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ESTABLISHMENT OF EDUCATIONAL CLUSTERS AS A FACTOR OF IMPROVEMENT OF THE RUSSIAN FEDERATION UNIVERSITIES ACTIVITY

Abstract. One of the main problems of educational partnership between institutions of different levels and subjects of the real economy is an inefficient distribution of innovations, low rate of technology growth, and low degree of interaction of all levels of education. The development of educational clusters guarantees the competent use of educational resources, which will help to solve the above problems. Such cooperation stimulates the financing of regional innovations, improves the reputation of the region by creating “its own brand”, and supports the digital education transformation in the Russian Federation.

Keywords: educational cluster, university, real sector of economy, development of education, innovation.

Education is an important factor for the effective development and functioning of the state. It is the basis for the economic development of the population and it supports social stability, the growth of the intellectual level and spiritual and moral potential of society. In modern Russia, nationals need for high-quality education is growing. That’s why the state is expanding the network of entity institutions. Thereby the relations between them are established

and modernized, the educational infrastructure is developed, teachers' proficiency is increased, and the content of education and the methods of its provision are adapted to new digital realities.

These steps are effectively implemented due to the educational clusters application. Universities clusters generation is becoming the most popular approach to develop the universities throughout the country.

The term "educational cluster" is a complex of institutions and infrastructure of higher, vocational education and enterprises, which are united by sectoral and inter-sectoral characteristics within the same region. The elements of the complex should be interconnected and function efficiently in order to increase the potential and students competitiveness level in the labour market.

The basis of a cluster is unitary educational, scientific, innovative activity and common interaction between all the links of a cluster. But this form of relationship does not prevent participants from cooperating with other educational subjects, which are not members of this cluster. An educational cluster is characterized by:

- the predominance of structural relationships in the partnership activity of its subjects;
- the production and commercial processes support on the basis of an appropriate strategic cooperation;
- the economic independence of individual subjects from other members of the complex.

The advantages of clusters lie in their numerous internal and external relationships among educational entities to enhance the effectiveness of their cooperation. Geographical location within clusters and close or related specialization offer opportunities for greater economic benefits. Thus, a high level of mutual integration of material and intangible resources will open the options to attract highly qualified personnel to secure their positions in the market,

the growth of investment attractiveness both from the private sector and from the state, access to available information resources of universities, innovative knowledge and competencies. Then various clusters will inevitably begin to cooperate and, thus, will launch the mechanism of interaction, which will combine all universities of the country and will be introduced into the economy of the state to create an “educational economy”.

However, the establishment of clusters pursue not only economic goals. In addition, the development of social and cultural life of society is ensured. Educational clusters reflect relatively holistic regional characteristics that can accumulate educational resources, introduce educational elements, support interactive partnerships.

One of the most promising complexes of educational clusters of the Russian Federation should be the innovative scientific and technological center of Moscow State University “Sparrow Hills”. This is a completely scientific valley in the west of Moscow that on the area of 17.5 hectares will unite as many as nine clusters of different fields – from astronautics to biomedicine¹.

Mayor of the city Moscow Sergey Sobyenin said that this center is able to become the main platform of the country, which will unite the technological, scientific and educational potential of Russia, and it will be the basis for the development of the capital as an international innovation center.

The first Interdisciplinary cluster with an area of 75 thousand m² will locate Institute of Human Sciences, the department of artificial intelligence research, the transnational project “United Eurasia”, scientific and technological laboratories, the department of improvement of innovative sports technologies and a congress hall.

¹ “Образование XXI века” [Электронный ресурс]. Режим доступа: URL: <https://stroj.mos.ru/articles/obrazovaniie-xxi-vieka>

The second cluster “Educational” with an area of 15 thousand m² will unite the management structures of the innovative scientific and technological center, the training department, general services and scientific and technological start-ups. It also includes specialized conferences and events.

Before building two previous clusters, the construction of the cluster “Lomonosov” with an area of 65 thousand m² began here. The construction phase is under way.

The center is formed using innovative technologies. For example, the experts use information renewal of papers with cloud technologies, which allow to automate the interaction procedures of all participants of the process.

Commissioning of the cluster “Lomonosov” is planned in 2022. The date of substantial completion of two other clusters (“Educational” and “Interdisciplinary”) is scheduled for 2024.

An important factor of educational clusters application is the attraction of innovation technologies in the educational process. As an example we should mention the development of artificial intelligence application at the University of Technology within the educational cluster “North-East”¹.

In 2015, about 39.000 people worked in the crucial enterprises of Korolev, and the majority of the employees were of the senior generation. In this regard, the city authorities understood that in order to solve the future staffing shortage it is necessary to transfer the experience to young professionals. This solution was the “North-East” cluster, which will train high-level specialists with not only special knowledge and skills, but also experience in the application of digital technologies for city-forming enterprises.

¹ “Королёв экосистема космического лидерства” [Электронный ресурс]. Режим доступа: URL: <https://invest.mosreg.ru/upload/media/default/0001/01.pdf>/ (дата обращения: 28.03.2022).

On April 3, 2015, the regional scientific and educational cluster “North-East” was established on the basis of the Technological University in Korolev. The head of the city, Alexander Khodyrev, was elected as the chairman of the supervisory board. The participants of the educational cluster included the main enterprises of the rocket-space and defense industries, as well as municipal authorities:

- Leonov University of Technology;
- Korolev city government;
- Mechanical Engineering Institute named after A. A. Blagonravov;
- JSC “Tactical Missiles Corporation”;
- JSC “Kompozit”;
- A. M. Isayev Chemical Engineering Design Bureau (KB KhimMash);
- JSC “Research and Production Association of Measuring Technology”;
- A. A. Maximov Space Systems Research Institute;
- Central Research Institute for Machine Building;
- Main Scientific Metrology Center of the Ministry of Defense;
- LLC “Road to Space”.

Because they will be taught close to the centers of space, it is also possible because of this cluster to stop looking for fresh employees for missile development across the nation¹.

The cluster allowed for expanded opportunities for students at the university and the creation of a new faculty of rocket-space engineering and engineering technology. Students are given numerous opportunities to learn about their future profession during their studies, to demonstrate themselves positively during the internship, thus proving himself, and to find a job at the city’s enterprises after

¹ “Заседание Наблюдательного совета” [Электронный ресурс]. Режим доступа: URL: <https://unitech-mo.ru/news/15363/>

graduating from the University of Technology. In connection with the increase in the number of future employees, the housing issue is being addressed. So, since 2018 S. P. Korolev Rocket and Space Corporation Energia and Tactical Missiles Corporation have been using new neighbourhoods with plenty of apartments for both living and selling.

To date, within the “North-East” cluster, the participants are considering various ways of implementing cooperation on the issue: the creation of a mechanism for continuing education, early career guidance for schoolchildren, and the adaptation of future personnel for digital sectors of the country’s economy.

The state initiative “Priority 2030” and an educational cluster can be combined, as in the case of Leonov University of Technology. This program is similar to a national education cluster. After all, its objective is to establish more than 100 developed digital universities in the Russian Federation, which will serve as hubs for the nation’s economic, social, scientific and technological development.

The association took place on March 17, 2022, at the enlarged meeting of the supervisory council North East. The result of this association was the signing of an agreement on a consortium formation that was initiated by Saint Petersburg State Maritime Technical University within the scope of the federal program “Priority 2030”¹.

The main focus of the consortium will be the formation of a public network of technology centers on the basis of higher education institutions and organizations that are connected with the high-tech industry. Such centers would use additive and related technologies.

A consortium within Leonov University of Technology will implement a global project to create a unique regional technology

¹ “Университет в Королеве подписал соглашение о создании консорциума” [Электронный ресурс]. Режим доступа: Общество – РИАМО в Королеве. (korolevriamo.ru)

center in the Russian Federation to develop innovative technologies and their subsequent integration. Such innovations include digital modeling and design systems for developing missile and space equipment elements that will be equal to or better in quality and characteristics than the world's most advanced laser processing and additive manufacturing technologies¹.

According to the findings of the study, the authors can recommend the following strategies for increasing the activity of educational clusters:

1) monitoring employers' requirements for highly qualified labor market personnel, thereby stimulating the potential for social partnership;

2) organization of student project activity in structures as participants in educational clusters, while increasing motivation to the chosen profession;

3) development of further vocational education and staff retraining of personnel for students and universities professors/teachers, entrepreneurs and employees of municipal authorities;

4) co-organization of conferences, away events, and practical trainings for educational cluster participants.

The innovative aspect of educational clusters is to support the modernization of region education system and the parallel implementation of the coordinated development of other sectors of the economy. After all, resource sharing and cooperation in technology, industry and research between the institutions inside the clusters contribute to raising the standard of education and, more importantly, assisting in its development in practice.

¹ Программа “Приоритет-2030” [Электронный ресурс]. Режим доступа: “Приоритет-2030”. (minobrnauki.gov.ru)

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