established patterns of territorial localization and operation of the leading branches of economy and their anchor loci. The absence of any efficient response to this crisis results in increased disruption, excessive polarization, and socioeconomic asymmetry of economic space. Regions with agriculture-oriented economy are more sensitive to the uneven development of economic space because they are more dependent on natural and geographical determinants, whereas the focused development of particular zones leads to synchronously formed depressive localities with low basic socioeconomic parameters, despite available resource potential. From this perspective, this article aims to form new approaches to organizing economic space of agriculture-oriented regions, which must be dovetailed with revealing all propulsive economy sectors, zonal and polar forms of economic growth, followed by introduction of various kinds of cluster innovations based on encouraging respective initiatives. The potential of cluster forms of economic space organization is the one that can be spread to vast neighboring territories to form network structures characterized by active socioeconomic development. The modern theoretical methodological basis for managing agriculture-oriented regions by the cluster approach is characterized by deficiency and non-contiguous elaboration of questions related to identifying clusters and their formative prerequisites, making use of particularities and effects of various phases of their lifecycle to improve parameters of socioeconomic territorial development. In addition, there are no advanced developments in polybranch clusterization of economy with the formation of clusterized network economic space. The methodological tools for monitoring and diagnosing cluster formation processes are insufficient. The most efficient method of solving the above specified problem is to form a specialized methodological approach to revealing cluster formation prospects in propulsive sectors of economy. The approach must rely on forming an author system of indices and the expert survey technique. The initiating factor of this study was the theoretical, methodological, and practical pendency of these and many other questions related to the diffusion of cluster innovations in agriculture-oriented regions. The article discloses the essence of the methodological approach to revealing cluster formation prospects in propulsive economic sectors of an agriculture-oriented region. The described method involves calculating nine indices that

provide the complete characteristic of the cluster formation capacity on the basis of a particular branch; in the end, this helps formulate the immanent characteristics of the economic sectors of the Stavropol' kray in the context of cluster formation prospects.

Keywords: regional economy, territorial economy, region, cluster, spatial development

1. INTRODUCTION

The concept of regional development is now part of the mainstream federal socio-economic policy, and the general purpose for implementation in this concept is to ensure the necessary and sufficient conditions for a comprehensive development of regional socioeconomic systems, taking account of significant territorial differences, which must meet the society's basic demands. That said, regional differences considered in a simplified form are the type of regional socioeconomic development formed as affected by a number of factors and conditions; the ones usually highlighted as critical are natural resource, social demographic, and economic factors as well as administrative, managerial, market, volatile, and institutional infrastructural conditions. The totality of these factors and conditions concentrated in a specific area defines the objective and specific characteristics of territorial economic organizations on different scales.

The purpose of this study was to work out a methodological approach to defining cluster formation prospects in propulsive sectors of Russia's economy. The importance of the study consists in the diversity of questions related to organizing economic space as a territorial basis and environment, where various socioeconomic processes take place (Gerasimov, 2012). The spatial economic management in Russia makes it necessary to elaborate specific approaches because there is no other country in the world with the experience of managing territories so vast and diverse.

A method internationally accepted as common and efficient is the cluster approach to organizing regional economic spaces. The pioneer of the cluster theory was M. Porter who characterized a cluster as "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also cooperate" (1998). However, the genesis of economic thought in the context of clusterization studies relies on seminal works by specialists in the theory of distribution of productive forces and development of specialization of economic entities. In this vein, the cluster theory had to go through several phases of development before taking its current shape. The making of the cluster theory can be presented as the Standorts-Marshallian industrial districts-territorial production complexes-clusters chain. This chain shows the formative peculiarities and evolution of the cluster theory, transition from considering the distribution of particular enterprises to the local manufacturing content phenomenon, from tangible to intangible factors of production location.

The evolution, revealing, and management of cluster forms are of primary interest because their effect on socioeconomic space organization is obvious. That said, what stands out is the clearly complementary kind of components of this tool of regional development management and the emergent properties of the system itself that boost the development of not only the group of functionally uniform and territorially close companies but also the system taken as a whole. At the same time, in case of decline these components and properties become a threat to sustainable development of regional institutions.

2. MATERIAL AND METHODS

The methodological and theoretical basis of the study were seminal and applied works by Russian and foreign researchers in the field of economic space organization and clusterization of economy, policy and strategic documents on regional planning, statutory acts of regional and federal authorities, discourses and reports, applied, instructive, and reference materials on managing regional socioeconomic systems using the potential of the cluster approach, proceedings of scientific conferences and seminars, encyclopedic sources, special issue publications in printed media. To meet the objectives set forth in the study, the authors analyzed the available published works in the field of interest. The series of measures taken to define the prospects of cluster formation in propulsive sectors of Russia's economy included:

1. analysis of general trends in the region's economic performance;
2. making up the profile of competitive advantages and restrictors of regional socioeconomic development in the context of the cluster management paradigm;
3. analytical comparison of basic sectors of economy in the context of cluster formation prospects in a historically agrarian region;
4. revealing of prerequisites for organizing a cluster-like territorial economic structure;
5. identification and description of branches with cluster formation potential;
6. elaboration of the system of indices of quantity estimation of cluster formation potential;
7. expert survey about cluster formation prospects in the region's branches;
8. distribution of the region's branches by typological groups characterizing cluster formation prospects based on the quality assessment results;
9. characterization of potential clusters by the example of the Stavropol' kray;
10. distribution of the region's branches by typological groups characterizing cluster formation prospects based on the quantity assessment results;
11. Final assessment of the region's potential clusters;
12. Generalization of the study results and building the region management concept based on the cluster approach.

The study is based on the system approach. The techniques used depending on the stated objectives, were analysis, synthesis, deduction, induction, procedures of statistical, logical, semantic, retrospective, comparative, and structural analysis, and also graphical, calculation constructive, monographic, and expert methods. The study's information base included official data from the Federal State Statistics Service, its regional divisions, materials of departmental discourses and reports as well as findings of monographic studies by Russian and foreign researchers. The information base for formulating the main conclusions and recommendations were sub federal empirical factual data as well as relevant information obtained by collecting and processing representative data using the analytical heuristic potential of respective procedures and techniques.

3. RESULTS

The existing process logic and sectoral approach of traditional regional industrial policy need significant transformations and must be replaced with territorial and spatial

policies. The main objective of the cluster policy must be to elaborate an efficient system of interlinked measures implemented by federal, regional, and municipal authorities that would aim to develop various initiatives proposed by public bodies and entrepreneurs for the purpose of embodying clear competitive advantages of territory (Hanson, 2005; Edwards, 2007). The multiple approaches to cluster revealing available in the modern theory and practice of regional economics are:

1. The approach within the theory of competitive advantage of territory (Head and Mayer, 2004; Fujita, Krugman, and Venables, 1999) involves assessing established determinants of cluster development (local competitive advantages). The assessment by this approach extends to a territory's resource potential, characteristics of affiliated and service branches, state of demand for produced output, presence of a common vision of cluster development and adhering to the principles of competition and cooperation.
2. The approach within the institutional theory (Capello, 2006; Ersoy and Taylor, 2012) involves assessing formation prospects of special institutions facilitating efficient interaction between all of the cluster's participants and the public bodies.
3. The approach within the evolutionary theory involves identifying the cluster's lifecycle phases, assessing the cluster's coverage area in the context of studying peculiarities of distribution of productive forces, and also revealing small-scale and innovative entrepreneurial structures in the cluster.
4. The top-down approach involves cluster identification by quantity techniques of analyzing input-output tables. As a rule, this approach is applied to already formed clusters.
5. The top-down approach involves cluster identification by interviewing, questionnaire surveys, and other verbal forms of survey; i.e., this is the qualitative analysis helping identify vertical and horizontal connections among the enterprises in the cluster.
6. Microscale techniques and interbranch cluster analysis techniques the suite of tools of which rely on applying the principal components method and factor analysis, multi-variance statistical cluster analysis, graph theory, etc.

Thus, the whole diversity of the existing approaches to cluster identification in regional economy confine to using a number of analytical tools (Bobryshev, Golchenko, and Kazakov, 2014) with their individual strengths and weaknesses. The tools include expert surveys, calculation of special indices (coefficients), interbranch balance data analysis, and network analysis. This study proceeds from the hypothesis that only a combination of several techniques can make it possible to obtain relevant information on cluster formation prospects in the region (Brakman, Garretsen, Gorter, van der Horst, and Schramm, 2005; Baldwin, Forslid, Martin, Ottaviano, and Robert-Nicoud, 2005). These techniques include the calculation of special indices (coefficients) and the information (factor) analysis. Each of these approaches requires substantiating the region's cluster formation indices; the only difference is that in the former case these will be quantity indices and in the latter case quality indices. It is worth noting that the technique must not be overloaded with a bunch of low informative and duplicating indices; i.e., this analysis must not confine to the statistical study of an enormous amount of data that will ultimately make it difficult to unambiguously interpret the current state of affairs in the region in the context of cluster formation prospects. In addition, an important methodological objective is the integral assessment of the quantity and quality performance parameters of the region's leading branches, which will ultimately make it possible to provide the linguistic interpretation of the attained results. The analysis of retrospective studies (Erokhin, Ivovga, and Heijman,

2014; Taranova, Gunko, Alekseeva, Bunchikov, and Kurennaya, 2015) allowed identifying the main factors of the inert development and low efficiency of Russia’s agrarian sector, which confirms the need for system-scale transformations in the industry.

It is reasonable to develop and implement socioeconomic development programs for administrative territorial units, taking account of expectations and interests of various social groups. The specificity of institutional affiliation largely determines the economic behavior of individuals, which is proven in works by various researchers such as (Beaudrillard 2014; Jaspers, 2014), (Gobson, 1984) (Galbraith, 1973), (Kornai, 2011), (Mill, 1909). However, the measurement of quantity parameters characterizing a particular social group remains a big problem. Several Russian researchers have included the calculation of quantity parameters of behavior of institutional groups in their works (Mayorova and Nikitina, 2015). An insufficiently elaborated issue is the analytical instrumental support of cluster identification in the region’s common socioeconomic environment. This suite of tools must have a diagnostic potential to reveal cluster formation prospects in propulsive sectors of the region’s economy. In the author’s judgment, this suite of tools must rely on the algorithm presented in Fig. 1.

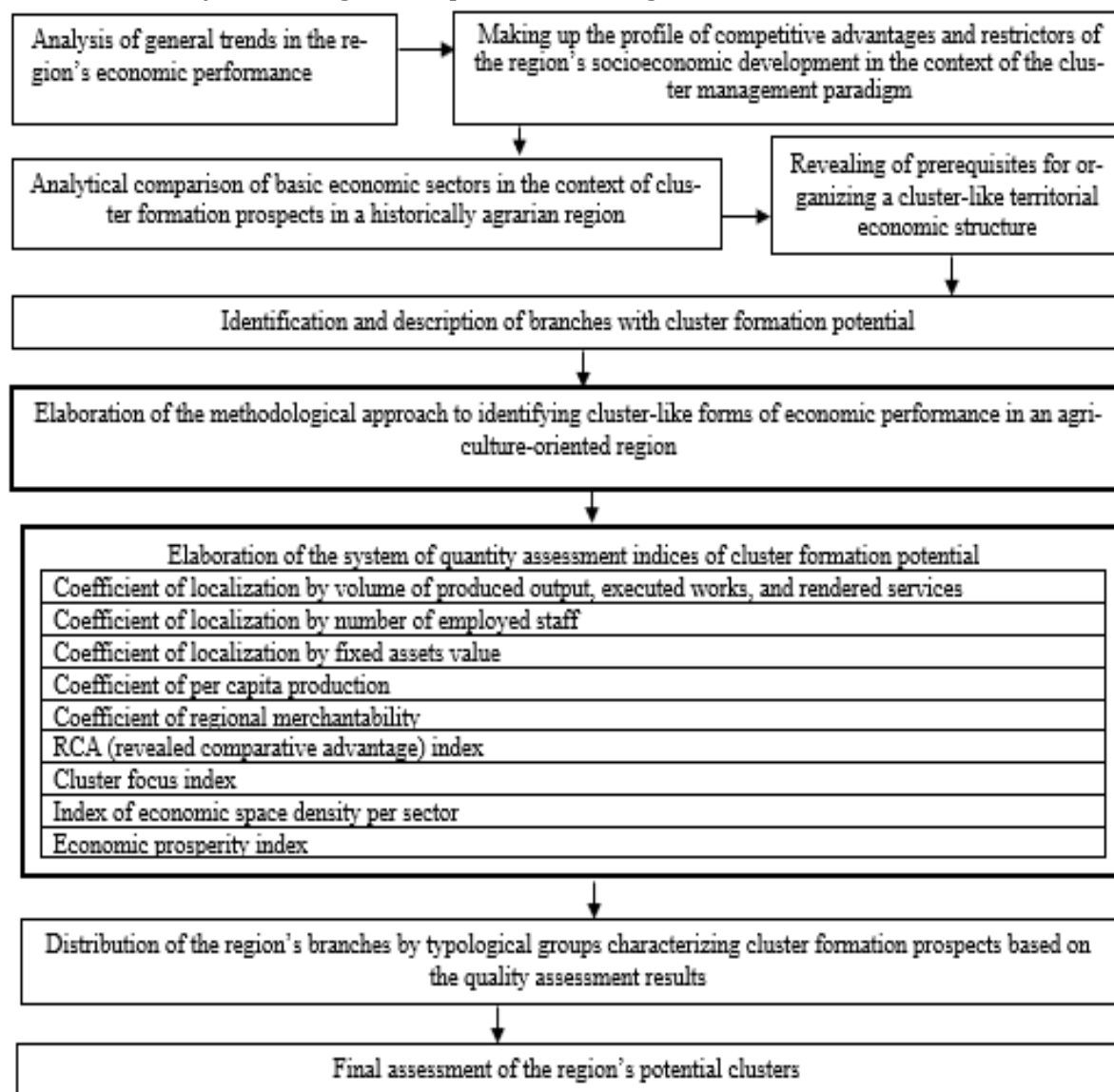


Fig. 1. Function chart of the recommended methodological approach to revealing cluster formation prospects in propulsive economic sectors

The studies show that in recent years most Russian regions have been influenced by transformative economic processes, which brings about significant changes in the sectoral composition of the national economy and, therefore, specialization and principles of distributing productive forces. The Stavropol kray belongs to the country's agriculture-oriented regions. In the GRP pattern the agricultural branch comes third (11.1 %), only behind industry (20.4 %), and wholesale and retail trade (21.1 %). That said, however, the agrarian sector is not the only branch with cluster formation potential. According to the analysis of publications on problems of agricultural development, most of the problem aspects are determined and similar to the system-wide negative development phenomena of the agrarian sector. In this context the papers worth highlighting are:

1. Works on rural tourism development and studying rural economic diversification trends (Sharpley, 2002);
2. Study of the impact of globalization on the development of agribusiness (Bernstein, 2004) as well as the effects of economic crises on different operational aspects of agricultural organizations (Lobao and Meyer, 2001); (Trukhachev et al., 2017); (Bobryshev et al., 2016);
3. Study of questions of agrarian political economy (Buttel, 2001; Bernstein and Byres, 2001) that creates the conceptual framework for interaction of economic entities in the agrarian sector (Byres, 1995);
4. Study of questions of balance in rural territorial development (Marsden, 1995; Bernstein, 1996). In this context, works on questions of agrarian structure and balance between large-scale and small-scale farming units in the agrarian sector invoke significant research interest (Deininger and Byrlee, 2012);
5. Study of experience in forming strategic agricultural development areas in different countries (Omamo and Diao, 2006).

In this vein, this study makes it possible to identify the economic sectors that are potentially able to form an economic cluster (Table 1). The south of Russia shows only a few signs of formation of full-scale clusters: the leading branches are more likely to possess cluster formation potential than characteristics of a formed cluster. In this vein, the proposed methodological approach aims to compare the potential of various regional economic sectors from the standpoint of cluster formation prospects.

Table 1. Economic activities with cluster formation potential in the South of Russia by the example of the Stavropol' kray (descriptive characteristics)

Characteristic	Types of potential clusters		
	Tourist and recreation cluster	Production and industrial clusters	Agro-industrial cluster
Resource potential	Climate and land resources, relief, flora, fauna, balneal resources. Favorable climate conditions (possibility of organizing year-round recreation in the subregion of Caucasian Spas)	Availability of developed production facilities in chemical, oil chemical, food, glass, furniture, and other industries	Land resources (eighth place in Russia), natural fertility of soils represented by black earth (47 % of all soils) and chestnut soils (fourth place in Russia by quality of soils); labor resources (around 20 % of total employment); production potential and infrastructure
Territorial cluster core	Caucasian Spas resort	Stavropol, Nevinnomyssk, Bodyonnovsk	Most municipal districts of the kray's central and western areas
Characteristics of fabricated products and rendered services	Mineral waters (acidulated, hydrogen sulfide, acidulated hydrogen sulfide, iodine-bromine radon waters), therapeutic mud, more than 1 200 historical, cultural, architectural monuments, etc.)	Chemical enterprise production making up 31.1 % of annual output in the region's manufacturing facilities; production of finished metalware, manufacture of machinery, vehicles and equipment for agricultural needs, production of rubber and plastic articles, etc.	The region's main crop farming subsectors are grain and sunflower growing; other developed sectors are livestock farming, fine-fleece sheep breeding, poultry breeding. The region yields around 10 % of the country's grain crops, more than 4 % of white beet, 5 % of sunflower crops, and high amounts of grapes and vegetable output
Specialization	Educational and wellness tourism	All kinds of manufacturing	Production and processing of agricultural commodities
Restrictive factors	Absence of full-scale interregional projects of developing new tourism and recreation facilities; absence of rapid tourist passages	Insufficient integration of the industry and the agrarian sector, absence of common vertically oriented structures able to form the cluster core. Underutilization of production facilities, need for technological modernization	Significant price disparity, technological degradation and decreased appeal of investing. Problems with land melioration, application of organic and mineral fertilizers, aggravated hydrological basis of production, soil degradation, violation of optimal pattern of crop acreage, etc.
Ties with specialized HELs and R & D establishments	Stavropol' State Medical University, Pyatigorsk branch of the Volgograd State Medical University	North Caucasus Federal University	Stavropol' State Agrarian University
	Noncommercial Partnership "Innovative Technological Business Center of the Stavropol' kray", State Unitary Enterprise "Management Company of Investment and Innovative Development of the Stavropol' kray",		

	<p>Nonprofit organization “Fund for Support of Venture Capital Investments in Small- and Medium-Size Entrepreneurships in the Research and Engineering Domain of the Stavropol’ kray”, Nonprofit organization “Fund for Microscale Financing of Small- and Medium-Size Entrepreneurships in the Stavropol’ kray”, Pyatigorsk State Linguistic University</p>		
Strategic cluster initiatives by government agencies	<p>Therapeutic tourism and recreation cluster “Territory for Recreation and Healthcare”, Special economic tourist and recreational zone in the territory of Caucasian Spas “KMV City”, “Eurasia: Azov-Caspian” canal, “Caspian Spas-Cherkessk-Sochi” highway</p>	<p>Diamond Valley cluster of intensive innovative development, Nevinnomyssk special economic zone, network of research and technology parks and business incubators in the Diamond Valley</p>	<p>Zhitnitsa agro-industrial cluster</p>
	<p>Southern Cross trade, transport, and logistics center, multimodal transport and logistics network, development of innovation-oriented production enterprises, development of a research and educational complex</p>		

To make the quantity assessment, the nine indices most relevant to the stated problem were selected. The results of calculating and interpreting their values allowed ranking all the branches by the total placings technique for the purpose of the comparative characteristic of cluster formation prospects in the region (Table 2).

Table 2. Calculated localization indices of branches with cluster formation potential

Index	Potential cluster forming sectors. index value (place)		
	Tourism and recreation	Manufacturing	Agriculture
Coefficient of localization by volume of produced output, executed works. and rendered services	3.701 (II)	0.8342 (III)	3.7439 (I)
Coefficient of localization by number of occupied staff	1.1282 (II)	0.7857 (III)	1.7764 (I)
Coefficient of localization by fixed assets value	0.4342 (III)	0.6785 (II)	2.3822 (I)
Coefficient of per capita production	1.7302 (II)	0.3999 (III)	1.7502 (I)
Coefficient of regional merchantability	0.0036 (III)	0.1480 (I)	0.0722 (II)
RCA index	0.0012 (III)	0.1854 (I)	0.1353 (II)
M. Porter's cluster focus index (amount of employed population per branch as related to the region's total employed population)	0.0200 (III)	0.1176 (II)	0.1740 (I)
Economic space density in the sector of region <i>i</i> (number of enterprises per 1 000 km ² of territory)	21.1 (III)	59.1 (II)	205.1 (I)
Economic prosperity index (employee wages rate per branch as related to the average annual wages in the region)	0.6550 (III)	0.9420 (I)	0.8142 (II)
Places, total	24	18	12

The conclusion made during the study is that the strongest cluster formation prospects in the region are characteristic of its agrarian sector (Table 3).

Table 3. Distribution of branches in the Stavropol kray by typological groups characterizing cluster formation prospects

Typological group	Interval value	Region's branch	Actual sum of places
Strongest cluster formation prospects	9-15	Agriculture	12
Medium cluster formation prospects	15-21	Manufacturing	18
Weakest cluster formation prospects	21-27	Tourism and recreation	24

It is worth noting that the Stavropol' kray clearly has certain characteristics of cluster formation potential, including the existence of a distinct region-specific branch (agriculture); rich natural resource potential for developing agriculture and wellness tourism; lower unemployment rates and higher numbers of employees in the agrarian sector, construction, and hotel and catering business in comparison with other regions; high activity in the field of improving innovative and technology potential by importing advanced technologies, etc.

The kray has several competitive advantages in the indicated parameters in comparison with the other regions in the South of Russia. In addition, the region has several not fully actualized competitive advantages that can become another impetus for cluster formation in the kray. Thus, these advantages include:

- sufficiently diversified economy able to encourage the formation of vertical production chains and field of support and service of backbone branches;
- fully developed regional innovative infrastructure;
- sufficient domestic expenditures on research and developments aimed to increase the competitiveness of the goods produced, works executed, and services rendered in the region;
- prerequisites for forming the common information and communication environment in the field of entrepreneurship, etc.

Proceeding merely from the quantitative criteria of assessing cluster formation prospects, the given method would remain incomplete because the comparative data analysis of diverse branches alone is not quite impartial. For example, one branch fabricates products mainly for the domestic market (agriculture), while another branch shows the highest export rates but the region's level of specialization in a given kind of product remains low (manufacturing), and the third branch has no production process per se, which makes it difficult to assess the branch's export potential (tourism). In addition, the method focuses on comparative analysis and makes it possible to reveal cluster formation prospects and define the branch in which they are better. At the same time, the attainment of all standard index values in the proposed system of indices will not always mean the availability of a full-fledged cluster because the cluster as an institution of spatial economy has poorly formalized immanent characteristics the estimation of which will be covered in the final part of this study. In the end, it will be possible to make a fuller assessment of cluster formation prospects in the leading economic sectors of the Stavropol' kray by superimposing the quantity analysis results on the quality analysis results. The given criteria were assessed in the expert manner by surveying a focus group of researchers and officials from public bodies. Each of the experts assessed three economic sectors of the Stavropol' kray for cluster formation prospects according to the proposed pattern of quality indices. All in all, 20 experts were polled each of whom ranked the branches by compliance with a particular quantity parameter; the resulting matrix of scores for estimating the quantity indicators of cluster formation prospects is given in Table 4.

Table 4. Results of the expert survey on regional cluster formation prospects by the example of the Stavropol' kray

Quality assessment criterion	Tourism and recreation	Manufacturing	Agriculture
	Sum of expert scores		
1. The branch has a cluster core or an obvious leader around which the cluster can be formed in future	54	29	49
2. Development level of intrabranh integrative ties based on competition and cooperation	22	37	52
3. Branch's image as a backbone kind of economic activity for the region's economy	36	49	28
4. Existence of the common strategy (vision) of further development for the industry. The strategy is elaborated by all the actors w/o any involvement of ruling establishments	28	44	52
5. In which branch the approach to improving product competitiveness by innovations applies to the greatest extent? (innovation-production relation)	39	53	47

6. Which branches show higher levels of competition among suppliers of raw materials, component parts, etc.?	58	47	38
7. Which branch has more sustainable established chains of enterprises working by cooperation with all the participants?	31	53	42
8. In which branch the service and supporting sectors represented by local economic entities play a greater role? (prospects of the cluster of service and supporting branches)	24	46	28
9. Consumer influence of competitiveness of created products or services (quality of demand, i.e., which branch has more demanding consumers)	24	45	33
10. Influence of the state on the branch (positive role from the standpoint of cluster formation)	22	41	28
11. In which branch the impact of random negative events on clusterization is weaker (1 is for the weakest impact; 3 is for the strongest impact)	34	27	38
12. Similarity in utilization of resources among big groups of enterprises	41	36	22
13. Closeness of ties among the sector's enterprises in the markets for goods and labor (1 is for the closest ties; 3 is for the weakest ties)	36	42	38
14. Prospects of increasing the number of major (significant) participants in a potential cluster (1 is for the widest prospects; 3 is for the narrowest prospects)	38	52	24
15. Prospects of building export capacity	58	25	33
16. Branch's role in forming the region's common brand (1 is for the biggest role; 3 is for the smallest role)	31	56	30
17. Prospects of product-line expansion and deepening the labor division system	41	53	34
18. Prospects of copying and adopting advance technologies	24	35	46
19. Sector's exhibition activities	33	51	25
20. Sector's role in integrating around itself a large number of small businesses for the purpose of escalating the multiplicative effect for developing the local economy (1 is for the leader; 3 is for the outsider)	27	34	48
Total score	701	855	735

The expert survey results made it possible to distribute the economic sectors of the Stavropol' kray by typological groups as presented in Table 5 below.

Table 5. Distribution of the region's branches by typological groups characterizing cluster formation prospects according to the quality assessment results

Typological group	Interval scores	Region's branch	Actual score
Strongest cluster formation prospects	267-534	n/a	-
Medium cluster formation prospects	534-801	Tourism and retail trade	701
		Agriculture	735
Weakest cluster formation prospects	801-1068	Service sectors (chemical and oil chemical industries)	855

Then let us superimpose the quantity assessment results on the quality assessment results of cluster formation prospects in the kray's leading economic sectors and provide their characteristics (Table 6).

Table 6. Characteristics of potential regional clusters by the example of the Stavropol' kray

Indicator	Potential cluster formation sector					
	TOURISM AND RE-CREATION		MANUFACTURING		AGRICULTURE	
Cluster formation prospects according to quantity assessment	Weakest	24	Medium	18	Strongest	12
Cluster formation prospects according to quality assessment	Medium	701	Weakest	855	Strongest	735
Cluster's characteristic features	No-core tourism and recreation cluster having a unique natural and resource base and recognized for a well-known full brand extrapolated to the whole territory. The restrictive factors are the weak influence and low localization relative to the region's economy. The cluster significantly invigorates the development of supporting and attending branches in the local economy, in particular, for small businesses; however, it has low export capacity. More efficient development is possible via interregional interaction and creating a higher-order cluster		Industrial and production cluster in the field of chemical and oil chemical industries. There are some branches with obvious leading enterprises (cluster core); however, the degree of integration around them is insignificant. The cluster is the main carrier of export capacity in the region's socio-economic system. It can function without any state-induced dirisigm but still has a low fraction in the region's economic pattern. From the standpoint of employment provision, this cluster is not backbone, and its role in the local economy is too low to position the branch as a full-fledged cluster. A major prospect for further development is the deeper integrative engagement with neighboring economic sectors. Service sectors can become the linchpin among several clusters in the region.		No-core production cluster with an important socioeconomic role in developing the local economy. The weakest characteristic feature is the insufficiency of internal inter-company relations for the cluster's full-fledged development. This shows in the absence of the optimal balance among trust and competition, and, most importantly, cooperation. The cluster's characteristics are a high density of economic space, sufficient localization but weak innovative and export capacity. Its further development is largely contingent upon the influence of uncontrollable factors. Being a backbone cluster for the region, the agrarian cluster is exposed to a strong influence of the state.	

The research results made it possible to assess cluster formation prospects in the three basic branches of the Stavropol' kray, which ultimately allowed forming the algorithm of the methodological approach to revealing the cluster forms of economic operation in the agriculture-oriented region (Fig. 2).

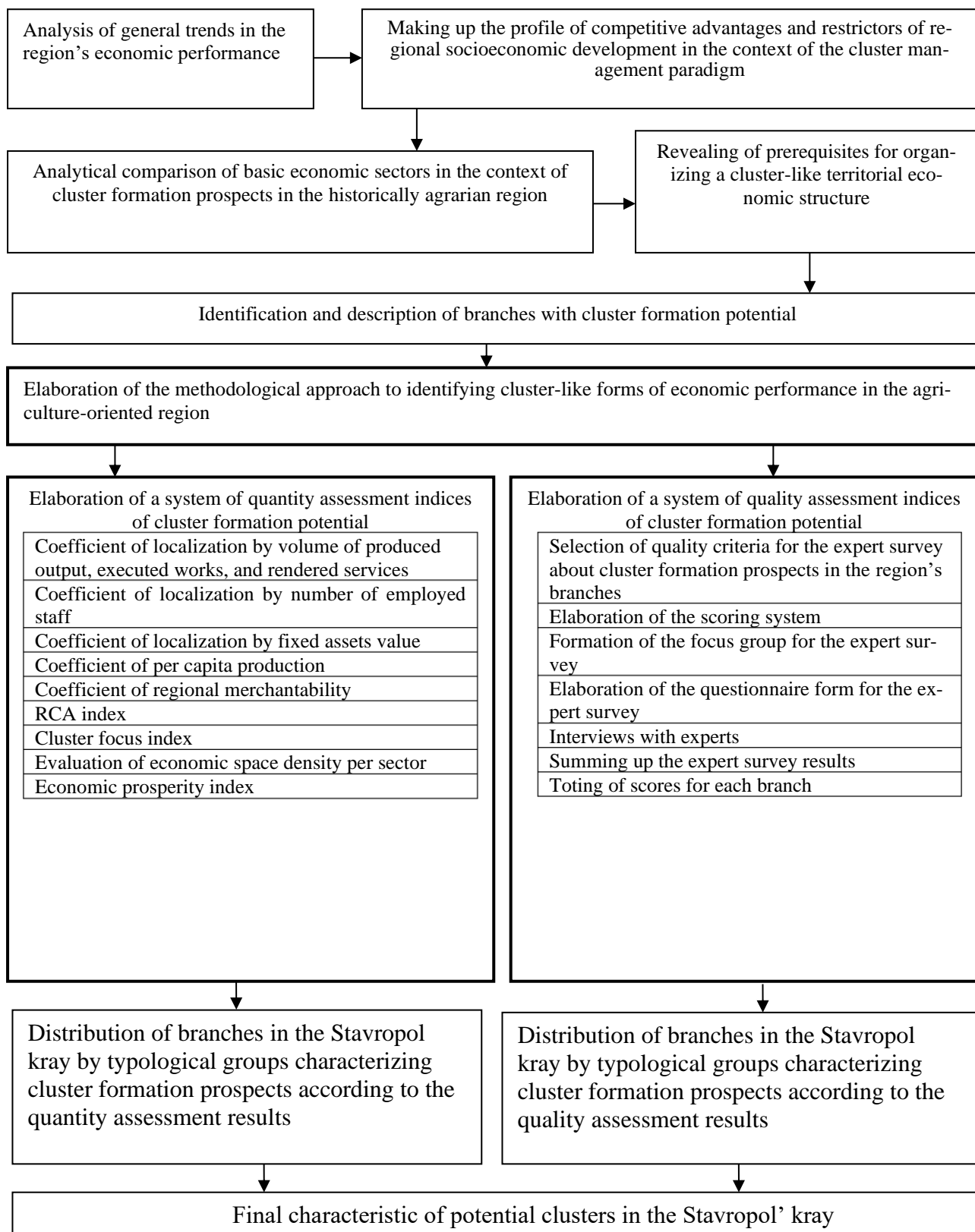


Fig. 2. Function chart of the recommended methodological approach to identifying cluster forms of economic performance in the historically agrarian region

The given approach will make it possible to monitor and identify changes in the cluster formation in the region and provide relevant information for making respective managerial decisions in the regional management system.

The main elements of the region's management system based on the cluster approach were validated in the light of the analytical effort results. In the authors' opinion, the system must make provision for the two following scenarios:

- 1) monocenter implosion with the development of a cluster in a basic branch of economy: when the region's management system identifies a protocluster formation, it will gradually incubate the full cluster and launch it in the interregional economic space;
- 2) polybranch clusterization of economy, which will mean the creation of clusters in several propulsive branches with the formation of the mechanism for their interaction and subsequent networking of economy.

That said, each of the scenarios has its implementation strategy with respective proposed organizational and methodological elements (Fig. 3). This study has made it possible to formulate the main immanent characteristics of the potential clusters in the Stavropol' kray. In the context of the proposed concept, the influence on these characteristics will give momentum to the further development of the existing propulsive branches for the subsequent implementation of the cluster paradigm in the management system of the agriculture-oriented region.

4. DISCUSSION

This study has shown that, despite their significance to the region's economy in general, the cluster formation questions have a fragmented procedural framework not meeting the requirements and imperatives of the postindustrial development paradigm. Today, many questions in the system of research support of economic clusterization are still open. The key aspects of the current potential clusters in the Stavropol' kray are:

- 1) The kray's tourism and recreation cluster can be treated as a no-core tourism and recreation cluster having a unique natural and resource basis and recognized for a well-known full brand extrapolated to the whole territory. The restrictive factors are the weak influence and low localization relative to the region's economy. The cluster significantly invigorates the development of supporting and attending branches in the local economy, in particular, for small businesses; however, it has low export capacity.
- 2) The region's industrial and production cluster has the features of the cluster in chemical and oil chemical industries. There are some branches with obvious leading enterprises (cluster core); however, the degree of integration around them is insignificant. The cluster is the main carrier of export capacity in the region's socioeconomic system. It can work without any state-induced dirigism but still has a low fraction in the region's economic pattern. From the standpoint of employment provision, this is not a backbone cluster, and its role in the local economy is too insignificant to position the branch as a full-fledged cluster. A major prospect for further development is the deeper integrative engagement with neighboring economic sectors. Service sectors can become the linchpin among several clusters in the region;

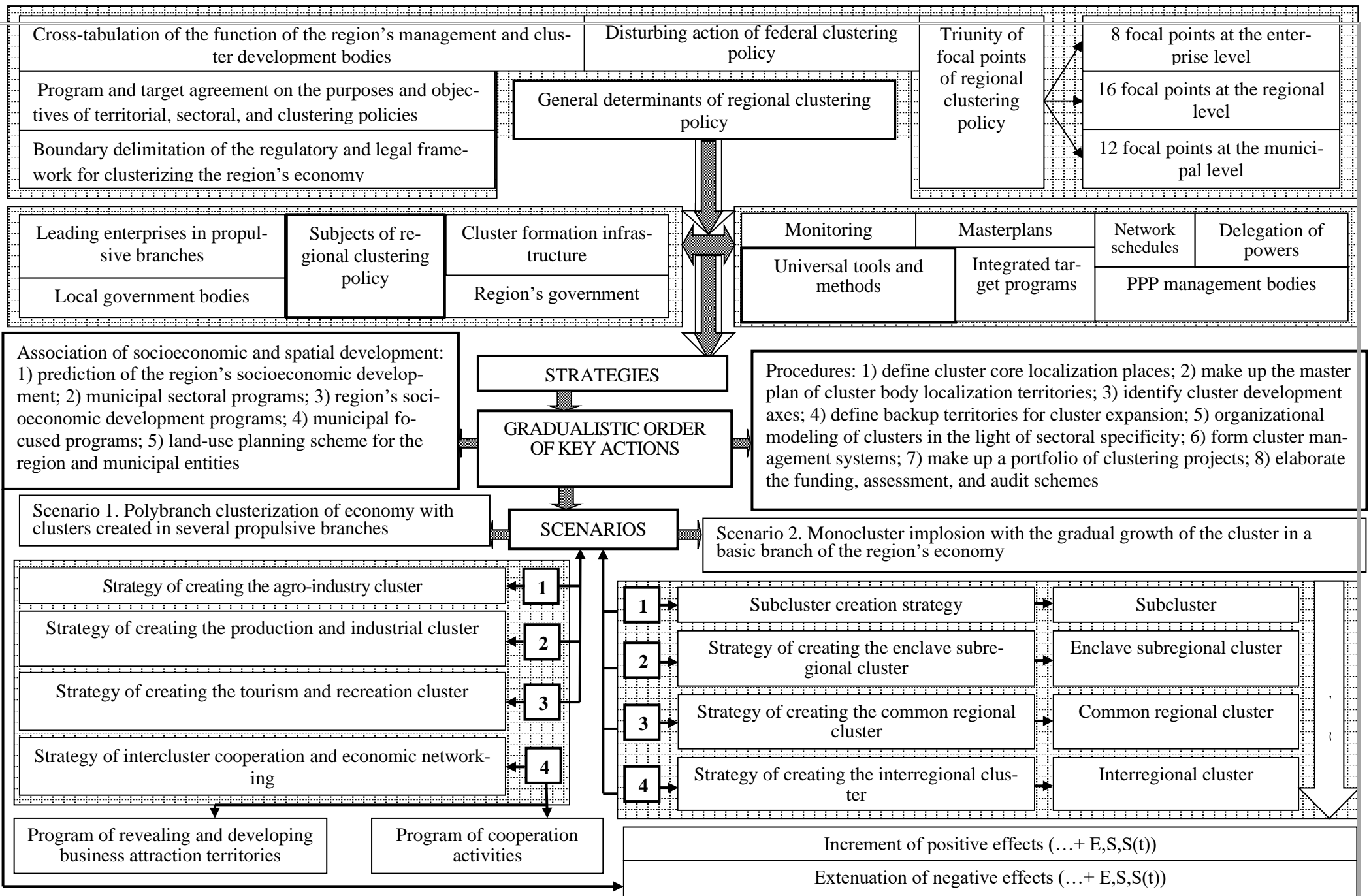


Fig. 3. Regional management concept based on the cluster approach

3) The region's potential agrarian cluster is a no-core production cluster with an important socioeconomic role in developing the local economy. The weakest characteristic feature is the insufficiency of internal intercompany relations for the cluster's full-fledged development. This shows in the absence of the optimal balance between trust and competition, and, most importantly, cooperation. The cluster's characteristics are a high density of economic space, sufficient localization but weak innovative and export capacity. Its further development is largely contingent upon the influence of uncontrollable factors. Being a backbone cluster for the region, the agrarian cluster is exposed to a strong influence of the state.

5. CONCLUSION

It should be noted that a major problem for Russia's economy is the insufficient infrastructural and institutional supportability of regional clustering policy. There is no infrastructural element with information and analytical functions that would monitor not only cluster transformations but also prerequisites for active cluster formation. The technique proposed according to the study results aims to identify potential clusters in the propulsive branches of economy of the agriculture-oriented region and relies on a system of indices (local manufacturing content coefficient, coefficients of per capita production, regional merchantability, RCA index, cluster focus index, economic space density index, economic prosperity index) and expert assessment of the cluster formation prospects in the region's most developed economic sectors. The proposed methodological approach makes it possible to diagnose economic sectors to reveal groups with the strongest and the weakest cluster formation prospects. Using such information in the regional management system will allow encouraging economic growth on the basis of the region's backbone branches.

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