CLUSTER MECHANISM FOR ENHANCING THE COMPETITIVENESS OF THE UNIVERSITY

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Abstract

The inadequate competitiveness of the educational organization is the challenge for the sustainable development of the university, the solution is seen in the creation of innovative clusters by universities together with business and government. The purpose of the article is to reveal the specifics of the creation and functioning of the cluster mechanism for enhancing the competitiveness of Russian universities.

Methodology: document analysis, analysis of statistical data and expert survey. The system approach, cluster theory, M.Porter's competitiveness theory and the concept of the "triple spiral" were used as the main approach.

Findings: for the university the possibility of participating in economic clusters is determined by those research areas in which they have accumulated considerable experience. At the same time, the general increase in the competitiveness of the cluster and the region directly increases the competitiveness of the university, influencing its main indicators in national and international rankings.

Value: The authors put and reveal the question of what conditions for the further development of universities are observed in modern Russia and by what means this development is carried out.

Key words: cluster mechanism, competitiveness, university, development, knowledge economy, innovative cluster

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Introduction

The challenge for sustainable development of the university, regional and national education system, the sphere of the state economy is, in the end, the insufficient competitiveness of the educational organization.

Today, the main world trends influencing the stability of the university as an organization are the increasing complexity (processes, relationships, structures), the automation of processes (including the provision of educational services and research), the digitization of

relations and interactions between all social actors , the network principle of the organization of public relations and internationalization.

Under such conditions, universities are finding it increasingly difficult to maintain their sustainability, reproducing only educational services and relying only on state support. The modern university is a cross between a commercial and non-profit organization, its goals remain socially significant, but the ways of achieving these goals acquire a private property tint and increasingly meet the principle of "increasing profits" (OECD Publishing, 2008)

In a society in which information and knowledge are no longer the prerogative of individual social strata and institutions, in which unique technological progress takes place, universities have to compete with themselves, regardless of level, function, industry, territory, etc. Digitalization allows all the effectiveness of university organizations to encompass in various ways the assessment - index, rank. And such a comprehensive assessment also affects the adoption of strategic goals by the university (Dachyar M., Dewi F,. 2015).

«Together we are a power», it becomes a slogan, a mission of many educational organizations that choose the path of entrepreneurship and unites with employers for the purpose of economic and social effectiveness - training specialists in accordance and only on the basis of the needs of the latter. This method of increasing competitiveness has become entrenched in the form of a cluster mechanism and it is precisely its essence and peculiarities of functioning in Russia that are being studied in this article.

1 Competitiveness of universities in modern conditions: approaches and mechanisms

1.1. Cluster approach in higher education

The founder of the vision of competitiveness and the cluster approach in the economy is well-deservedly considered M. Porter, who pointed out that competitive national industries are not evenly distributed throughout the economy, but are related to what may be called clusters consisting of industries that depend on each other (Porter, 2008). M. Porter believed that the existence of a sustainable development strategy is one of the important factors for the successful development of the cluster.

In the West, the cluster theory in practice began to be applied in the early 1990s thanks to the works of M. Porter, M. Enright, J. Dunning, R. Martin. In Russia, the cluster theory was first described and reproduced by M.K. Bandman, N.I. Larina, I.V. Pilipenko and others. The competitiveness of the higher education system in European countries received coverage in the

research of a group of Serbian researchers (Kabók, Radišić, Kuzmanović, 2017). The authors believe that the contribution of universities to the country's competitiveness is priceless, but many of them rely on government support, and the education market and the labor market are not harmonized with each other in most European countries, which affects the low level of competitiveness of higher education in them.

The cluster approach in practice is realized by carrying out a cluster policy - the activity on supporting clusters. Cluster policy includes the adoption of strategies and programs for the development of individual clusters - the so-called "cluster initiatives", as well as the formation of a tool base for their implementation - the so-called "cluster technologies". The functioning of clusters - associations of manufacturing companies, research and educational institutions, suppliers of equipment and services geographically located in close proximity to each other and working to obtain competitive advantages, the creation of high technology and high-tech products - is one of the most effective and promising directions for development modern economy (Meri, 2016)

The need to address the cluster approach is explained by the advantages of the cluster as an organizational form of uniting the efforts of stakeholders in order to enhance the effectiveness of the regional vocational education system.

The cluster mechanism in higher education changes the following elements of this subsystem of society and economy:

1. The mechanism of interaction of the labor market and the market of educational services is developing, which makes the former more efficient in the economy of the state, and the latter is more qualitative and goal-oriented.

2. A flexible, stable system of higher education management is formed, maximally realizing the innovative and investment potential of human capital development.

3. The personnel infrastructure is being improved, which minimizes the total costs of training specialists and their employment, increases economic potential and smoothes out infrastructure gaps.

The current status of universities obliges them to improve their competitiveness through innovation (Barnard Z., Merwe D. V., 2016). At the same time, innovation should be supported in society and by the state as a new development principle. Russian universities, for the most part, have very limited innovative potential, which makes them uncompetitive with respect to competitors from abroad, and in relation to the changes taking place in society. 2007 in Russia was called the "default of universities", that is, a certain crisis point, or a point of bifurcation, with which a new vector of their functioning begins. Some universities could not "survive",

some still try to do it in conditions of tough competition and limited resources, and some were able to navigate the situation and make the best choice. The situation is further aggravated by the lack of alternatives to the governing state system, which is represented by inflexible, obsolete, non-innovative state institutions. So, many universities reoriented their strategies for cooperation not only with the state, but also with employers through a cluster mechanism.

Educational cluster is a set of interconnected institutions of professional education united by a sectoral feature and partner relations with industry enterprises; is a system of learning, mutual learning and self-learning tools in the innovation chain "science - technology - business", based primarily on horizontal links within the chain.

The transition (starting) model of the educational cluster is the ESIC (educational and scientific innovation complex), whose tasks include a multilevel system of training, advanced training and retraining of specialists for enterprises and organizations of the commercial sector in a shortened time and with the optimal effect (Pospelova, 2016).

Considering the prospects for using the cluster mechanism in the system of higher education, it is worth noting the main changes that affect the competitiveness of the university:

1. Development of social partnership, raising awareness, creating a brand

2. Attracting extra-budgetary funds, obtaining additional resources for innovative and core activities, re-equipping fixed assets

3. Improving the quality of educational services, the effectiveness of educational and scientific activities.

It is the university that is the driver of cluster development. To create effective interaction with cluster participants, the university must choose a specialization and direction, where it has a competitive advantage. Further it is necessary to continue to improve this direction in accordance with the four elements identified in the Gibbons Model: the "right" product, the "right" team, the availability of a capital source, and the developed infrastructure. The end result is the creation of a product within the university, which it can offer to the participants of the cluster.

1.2. Tools for assessing the competitiveness of universities

The assessment of the activities of universities and the formation of their competitive advantages are the ratings and indexes. A rating is an arrangement in a certain order of a group of objects evaluated by different criteria. The European Center for Higher Education and the Institute for Higher Education Policy have collected, analyzed and systematized various types and types of methods used in rating education (Dimitrova G., Dimitrova T., 2017).

The ratings of universities are classified by type:

Ratings with the accrual of a single final score - they are used to rank the universities as a whole; University rankings for specific disciplines, training programs or for individual subjects - in this case, not universities are ranked, but the individual programs offered or specific subjects taught; Rankings with a combined approach in ranking. In this case, there are their own, special methods of ratings / tables of leagues, which can not be combined into a single type.

The ratings of universities are classified by their structure:

Ordinal. In this case, universities are assigned serial numbers, and they are ranked according to these numbers; Cluster (grouping of universities by rating); Combined. Each university is given a quantitative evaluation, but the data is published only for a certain number of the best universities. This option represents a kind of hybrid of the first two.

The ratings of universities are classified by data sources:

According to available data or According to the collected data.

To date, the most prestigious ratings are those compiled by the most authoritative rating agencies of Europe - THE and QS, USA - U.S.News, Asia - Shanghai rating. In all American and British universities are leading. Among Russian universities, MSU ranked 65th in 2017, and there are more 24 universities, but outside the first 200 universities.

In Russia, since 2011, the rating of higher educational institutions is applied, based on the methodology of which more than 45 indicators are based, the main ones are activity and potential. The National Accreditation Agency (NAA) conducts its rating, which collects data on the activities of universities and has a significant information database, including indicators such as the demand for graduates in the labor market, the presence of feedback from employers. Their ratings are offered by professional communities and commercial structures, for example, Delovaya Rossiya and Reitor.

The international rankings, as a rule, include the largest and most famous universities of Russia: Moscow State University, St. Petersburg State University, National Research Nuclear University, etc. However, the number of domestic universities in these ratings is still not enough. According to the rating of "Top 100" of Russian universities, "the largest domestic universities that fall into international ratings rank first in national ratings" (Smaznevich I,.2017).

For example, in the rating of the BRICS (The BRICS & Emerging Economies Rankings), in 2015 there were only 11 universities in the Russian Federation). In 2018, the top 50 of this study included ten Russian universities. According to experts, this is the best result

of Russia in the history of the rating. The best positions were demonstrated by the Moscow State University (5th position), Novosibirsk State University (11th position), St. Petersburg State University (13th position). The number of Russian universities in the first hundred increased. Now the top 100 includes 25 universities (Komarova, 2016).

The United Nations for the evaluation of educational systems proposed the Education Index in the world as a key indicator of the country's social development. The index measures the country's achievements from the point of view of the achieved level of education of its population by two main indicators:

1. The literacy index of the adult population (2/3 of the weight).

2. The index of the cumulative share of students receiving primary, secondary and higher education (1/3 of the weight).

As a result of 2016, Russia occupies the 34th place in the index.

One of the criteria for assessing the level of effectiveness of scientific activity of universities is the use of a number of scientific metrics: the citation index, the Hirsch index, the impact factor in the Russian Scientific Citation Index, and in international databases (Web of Science, Scopus, etc.).

2 The role of universities in the cluster mechanism: the results of the study

Priority in European educational clusters is given to universities, because at the beginning of the XXI century. the role of universities as significant subjects of development in shaping the humanitarian potential of the region is growing, the system of integrating functions of the university in an integral national and regional educational system is being formed, which is reflected in such documents of the Bologna process as the Sorbonne (1998) and Bologna (1999) declarations.

The authors of the concepts of the information society such as M. Castells, I. Masuda, D. Risman, A. Toffler reasonably believe that higher education will become a defining humanitarian and social institution, therefore the nation that will create the most effective system of continuing education - "Lifelong learning."

One of the options for developing a clustered half-way in higher education is the unification of universities and educational organizations by merging (OECD Publishing, 2011). So, in Europe since the beginning of the 2000s, more than 100 mergers occurred. The first in the field of merger were the universities of Denmark and Estonia in 2005.

In France, an example of such a merger was the creation of the University of Paris-Saclay, which includes the Polytechnic School, the Paris Commercial School and the Paris-South University. In Germany, the University and the Research Center in Karlsruhe were merged, and the Karlsruhe Institute of Technology was eventually established.

The process of consolidating universities is also taking place in Russia. The first stage was a mechanical merger in the so-called Federal Universities, which were created by number of 10. The idea was to create one mega-university based on operating universities. The second stage was the formation of a system of national research universities - they are now 29. Also in 2013, the "5 top 100" program started, in which prospective Russian universities take part in the top 100 world ratings by 2020. In 2015, the third stage was the allocation of basic regional universities. The essence of the changes is not in the mechanical merger of universities, but in the synergetic effect of pooling the potentials of educational institutions.

As of 2018, 51 Russian universities have acquired a new status of the innovative and technological center of the region based on the results of the contest, in which 121 universities from 63 regions participated. These universities were appointed centers for the development of innovation and growth points for the economy and social development of the regions. It is planned that by 2022 25% of students and 40% of undergraduates from relevant regions will study at the universities participating in the project.

In Russia today, a cluster policy is being pursued to stimulate the development of clusters, including educational, and others with the participation of universities. The basic principles of cluster policy in the Russian Federation were established in 2008 by the concept of long-term socio-economic development until 2020. Since 2010, the Ministry of Economic Development of Russia, within the framework of the program for supporting small and medium-sized businesses, implements the practice of granting subsidies to regions for the creation and functioning of cluster development centers (CCMs). They are specialized organizations (legal entity or structural subdivision of a legal entity) that relate to the infrastructure for supporting small and medium-sized businesses and one of the founders of which is a constituent entity of the Russian Federation and set up to implement cluster policy in the region. As of 2018, 31 centers for cluster development have been established.

In 2012, the program to support innovative territorial clusters (CTI) was launched. Today, the list of selected innovative clusters includes 27 regional systems. Funds for their development come from the federal budget and over the period 2013-2015 amounted to more than 5 billion rubles. An example of such a cluster is the Titanium cluster of the Sverdlovsk Region, which includes the leading manufacturing enterprises in the manufacturing and

engineering industries, research and educational institutions: the Ural Branch of the Russian Academy of Sciences (UrB RAS) and the Ural Federal University (UrFU named after the First President Russia BN Yeltsin). The total number of participants is 20 with the number of employed 27276 people.

The role of the university here is fundamental, since it depends on it on the development of a cluster development strategy, preparation of projects, analytical activities, etc. The most developed, promising and profitable in Russia are industrial clusters, which necessarily include universities. The implementation of such clusters began in 2014 by adopting the Federal Law "On Industrial Policy in the Russian Federation". In 2018, there are 22 industrial clusters, 3 of which are organized on an interregional basis with 531 participants, providing employment for 150,000 people, employing 63% of industrial organizations in Russia from 20 regions.

In 2016, the Government launched the priority project "Development of Innovative Clusters - Leaders of Investment Attractiveness of the World Level". Its main goals are creation of points of outstripping economic growth, innovative development, export of high-tech products and commercialization of technologies, increase of labor productivity and creation of high-productivity jobs, growth of the country's competitiveness. 11 such clusters-leaders with the participation of universities received additional support from the state. An example of such a cluster is the Scientific and Production Cluster "Siberian Scienceopolis". Cluster members include the following higher education institutions, which play a key role in the training of specialists in information and biopharmaceutical technologies: Novosibirsk State University; Novosibirsk State Technical University; Siberian State University of Telecommunications and Informatics. The strategic partners of the Cluster's scientific and educational complex are well-known universities, research institutes, innovative companies from the USA, Italy, France, Great Britain, Germany, China, Singapore, Japan, the Republic of Korea, Kazakhstan, Kyrgyzstan. The university in this example uses and creates additional competitive advantages (employment of graduates, innovative and investment activities, geolocation, state significance).

An example of a territorial educational cluster is the Education Cluster of the Southern Federal District, established in 2015. The objectives of the formation of the educational cluster: the joint implementation of career-oriented projects to develop a system for the search, selection, education of gifted children; attraction of students to creative, cognitive, project, research, search, inventive activity under the guidance of scientists, post-graduate students of higher educational institutions of Rostov-on-Don, employees of scientific institutions, teachers of schools, teachers of additional education and other specialists; qualitative preparation of

students of educational institutions for admission to higher educational institutions. The educational cluster unites the University and support schools in Rostov-on-Don and Taganrog.

An example of a sectoral educational cluster is the cluster on the basis of St. Petersburg State Polytechnic University, with its network of faculties, design institutes, research and development institutions, research laboratories and other structural units that perform a variety of related and service functions.

Also an example of an educational cluster is the Urals Scientific Medical Educational Cluster, established in 2015, a territorial and profile functional association of organizations engaged in educational and research activities subordinated to the Ministry of Health of the Russian Federation, established to organize interaction between Cluster members for the solution strategic tasks in the field of protecting the health of citizens, the preparation of qualified medical, pharmacists cal personnel.

Individual universities enter the international market independently, forming competitive advantages - for example, the Peoples Friendship University of Russia opened an educational cluster in Zambia in 2017, whose goals are cooperation in training students, exchanging teachers, conducting joint research projects. In 2018, the largest employers of Zambia joined the cluster.

In April 2018, it became known about the project to create a research and production cluster in Moscow to unite the disparate structures (IT companies, business incubators, technology parks, academic institutions) and create a synergy of development of the scientific and production potential of Moscow. This cluster is intended to become one of the largest clusters of the world in terms of its power, potential, number of developments, the number of scientists who work there. In 40 universities in Russia there are now technology centers and business incubators. Many of them become drivers of development and renewal of the industry, others implement the model of entrepreneurial and social university.

Based on the observation data, 3 models of participation of universities in modern Russian clusters were developed (Pospelova, 2016):

1. Clusters with significant role of universities (universities participating in the program of the Project "5-100").

2. Clusters based on science cities (with a predominance of the RAS).

3. Clusters with participation of regional universities and large enterprises.

Each of the models is developed depending on what is the critical mass of the cluster: large enterprises, small and medium business or scientific and educational organizations. These

models are intended for application by universities both current pilot clusters, and for those that will appear again.

Conclusion

The need to address the cluster approach is explained by the advantages of the cluster as an organizational form of uniting the efforts of stakeholders in order to enhance the competitiveness of the university and the territory on which it is located. A cluster approach to the development of education is understood as the mutual and self-development of cluster subjects "in the process of working on the problem", implemented on the basis of a sustainable development of partnership that enhances the concrete advantages of both individual participants and the cluster as a whole. Cluster is an open non-linear self-organizing system acting in concert, on the basis of the common goal of entities united by certain contractual relations, determining the roles of the entities and regulating their activities.

With the transition of Russian universities to the market environment, there is an orientation towards the following directions: stimulating competition between universities both for consumers of educational services and for financial resources. There is a need to find additional sources of financing with the involvement of commercial structures. Economic sustainability is the basis for ensuring the activities of the university in the long term.

Today, Russian universities use a variety of opportunities to increase competitiveness: from merger models to public-private partnership models, but the cluster approach is the most promising for sustainable competitiveness. When implementing the mechanism for creating and operating an educational cluster, the following results are expected:

1. The strategy for the development of higher education will change. Dialogue with the employer will move to a qualitatively new level: an understanding of common interests and problems will occur that will solve the problem existing at the moment.

2. There will be a system of accessible continuous vocational education, which, in turn, should lead to an improvement in the quality of training.

3. At the macroeconomic level, there will be an increase in labor productivity and employment, the growth of the gross regional product per capita.

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