

DEVELOPMENT OF A CONCEPT MODEL OF AN INTEGRATED SYSTEM OF REGIONAL ECONOMIC COMPETITIVENESS MANAGEMENT

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Abstract: The regional issue of economic competitiveness development becomes more and more important for Russia being to a significant extent influenced by economic environment segregation. Thus, a search of optimal approaches to the management of such a complicated object as regional economic competitiveness becomes important. Consequently, this article is focused on development of an integrated system of regional economic competitiveness management allowing to the fullest extent to consider reserves of certain advantages. The most important approach to the management of regional economic competitiveness is cluster type of its spatial organization which is the most efficient one from the point of view of increase of investment and innovation activities as well as other areas of activities of business units on the regional territory. This article proposes a concept model of management of regional economic competitiveness represented as a hierarchal three-level structure allowing to consider it at high level within a closed unified circle, on the one hand, and in a detailed way at the level of a region, an industrial cluster, and independent business units integrated into it, on the other hand. The article materials may be useful for regional authorities in their activities of regional economic competitiveness development.

Keywords: competitiveness, region, management system, concept model, objective tree, industrial and regional cluster

1. INTRODUCTION

In the environment of competition escalation, increase of competitiveness of the Russian economy is a priority direction of social and economic development of the country. The regional issue of economic competitiveness development becomes more and more important for Russia being to a significant extent influenced by economic environment segregation.

World's economy globalization establishes new competitive conditions of activities of Russian business units effectively influencing all levels and spheres of their interaction with the environment. Thus, a search of optimal approaches to the management of such a complicated object as regional economic competitiveness becomes important.

The most important instrument of the management of regional economic competitiveness is the cluster type of its spatial organization which is, in our opinion, the most efficient one from the point of view of development of investment and innovation activities as well as other areas of activities of business units on the regional territory. Nowadays, among the scientific approaches, the cluster approach to the issue of management of regional economic competitiveness becomes more and more important as the most priority direction having high potential opportunities of development of new competitive advantages of regional economics.

Considerably a lot of works of Russian and foreign authors have been devoted to the management of competitiveness of Russian regions; nevertheless, the issues of establishment and development of a multilevel system of Russian regional competitiveness management have not been studied fully enough. The importance and necessity of increase of competitiveness of Russian regions and the efficiency of their management in the modern environment have determined the importance of this article.

In the well-known works of Russian economic researches, different issues of establishment of mezzo-level object competitiveness management systems have been studied, where an algorithm of development of an efficient object management system was proposed, and a concept of a system of regional competitiveness management was offered based on the following strategic directions of regional competitiveness development: support of efficiency of regional economic management; support of investment and innovation activities; support of competitive environment activities; support human potential development [3, 6, 13, 15, 16].

Works by well-known Russian and foreign researches are devoted to the issues of development and operation of systems of object competitiveness management at the micro-level [2, 4, 17, 18, 19, 21].

Thus, in the work [12], an algorithm of development of an efficient object management system was proposed based on the results of an analysis of a wide range of literature sources, contemplating implementation of the following stages of development:

- development and structuring of tasks and objectives of the management system establishment;
- definition of the basic functional management processes;
- determination and application of optional blocks of management tools;
- correction of the objectives and the order of the management system operation.

The achievement of efficient management improvement is always supported by application of advanced ideas, instruments, processes, and organizational forms of management. The main thing in the new management paradigm, as the author of the work [2] mentions, is the new management quality caused by occurrence of new demands to the performance and efficiency of operation of business units of any level accompanied by enlargement of the contents, complexity, and variety of the tasks to solve. The management quality cannot be a result of discreet measures, it is an issue of consistency ensuring competitiveness and efficiency of business unit management. Modelling a trend and environment of business unit development, the quality of its management shall be considered as a strategic objective, the achievement of which ensures competitiveness. The management quality, as a result, is represented by a constant ability to generate and implement new competitive advantages of a unit.

To develop a system of regional economic competitiveness management, it is necessary, first of all, to establish the main methodological requirements to its development: first, a system shall be a part of a general social and economic system of a

region and considered as its subsystem being an object of analysis and synthesis; second, the system shall be scientifically grounded; third, the system development shall be based on strategic objectives [20].

However, it is worth mentioning that the issues of the development of competitiveness management systems are usually considered in many works at the level of an enterprise and goods and services. A brief analysis of the works in the sphere of the development of object competitiveness management systems shows that, despite of their significant number, this issue remains unsolved at a regional level and requires further elaboration.

2. METHODS AND MATERIALS

A concept of management of regional economic competitiveness presupposes a necessity of development of an integrated system that can be represented as a concept model. In modern economic conditions, the development and implementation of the integrated system of regional economic competitiveness management considering predicted long-term and current changes in the external and internal environments is the main task of efficient management at the regional level. In the environment of increasing competition, the issues of development of adaptable systems of regional economic competitiveness management become especially important as the main source of creation of new competitive advantages and strengthening the existing ones and the importance as an object of management.

The development of the concept model of the integrated system of regional economic competitiveness management is a difficult task requiring application of modern research methods to support its development, which is a system of interconnected requirements, approaches, principles, methods, and instruments.

In the process of development of the concept model of the integrated system of regional economic competitiveness management, one of the main requirements is quality of management arrangement achieved through its regulation, where:

- the borders of the system outline are defined, i. e. it is determined, how many and which constitutive subsystems and their elements it includes;
- the objectives of the system in general are defined, and the characteristics of its subsystems and their elements are described;
- the ways to achieve the set objectives of both the system in general and each of its subsystems and their elements are planned, and the scheme of their interaction in the process of the system operation is developed.

The management quality as one of the objectives of the development of a system of regional economic competitiveness management is established during objective setting, achieved during the system operation, and assessed during control and correcting in a period of regulation. Besides, the mechanism facilitating the management quality is determined by interconnection of factors of external and internal environments. Quality of the system of regional economic competitiveness management includes management features related to its ability to facilitate efficient results of activity.

The main features of the management quality can be classified with attributes determined by development of corporative culture, a system of decision development and taking, and the efficiency of authority distribution between management bodies.

The developed concept model of the integrated system of regional economic competitiveness management shall, first of all, facilitate quality and efficient taking of

strategic managerial decisions focused on increase of economic competitiveness of a region. Consequently, the whole new level of management of regional economic competitiveness can be achieved only through a system of its support based on a cluster approach and reindustrialization.

In the environment of globalization and competition development, competitiveness increases in parallel with the level of competitiveness of not only goods and services but also of business units themselves and their integrations, like financial and industrial groups, holdings, corporations, industrial and regional clusters, and regions in general. Therefore, a task of development of theoretic and methodological aspects of establishment of quality systems of management of the listed units' competitiveness becomes an important strategic issue. This issue is especially important for a regional level and its priority strategic direction – reindustrialization, when a task of development of a new technological industrial base to manufacture high-technological and competitive products has been set.

Thus, the management quality in the modern environment becomes the main requirement to growth of competitiveness of regional economics as one of basic conditions for achievement of a high life level for the population achievable via application of instruments of competitive economics.

The achievement of improvement of the management quality is always facilitated by application of advanced ideas, instruments, processes, and organizational forms of management. The main thing in the new management paradigm is the new management quality caused by the occurrence of new demands to the performance and efficiency of operation of business units of any level accompanied by enlargement of the contents, complexity, and variety of the tasks to solve. The management quality cannot be a result of discreet measures, it is an issue of consistency ensuring competitiveness and efficiency of business unit management. Modelling a trend and environment of business unit development, the quality of its management shall be considered as a strategic objective, the achievement of which ensures competitiveness. The management quality, as a result, is represented by a constant ability to generate and implement new competitive advantages of a unit.

Increasing quality of the development of the integrated system of regional economic competitiveness management contemplates:

- clearer task setting for the management system and its subsystems at the respective hierarchy levels making their operation more target-driven;
- consistency of criteria of operation of different level subsystems and increasing efficiency of incentives motivating to consistent actions;
- selection of reasonable structural forms of management arrangement and improvement of management structure at each hierarchy level and of the system in general;
- development and application of efficient up-to-date methods, programs, and algorithms facilitating high quality of managerial task solution;
- implementation of highly efficient operations and processes of data processing based on application of modern computer technologies;
- scientifically grounded improvement of management culture.

Thus, the approach to the development of the concept model of the integrated system of regional economic competitiveness management from the point of view of management quality provides for a higher level of its development.

The basis of quality development of the concept model of the integrated system of regional economic competitiveness management is a system theory explaining the principles of development of competitiveness of business units with reference to each other and allowing to consider fully the issues of increasing of their competitiveness from the point of view of the tasks of regional economic and social development.

It is known that a management system consists of four following elements: methods, structure, process, and technique of management. In addition, management methods include: scientific approaches to management, laws of competitiveness, economic laws and principles of management, functions and technology of management, and management practice [1, 5, 7, 8, 9, 10, 11, 14].

Moreover, a system shall have a range of features that can be combined in the following groups reflecting the nature and complexity of a system: relations with the environment; task setting methods; parameters of the system operation and development.

Thus, a system can be defined as a group of interconnected elements constituting a whole and featuring a range of common attributes, such as: a number of constituent elements; existence of relations between them; existence of a structure and its hierarchy; relative independence and manageability.

The second important idea of a management system is its structure representing a number of elements interconnected by sustainable links and relations and constituting a whole, i. e. a system. The elements, in their turn, consist of parts (in our case, subsystems of a region, a cluster, and a business unit) also having all system features at a specific level of consideration. Therefore, one can talk about both a structure of a whole (in our case, a system of regional economic competitiveness management) and a structure of the parts constituting it, i. e. the hierarchy levels: the levels of an enterprise, a cluster, and a region in general.

Considering the idea of management structure, let us mention that it is a key stage in the development of the concept model of the integrated system of regional economic competitiveness management. It is here that a significant part of success lies, because in this stage a general line of activities is developed on the way to the implementation of the objective – the development of the model of competitive regional economics having a long-term potential of economic growth.

Since the developed structure is a system, it is necessary to apply a system approach meaning that no its subsystem can be extracted from the analysis. It is the common subsystem and element interaction that generate all the system features. Furthermore, with the development of innovative economics, occurrence of new forms of business unit management, and intensification of their differentiation, a need arises with the subjects of regional economics to study the management of competitiveness of regional economics based not only at the system approach but also at the complex one.

All the above mentioned causes a reasonable need to develop regional systems of competitiveness management intended to facilitate dynamics of regional social and economic development both currently and in a long-term perspective. That is why it is necessary to analyze the principles and issues determining the establishment and development of competitiveness of regional economics as well as to consider all its aspects systematically and fully for its efficient management.

In order to facilitate the efficient management of competitiveness of regional economics, controlling and regulating influence of regional authorities is required to arrange the respective conditions, including development of a competitive environment, an advanced finance and loan system, and a beneficial fiscal policy, the development of

various forms of partnership of the state and private sectors, the development of inter-regional and international relations and other infrastructure elements.

Thus, the theoretic and methodological provisions developed by Russian and foreign researchers allowed to define the main trends of change of regional economic competitiveness and established jointly the necessary conditions of the development of its management methods in the environment of Russian economic modernization. However, despite of versatility of the researches made in this area, theoretical, methodological, scientific, and practical issues of increase of regional economic competitiveness, development of efficient systems of its management and their structures and mechanism of operation and practical implementation remain in fact unsolved, that is why the necessity of the development of the regional economic competitiveness management system occurs that would integrate competitiveness of enterprises, clusters, and a region in general. Such system shall be complex and cover all the hierarchic levels of competitiveness (goods, an enterprise, a cluster, and a region).

3. RESULTS

In the process of the development of the concept model of the integrated system of regional economic competitiveness management (ISRECM), it is necessary to comply with common system principles comprising the respective requirements to the development and operation of management systems. Nowadays, the common management principles are known. The most important ones determining the development quality are: scientific grounds; goal orientation; integrity; adaptability; alternatives; ability to structuring and being decomposed; development continuation; complexity; perspectives; sustainability.

Besides, other common principles of management system development are also known, such as:

- application of modern methods of analysis of economic law and organization law operation;
- compliance with the requirements of application of a complex of scientific approaches to management;
- focusing of quantitative methods of assessment, control, and strategic management;
- integrability;
- unified combination of industrial, cluster, and territorial management.

The said principles contemplate the combination of industrial, cluster, and territorial management within a unified system and are the leading features of the concept model of development of the system and structure of regional economic competitiveness management. The industrial and cluster principle is based on tasks, features, and opportunities of development of each specific industrial regional cluster, and the territorial principle intends to implement economic opportunities influenced by territorial competitive advantages.

Proceeding from the above, the structure of ISRECM predetermines a plurality of principles of the development of its concept management model. The management system shall not be considered apart from a management object. Two features lie in the basis of the above listed common system principles: facilitating a set purpose of the developed concept system model and stability of its operation in varying conditions of the external and internal environments.

It is worth mentioning that the development of the concept model of the integrated system of regional economic competitiveness management is a considerably difficult task,

whose difficulty is not only the large number of subsystems and their elements, but also establishment of relations between them determining the efficiency of operation of the developed system model. Therefore, the system and complex scientific approaches applied by us require clear definition of goals and tasks of both the system in general and its subsystems to consider all relations existing in them.

Consequently, beside the described principles and methods of management, the development of the system of regional economic competitiveness management shall be based on an objective system. A quite efficient method (instrument) for its development is nowadays development of an objective tree.

The objective tree of the integrated system of regional economic competitiveness management was developed by us in the following order:

1. Statement of the general objective of the management system.
2. Decomposition of the general objective into objectives corresponding to the system levels (first order objectives) through logic analysis.
3. Transformation of the first order objectives to sub-objectives describing the means of their achievement (second order objectives).

The basis of the objective structuring is the information stated in the above concept of development of regional economic competitiveness based on the cluster approach.

Taking into consideration the main provisions of the requirements of objective structuring and in accordance with the accepted algorithm, we have developed an objective tree in respect to the integrated system of regional economic competitiveness management (Fig. 1).

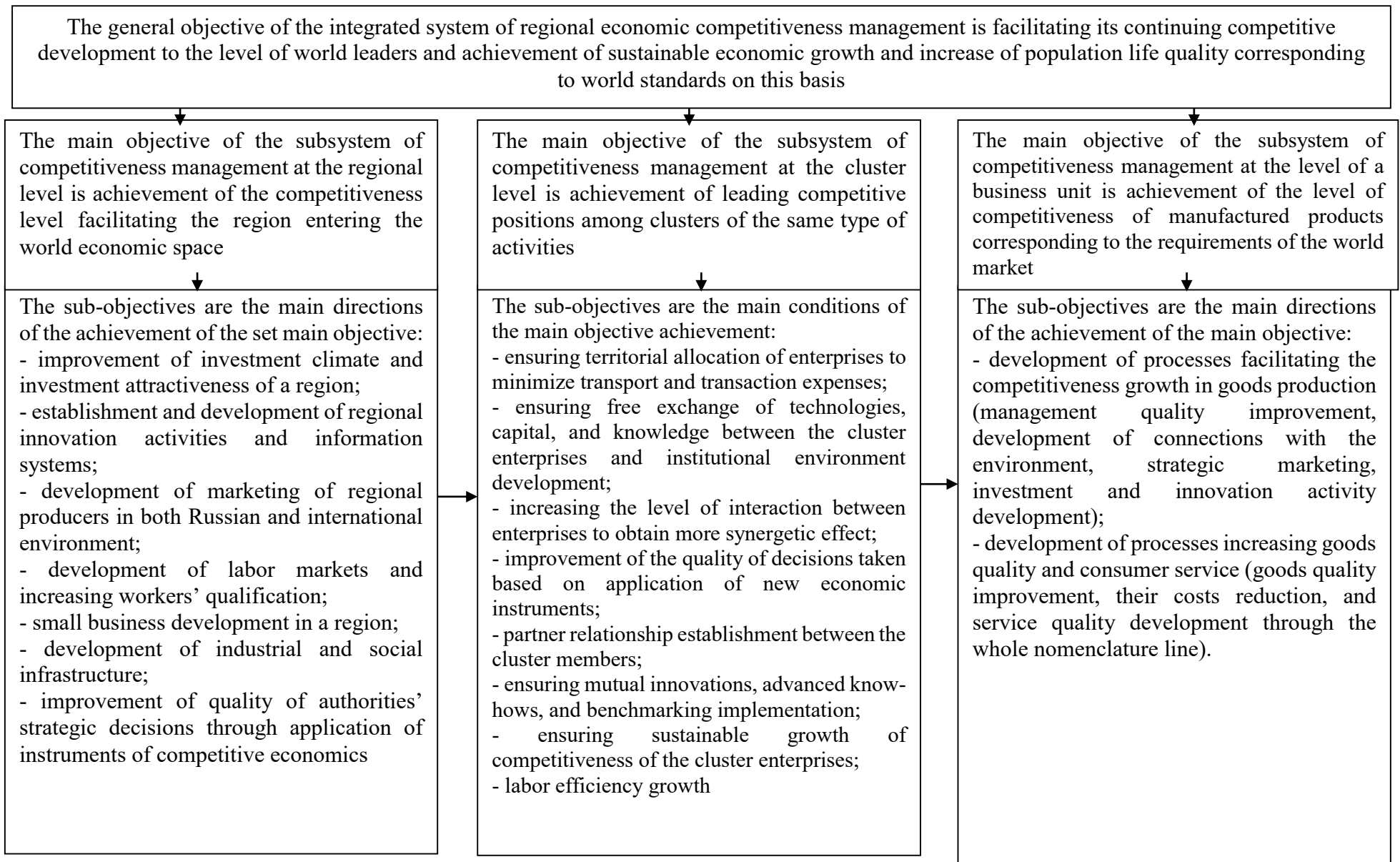


Figure 1 – The Objective Tree of the Integrated System of Regional Economic Competitiveness Management

As it is shown at Fig. 1, the general objective of the ISRECM is decomposed to the main objectives of the three respective subsystems and further to the sub-objectives detailed in the tasks.

The general objective and the first and second level objectives of the objective tree represent altogether a kind of a construction kit including all initiatives of the authorities controlling the regional economic competitiveness, industrial and regional clusters, and business units of different organizational and legal forms included in them. At the third level of the objective tree they are transformed, i. e. the main subsystem objectives switch to their sub-objectives that can be further decomposed to tasks implemented within certain programs and projects at each of the three hierarchy levels. The objectives and sub-objectives developed through this approach at all levels of management of regional economic competitiveness are interconnected, complement each other, and are of dynamic nature. Besides, implementation of one of the objectives effects implementation of other objectives and increases their level fundamentally.

Analyzing the structured objective system (Fig. 1), it is worth mentioning that a package of objectives of the subsystem of competitiveness management at the regional level includes establishment of beneficial investment, innovation, informational, and infrastructural conditions facilitating more efficient and dynamic development of competitiveness of industrial and regional clusters able to compete with world market players.

At the level of industrial and regional clusters in the subsystem of their competitiveness, it is necessary to solve the issue of competitive advantages development at the cost of additional reserves of synergetic effects generated as a result of efficient interaction of business units constituting integrated regional cluster units.

Consequently, the subsystem of competitiveness management of business units shall focus its main objectives on production of competitive goods able to satisfy the needs of not only Russian but also international consumers.

Performance of the main objectives of the respective levels requires solution of expected issues, in particular, an issue of planning of competitiveness growth at the level of industrial and regional clusters, business units, and a region in general. The system of objectives structured by us and represented by the objective tree (Fig. 1) describes the system of regional economic competitiveness management through a complex of aimed actions facilitating their further achievement.

4. DISCUSSION

The scientific grounds of the necessity of ISRECM development, the methodical approaches, principles, and requirements to the quality of the development of management systems have been translated into the concept model we have developed (Fig. 2).

The ISRECM concept model represents a closed circuit with the external environment, an “entry”, an “exit”, and feedback between them. The internal structure of the closed circuit includes three subsystems interconnected by direct and reverse links and located at different levels: a region, a cluster, and a business unit. Each subsystem of a respective level is independent in relation to each below one and includes a controlling subsystem and a controlled one also having direct and reverse links, the environment, the “entry”, and the “exit” at their levels.

The contents of the elements of the general management system circuit (Fig. 2), the main of which are the environment, the “entry”, and the “exit”.

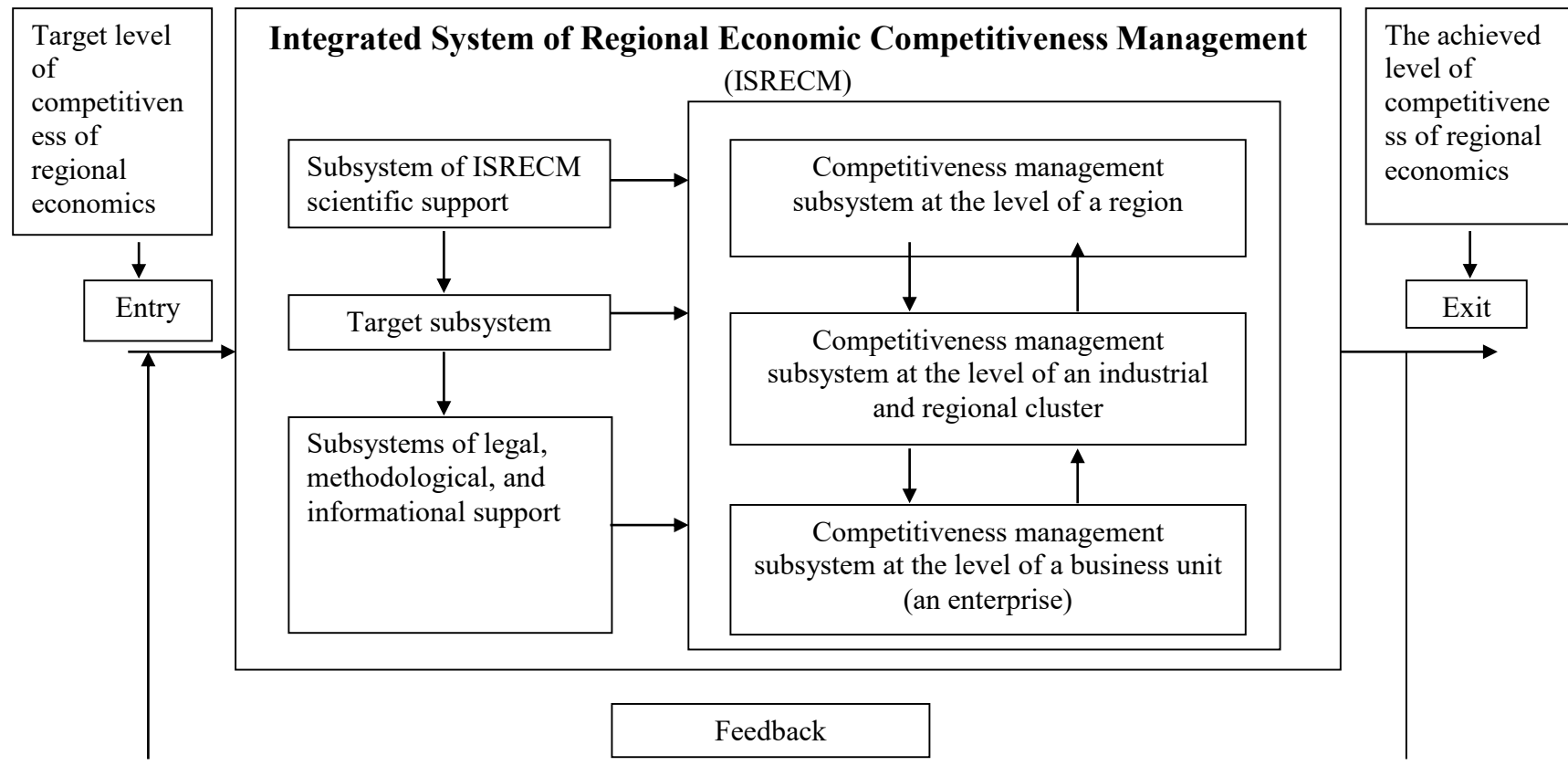


Figure 2 – ISRECM Concept Model

The integrated system of regional economic competitiveness management exists in close conjunction with the environment that influences its operation significantly serving as a source of resources to maintain its uninterrupted operation. Two main elements of the environment, common for all subsystems and their elements in the ISRECM can be distinguished: macro-environment and direct environment represented by business environment.

The macro-environment is a part of the environment including economic, political, legal, social, and technological elements. The business environment influences each ISRECM element directly and includes consumers of goods and services, suppliers of stock, materials, and energy, competitors, business partners, infrastructural bodies, state and municipal authorities, and other units.

The direct environment plays an important role in ISRECM operation and interaction of its organizational structures with the environment. Two main issues arise in the interaction of organizational bodies of the business environment at all three levels of management (a region, a cluster, and a business unit): interaction and adaptation; their solution influences significantly the operation of the whole system as an integrated structure.

Development of globalization and information technologies, sophistication and variety of supplied goods and services, their life cycle reduction, occurrence of a large number of competing enterprises, growth of consumers' demands – all these and other changes in the business environment strengthen the influence of the environment on the organizational structures of the ISRECM and their dependence on the environment. The latter force to look for new ways to improve interaction and develop their ability to adapt and react to the dynamics of environment changes flexibly. Such approaches, first of all, include strategic management allowing to forecast any future change of the environment and develop advance measures of an industrial, technological, economic, structural, and behavioral nature for both short- and long-term perspective.

The “exit” as an objective of the whole system reflects the achievement of the set main objective defined in the objective tree. The meaning of the ISRECM “exit” is achievement of the level of regional competitiveness corresponding to a predicted value of the international level and having a long-term potential of economic growth. Then the achieved international level of regional economic competitiveness is an economic basis for improvement of the life level of the region population to international standards. Respectively, the “exits” of each subsystem at the corresponding hierarchy levels are developed based on the main objectives described in the objective tree, like for the whole system of regional competitiveness management in general (see Fig. 1). The target level of the regional economic competitiveness is set quantitatively at the “entry” of the management system (Fig. 2). Such approach facilitates regional leadership.

Similarly, we can develop predicted levels of competitiveness of management entities of the respective subsystems at their “entries” (Fig. 2).

5. CONCLUSIONS

Therefore, the representation of the integrated system of regional economic competitiveness management as a three-level structure (Fig. 2) allows to consider it, on the one hand, at high level within a closed unified circuit, and, on the other hand, in detail at the level of a region, an industrial and regional cluster, and independent business units integrated into it. Such structure of the management system allows to describe the system

at its high (regional) level with detailed analysis of primary subsystems at the level of a cluster and an enterprise allowing to the fullest extent to consider competitive advantage reserves at each level. Besides, it allows to represent the task of optimization of regional competitiveness management as a group of numerous specific tasks of each level solved in a certain order. This way, coherent functioning of the system in general is facilitated, where the primary functional units at each hierarchy level are controlled by authorities of the lowest level of management monitored by higher authorities.

Thus, it is needed to conclude that the three-level system of regional economic competitiveness management focused on cluster development with strategic purposes and tasks, well-reasoned actions, and methods of their implementation recorded in it and intended to develop a globally integrated competitive region shall become an efficient instrument for achievement of the main priority of the strategy of social and economic regional development involving achievement of its stable economic growth and international standards of quality of its population's life. In addition, this system allows:

- to perform more efficient competitiveness management at the levels of: a region, a cluster, and business units;
- for cluster enterprises, to be more receptive to innovations;
- to generate impulses to develop competitiveness between cluster enterprises;
- to recognize, apply, and develop new synergetic links between cluster participants.

The main provisions, advice, and conclusions of the article may be used by regional authorities in their activities to increase competitiveness of regional economics, where the most important thing is the developed model of an integrated system of regional economic competitiveness management as an active instrument to increase the regional economic competitiveness.

REFERENCES

- [1] Yu. Yu. Aleksandrova. Issues of Competitiveness in Modern Economics, Issues of Modern Economics, 1 (21). [Electronic resource]. Link: <http://www.m-economy.ru/art.php3?artid=21900>
- [2] V. A. Vinogradov. Management Quality is the Basis of Modern Management Paradygm, Management in Russia and Abroad, 2006, 6, pp. 9–19
- [3] V. N. Volkova, A. A. Denisov. Basic System Theory and System Analysis: Manual for graduate students, Saint-Petersburg, Publishing House of Saint-Petersburg State Technics University, 1997, pp. 62–64
- [4] L. N. Kachalina. Competitive Management, Moscow, Eksmo, 2006, p. 464
- [5] L. Bertalanffy. General System Theory, Moscow, Progress, 1969.
- [6] E. I. Mazilkina, G. A. Panichkina. Competitiveness Management: Manual for graduate students, Moscow, Omega-L, 2007, p. 325
- [7] V. I. Podlesnykh. Theory of Enterprises: Manual for graduate students, Saint-Petersburg, Business Press Publishing House, 2003, p. 336
- [8] K. G. Popov, I. N. Sovetov. To the Issue of Application of Natural Management Principles, Management in Russia and Abroad, 2006 6, p. 3–8.
- [9] R. Ackoff, M. Emery. On Purposeful Systems, Moscow, Soviet Radio, 1974.
- [10] System Theory and System Analysis in Organizational Management: Manual, edited by V. N. Volkova and A. A. Emelianova, Moscow, Finance and Statistics, 2006.

- [11] A. N. Ustinov, V. A. Seleznev. Theory of Enterprise: Manual, Moscow, Moscow State University of Economics, Statistics, and Information Technology, 2005, p. 163
- [12] R. A. Fatkhutdinov. Management of Enterprise Competitiveness: Manual, Moscow, Eksmo, 2004, p. 544
- [13] T. G. Philosophova, V. A. Bykov. Competition and Competitiveness: Manual, Moscow, Unity-Dana, 2008, p. 295
- [14] E. V. Freydina. Management System Research: Manual under the general editorship of Yu. V. Gusev, Moscow, Omega-L, 2008, p. 367
- [15] L. N. Chaynikova. Development of Methods of Establishment and Operation of Regional Competitiveness Management System, Abstract of a thesis ... PhD in Economics [Electronic resource]. Link: <http://vak.ed.gov.ru/ru/dissertation/index.php?id54=11846&from54=6>
- [16] A. A. Chursin. Management of Enterprise Competitiveness, Moscow, Informatics Research and Technics Center Federal State Unitary Enterprise, Ed. Magazine Engineering, 2006, p. 372
- [17] Andersson/ Thomas, Sylvia Schwaag Serger, Jens Sorvik, and Emily Wise Hansson/ The Cluster Policies Whitebook, International Organization for Knowledge Economy and Enterprise Development, Malmo 2004.
- [18] Bergman. E.M. and Feser, E.J. Industrial and regional Clusters: Concepts and Comparative Applications / E.M. Bergman, E.J. Feser. Regional Research Institute, WVU. – 1999.
- [19] Prahalad, C.K., Hamel, G. (1990) The Gore Competence of corporation. Harvard Business Review, 68, pp. 79–91.
- [20] Steiner, M. and Hartmann. Looking for the Material and inmaterial Dimensions of Clusters. Paper presented at the Regional Studies Association Annual Conference on 'Regionalising the Knowledge Economy \ November 21. London 2001.
- [21] Schmitz. Iubert (1992). On the Clustering of Small Firms, in Rasmussen, J., H. Schmitz and M.P. van Dijk (eds.), 'Flexible specialization: a new view on small industry, IDS Bulletin (Special Issue), 23 (3) : 64–69.