ABSTRACT
of the dissertation
“Provision for the effectiveness of innovations’ commercialization process in the Republic of Kazakhstan”
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Relevance of the research topic. Today, innovation is becoming the main driver of economic growth and a determining factor in the competitiveness of modern firms, regions and countries. As the experience of economically developed countries shows, the basis of the competitiveness of an individual company or an entire country is their ability to generate new knowledge and effectively transform it into innovations demanded by the economy and society.

Kazakhstan, being integrated into the world economic space, in order to achieve sustainable competitiveness, has set the task of weakening the raw material orientation of the national economy and strengthening the diversification of the economy with a predominance of the share of high-tech industries. The need to solve this problem actualizes the issues of the development of innovative knowledge-intensive industries.

In the process of developing innovative high-tech industries, issues of effective application of scientific and technological developments in real sectors of the economy, i.e., in fact, issues of the effectiveness of commercialization of innovations, are of great importance. The relevance of these issues is confirmed by statistics: according to the Global Innovation Index, in 2021, Israel, the Republic of Korea, Sweden were among the world leaders in the indicator "Share of R&D expenditures in GDP" with a share of R&D expenditures in GDP of 4.9%; 4.6%; 3.4%, respectively. Japan and Switzerland took the fourth and fifth positions with indicators of 3.2% and 3.1% of expenditures from GDP, respectively. However, achieving leading positions in terms of research and development expenditures does not mean achieving the same positions in matters of effective application of research results in practice. According to the same Global Innovation Index, which evaluates the innovative efficiency of national economies by correlating the results of innovation activities with the costs incurred to obtain these results, of the previously mentioned world leaders in R&D spending, only Switzerland, Sweden and the Republic of Korea ranked among the top five countries in terms of the effectiveness of the national innovation system. This suggests that the implementation of significant investments in R&D is not the key to the successful transfer of national economies to "innovative rails". It is also necessary to ensure the effective application of the obtained R&D results in practice, which requires appropriate improvement of the mechanisms for transforming R&D results into a form in demand by the market.

For Kazakhstan, as well as for other countries of the world community, the issue of the effectiveness of commercialization of innovations is also relevant. The

Concept of the development of higher education and science in the Republic of Kazakhstan for 2023-2029 highlights such weaknesses of Kazakh science as the low level of commercialization of R&D results, as well as the low contribution of science to the economy. The consequence of this state of affairs is the underdevelopment of high-tech sectors of the economy of Kazakhstan. The existence of this problem is emphasized in the Concept of Industrial and Innovative Development of the Republic of Kazakhstan for 2021-2025, indicating that most of the value added in the manufacturing industry of Kazakhstan belongs to low- and medium–tech sectors.

The purpose and objectives of the study. The purpose of the study is to scientifically substantiate and develop proposals for the development of mechanisms to ensure the effectiveness of the process of commercialization of innovations based on the analysis and assessment of barriers that have developed in the practice of commercialization of innovations in Kazakhstan.

To achieve this goal, the following tasks were set in the study, which determined the logic of the dissertation work:

-to study and systematize the conceptual apparatus used in the field of commercialization of innovations;

-to consider the evolution of approaches to building the process of commercialization of innovations;

-to identify the features inherent in the model of effective commercialization of innovations and on their basis to develop an appropriate model of commercialization;

-to study theoretical and methodological approaches to evaluating the effectiveness of the process of commercialization of innovations;

-to develop a conceptual design of an innovation commercialization management system;

- to analyze and evaluate the effectiveness of the process of commercialization of innovations at the macro level in the Republic of Kazakhstan;

-identify barriers limiting the effectiveness of the process of commercialization of innovations in Kazakhstan;

-to develop proposals for the development of mechanisms to ensure the effectiveness of the process of commercialization of innovations in Kazakhstan.

The subject of the study was a set of economic and institutional relations that arise between the participants of the innovation system regarding the management of the process of transferring the results of innovative activities into the market environment.

The object of the study was projects on commercialization of the results of innovative activity.

The theoretical basis of the research was the works of domestic and foreign scientists. The work uses the normative acts of the Republic of Kazakhstan related to the formation and development of the innovation system, program documents and methodological developments of international organizations. The following methods were used in the research process: generalization, systematization, analysis, synthesis, comparison, classification, statistical analysis, methods of retrospective analysis, questionnaires, interviews, regression.

The information base of the study is represented by regulatory and legislative acts of the Republic of Kazakhstan and foreign countries, statistical materials of the OECD (Main Science and Technology Indicators), the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, the National Institute of Intellectual Property, UNESCO, WIPO, Eurostat, UNIDO, the World Bank, data from monographs and dissertations of Kazakh and Russian scientists, materials from bibliographic and abstract databases such as Scopus, ScienceDirect, Springer, WebofScience, and Internet resources.

The main scientific results and their novelty:

-the concept of commercialization of innovations has been clarified, which should be understood as the process of transformation of research results, technologies to a form in demand by the market, leading to a positive economic effect;

- an interactive model of innovation commercialization based on Roswell theory has been developed. According to this model, the main prerequisites for effective commercialization of innovations are the presence of market demand for innovations, the presence of interaction, interconnection, and the simultaneous presence of processes of cooperation and competition between NIS entities.

- based on the results of a systematic literature review, indicators of the effectiveness of commercialization of innovations at the macro, micro, university and commercialization office levels were summarized and systematized;

- the concept of "ensuring the effectiveness of the process of commercialization of innovations" has been clarified and a conceptual design of the innovation commercialization management system has been developed, which is designed to ensure the success of the commercialization process;

- the analysis and evaluation of the effectiveness of the process of commercialization of innovations in the Republic of Kazakhstan based on the adaptation of the methodology of the Global Innovation Index and regression analysis;

- barriers have been identified that limit the effectiveness of the process of commercialization of innovations in Kazakhstan using expert questionnaires and interviews;

- proposals have been developed for the development of mechanisms to ensure the effectiveness of the process of commercialization of innovations, taking into account the results of the study.

The main scientific provisions submitted for defense:

-the author's interpretation of the term "efficiency of commercialization" is given, under which the achievement of the maximum possible results of commercialization at the cost of the minimum possible amount of resources. At the same time, the criterion for effective commercialization of innovations is the scaling of innovation.

-based on a broad literature review, a system of indicators of the effectiveness of commercialization of innovations at the macro level, university level, commercialization office level and micro level has been developed.

- a step-by-step assessment of the effectiveness of the process of commercialization of innovations using the adapted methodology of the Global Innovation Index and regression analysis revealed a low level of efficiency of commercialization of innovations in Kazakhstan compared with a number of foreign countries and the lack of communication between intellectual property objects in the form of patents, licenses, concessions and the volume of innovative products produced. Questionnaires and interviews with experts, as well as analysis at the level of commercialization projects, revealed the factors limiting the effectiveness of the process of commercialization of innovations. The key barriers to the success of commercialization of innovations in Kazakhstan are: untimely and insufficient financing, a shortage of personnel in the field of commercialization, a lack of full-fledged market analysis and consideration of market needs.

-proposals have been developed for the development of mechanisms for managing the effectiveness of the process of commercialization of innovations at the macro level, as well as at the level of the commercialization project.

Theoretical and practical significance. The conclusions obtained as a result of the study contribute to the development of the theory of ensuring the effectiveness of the process of commercialization of innovations. The conclusions and recommendations contained in the dissertation work can be used by government agencies in improving the mechanisms of commercialization of innovations and scientific developments, development institutions in the formation of innovative infrastructure and training in the field of commercialization, educational institutions and research organizations – in the development of a strategy for the development of scientific research, the development of academic entrepreneurship, enterprises of the real sector of the economy – when development and implementation of commercialization programs. The results of the research can be included in the program of such disciplines as "Innovation Management", "Commercialization of the results of intellectual activity", "Intellectual property Management".Approbation of the main provisions of the work.

The results of the study were reported and discussed at international and national conferences, including: Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional expansion to Global Growth, VI International Farabi Readings dedicated to the 85th anniversary of Al-Farabi Kazakh National University and the 70th anniversary of the Higher School of Economics and Business, IV International scientific and practical conference "Competitiveness of national economies and regions in the context of global challenges of the world economy".

Publication of research results. The results of the dissertation research have been published in five publications, including four in the publications recommended by the CQAFSHE of the Ministry of Science and Higher Education of the Republic of Kazakhstan and one in the journal "Problems and perspectives in Management", which is part of the Scopus database.

The structure of the dissertation. The work consists of an introduction, three chapters, a conclusion, a list of sources used, contains 39 tables, 37 figures and 3 appendices.