

DEVELOPMENT OF UNIVERSITIES OF DIFFERENT TYPES AS THE STRUCTURAL ELEMENTS OF THE NATIONAL INNOVATIVE EDUCATIONAL SYSTEM

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ABSTRACT

Formation and development of innovative educational system of professional personnel training in the world countries was carried out according to various scenarios and at different times. However, the direction of reforms in each country was the same - increasing the country's competitiveness, improving the innovative "breakthrough". At the same time, the analysis of innovative economies of foreign countries and the features of the formation of innovative educational systems (IES) shows that there are no unified approaches and mechanisms in the formation and development of IES.

The study of the experience of the leading countries reforming professional education, as well as the experience of reforming Russian education, made it possible to single out the following models of structural elements of the innovative educational system:

- 1. Classical (traditional) university.*
- 2. Research university.*
- 3. National research university.*
- 4. Federal university.*
- 5. University of enterprise type.*
- 6. Project-oriented university.*

The article examines the experience of several countries in the development of innovative educational systems, as well as a comparative analysis of each type of university as a structural element of the Russian national IES. The development of Russia's innovative educational system at the present stage has created the conditions for implementing the structural adjustment of the system. The tasks of the immediate future are the modernization of the elements of the IES, the formation of links and relations at the level of a single element and its subsequent integration into an innovative educational space.

KEYWORDS: *Innovative educational system, structure, university*

1. INTRODUCTION

The diversity of approaches to the organization of the national educational system in different countries, as well as the diversity of forms, types and functions of universities, academies, institutions and other structural elements of this system necessitates the determination of criteria for evaluating the various activities carried out within the framework of the functioning of educational organizations. Unity of the criteria for analysis, as well as approaches to the typology of university structures gives the opportunity to conduct comparative studies of educational activities, its

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effectiveness, as well as to give more reasoned estimates of the prospects for innovation of national education systems on a global scale.

Studying the educational system of the Russian Federation, it is possible to identify several types of universities that differ from each other in the mission, the leading activities, the principles of creation, the structure and the management system.

Thus, the Russian national education system can be represented as follows:

1. Classical (traditional) university.
2. Research university.
3. National research university.
4. Federal university.
5. University of enterprise type.
6. Project-oriented university.

In accordance with this logical scheme, we can distinguish the following types of universities - the elements of the Russian national educational system and that are the main locomotives for the innovative development of Russian science and education.

2. LITERATURE REVIEW

The reform in the Russian national education system provoked large-scale scientific researches of educational management efficient tools, search of the most resultant organizational, managerial, economic and other instruments promoting the stable educational system development in the country. Among the most reputable authors, disclosing this subject in their publications it is needed to mention such Russian scientists, as:

- Grudzinskij A.O., whose works are devoted to the management of educational organizations. In their researches the author focuses on the resource provision of universities and its efficient use in the strategic perspective, on the most successful management practices which can be used in terms of the Russian specifics, etc. (Grudzinskiy & Petrova, 2015; Grudzinskiy, Zakharova, Bureeva., Leonova, Mahalin, 2015);

- Aksenova E.I., with her scientific interests concerning implementation of innovative technologies in the staff policy of modern Russian universities. In her publications the author researches the competencies needed for the teaching staff to work in conditions of the educational system innovative development (Aksenova, 2012; Aksenova, 2016.);

- Tonkonog V.V., whose works disclose conditions to form a unified educational space, formation of the network interaction between universities of different types (Tonkonog, 2017);

- and other authors, researching possibilities of the Russian professional education system to achieve the goals of the national innovative development as set by the message of the President of the Russian Federation V.V.Putin.

This article analyzes universities of different types in terms of their possible providing the stable innovative development within the frameworks of the unified educational space, significantly expanding the view of the professional education system of the Russian Federation.

3. THE RUSSIAN NATIONAL EDUCATIONAL SYSTEM

3.1. Research universities

The first research universities appeared in the second half of the 20th century in Europe. The term "Research Universities" was introduced in 1970 by the Commission on Higher Education of the Carnegie Foundation for the Advancement of Teaching in the framework of a special developed classification of colleges and universities, designed to facilitate the work of the Foundation for the development and evaluation of programs and projects of universities. The activities of research universities are characterized by a close link between the educational process and the research activities carried out by academic personnel. For the faculty of the research university, all types of

professional activity come down to scientific work and teaching. The results of scientific work, as a rule, have great innovative potential. The symbol of the research university is the couple: the audience and a scientific laboratory.

The quality of scientific activity of research universities is assessed on the basis of academic ratings, in particular, Academic Ranking of World Universities.

ARWU considers every university that has any Nobel Laureates, Fields Medalists, Highly Cited Researchers, or papers published in Nature or Science. In addition, universities with significant amount of papers indexed by Science Citation Index-Expanded (SCIE) and Social Science Citation Index (SSCI) are also included. In total, more than 1200 universities are actually ranked and the best 500 are published on the web. According to the results of 2015, educational organizations of sixteen countries (USA, Great Britain, Switzerland, Germany, France, Australia, Netherlands, Japan, Canada, Sweden, Belgium, Israel, Denmark, Norway, Finland, Russia) entered the top 100 research universities in the world. It is noteworthy that in the top 500 rankings only 2 Russian universities were included: the Moscow State University named after M.V. Lomonosov and St. Petersburg State University.

Table 1. Top-10 Academic Ranking of World Universities 2015

World Rank	Institution	Country /Region	Total Score
1	Harvard University	USA	100.0
2	Stanford University	USA	73.3
3	Massachusetts Institute of Technology (MIT)	USA	70.4
4	University of California, Berkeley	USA	69.6
5	University of Cambridge	UK	68.8
6	Princeton University	USA	61.0
7	California Institute of Technology	USA	59.6
8	Columbia University	USA	58.8
9	University of Chicago	USA	57.1
10	University of Oxford	UK	56.6

Source: compiled by the authors according to the (Grudzinskij, n.d.).

3.2. National research university

In turn, the National Research University (NRU) is an extended version of the research university, since its activity is not focused more on global research projects, but on local scientific tasks. At the same time, the National Research University implements educational programs for training bachelors, masters and highly qualified personnel, as well as retraining and advanced training programs for students.

At present, 49 educational organizations are classified as national research universities, among them:

- National Research University "Higher School of Economics";
- Kazan National Research Technical University named after A.N. Tupolev - KAI;
- Moscow Aviation Institute (National Research University);
- Moscow State Technical University named after N.E. Bauman;
- Moscow Institute of Physics and Technology (State University);
- And others.

3.3. University of enterprise type.

Moving the emphasis from the research area to the implementation side, the university can be regarded as an entrepreneurial one, capable of providing practical implementation of its own scientific developments. Universities of the entrepreneurial type in Europe began to appear in the middle of the previous century. They are the logical development of research universities. At the same time, the main feature of an entrepreneurial university is the absence of fear of commercializing the generation and dissemination of knowledge, since members of such a university do not see the commercialization of the danger to academic traditions and the quality of education. This approach implicitly assumes diversification of the funding sources for the university. The author emphasizes that an important condition for the effective functioning of an entrepreneurial university is a management style that provides flexibility and strategic interaction with the external environment.

In particular, the entrepreneurial one is the Federal State Autonomous Educational Institution of Higher Education St. Petersburg National Research University of Information Technologies, Mechanics and Optics. The University of ITMO has created an ecosystem to support the innovative and entrepreneurial activities of students and university staff. Three types of accelerating programs operate on the basis of the university, two business incubators and a technopark, the Project and Innovation Activity Department is working, which supports start-ups: it helps to find investments for projects, to draw up necessary documents and to tell about themselves in the media.

3.4. Project-oriented university.

The project-oriented university (POU) is an innovative form of functioning of a modern educational organization. The concept of a project-oriented university is most fully considered in the works of A. Grudzinsky. Thus, in particular, the author notes: "The idea of transferring the university to functioning on the principles of entrepreneurial management using elements of a project organization (this is what the project-oriented project university, in contrast to the term, is emphasized by the term) does not mean the breakdown of the traditional functional decentralization of educational activity. The proposed approach supposes introducing, in addition to it, some elements of a matrix (multidimensional) organization, which is always the result of combining two organizational alternatives - functional and product ones. "Serial" activities of the university on the implementation of traditional educational programs should be supplemented by a project-product approach aimed at implementing risky, one-off and "low-volume" orders for the market of educational and scientific services" (Grudzinskij, n.d.).

A striking example of a project-oriented university is Nizhny Novgorod State University named after N.I. Lobachevsky. NNSU is one of the best leading universities in Russia and is included in the TOP-800 of the best universities in the world according to the rating version of QS World University Rankings.

The achievement of high indicators of university innovation implies the development of both traditional for NNSU activities and promising new areas of demand that make up the development platforms - these are broad areas of scientific, educational and innovative activities that involve the unification of efforts of scientific and pedagogical workers of various departments of the university, as well as representatives of organizations-partners on the project basis (Federal Law from 29.12.2012 N 273-FZ "On education in the Russian Federation", 2012).

3.5. Federal university.

Federal universities (FU) in the Russian national educational system received regulatory legal institutionalization in connection with the adoption of the Federal Law 18 of 10.02.2009. FU can be described as a new model group of educational institutions (along with the university, academy and institute), which in their tasks are significantly different from the usual educational organizations of higher education.

Table 2. The main characteristics of Federal universities (as of June 1, 2017).

Federal university	Location	Year of foundation	Structure	Number of students, pers. (approximate)
North-Caucasian Federal University	Stavropol Stavropol Region	2012	12 institutes, 255 training directions	22 000
North-Eastern Federal University named after M.K. Ammosov	Yakutsk Republic of Sakha (Yakutia)	2010	6 research institutes, 13 institutes, 5 faculties, lyceum	20 000
Northern (Arctic) Federal University named after M.V. Lomonosov.	Arkhangelsk Arkhangelsk Area	2010	15 institutes, 3 colleges, lyceum	18 000
Baltic Federal University named after Immanuel Kant	Kaliningrad Kaliningrad Area	2010	300 educational programs of secondary, higher, additional and postgraduate professional education	16 000
Kazan (Privolzhsky) Federal University	Kazan Republic of Tatarstan	2010	28 educational institutes and centers	30 000
South Federal University	Rostov-on-Don Rostov Area	2006	5 academies, 13 institutes and faculties	42 000
Siberian Federal University	Krasnoyarsk Krasnoyarsk Region	2006	19 institutes and 3 branches; 151 directions of preparation of a bachelor degree, magistracies, specialist programme; 121 specialties of a postgraduate study and 18 specialties of doctoral studies	33 000
Ural Federal University named after the first President of Russia B.N. Yeltsin	Yekaterinburg Sverdlovsk Area	2009	23 institutes and faculties	55 000
Crimean Federal University named after V.I. Vernadsky	Simferopol Republic of Crimea	2014	8 academies and institutes, 5 colleges and centers, 11 branches throughout the Crimea	30 000
Far Eastern Federal University	Vladivostok Primorsky Region	2010	9 schools, 150 educational programs; 15 branches	40 000

Source: created by authors.

Federal universities are created on the basis of the merger of several regional universities into one, and strengthening the ties of universities with the economy and the social sphere of federal districts. The university, which received the status of the federal, gets federal funding, in addition, the project provides for the active participation of business and regional authorities. Due to this fact, federal universities now look like high-tech research centers with world-class research laboratories, many universities have built new buildings, or even entire campuses. One of the main directions of development is carrying out fundamental and applied research in priority scientific areas, effective interaction with the Russian Academy of Sciences.

3.6. Classical (traditional) university.

Classical (traditional) university. This is the most common type of educational institution of the system of professional training of personnel in Russia. The University (from the Latin Universitas - the aggregate) is an educational institution of higher professional education, which activity is aimed at the development of education, science and culture by conducting fundamental scientific research and training at all levels of higher professional, postgraduate professional and additional education on a wide range of natural sciences, humanitarian and other fields of science, technology and culture. Within the framework of the international standard classification of education, there is no clear definition of the term, while the educational institutions are diversifying, the boundaries between university and non-university education become more blurred. The previous Federal Law regulating higher and postgraduate vocational education contained an article that defined the university as "a higher educational institution that implements educational programs of higher and postgraduate professional education on a wide range of areas of training (specialties); carries out training, retraining and (or) professional development of highly qualified workers, scientific and scientific-pedagogical workers; performs fundamental and applied scientific research on a wide range of sciences; is the leading scientific and methodological center in the fields of its activity". In the edition of the new law - Federal Law "On Education in the Russian Federation" No. 273 of 29.12.2012 [Federal Law from 29.12.2012 N 273-FZ "On education in the Russian Federation" (2012).]- there is no clear definition of the university.

4. CONCLUSIONS

The process of forming the Russian national innovation educational system is currently characterized by:

1. The structure of the vocational education system has changed, new types of educational institutions have appeared national universities, federal and national research universities; relations are formed between them on a network principle; there is a new form of interaction, namely: "education - the state - production (business)".
2. New types of educational institutions have been given the freedom to develop educational standards and educational programs. A system for managing educational standards is being formed at the state level, thus it is planned to create an educational space that meets the requirements of the labor market and responds to its changes as quickly as possible.
3. At the level of educational institutions and structural elements of the national innovation, system new relationships have emerged. They are characterized by the activation of feedbacks from production (business) and employers in the formation of the educational, methodological and information space of the university.
4. Significant changes in the relationship between the structural elements of the national innovation system and the innovative educational system, new cooperation relations are at the stage of formation. They include the creation of small innovative enterprises based on universities, the

creation of joint research laboratories with the production (business), the formation of specialized centers based on universities that serve the strategic tasks of the region, the federal district, etc.

5. The modern type of educational institution of professional education is not only developed as a higher education institution, but also as the structure that develops and accumulates new knowledge that attracts young scientists and motivates them to implement innovative ideas.

The development of Russia's innovative educational system at the present stage has created the conditions for implementing the structural adjustment of the system. The tasks of the immediate future are the modernization of the elements of the IES, the formation of links and relations at the level of a single element and its subsequent integration into an innovative educational space.

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