

УДК 378

## MANAGEMENT SYSTEM FOR THE DEVELOPMENT OF THE HIGHER PROJECT EDUCATION SEGMENT

V. V. Glushchenko

**Annotation.** The aim of the work is to develop a management system to improve the quality of higher project education in the transition to a new (sixth) technological order. The following tasks are solved: the features of higher project education are studied; the structure of the management system for the development of higher project education is developed; the description of the franchise in project higher education, the synthesis of the rating of the assessment of project universities. The scientific methods in the article are forecasting, system analysis and synthesis, comparative analysis, heuristic synthesis, logic, expert methods, and structural analysis. The scientific novelty of the work is connected with the formation of the franchise in the process of managing the development of higher project education, the description of the functions and roles of the rating, the development of the rating of project universities during the formation of the sixth technological order.

**Keywords:** system, structure, efficiency, franchise, rating, project education, method, management, segment, technological structure, principles, organization.

## СИСТЕМА УПРАВЛЕНИЯ РАЗВИТИЕМ СЕГМЕНТА ВЫСШЕГО ПРОЕКТНОГО ОБРАЗОВАНИЯ

Глущенко В.В.

**Аннотация.** Целью работы является разработка системы управления для повышения качества высшего проектного образования при переходе к новому (шестому) технологическому укладу. Решаются следующие задачи: исследуются особенности высшего проектного образования; разработки структуры системы управления развитием высшего проектного образования; описание франшизы в проектном высшем образовании, синтеза рейтинга оценки проектных вузов. Научными методами в статье являются прогнозирование, системный анализ и синтезу, сравнительный анализ, эвристический синтез, логика, экспертные методы, структурный анализ. Научная новизна работы связана с формированием франшизы в процессе управления развитием высшего проектного образования, описанием функций и ролей рейтинга, разработкой рейтинга проектных вузов в период формирования шестого технологического уклада.

**Ключевые слова:** система, структура, эффективность, франшиза, рейтинг, проектное образование, способ, управление, сегмент, технологический уклад, принципы, организация.

**Introduction.** The relevance of this work is determined by the relevance of the development of higher project education during the formation of the sixth technological order.

The hypothesis of the article is the assumption that the formation of a segment of project universities in the national system of higher education can accelerate: the development of a management system for the development of the higher project education segment will accelerate the development of such higher education.

The purpose of the work is to improve the quality of higher project education in the transition to a new (sixth) technological order.

To achieve these goals, the following tasks are solved:

- the features of higher project education are investigated;
- franchise development in the process of developing project-based higher education;
- synthesis of the rating of the assessment of project universities.

The object of the article is project higher education.

The subject of the article is the development of a franchise and rating in the system of project-based higher education development management.

The object of the article is the project method of higher education.

The subject of the article is the development of a management system for the development of project-based higher education.

In the second half of the 20th century and the beginning of the 21st century, such a form of business organization as a franchise is actively developing. Doing business with a franchise has its advantages [1, p. 112-117]. The franchise is also used in the field of education and upbringing [2, p. 34-35].

Against this background, at the beginning of the 21st century, actively developing:

First, the project method of conducting activities in organizations of the real economy [3, p. 63-75; 4, p. 15-33].

Secondly, the project method of higher education [5, p. 236-274; 6, p. 2; 7, p. 25-37; 8, p. 7-15].

For the development of higher project education, it is proposed to use a strategic approach and the development of ratings of project universities [9, p. 39-54; 10, p. 33].

**Method.** The growth in the number of publications on the problems of higher project education indicates the development of the higher project education segment. The project method in higher education is associated with the active use of the project approach in the educational process. The project approach in professional education is based on the implementation of educational projects by students. Educational projects are carried out by students under the scientific supervision of university professors.

The growing popularity of the project approach in the real economy and higher education is explained by the increased intensity of innovation activity. The reason for the increase in the intensity of innovation activity is the development of the sixth technological order. At the same time, the organizational form of innovative activity of firms is innovative projects [11, p. 30-46].

A project can be understood as a set of documentation required for the production of a particular product (product or service). A project can also be called a set of actions of performers when achieving the project goals. Therefore, each project has its own system part and activity component. This allows us to attribute project-based higher education simultaneously to: a systematic approach; an activity-based approach in higher education [12, p. 5-25]. Educational projects are carried out in the interests of real companies. Therefore, project-based higher education is at the same time: product-based higher education; customer - oriented higher education [13, p. 100-112]. Projects act as the main form of entrepreneurial activity in the economy. Therefore, project higher education is also an entrepreneurial education [14, p. 38-51].

The advantages of higher project education can be considered: the use of project topics to adapt the university to the requirements of the sixth technological order;

comprehensive acquisition of competencies by students in the course of project implementation; the opportunity for students to show their leadership qualities in projects; additional professional orientation of students; additional motivation of students, etc.

The risks of implementing the project model of higher education at the university are determined by: the existence of the university's strategic partnership relations with firms; the methodology for compiling the list of educational projects; the requirement to improve the skills of research managers of educational projects; the system of motivation of research managers of projects; the system of motivation of students, and others.

The development of the higher project education segment needs to be managed. Management refers to the purposeful impact of subjects on the development process of the higher project education segment. Subjects of the process of development of higher project education can be: public administration bodies; legislative bodies; university rectors; professors; students; parents of students; real economy firms; public organizations of entrepreneurs.

The mechanism for managing the development of the higher project education segment will be called the system of methods and forms of managing such development. At the same time, under the development of higher project education, we will understand: the spread of higher project education in all new professional areas; improving the methodology of higher project education; increasing the number of projects performed; improving the pedagogical mechanism of such education; improving the effectiveness of student motivation systems, and more.

The structural elements of the mechanism for managing the development of higher project education can be: the creation of a franchise; the development of a rating of project universities; analysis and diagnostics of the development process; planning, organization, motivation, control.

By the effectiveness of the management mechanism for the development of the higher project education segment, we will understand the ability of the subjects of such management to achieve their goals.

Planning for the development of the higher project education segment consists in developing a list of activities aimed at such development. These activities should be coordinated among themselves. Each event must have a deadline. All events should have their own responsible executor. All activities should be provided with the necessary resources for their implementation.

The creation of a franchise and rating can act as measures for the development of higher project education. The franchise and rating can be considered as information technologies in higher project education. A franchise is a special type of business organization. Therefore, the creation of a franchise can be attributed to the function of organizing the development of higher project education. Within the framework of such an organization of activities, one university (the franchise owner) will transfer the right to use the methodology of project education created by it to another university. The university that buys such a franchise pays a fee to the university that created this franchise. When developing higher project education within the franchise, advanced universities can transfer to catching-up universities: the methodology of project education; the organizational model of higher project education; methods of project selection; methods of evaluating projects and students; methods of teacher training; the system of student motivation, and more. The university that organizes the franchise is obliged to provide consulting and information support to those universities that will work within the framework of its franchise. The formation of such a franchise will create a market mechanism for transferring the methodology of project-based higher education from leading universities to catching-up universities. There should be competing franchises of leading industry universities. There may be a structuring of such franchises by industry and education. This structuring is explained by the need to take into account the specifics of the projects. For example, a social project is different from an engineering project. Therefore, franchises can be created in the following areas of education: engineering; social services; technical services; organization of cultural events; innovation and investment, and others. Joining the franchise will allow the catching-up university to increase its competitiveness in the global market of educational services. A catch-up university, by purchasing a franchise of a leading

university, maintains the competitiveness of its educational services. The leading university receives revenue and advertising from the franchise. This will stimulate the accelerated development of the methodology of project-based higher education. The creation of such a franchise will make it possible to adapt the higher education system to its entry into the conditions of the sixth technological order. At the same time, there will be an adaptation to the sixth technological order of individual universities.

The function of motivation in the management mechanism is to create certain conditions for the implementation of educational projects: creating the interest of teachers in the implementation of high-quality projects; creating the interest of students in the implementation of projects. At the same time, projects can be divided into technological and economic ones. Technology projects involve the project team receiving only a specific product. Economic projects include: creating a product; creating a business plan for the development of the production of this product.

Scientific project management requires higher qualifications from teachers. Therefore, teachers should be additionally trained to be project managers. Teachers should be interested in constantly improving their skills in projects.

Studies show significant differences in the motivation of students in project activities in comparison with subject education. Factors of increased motivation of students can be: the opportunity to comprehensively apply the knowledge gained; the opportunity to realize their creative potential; the opportunity to show their leadership qualities in groups; additional opportunities for professional communication; the desire to work under the guidance of a certain teacher, and more.

The control function is important in ensuring the high quality of higher project education. In the mechanism of managing the development of higher project education, the control should ensure: confirmation of the fact of achieving the goals of project education; the interest of all participants in improving the quality of projects; detection of low-quality projects.

The franchise and rating of project universities are information technologies. The creation of franchises and ratings of project universities is based on the collection, processing and dissemination of information. At the same time, modern methods of

information processing and electronic systems are used. The use of the franchise and the rating will accelerate the development of the project-based higher education segment.

When forming the management mechanism, a list of measures can be drawn up. These activities should become structural elements of the mechanism for managing the development of higher project education. The elements of the mechanism for the development of project-based higher education can include:

- development of the scientific theory of the sixth technological order and its practical applications [11, p. 30-46];

- study of the peculiarities of university activities in the conditions of the sixth technological order [15, p. 5-15];

- formation of philosophy, ideology, policy, organizational culture of project activity in the economy;

- development of the paradigm in project-based higher education [8, p. 7-15];

- formation of the state policy for the development of project-based higher education;

- development of public-private partnership policy in the field of higher project education;

- development of legislative proposals aimed at the development of project-based higher education;

- development of methodological support for project activities in each university, taking into account the specifics and customer orientation of the university, other.

For the organizational support of the functioning of the mechanism for managing the development of higher project education, it can be recommended to create:

- international Association of Design Universities;

- national Association of Design Universities;

- to form an educational and methodological association (UME) of project universities in order to develop the methodology of project higher education;

- create a rating agency that develops the rating of project universities;

- to establish an annual international scientific and practical conference " Project activities and project education»;

- to create an international scientific and practical journal "Project method in Economics and Higher Education";

- create faculties, project activity centers in universities;

- organize and conduct annual project competitions and more.

It is proposed to assign the following responsibilities to the faculties of project activity of universities: organization of the implementation of educational projects; development of the methodology of project activity of economic entities; formation of the methodology of project education in universities, and others.

University ratings and assessments of individual aspects of university activities are actively used in the mechanism of university management [9, p. 39-54; 10, p. 33]. Many university rankings are currently being developed. The most well-known university rankings are the QS, THE, and others. Rankings of universities in Asia are being actively developed. There are complex ratings and specialized ones. For example, they develop specialized subject rankings of universities.

In this article, it is proposed to develop ratings that take into account the industry and methodological specifics of the work of universities. The basis for the formation of an independent rating of project universities is the fundamental difference between the methodologies of subject and project higher education. Such differences are related to differences in the process and project models of activity of organizations in the real sector of the economy. In the process model of the organization's activity, all its activities are divided into three types of processes: main technological processes; providing technological processes; auxiliary technological processes. The process model of the organization's activities is presented in Table 1.

Table No. 1. Process model of the organization's activities

№ п/п	Indicators Processes in the organization / Names of processes in the organization	Costs by type of process (million rubles)	Revenue by type of process (million rubles)	Profit/loss by type of process (million rubles)
(1)	(2)	(3)	(4)	(5)
1	Basic technological processes	368	579	211
2	Service technological processes	79	94	15
3	Auxiliary technological processes	47	26	- 21
4	Total result:	494	699	205

Source: developed by the author

The project model of the firms ' work is presented in Table 2.

Table No. 2. Project model of the organization's activities

№ п/п	Performance indicators of the organization's projects / Names organization's projects	Project start year	Project completi on year	Project cost (million rubles)	Current investment volume (million rubles)	Project payback period	Project revenue (million rubles)	NPV of the project
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Innovative project No. 1	2018	2029	105	105	4	0	0
2	Innovative project No. 2	2019	2028	131	80	5	0	0
3	Ensuring the existing production processes of the enterprise	2010	-	300	300	The project paid off	200	-

Source: developed by the author

A comparative analysis of the methodology of subject and project education is given in Table 3.

Table No. 3. Comparative analysis of the methodology of subject and project education

№ п/п	Type of education /elements of the educational process	Subject higher education	Project-based higher education
(1)	(2)	(3)	(4)
1	The composition of the transmitted knowledge	Corresponds to the subject being read	It has a complex character
2	Types of knowledge transfer processes	Lectures, seminars, practical classes	educational project
3	Educational organizational culture	university culture	Culture of real project activity
4	Training methods	Approved by the University	It is formed taking into account the specifics of the project
5	Teacher	Source of knowledge, controller	Consultant
6	Documentation	Program, synopsis	Project documentation

Source: developed by the author

The rating of project universities (international or domestic) can be considered as the official conclusion of the rating agency on the level of quality of higher education in the project university. At the same time, the level of quality of education is the result of the educational project activities of the university. When forming the rating of project universities under consideration, we will take into account that the basis of such a rating is their generalized description, assessment. This estimate is calculated by mathematical calculations. In the course of such calculations, systemically combine (aggregate) in a single indicator (criterion), all the mass of information about the university. This information is reflected in the specific performance indicators (characteristics) of the project university. The purpose of the rating is to: quantify the level of quality of the university's work; determine the position of a particular university in the sequence of similar universities; get information about the strengths

and weaknesses of the university's work; identify the main trends in the development of the project university segment.

The mission of forming the rating of project universities can be called: strategic management of the development of project universities; objective information to the public about the quality and trends in the development of project higher education.

The vision of forming the rating of project universities can be called the inspiring staff of these universities' scenario of the development of the segment of project higher education. With this approach, the vision of forming a rating of project universities is as follows: the creation of such a rating will lead to the popularization of project higher education; the rating will contribute to the sustainable development of the segment of higher project education.

**Discussion.** The main meaning of calculating the rating of project universities can be considered to be the receipt of certain information by the participants in this process. This information about the work of project universities has the following properties: this information is structured according to the most important areas of the university's work; the information contains objective and subjective assessments of the quality of the educational process and educational projects; this information should be suitable for use in the management of the university. The rating of project universities is an indirect assessment of the probability of clients receiving scientific and educational services of a certain level of quality.

A rating as a scientific category can be characterized by its inherent functions and roles. The functions of university rankings can be called:

- establishing the status of a university among similar universities;
- formalization of comparative assessment of the quality of higher education at the university;
- comparative assessment of the level of organization of higher project education in this university;
- parts of the quality management mechanism of higher project education at the university and higher education systems;
- diagnostic function of the rating of project universities;

- the control function of the rating is to ensure the establishment of the level of quality of education;
- predictive rating function;
- the function of structuring the quality indicators of higher project education at the university.

The diagnostic function of the rating is the ability to use the rating data to determine the reasons for this status of the university among similar universities.

The predictive function of the rating, which is the ability to determine on the basis of this rating: the probability of a certain state or status of the university in the future; the dynamics of changes in the level of quality of higher project education in the university.

The function of structuring the quality indicators of higher project education in the university is based on the division of all indicators into such parts: indicators of scientific activity; indicators of individualization of the student's educational process; indicators of the organization of the educational process; indicators of the assessment of the quality of education by business, and more.

The rating of project universities can perform the following roles: determining the position (positioning) of a given university in the market of educational project services; improving the efficiency of quality management processes of higher project education; identifying problems in the functioning of a particular university; identifying problems in the work of the entire segment of higher project education, and so on.

The development of the rating of project universities is an important task of the mechanism for managing the development of the segment of project higher education. Another important task of this mechanism is to keep the ratings of project universities up to date. The rating of project universities can be national or international.

The algorithm for developing the rating of project universities may include the following sequence of actions:

- formation of a description of the mission, vision, goals and objectives of the international rating of project universities;

- analysis and justification of the methodology for rating project universities;
- formation of the structure and set of key rating indicators;
- justification of weight coefficients for specific indicators included in the rating of project universities;
- determining the list of project universities that will be included in this rating;
- development of a questionnaire for rating universities;
- collection and processing of university questionnaire data;
- calculation of indicators and rating values for each university;
- creation of a rating of project universities as a list of universities located in the rating as the quality of education decreases;
- segmentation of the rating by industry or regional affiliation of project universities;
- publication of the rating of design universities in the press;
- explanation of the results obtained when forming the rating;
- use of rating data in managing the development of project universities.

The following indicators can be included in the university assessment questionnaire:

- availability of information on the use of the project-based teaching method in the work of the university (the indicator is measured in the range from 0 to 10);
- the number of organizations (enterprises) that are strategic partners of the university (the number of partners is multiplied by a weight factor of 0.5);
- the share of educational projects carried out in the interests and in contact with customer enterprises (this indicator is in the range from 0 to 1 and is multiplied by 10 when forming the rating.);
- the presence on the site and the level of detail of the standard methodology for the implementation of educational projects (the indicator is measured in the range from 0 to 10);
- availability and content of professional development programs for teachers-research managers of educational projects (the indicator is measured in the range from 0 to 10);

- the existence of the faculty of project activity at the university (the indicator is measured in the range from 0 to 10);

- the existence of a department in the organizational structure of the university that is engaged in the development of the theory of project education (the indicator is measured in the range from 0 to 10) and others.

The final rating score of the university is calculated as the sum of all the given indicators, taking into account their weight coefficients.

The publication of the rating must be accompanied by a comment from the rating agency. This rating comment may include the following information: a description of the results of the rating assessment; descriptions of the reasons for the specific status of universities; recommendations for the development of project-based higher education by region and industry. Private ratings of the development of project-based higher education by industry and region can also be compiled.

**Conclusion.** The article develops a mechanism for managing the development of higher project education. The features of project-based higher education are described, and the need for the development of the higher project-based education sector is justified. It is proposed to develop project-based higher education by creating a franchise of project-based universities. The article suggests forming an international rating of project universities. The functions and roles of the rating of project universities are described. A methodology for developing a rating of project universities is proposed. The results of this article will contribute to the development of the project-based higher education segment.

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#### **Сведения об авторе**

Глущенко Валерий Владимирович – доктор технических наук, профессор Центра проектной деятельности, Московский политехнический университет; Россия, г. Москва.

#### **About the author**

Glushchenko Valery Vladimirovich – Doctor of Technical Sciences, Professor of the Center for the Project Activity, Moscow Polytechnic University; Russia, Moscow.