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Abstract. In this paper, we study the trends of investment attractiveness of trade in Russia, connected with unfavorable social and economic factors of recent times, are studied. The analysis shows that despite its high practical significance, the concept of an "innovation and investment project" does not have a commonly accepted scientific definition. There is neither a unified approach to understanding this term, nor a holistic view of the problems and tasks that need to be addressed during the implementation of such projects. An analysis of the concept of an "innovation and investment project" has made it possible to identify the shortcomings in the existing interpretations and to propose a new one. Based on the analysis of systems for innovation and investment project management, we identify the advantages and disadvantages of these systems, and propose a model for a basic system for innovation and investment project management, including: principles, methods, tools for its implementation.

1. Introduction

The modern globalization of the world economy, the expansion of international integration into the Russian market and the growing role of import substitution are shaping the relationship between offers and demands of markets, which leads to increased competition between trading organizations.

The difficult economic situation of a significant part of trade organizations, the unpredictability of market conditions of external and internal economies, inflation, non-payment crises and other factors compel us to look for effective ways to manage organizations and projects in particular. Creating a highly competitive institutional environment that stimulates entrepreneurial activity and attracts capital to the economy is one of the directions of the transition to an innovative socially-oriented type of economic development of the Russian Federation, indicated in the "Concept of Long-Term Socio-Economic Development of the Russian Federation for the Period until 2020".

The implementation of this conceptual approach was demonstrated by RF President V.V. Putin at the St. Petersburg International Economic Forum in June 2019. As part of this forum, in the face of limited external investment, Russian authorities were increasingly thinking about expanding their domestic investment offer. Previously, attempts to invest part of the National Welfare Fund (NWF) in the economy were not supported by the Ministry of Finance. However, this changed. On the panel of the SPIEF-2019 forum featuring talks by officials from the economic bloc, it was the first time that the government officially announced its plans to use the resources of the NWF on the Russian market. The Ministry of Finance will expand the list of assets available for acquisition. It is also planned to use part of the fund for lending to foreign companies - buyers of Russian products. The implementation of these measures will attract additional investments in the Russian Federation. However, for the regions, attracting investment is characterized by a rather low rate. Management structures at enterprises are not able to catch up, which leads to the need for attracting additional investment resources.

Analyzing the data of the Federal State Statistics Service, it can be noted that in 2018, 17595 billion rubles of investments in fixed assets were invested in the Russian economy. Compared to the corresponding period of the previous year, the volume of investments increased by a mere 4.3%. According to the results of 2018, in the Volga Federal District, 2,467.8 billion rubles was attracted as investments, and that year there was a 1.7% decline in attracting investments compared with 2017. The main factor restraining investment activity is the lack of the region's own financial resources. All this indicates the need to improve the management system and attract investment.

According to a Global Development Index study published by A.T. Kearney, from 2002 to 2005 Russia was among the top five most attractive investment markets. In 2003-2004, Russia even ranked first in this rating. Since 2005, however, the position of the Russian trading market have been gradually declining. In 2013, Russia was 11th in this ranking. And as of 2014, Russia is no longer included in the rating. The reasons for this fall, according to experts, are risks caused by low oil prices, devaluation, capital outflows, falling consumer activity and a general slowdown in the economic growth.

At the same time, trade, against the background of a general drop in economic growth in Russia, continues to maintain relatively high rates of development. Thus, the share of trade in the country's GDP in recent years has reached almost 18%, which is the same as mining, electricity and construction combined.

Given the high importance of trade for the Russian economy, drastic measures are required to enhance the further investment attractiveness of trade [1].

Effective investment management in trade requires a modernization of the entire organization management system, in which the priority should be given to the management of innovation and investment projects. Innovation and investment projects contribute to the development of innovative trade clusters, create conditions for the formation of points of faster growth of the economy, innovative development, export of high-tech products and the commercialization of technologies, increasing labor productivity and creating high-performance jobs, increasing the competitiveness of trading enterprises and the country.

Analysis of the Scopus database of open-access academic articles using the key phrase "innovation and investment project" showed that for the first time the term was used in an article by C.A. Nilsson in 1959 [2]. Since that time, more than 300 articles on this subject have been published. However, the largest number of publications have been in the past decade, which also confirms the relevance of research on innovation and investment projects and a project management system for such projects.

Many papers have been devoted to studying the process of forming a system for managing innovation and investment projects. A study of the Scopus database using the key phrase "innovation and investment project management system" showed that the issue of managing innovation and investment projects was first raised in an article by K. Pavitt and W. Walker in 1976 [3]. Since that time, 529 articles have been published on this topic, with the peak of publications in 2018 - 47 articles (figure 1).

In addition, it can be seen from figure 1 that publications in this area dated from 1976 to early 2000s were minimal, and only in 2003 more active publication on the subject under consideration began, which indicates the relevance of studying management systems for innovation and investment projects.



Figure 1. Dynamics of publications based on the Scopus database of academic articles using the key phrase "innovation and investment project management system"

In addition, the introduction and application of innovation and investment projects in trade contributes to the improvement of the life cycle management of a retail trading enterprise [4].

Thus, the aim of the study is the theoretical and methodological justification and development of a system for managing innovation and investment projects in trade.

Based on the aim, it is necessary to solve the following tasks:

- systematize concepts in the field of innovation and investment project management;

- study the formation process of a management system for innovation and investment projects;

- develop a model of a basic system for managing innovation and investment projects.

To this end, we will analyze the concepts of "innovation and investment project" and "project management", and, based on the systematization and concretization of these concepts, we will develop a model of a basic system for managing innovation and investment projects.

2. Methods

The concept of "innovation and investment project" has been studied by many authors in a number of studies over the past 8 years (table 1).

As can be seen from table 1, the presented definitions of "innovation and investment project" cannot have a uniform interpretation. Comparing the definitions suggests that 2 main interpretations can be distinguished:

considering an innovation and investment project as a system of measures or a set of works [5], [6]; presenting an innovation and investment project in terms of its future economic benefits while taking into account the specifics of a particular industry [7], [8], [9].

	Tuble 1. Systematization of the concept of minovation and investment project				
No.	Author	Definition			
1.	Sobchenko N V [2011]	"By an innovation and investment project we mean a system of goals formulated within its framework, a set of organizational, technical and regulatory documentation, a set of all resources used to implement and create innovative products, works, services, as well as a set of organizational and managerial measures for their fulfillment" [5]			
2.	Akchurin A I,	"An innovation and investment project is a set of works			

Table 1. Systematization of the concept of "innovation and investment project"

	Plotnikov A N [2014]	interconnected by resources, executors, and terms of implementation, capable of providing a significant economic effect and high profitability, involving the introduction of a technological and (or experimentational imposed in the introduction) [6]
		and / or organizational innovation" [6]
3.	Dosuzhayeva E E [2015]	"An innovation and investment project is an investment project
		that has the following specific features: the duration of the pre-
		project survey stage is increased by the time required for research
		and development (R&D) related to innovations; the number of
		possible risks and uncertainties in the implementation of the
		project, as well as their level, should be increased due to the
		production and selling of an innovative product; there is an
		increased time delay between the end of the investment period and
		the beginning of the revenue period of the project, which is
		associated with the delayed realization of an innovative product
		"[7]
4.	Malinina S E [2016]	"In general, innovation and investment projects are the company's
		investment activities in modernized equipment and technologies
		necessary for the production of an improved product" [8]
5.	Shibayeva M,	"An innovation and investment project is a means of implementing
	Serebryakova Y, Shalnev	the concept of building transport infrastructure with the
	O [2017]	participation of public-private partnerships" [9]
	0 [2017]	participation of public private participations [7]

The above approaches to the definition of the concept of the innovation and investment project are varied and multifaceted, but at the same time lacking. They are characterized by the following disadvantages:

- reflecting mostly the investment component [7];

- vague content of the project [5], [9];

- lack of a clear project structure and a mechanism for the implementation [6], [8].

Innovation and investment projects are implemented through the use of an effective management system. The project management system has been increasingly used in various fields of activity in the past decade. At the same time, the concept of "project management" is viewed by scientific researchers from different angles. Let us analyze the existing definitions of project management (table 2).

Table 2. Interpretations of project management				
No.	Author	Definition		
1.	PMBOK Guide	"Project management is the application of knowledge, skills, tools and methods to the project work to meet the requirements of the project" [10]		
2.	Agureev I E	" is a process of making and implementing managerial decisions related to setting goals, forming an organizational structure, planning events and monitoring the progress of their implementation, aimed at implementing an innovative idea" [11].		
3.	Baychorov M U	"Project management is the management of activities for its implementation, which includes a set of measures aimed at achieving the goals and objectives of the project" [12]		
4.	Golodyaevsky M A	"Project management is the activity of planning, organizing, coordinating, motivating and controlling throughout the lifecycle of a project using a system of modern management methods and techniques, the main purpose of which is to ensure the effective implementation of the results defined in the project on the composition and scope of work, cost, quality and satisfaction of the		

Table 2. Interpretations of project management

project participants "[13]

Based on the analysis of the concepts presented, it can be noted that some authors consider project management as a sum of knowledge [10], while others consider project management as a list of actions to achieve certain results of the project [11, 12, 13]. At the same time, Golodyaevsky introduces clarifying characteristics of the results of project management based on structural, quantitative and qualitative aspects. In our opinion, it is the qualitative indicators and characteristics of the management of innovation and investment projects that allow us to take into account the specifics of management and avoid modern problems that arise in the process of providing a project management system.

A review of Russian academic literature over the past 15 years using the e-library database with the query "system for managing innovation and investment projects" revealed only 87 papers, of which only 10 were relevant to the process of creating a system for managing innovation and investment projects. Most of these articles were written by Akchurin and Plotnikov. These researchers suggested that a process of forming a project management system should be carried out based on certain axioms and standards [6]. Together, they proposed 20 axioms that defined an axiological normalized model for the formation of an innovation project management system, and 12 standards that govern the interaction of participants in an innovation and investment project. In one of the axioms, Akchurin and Plotnikov pointed out that "the innovation and investment project management system is a combination of organizational, technical and economic elements (modules) considered in inextricable unity." Taking into account the 20 axioms, they formed a model of the innovation and investment project management system, starting with the formulation of the goal, criteria and requirements for the final product of the project and ending with providing the optimal combination of costs, time and quality compliance with established criteria, a balanced combination of project characteristics.

Another author, Khorshikyan, noted in [14] that the innovation and investment process management system should be based on management principles and that it includes a management algorithm and methodological tools for evaluating this process. Golodyaevsky [13] defined the project management system as three interconnected blocks: management subjects, management objects, and project management processes.

In addition to these interpretations, the innovation and investment project management system is considered:

- from the point of view of control functions and processes [15];

– using fuzzy sets and the graph theory [16];

- for the purpose of application in various fields of activity [17], [18].

Analysis of the presented systems and models of project management allows us to highlight a number of their disadvantages:

- some project management models are quite convoluted [6], [17];

- voluminous description of management functions and processes [15], [18];

- application of mathematical methods only [16].

Coexistent with the identified shortcomings, there are some advantages to the existing models and systems of project management:

- presentation of the project management system as a set of elements that are inextricably linked [6];

- the system is based on the principles of management [14];

- structuring the project management system as having three blocks [13].

The identified advantages and disadvantages of the innovation and investment project management system allow us to develop a new vision of the project management system for such projects.

3. Results and discussion

Taking into account the concept of "innovation and investment project" we analyzed, the following clarifying wording is proposed: an innovation and investment project is a comprehensive and documented structure for building business processes that interact with each other in order to fulfill the

tasks of creating and introducing a new type of product (service), for the realization and distribution of which capital investments are required.

In our opinion, an important distinguishing feature of this definition is, firstly, that the project (as a documented structure) is key in it. Secondly, using this definition, organizations can specify the structure of the innovation and investment project taking into account existing internal and external factors to optimize project management. Thirdly, the presented definition most fully reflects the current trends in the development of management theories in terms of using the structure of building business processes, and allows it to be applied in the framework of project management of organizing any type of economic activity.

Based on this interpretation of the innovation and investment project, as well as on the results of a review of existing models and systems for managing innovation and investment projects, taking into account the identified shortcomings and advantages of these systems, the authors propose a model of the basic system for managing innovation and investment projects, presented in figure 2.

In our model, the fundamental project management system includes 3 project management elements, is based on principles and is implemented through methods of management using the innovation and investment management project tools proposed by the authors. All 3 elements of the model are interconnected and arranged in a hierarchy. Such logical structure allows one to adapt the management system to the specifics of innovation and investment projects, and be consistent in implementing a project management system.



Figure 2. Model of a basic system for managing innovation and investment projects in trade Source: developed by the authors.

The model of the basic system for managing innovation and investment projects proposed by the authors is flexible in application, can be taken as the basis for projects aimed at various types of activities, as it reflects only the initial (basic) management elements, which are the same for all areas of enterprise activity. If necessary, the developed model can be expanded to accommodate a specific innovation and investment project of a trading company.

4. Conclusions

As a result of the study:

1. A systematization of the concept of "innovation and investment project" was carried out, revealing a number of shortcomings of the existing interpretations of the concept under consideration.

2. The systems of managing innovation and investment projects have been analyzed, identifying the advantages and disadvantages of these systems.

3. A model of the basic system for managing innovation and investment projects has been developed.

In this paper, the authors carried out a conceptual analysis, proposed a conceptual model of the basic system for managing innovation and investment projects, which was developed on the basis of an analysis of the conceptual framework and which acts as the theoretical basis for the formation and development of trade clustering, and for highlighting promising trends in trade competitiveness. The study used semantic analysis, field analysis of the concept of "innovation and investment project" and the concept representation method. The authors propose using conceptual analysis to form a methodology for creating a complex system for managing innovation and investment projects in trade. Using conceptual analysis, the authors illustrate the dynamics of the development of the concept of "innovation and investment project", which made it possible to connect and explain some elements of the terminological idea of integrating the investment and innovation project into a single management system. The theoretical significance and value of this work lies in the fact that a correspondence is established between the classes of events, works and the innovation and investment project, as well as the trade specifics of the innovation and investment project and its industry. The results of the study expand the understanding of the formation of innovation and investment project management systems in trade. The proposed conceptual model is the theoretical basis for constructing logical models of innovation and investment projects of trade enterprises.

The findings of this study are a platform for developing a system for managing innovation and investment projects for other sectors of the economy.

References

- [1] AT Kearney: Global Retail Development Index, <u>https://globaledge.msu.edu/global-resources/resource/292</u>
- [2] Nilsson C A 1959 Business incorporations in Sweden a study of enterprise 1849–1896 *Scandinavian Economic History Review* **2** 1 38-96
- [3] Pavitt K and Walker W 1976 Government policies towards industrial innovation: a review *Research Policy* 11-97
- [4] Krasyuk I, Kirillova T, Bakharev V and Lyamin B 2019 Life cycle management in network retail enterprise based on introduction of innovations *IOP Conference Series: Materials Science and Engineering* **497** 012125
- [5] Sobchenko N V 2011 Methodology for assessing the effectiveness of an innovation and investment project *Problems of economics and legal practice* **4** 277-80
- [6] Akchurin A I and Plotnikov A N 2014 Model for the formation of a management system for innovation and investment projects *Izvestiya of Saratov University*. New series. Series: *Economics. Management. Law* 14 (1-1) 60-7
- [7] Dosuzhayeva E E 2015 Innovation and investment projects, their features and main forms of implementation *Internet journal of Science Studies* **7** 2 (27) 20
- [8] Malinina S E 2016 Category of innovation and investment projects in the evaluation of effectiveness *Actualscience* **2** (12) 251-2
- [9] Shibayeva M, Serebryakova Y and Shalnev O 2017 Efficiency improvement of the investment and innovation activities in the transport facility construction field with public-private partnership involvement *IOP Conference Series: Earth and Environmental Science* **90** (1) 012170
- [10] Guide to the Project Management Body of Knowledge (PMBOK Guide). Fifth edition, https://pmjournal.ru/articles/obzory/pmbok-pyatoe-izdanie-kratkoe-izlozhenie/

- [11] Agureev I E 2013 Innovation management and managing innovative projects *Current problems* of economic and social development **9** 136-7
- [12] Baichorov M U 2015 Application of a balanced scorecard in the management of innovation and investment projects *Bulletin of the North Caucasus Federal University* **5** (50) 46-50
- [13] Golodyaevsky M A 2016 Basic concepts and methods of investment project management *Advances in modern science* **2** (9) 132-6
- [14] Khorshikyan S V 2017 Implementation and realization of the project of quality management of the innovation and investment process *Academy Bulletin* **3** 65-74
- [15] Bunkovsky D V 2014 The process approach to managing investment projects *Actual problems* of law, economics and management **10** 18-21
- [16] Boldyrevsky P B 2015 Models for the management of innovative activity of agricultural engineering enterprises based on graph theory *Economic analysis: theory and practice* **30** (429) 2-10
- [17] Rojas M I and Espejo R L 2018 Method of econometric structural equations for management analysis in science, technology and innovation *Informacion Tecnologica* **29** (5) 215-26
- [18] Kolychev V D and Prokhorov I V 2015 Conception, technology and methods of development of university system of innovation projects commercialization based on effectuation Asian Social Science 11 (8) 44051
- [19] Delaney L 2018 Investment in high-frequency trading technology: A real options approach *European Journal of Operational Research* **270** 375-385
- [20] Berggren C 2019 The cumulative power of incremental innovation and the role of project sequence management *International Journal of Project Management* **37**(3) 461-472
- [21] Roehrich J K, Davies A, Frederiksen L and Sergeeeva N 2019 Management innovation in complex products and systems: The case of integrated project teams *Industrial Marketing Management* 79 84-93