



## Evaluating the Quality Management of Innovation in the Kazan Federal University: The Sociological Research Results

Vladimir Yurevich Dubrovin<sup>1</sup>, Aidar Robertovich Zakirov<sup>2</sup>, Aigul Raisovna Zaripova<sup>1</sup>  
and Solovarova Yulia Nikolaevna<sup>2</sup>

<sup>1</sup>Kazan Federal University Russia.

<sup>2</sup>Kazan National Research Technological University Russia.

(Corresponding author: Vladimir Yurevich Dubrovin)

(Received 05 May 2019, Revised 16 July 2019 Accepted 25 July 2019)

(Published by Research Trend, Website: [www.researchtrend.net](http://www.researchtrend.net))

**ABSTRACT:** The article deals with the assessment of the quality of management of innovation and project activities in the FSAEI of HE “Kazan (Povolzhsky) Federal University”. It is concerned with the description of the author’s project which is based on the application of the process approach to managing the innovation and project activities of university and presents the developed methodology to evaluate the quality of managing innovation projects through internal selective rating of the process of legalizing innovation projects in the innovation and project system at FSAEI of HE “K (P) FU”. The specification of the innovation project management process developed within the framework of the project at university allowed using such an instrument to evaluate the quality of management of innovation projects in the field of education as selective rating. It is suggested that the structural-functional approach is ineffective for rating, for all the key indicators of rating, as a rule, have a multi-level structural-functional reference, which makes it impossible to grasp invisible multi-structured relationships. Therefore, when using the rating methodology, it is necessary to apply the process approach, which is most effective, as it is able to reflect the detail of invisible relationships in the process model of management. The results of a sociological survey of managers of legalized innovation projects in the system of innovation and project activities of FSAEI of HE “K (P) FU” are presented.

**Keywords:** Management Quality Evaluation; Innovation Project; Rating; National Rating of Universities; Rating; Selective Rating; Process Approach

### I. INTRODUCTION

Quality management of innovation activity is key to the functioning of a higher educational institution, in particular, in the scientific field. Innovation activity allows for acquiring side ground knowledge, additional expertise, scientific and practical skills, research experience, forming and improving the quality of theoretical, research and development projects created by higher education institutions, as well as the training of personnel of top-qualification. Besides, innovation activity is a source of additional financial benefits to university budget, which increases the competitiveness of a higher education institution, in particular, the FSAEI of HE Kazan (Povolzhsky) Federal University.

Innovation management is a subject that arouses the interest of scientists and practitioners in the field of management. There are scores of tools and models for its application at the level of firm, but limited information about its effectiveness [1].

Evaluation of the quality of management of innovation activities at higher educational institution is a process that combines a complex and dynamic nature. Note that there are no clear indicators of evaluating the effectiveness of management of innovation projects and the algorithms for their calculation. All these circumstances dictate the need to develop a specific project of evaluation of the quality of innovation projects management via rating.

### II. METHODS

The work is based on the regulations of quality management, knowledge management, as well as the

industries, such as the sociology of innovations and the theory of innovations. Galimov’s concept of quality of management of innovation projects in the field of education was used as the main methodological framework [2]. The paper uses the principles of system analysis, structure-functional and process approaches to the quality management of innovation projects in higher education. *The methodology of rating* which was used as an instrument to evaluate the quality of management of innovation projects in education became the key one in the study.

### III. RESULTS

Greater access to higher education around the world has created a growing national and global demand for consumer information of the academic quality of universities. The demand for consumer information on the academic quality of universities has led to the development of university rankings in many countries around the world [3].

Evaluation of the quality of innovation management at higher educational institution is a process that is characterized by complex and dynamic nature and is carried out, as a rule, in the absence of clear and unambiguous criteria to assess the significance of the results obtained, the presence of numbers of factors influencing the process, and the variability of the external environment. Good management of innovations is one of the central challenges to higher education institutions in developed countries [4]. In general, the results of innovation management can be defined as the result of the transformation of science into new or

improved products sold on the market, a new or improved technological process used in practical activities [5].

Management of an innovation project is advisable to define as the process of making and implementing management decisions related to determining the goals, organizational structure, planning activities and monitoring the progress of their implementation aimed at the implementation of innovative ideas.

The quality of an innovation project as an object of management should be understood as the characteristics that relate to the competitiveness of an innovative product and its effectiveness. Key requirements for innovation projects are reduced to the fact of innovative product commercialization [6].

The quality management system of the innovation and project activities of an establishment of higher education must necessarily comprise the methods for evaluating and analyzing the quality of such management. The most popular is the methodology of university rankings which is considered to be an important factor in implementation of regulatory requirements for assessing the quality management of innovation projects of higher educational establishment [7].

The most authoritative world rankings of educational organizations are Quacquarelli Symonds [8], Times Higher Education [9] and Academic Ranking of World Universities [10]. World rankings create awareness of the seriousness in the policy of university management. Among the main National rankings of educational organizations, we single out the ratings that are the most significant and frequently used by universities.

1. The "Interfax" national rating of universities implies evaluation of six main parameters: educational activities; research activities; socialization – it reflects the activities of the university in the social sphere; internationalization or international activities of higher educational establishment; university brand; innovation and entrepreneurship, that is, the university activities in the field of technological entrepreneurship. A separate block ranks 11 key indicators of universities rating methodology in the field of "Innovation and Entrepreneurship" [11].

2. Rating of RAEX universities (RA Expert) is an integral assessment of the quality of university graduates, determined by the quantitative parameters of educational and research activities of universities and qualitative characteristics that reflect the opinion of key reference groups: employers, representatives of the academy and scientific world, as well as students and graduates [12].

An important tool to assess the quality of management of innovation projects in the field of education is **the selective rating** of management processes of educational institutions. According to this logic, the project on the formation of the author's methodology for evaluating innovation and project activity at FSAEI of HE "K (P) FU" has been developed and the following practical steps have been carried out:

#### **Pre-project stage- Structural and Functional Analysis of the Innovation Project Management System in FSAEI of HE "K (P) FU" and description of the problem.**

It is worth noting that the organizational and management structures of FSAEI of HE "K(P) FU" have proven their managerial effectiveness. This statement is supported by the fact that the number of SIEs (small

innovation enterprises) has been growing rapidly from year to year. At present, their number has reached 45 enterprises, with the participation of university as one of the co-founders of the SIE. The number of groups that have a desire to obtain a legalist us in the system of innovation and project activities of a higher educational institution by means of connection and work in the information system of management of research and innovation activities of FSAEI of HE "K(P)FU" has been growing.

The second fact which makes in favor of the efficiency of the K(P) FU control system has a rather high position in the national rankings of Russian universities in terms of overall ratings. For example, according to the Interfax National Rating of Universities, FSAEI of HE "K(P)FU" in 2016 and 2017 consistently ranked 11th (818 points out of 1000 points), as compared with MSU that had 1000 points out of 1000.

At the same time, according to the RAEX (Expert RA) universities rating in 2016 and 2017, FSAEI of HE "K (P) FU" occupied 17 and 15 position, respectively. During the year the university's rating has risen by 2 positions, which testifies in favor of an effective university management strategy on the whole.

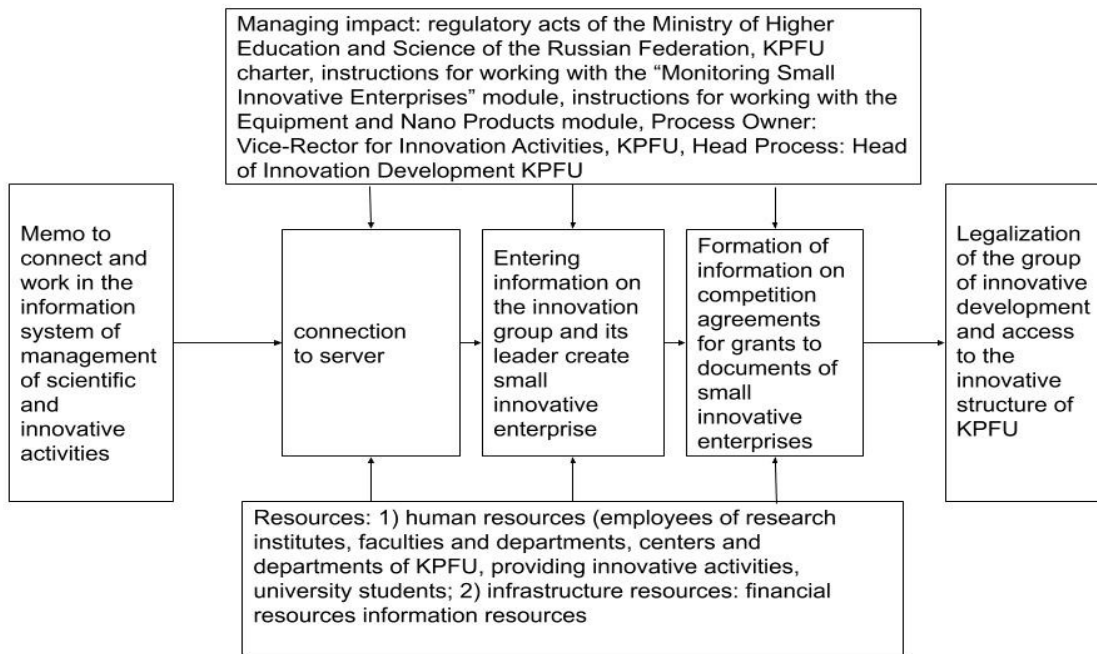
Note that in these ratings, only a research activity is included in a separate group, which comprehends innovation and project activities. Thus, **the problem** lies in the fact that the contribution and effectiveness of the system of management of innovation and project activities in the overall rating of universities is not clear, which makes it necessary to rate it (evaluate) separately.

As a result of the work done, the following **problem situation** has been revealed – the structural-functional approach to the management of the university's innovation activities does not allow the full use of the rating methodology as a tool to evaluate the quality of management of the university's innovation projects. This is due to the fact that all key rating indicators, as a rule, have a multi-level structural-functional connection. Thus, in practical work, **a process approach** to the management of innovative activities of institution of higher education should be used for quality assessment, which opens up great opportunities for detailing processes invisible in structural-functional analysis.

#### **Stage 1. Application of the Process Approach to the Management of Innovation and Project Activities in K(P)FU as a Preparation for Assessing the Quality of Management of Innovation Projects.**

The application of the process approach to the management of innovation and project activities in K(P) FU allowed for using such a tool to assess the quality of management of innovation projects in the field of education as rating. The process approach in the system of management of innovation projects in the field of education allows us to evaluate each element of this system through rating. This determines the importance and necessity of such an approach as the first stage of assessing the quality of management of innovation projects.

The key process in the management of innovation and project activities is, in our opinion, the process of "Connection and Work in the Information System for Managing Research and Innovation Activities in K(P)FU" [13,14]. Its specification is presented in Fig. 1.



**Fig. 1.** The specification of the process "Connection and Work in the Information System for Managing Research and Innovation Activities in K(P) FU".

Thus, on the basis of the specification of the processes of innovation and project activity management in K(P) FU, it becomes possible to use a tool to rate the quality of management of innovation projects in education, such as selective rating.

**Stage 2.** Development of the Project for the Formation of Methods and Tools for Rating the Quality of Management of Innovation and Project Activities in FSAEI of HE "K(P)FU" via Internal Selective Rating of the Legalization of Innovation Projects in the Innovation and Project System in K(P)FU.

The target audience for this rating was the university staff and students whose innovative projects passed the procedure of legalization into the system of innovation and project activities of FSAEI of HE "K (P) FU". Basis of rating is the number of legalized innovative projects in the system of innovation project activities of FSAEI of HE "K(P) FU". Innovation is the use of new knowledge to provide a new product or service that customers want. In other words, this is invention and commercialization [15]. The tools of the methods of internal selective rating was developed on the basis of such methods of rating of universities as RAEX (Expert RA) and Interfax. The tools are represented by the author's rating application form for the method of internal selective rating and by the questionnaire for the managers of legalized innovative projects to the system of innovative project activities of FSAEI of HE "K(P)FU".

**Stage 3.** Approbation of the Methods of Internal Selective Rating of the Legalization of Innovative Projects in the System of Innovation and Project Activities of FSAEI of HE "K(P)FU" in the Innovative Project Field of an Institute of Higher Education.

The process of adapting the methods into the innovation and project field of the FSAEI of HE "K(P)FU" was carried out on the basis and with the help of the Department of Methodological Support and Monitoring of the Educational Process of the Education Department of FSAEI of HE "K (P)FU". According to the results of the

questionnaire survey, most of the surveyed managers are found to take the procedure for connecting to the system of innovation and project activities of FSAEI of HE "K(P) FU" for granted. Thus, it can be noted that the culture of work in the system has already been formed at the level of basic concepts.

Quantitative results:

1. SIE – 45
2. Innovation projects – 60
3. Interviewed managers of legalized innovation projects in the system of innovation and project activities of FSAEI of HE "K(P) FU"– 45

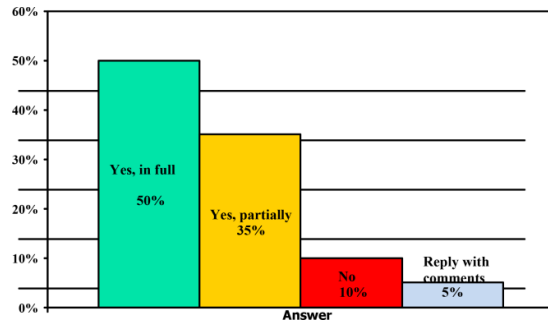
In a general way, the respondents are satisfied with procedure of connecting to the system of innovation and project activities of K(P) FU – 74% of the interviewed of 45 head managers of innovative projects, which is illustrated in Fig. 2.



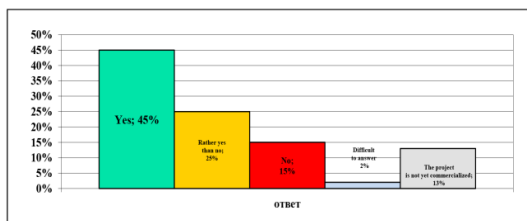
**Fig. 2.** Diagram "Satisfaction with the Procedure for Connecting to the System of Innovation and Project Activities of K(P)FU".

The respondents commented the advantages of connecting to the system of innovation and project activities of the university and the legalization of innovative projects: a simple and understandable scheme of connecting to the system, the ability to use infrastructure of the university required for the project, as shown in Fig. 3. Only 10% of the projects did not receive

access to the necessary infrastructure because of absence of such one.



**Fig. 3.** A histogram on the question “Have you received access to the university infrastructure being necessary to realize the project when legalizing innovative projects in the system of innovation and project activities of K(P)FU?”.



**Fig. 4.** A Histogram on the Question “Has the time reduced from a project idea to its commercialization when legalizing innovative projects in the system of innovation and project activities of FSAEI of HE “K(P)FU”? What do you think?”.

According to the subjective sensation and comments of the respondents, it can be judged that the inclusion in the system of innovation and project activities of the university makes life much easier and reduces the time to commercialization. This is associated with a high level of consulting, concernment of the university and its real participation in the life of each legalized innovative project in the system.

#### IV. DISCUSSION

The innovative projects in the field of pharmaceuticals, medicine, rehabilitation, biotechnology where 12 SIE that implement 12 innovative projects (Institute of Fundamental Medicine and Biology) have been established are the most successful and quickly commercialized. The other important areas are Information Technologies (4 SIE, 6 projects) and Innovations in Education (4 SIE, 5 projects), then Instrument Engineering and Construction (3 SIEs, 7 projects), Environmental Management (2 SIE, 2 projects), etc.

Thus, the following advantages of the method of selective rating for the legalization of innovative projects can be highlighted:

1. Obtaining targeted information about the contribution of the process of legalization of innovative projects in the system of innovation and project activities of the university.
2. Determining the relationship between the process of connecting innovative projects in the system of innovation and project activities and the number of commercialized projects.

#### V. RESUME

Within the framework of the proposed guidelines, the applied aspect of researching the processes of managing innovative projects of a university becomes an effective tool for evaluating and changing the quality of management of everyday educational contexts. The use of structural and functional analysis reveals an important fact in the research field that the structural-functional approach is ineffective for rating, since all key rating indicators usually have a multi-level structural-functional connection, which makes it impossible to grasp invisible multi-structured relationships. When using the methods of rating, it is necessary to apply a process approach that reflects the detail of invisible relationships in the process management model.

#### VI. CONCLUSION

The system of quality management of the university innovation activity must essentially include the methods for assessing and analyzing the quality of such management. Note that there are no clear indicators to evaluate the effectiveness of management of innovative projects and their computation algorithms. The assessment methods are great in number, the most popular is the method of rating universities. The ratings are necessary for the very institution of higher education, since it needs an external system of quality assessment, and especially, an assessment of the dynamics of its development.

#### ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

#### REFERENCES

- [1]. Albors-Garrigos, J., Igartua, J. I., & Peiro, A. (2018). Innovation management techniques and tools: Its impact on firm innovation performance. *International Journal of Innovation Management*, 22(06), 1850051.
- [2]. Galimov, A. M., Kashapov, N. F., & Makhan'ko, A.V. (2012). Management of innovative activity in high school: problems and prospects. *Educational Technologies and Society*, 15(4): 615-624.
- [3]. Vargas-Hernández, J. G., & Garcíasantillán, A. (2011). Management in the Innovation Project. *Journal of Knowledge Management, Economics and Information Technology*, 7: 1-24.
- [4]. Kusterer, D. J., & Schmitz, P.W. (2017). The management of innovation: experimental evidence. *Games and Economic Behavior*, 104: 706-725.
- [5]. Birkinshaw, J., Hamel, G., & Mol, M. J. (2008). Management innovation. *Academy of Management Review*, 33(4), 825-845.
- [6]. Methods and procedures for the formation of the National Interfax University Ranking (2017). URL: <http://unirating.ru/txt.asp?rbr=30&txt=Rbr30Text9318&lng=0>.
- [7]. Methodological approaches for compiling the ranking of Russian universities RAEX (Expert RA) (2017). URL: [http://raexpert.ru/rankings/vuz/vuz\\_2017/#4](http://raexpert.ru/rankings/vuz/vuz_2017/#4)
- [8]. QS World University Rankings (2019). URL: <https://www.topuniversities.com/university-rankings>
- [9]. Times Higher Education (2019). URL: <https://www.timeshighereducation.com/>
- [10]. Academic Ranking of World Universities (2019). URL: <http://www.shanghairanking.com/ru/index.html>

- [11]. Methods and procedures for the formation of the National Interfax University Ranking (NRU2017) (2017). URL: <http://unirating.ru/txt.asp?rbr=30&txt=Rbr30Text9318&lng=0>
- [12]. Methodological approaches for compiling the ranking of Russian universities RAEX (Expert RA) URL: [http://raexpert.ru/rankings/vuz/vuz\\_2017/#4](http://raexpert.ru/rankings/vuz/vuz_2017/#4) ( date of Access: ) : 20.05.2017.
- [13]. Instructions for working with the "Monitoring MIP" URL: [http://kpfu.ru/portal/docs/F267432073/Instrukciya.po.rabote.s.modulem.\\_Monitoring.zMIP\\_.docx](http://kpfu.ru/portal/docs/F267432073/Instrukciya.po.rabote.s.modulem._Monitoring.zMIP_.docx).
- [14]. Instructions for working with the module "Equipment and NANO products" URL:<http://kpfu.ru/portal/docs/F29984902/Instrukciya.porabote.s.modulem.Oborudovnaie.i.NANO.produkcija.docx>.
- [15]. Dill, D. D., & Soo, M. (2005). Academic quality, league tables, and public policy: A cross-national analysis of university ranking systems. *Higher Education*, 49(4), 495-533.