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## **Innovational Mechanism of Implementation of Cluster Initiatives in Business**

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**Abstract:**

*The authors view the problems of developing countries and create innovational organizational and managerial mechanism of clustering, aimed at solving these problems and adapted for provision of sustainable regional development in view of clustering. As a result of the research, the authors come to the conclusion that realization of potential of clustering in the increase of competitiveness of regional economy can be achieved by means of formation of complex mechanism of management of regional socio-economic development. That's why, in order to receive maximum profit from clustering, innovational organizational & managerial mechanism of realization of cluster initiatives in business should be based on formation of regional innovational clusters as a part of complex mechanism of management of regional development. The mechanism that is offered in the article aims at solving the problems of developing countries in the sphere of clustering by means of coordination of actions of regional authorities and members of cluster entities. Cooperation and interaction of members of cluster entity and regional authorities are oriented at the increase of efficiency of cluster functioning and achievement of goals of regional development in economic, social, and ecological spheres.*

**Keywords:** *mechanism of clustering, cluster approach, cluster initiative, entrepreneurship, developing countries.*

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## 1. Introduction

Cluster approach has been used in world practice since the beginning of the 20<sup>th</sup> century. Certain traditions of clustering were formed during that time. However, with development of cluster concept and its expansion in the countries of the world, it became obvious that the mechanisms of clustering which were successfully functioning in developed countries were characterized by lower efficiency in developing countries. This was primarily due to peculiarities of regional development of developing countries.

In this regard, the problem of search for innovational mechanisms of implementation of cluster initiatives in business which allow solving problems of developing countries separately or the ones that can be applied to all groups of countries is very topical. This research is devoted to determining the problems of developing countries and creating innovational mechanism of clustering which is capable of not only solving these tasks but is adapted to provision of sustainable regional development in view of clustering.

## 2. Materials and method

The research is based on the works of modern authors regarding the issue of development of cluster initiatives in business, which include Laur 2015, Emmoth et al 2015, Aragón et al 2014, Diyamett 2013, Gallié et al 2013, Vanka et al 2012, Popkova et al 2014, Nica 2010, Antonenko 2014, Esen and Asik-Dizdar 2014, Havlicek et al 2013a, Havlicek et al 2013b, Liapis et al 2013, Thalassinou et al 2012.

Informational and analytical basis of research is statistical information on dynamics of development and modern state of cluster initiatives in Russia. Statistics of distribution of cluster initiatives as to time of emergence (Fig. 1) reflects the gradual transition of initiative from developed countries to developing and transitive countries – countries with transitive economy, which include modern Russia.



**Fig. 1** Distribution of cluster initiative as to time of emergence

Distribution of cluster initiatives according to the federal districts of the Russian Federation (Table 1) vividly shows a high level of regionalization of cluster initiatives in the territory of modern Russia with clear domination of the Central Federal District.

**Table 1.** Distribution of cluster initiatives as to federal districts of the Russian Federation

Federal district	Number of cluster initiatives	Number of supported cluster initiatives	Share of supported cluster initiatives, %
European part of Russia			
Central	26	6	23
Northwestern	11	3	45
Southern	8	0	0
Volga	22	9	41
North Caucasian	1	0	0
Asian part of Russia			
Ural	6	1	17
Siberian	18	5	39
Far Eastern	2	1	50

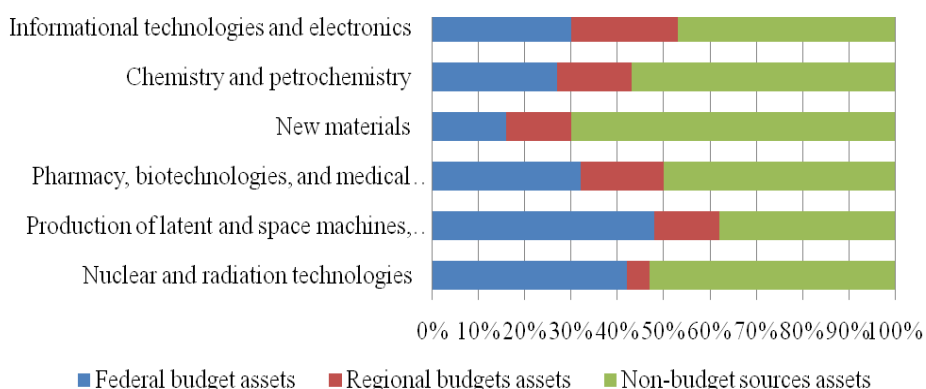
Analysis of key indicators of development of regional cluster initiatives (Table 2) showed that total income from sale of non-energy products in the internal and external markets of clusters is higher than average Russian value. The volume of attracted investments and level of innovative activity is also very high in clusters, as compared to Russian values. All of this proves the effectiveness of implementation of cluster initiatives in modern Russia.

**Table 2.** Key indicators of development of regional cluster initiatives

Indicator	Current value, RUB billion	Predicted value, RUB billion	Dynamics of indicator	All-Russian value (according to estimates of the Ministry of Economic Development and Trade of Russia)
Total volume of income from sales of non-energy products in internal and	1,862.8 (2014)	3,810.6 (2016)	Rate on increase – 105%	Rate of growth of manufacture of industrial products for the period of 2014-2016 – 58% (in current prices)

external markets				
Total volume of private investments into development of production, development, and promotion in the market of new products	644.5 (2010-2014)	5,174.2 (2014-2016)	Ratio of yearly average volume in 2014-2016 to yearly average volume in 2010-2014 – 146%	Total volume of private investments – RUB 23,800 billion (2010-2014)
Total volume of expenses for R&D	1110.0 (2010-2014)	968.8 (2014-2016)	Ratio of yearly average volume in 2014-2016 to yearly average volume in 2010-2014 – 145%	RUB 2,552 billion (2010-2014)

Distribution of territorial cluster in Russia as to sources of financing (Fig. 2) reflects domination of assets of non-budget sources in all main spheres of implementation of Russian cluster initiatives.



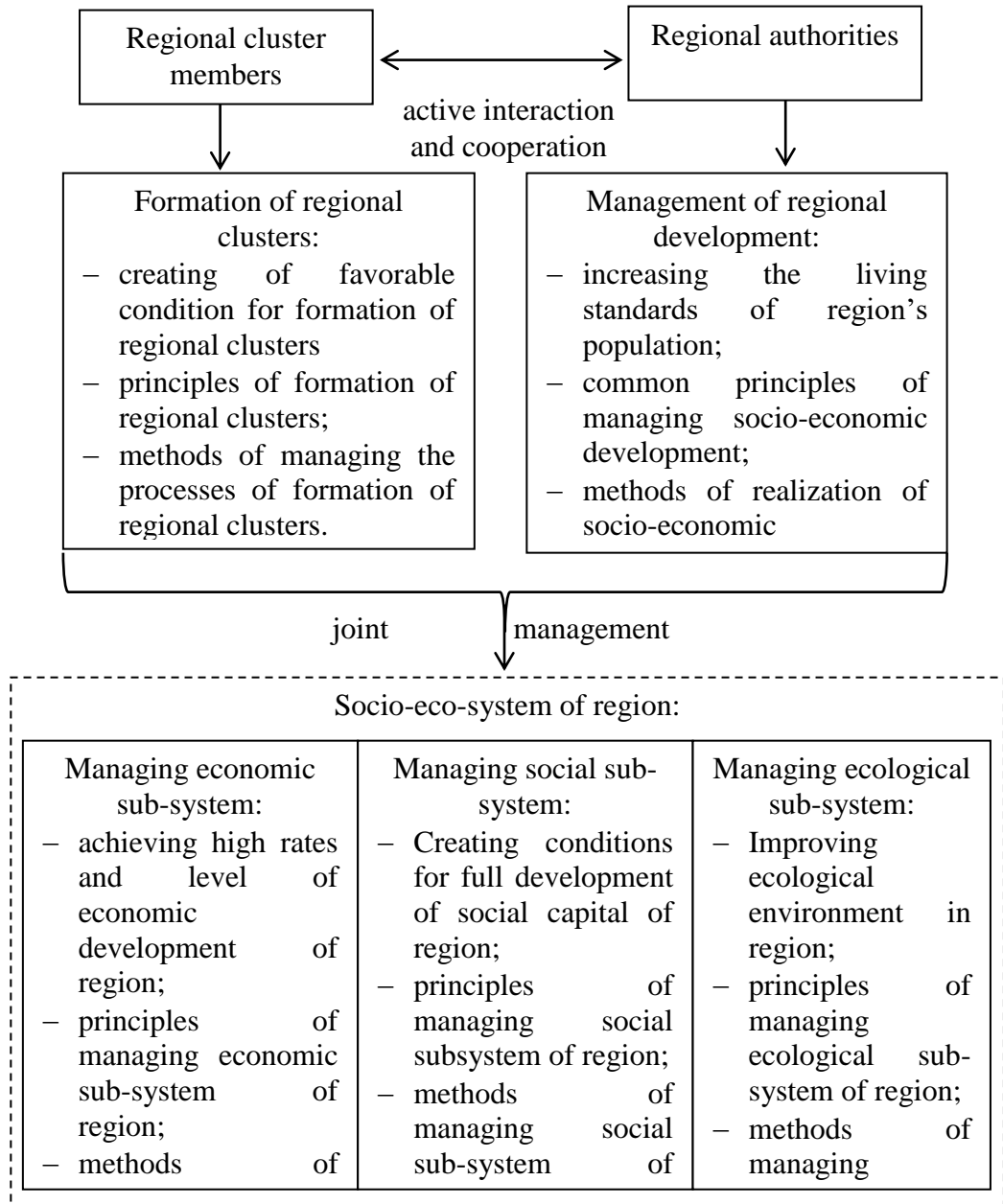
**Fig. 2** Distribution of territorial clusters in Russia as to sources of financing

### **3. Results**

The main problems that are faced by modern clusters in developing countries are the following (Carneiro et al 2015):

- lack of financial resources – one of the main problems which hinder the cluster development;
- lack of necessary costly equipment for research and organization of production;
- lack of sufficient areas with proper infrastructure for business development;
- legal difficulties during registration of rights for created intellectual property;
- correctness and difficulty of registration of innovational project which includes technical and technological parts and financial plan, as well as taking the idea to industrial issue of products;
- lack of highly-qualified staff, primarily of engineer specialties.

Realization of potential of clustering in the increase of competitiveness of regional economy is achieved by means of formation of complex mechanism of management of regional socio-economic development. That's why, in order to receive maximum profits from clustering, the article offers innovative organizational & managerial mechanism of implementation of cluster initiatives in business, based in formation of regional innovational clusters as a part of complex mechanism of managing region's development which can be presented in the following way (Fig. 1).



**Fig. 1** Innovative organizational & managerial mechanism of implementation of cluster initiatives in business

As is seen from Fig.1, the mechanism of management of regional development includes three subdominant mechanisms of management: economic, social, and ecological sub-systems of region. Formation of the mechanism of management of

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regional development should be based on the system of principles. The most general principles of management of socio-economic development include: principles of sustainability of development of regional system, of development safety, and of balance of interests during region's development.

Principle of sustainability of regional system supposes long preservation of conditions for reproduction of territory's potential (its social, natural & resource, ecological, and other components) in the regime of balance and social orientation (Geldes et al 2015). The safety of region's development is understood as one of the most important characteristics of complex socio-economic development, characterizing the state of object in the system of its connections from the position of its capability for survival and development under the conditions of internal and external threats and actions of unpredicted factors.

Principle of balance of interests supposes well-balanced development of nature, population, and region's economy. At that, the most interesting is the mechanism of management of economic sub-system of region, as it determines the development of other sub-systems of regional socio-economic systems. This mechanism includes the mechanism of formation of regional innovational clusters which aims at creation of favorable conditions for formation of such clusters.

The main principles of management of economic sub-system of region include: integration of financial resources, balance of economic interests, responsibility, use of effective methods of management, focused use of resources, satisfaction of needs of target groups (Popkova and Tinyakova 2013b).

Principle of integration of financial resources supposes mobilization of all possible sources of investment financing of strategic development of region. It is closely connected to the principle of balance of economic interests which supposes, firstly, the determination of managing and economic subjects which have current or perspective interests in region's development, searching and taking coordinated investment decisions; secondly, provision of interests of managing and economic subjects which participate in implementation of set strategic economic goals of region's development (Mihajlović 2014).

Principle of responsibility supposes determination of responsibility of specific persons, organizations, and establishments for the use of resources and fulfillment of particular tasks. Principle of control supposes conditions for constant tracking of the process of implementation of the goals of socio-economic development of region. Principle of targeted use of resources means concentration and use of limited material and financial resources for achievement of set goals of region's development. Principle of satisfaction of needs of focused groups supposes orientation of actions of territorial authorities and entrepreneurs during implementation of goals for satisfaction of needs of focused groups of consumers of goods and services within and beyond the given territory (Xavier et al 2015,

Thalassinos et al 2013).

Let us view the content of the mechanism of formation of regional innovational clusters in detail. The conducted analysis showed that the main elements of the mechanism of formation of regional innovational clusters, which are presented in legal documents of the Russian Federation, are: goals, tasks, principles, and measures for formation of clusters, as well as members. Goals of cluster development could be divided into two groups: goals for development of territories and goals for development of organizations within cluster. First group includes diversification of economy, development of innovations, socio-economic development of region, development of infrastructure, increasing the access to financial resources, attraction of investments, development of public private partnerships. The second groups includes the growth of competitiveness, entry to the global market, exchange of technologies and information, acquisition of new markets, manufacture of products which satisfy region's economy, expansion of products range, increase of production volumes, increase of labor efficiency, improvement of products quality (Popkova and Tinyakova 2013a).

Generalization of tasks of cluster development which are presented in legal documents of regional and trans-regional levels in the previous chapter allowed dividing them into three groups: formation of modern cluster structure, entry into new markets, and improvement of manufactured products and production technologies. The conducted analysis of legal base of cluster policy of the RF subjects showed that significant attention in the viewed documents is given to cluster members. At that, possible cluster members are (Popkova et al 2013):

- business incubators;
- universities;
- innovational small enterprises;
- construction bureaus;
- R&D institutes and centers;
- scientific organizations;
- infrastructure objects;
- organization of main activities of cluster;
- organizations which provide functioning of main organizations;
- state authorities;
- technological parks;
- center for technologies transfer;

This mechanism includes companies, state bodies, and educational and R&D establishments. However, in this model, the key elements are not only the state but private sector. Thus, in this mechanism, the subject of management is not only the state but companies which are potential members of cluster. Financing of the project of cluster creation is also performed by means of state and private assets.



Administration of mechanism is performed by organization which includes representatives of business, state bodies, educational and scientific establishments, and public organizations. Its activity is aimed at the development of cooperation between companies and between companies, R&D organizations, and universities.

Thus, this model of creation of mechanism is peculiar for high level of decentralization and multi-channel financing. One of the main elements of this mechanism is the system of principles. The most developed clusters have five essential characteristics, the first three of which can be viewed as initial preconditions for cluster formation (Reveiu and Dârdală 2015):

1. Presence of competitive enterprises. A key condition for development of cluster is presence of enterprises in cluster which are competitive in Russian and/or global markets. Concentration of employment in depressive enterprises can be a precondition for formation and functioning of cluster, but it is not a criterion of cluster presence. Competitiveness indicators are the following: relatively high level of efficiency of companies and sectors of cluster; high level of export of goods and services; high economic indicators of companies activities (like profitability and shareholder value).
2. Region/territory's competitive advantages for cluster development. For example, good geographical location, specialized human resources, suppliers of components and related services, specialized educational establishments and programs, specialized organizations working in R&D, presence of necessary infrastructure and other factors. Indicators of competitive advantages of territory are the following: relatively high level of attracted foreign investments at the level of enterprises or sectors of cluster.
3. Geographical concentration and proximity. Key members of clusters are very close to each other in terms of geography, thus having opportunities for active cooperation. Geographical scale can vary depending on the type and peculiarities of cluster and can cover one subject of the RF, municipal entity, or several subjects. Indicators of geographical concentration include various indicators which characterize high level of specialization of this region.
4. Wide circle of members and "critical mass". Cluster can consist of companies manufacturing final products and services which are, as a rule, exported beyond the region, systems of suppliers of components, equipment, specialized services, and professional educational establishments, R&D, and other supporting organizations. The indicators characterize high level of employment at enterprises and sectors of cluster, number of companies and organizations of sectors within cluster.
5. Connections and interaction between cluster members. One of the key factors of success for cluster development is availability of work connections and coordination of efforts between cluster members. These connections can have different nature, including formalized relations between main company and suppliers, between suppliers themselves, partnership with suppliers of equipment and specialized service; connection between companies, universities and R&D establishments during implementation of joint R&D and educational programs.

Also, contacts between companies of small and medium sizes can be connected to coordination of efforts of these companies for collective promotion of goods and services into existing and new markets. The system of mechanisms of influence on organization and management of clusters is shown in Table 1.

**Table 1.** System of mechanisms of influence on organization and management of clusters

Mechanisms	Tools
Managerial	Organization of council and office of cluster, integration of the chain through inviting the company-integrator and suppliers, system of certification and standardization of products
Products	Preparation of production areas – parks of suppliers, industrial parks; system of subcontracting; system of logistics and territorial planning
Communicational	Entering innovational networks; holding the “suppliers conference”
Financial	Working with credit establishments and special funds; venture financing; state financing
Research	Organization of centers of superiority; scientific cooperation; incubation of innovational companies; technologies transfer

It should be noted that very often the existing clusters in developing countries have to face the problems of survival, without any investments into scientific research, purchase of new equipment or implementation of technological processes. Under these conditions, it is impossible to hope that the products manufactured by innovational cluster will be competitive in the internal market, let alone the global one.

### **3. Conclusion**

It should be concluded that the developed innovational organizational & managerial mechanism of implementation of cluster initiatives in business is aimed at solving problems of developing countries in the sphere of clustering by means of coordination of actions of regional authorities and members of cluster approaches. Cooperation and interaction of the mentioned subjects will allow not only increasing the efficiency of cluster functioning but achieving goals of regional development in economic, social, and ecological spheres.

During practical implementation of the developed mechanism, it is advisable to take into account institutional specifics of particular countries and correct principles of managing cluster initiatives in view of specific goals and landmarks of regional development. A perspective direction of further research is the development of

universal mechanism of clustering which will correspond to the peculiarities and priorities of developed and developing countries.

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