

# Actual problems of project teams in the management of innovative projects

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**Abstract.** Management of innovative projects is carried out under conditions of a high degree of uncertainty and risk. In the absence of competent management, an innovative project is either unclaimed by the target audience, or is closed due to overspending of resources. The purpose of this research is to identify the main problems in the management of innovative projects and to offer recommendations for improving the efficiency of management. The object of the research is the management of innovative projects. The subject of the research is the main problems of project teams in innovative projects. As part of the research, an expert interview was conducted with managers of innovative projects and representatives of project teams in various areas of project management. Based on the results of the interview, the key problems in the management of innovative projects were identified and recommendations for their elimination were proposed.

## 1 Introduction

In the modern world, which is characterized by instability, uncertainty, complexity and ambiguity (VUCA-world), almost every organization faces the need to implement the latest technologies, and, consequently, to manage innovative projects. Innovative projects, in the research, is a complex of interrelated management actions within the time and resource constraints aimed at creating an innovation – a fundamentally new product or service based on the advanced achievements of science and technology.

Traditional project management is often seen as a process for planning, scheduling, controlling. These practices may not work well when innovation is required.

The following features of innovative projects can be distinguished:

- 1) High risk of project failure. According to research, a large number of innovative projects fail, either due to overspending of resources, or are unclaimed by the target audience.
- 2) The need for the external and internal environment of the project to be ready for innovation.
- 3) A high degree of probability of changing the content of the project during its implementation.
- 4) The difficulty of calculating and planning time and resources at the project initiation stage.

In order to be in demand, an innovative project must:

- 1) Create a new solution to the problem, or a new product / service.
- 2) Meet the customer's expectations.

3) Reduce operating costs in the long term.

4) Increase customer/target audience satisfaction in the future.

However, a large number of innovative projects and startups, even in the conditions of timely financing and provision of resources, are unsuccessful.

The success of an innovative project largely depends on the project manager and team, their ability to make timely management decisions, the level of motivation and flexibility.

The purpose of the research is to identify the main problems in the management of innovative projects and to offer recommendations for improving the efficiency of management.

The research goals are to:

- 1) Conduct an expert interview with representatives of project teams in various segments of project management.
- 2) Based on the results of the expert interview, identify the key problems in the management of innovative projects.
- 3) Understand the differences between traditional and innovation project management.
- 3) Develop recommendations for improving the management of innovative projects.

## 2 Methods

At the moment, there are a number of studies in the field of innovative project management in Russian science. V. S. Tikhonov's works are devoted to the study of the issue of digital management of innovative projects [1], in particular, N. B. Kultin [2] considers the possibilities of using artificial intelligence in the management of

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innovative projects. Machine learning systems can be used to solve the problems of the analysis of indicators of efficiency of investments, selection of suppliers and subcontractors, subject to the availability of sufficient amount of statistics necessary for the training of decision-making algorithm. Problems of evaluating the effectiveness of innovative projects are raised by A. A. Borisov and I. S. Chernat [3], I. I. Fedorova and G. S. Gabidinova [4]. The works of M. V. Korchagina and K. S. Mukhiddinov, O. A. [5] Suikova, E. V. Kudryashova [6] are devoted to risks in the field of management of innovative projects. O. V. Kostenko and V. V. Schennikova have developed and substantiated a methodology for designing a financial risk management system for innovative projects [7]. The work of M. A. Romanenko is devoted to the peculiarities of competencies of the project teams of innovative projects [8].

The problems of development of concession project management mechanisms are raised by Pazdnikova, N. P., Pechenegina, T.A. Mingaleva, Z., Mitrofanova E.A [9, 10].

Features of quality management in innovative IT-Projects are raised by T. I. Vlasova [11]. The researcher comes to the conclusion that there are some methodological problems in the field of quality management of IT projects, which are associated with specifics of IT projects and with the fact that project quality management focuses on ensuring the quality of project's output product and quality work of the project, while not paying significant attention to the quality of IT project management process.

Solovieva's article, team management as a factor of increasing the realizability of innovative projects, presents a model, developed by the authors, for diagnosing a company's readiness to implement high-risk innovative projects [12].

A. V. Lomazov, V. A. Lomazov in research Fuzzy temporal periodization of innovative projects considered the problem of time management in the implementation of innovative production-economic and socio-economic projects [13].

However, the key problems of project teams in the management of innovative projects and the ways to solve them are not sufficiently covered in Russian research.

In the world science there exists an abundance of literature on innovation and project management. Kerzner H. [14] describes an experience of innovative project management in the work "Project management best practices: achieving global excellence".

Some researchers try to add structure to innovation by identifying categories of innovation according to elements such as complexity, life-cycle phases, levels of risk, strategic business importance, and information available (Garcia and Calantone; O'Connor and Rice) [15], [16].

In this study, the PMBoK 7 version of project management knowledge was used to define the key approaches to project management, the concept of a project team, and the project lifecycle: Waterfall and iterative [15].

A project team is a group of individuals that supports the project manager in the execution of project work to achieve project objectives [15].

The project life cycle is a set of phases through which a project passes from the initiating to the closing. An iterative project life cycle is a cycle, in which the scope of the project is determined at the beginning of the project life cycle, but the evaluating of time and cost is regularly adjusted. In the case of a predictive life cycle of the project, the scope, the schedule and cost of the project are determined at the initial phases, and any changes in the content require competent management [15].

To identify the main limitations and problems in the management of innovative projects, the study conducted an expert interview with 10 representatives of the following areas of project management: banking, information technology, transport planning, mining engineering, state and municipal administration. The respondents were the managers of innovation project teams, and 8 out of 10 respondents have successfully developed and implemented the product at the moment. A number of respondents had experience in developing their own innovative project (transport model, IT-projects), a number of respondents managed innovative projects of an enterprise. The respondents were asked the following questions:

- how many innovative projects did you participate in?
- what main problems did you face?
- what management decisions did you make to solve the problems?
- what is the difference between project management and innovative project management? The respondents had experience in managing 1-3 innovative projects in practice.

### 3 Results and Discussion

In the course of the expert interview, based on the answers of the respondents, the following groups of problems were identified:

1) A group of problems related to the planning and management of project schedule. Respondents noted the difficulty of evaluating the exact time of project implementation. The majority of respondents faced the problem of falling behind schedule due to the fact that a number of factors were not taken into account when planning. Also, the project teams had problems with providing the project with resources, since they were not calculated accurately at the planning stage. This problem may arise in the case of using the waterfall project lifecycle, when the stages of work on the project – from idea to implementation-go in strict sequence one after another, and after the planning stage is completed and the project plan is approved (already at the implementation stage), it is problematic to make changes to the plan. In innovative projects, since a product or service is being developed for the first time, it is quite difficult for experts to accurately assess the actual time

and cost of project implementation at the stage of project initiation and planning.

2) A group of problems related to the knowledge management of innovative projects: first, the team leaders had to find specialists with the appropriate knowledge and competencies to implement the project. ("It was difficult to find a team of like-minded people to implement the project and experts from whom you could learn", "The main difficulty is a large amount of data and information that needed to be collected and processed, such an experience in the Russian Federation was the first time"). Secondly, the respondents faced the difficulty of preserving and transferring knowledge after the project was closed. ("An important task was to retain unique specialists with unique project experience, since they are also in demand in other organizations", "One of the problems was the possible leakage of knowledge gained during the project").

3) A group of problems associated with bringing the product of an innovative project to the market to consumers. Experts stated that in some cases the product was not in demand, or there was a low motivation to use it. The external environment was not ready for the implementation of this innovation.

Most of the respondents noted the need for continuous improvement of the innovative product and its refinement after receiving feedback from the customer or the target audience.

The experts also identified the following problems: the lack of competitors, whose experience could be used in the development of the project, the need to find like-minded people and investors who are ready for high risks, the difficulty of forming a project team.

In the management of innovative projects in the field of state and municipal administration, the key problems differ from other areas of management because the level of project culture is not high.

It should be noted that project management has only recently begun to be implemented in the state and municipal authorities of Russia.

During an expert interview with representatives of the Ministry of Digital Development and Communications of one of the regions of Russia, the following problems were identified: the difficulty of combining project management tools with the current work of the Ministry. In many ways, the principles of project management contradict the basic regulations of the civil service.

Also, the use of Agile is not fixed in regulatory legal acts and is used more on personal initiative.

The state and municipal service of the Russian Federation does not have the opportunity to constantly make changes to the project budget and schedule, therefore the use of Agile is problematic.

A number of employees do not have the appropriate education and do not have experience in using the tools and principles of project management.

We can also state the low level of risk management culture in the state and municipal service.

The main recommendations for improving the quality of innovative projects management in the public service of the Russian Federation and the development of a

project culture are staff training, development of project skills and a regulatory framework.

According to the results of the expert interview the main differences between traditional and innovative project management are:

- High degree of risk in the innovative project management. Innovative project management is more challenging than traditional project management practices.
- High impact on human factors in the innovative project management.
- The need for phases of research and implementation in the innovative project management.
- The need for contingency reserves in time to the project schedule for the testing of hypotheses and bug fixes.
- If in traditional project management a failure is perceived as a defeat, in an innovative project a failure is perceived as an experience.
- Innovative project managers may need a different skill set than traditional project managers.
- Innovative project management should include product management tools.

Based on the results of the interview, we can state the low efficiency of the Waterfall project life cycle when managing an innovative project. With this approach to project management, it is quite difficult to make changes to the project plan at the implementation stage. Therefore, most organizations currently use an iterative lifecycle, which allows the project schedule revision and budget, as well as making changes during each iteration.

Agile allow to respond faster to changes in the environment and customer requirements, so they are more effective in managing innovative projects.

In innovative projects, there are much more risks, since management is carried out in an area of high uncertainty, so the identification and assessment of risks should be carried out at each iteration, regularly updating the risk log.

Before initiating an innovative project, it is necessary to conduct a study of the problems and needs of the target audience of the project, using problem interviews. Work with the target audience of the innovation project should also be organized after the creation of the product, at the stage of its implementation. The project team must develop a product implementation plan with indicators of effectiveness. Respondents noted the need for active work on the implementation and popularization of the product, by presenting it at international exhibitions, conferences, publishing the results of the project in scientific journals, as well as presenting the product in social networks.

The management of innovative projects requires closer cooperation with the customer and stakeholders of the project, for timely correction of the statement of work, risk breakdown structure, risk matrix, WBS. Therefore, communication management becomes one of the priority areas in innovative projects. Using a

communication plan will help reduce the number of risks.

When managing innovative projects, the importance of project knowledge management increases, since an innovative project is a set of management actions performed for the first time. The project manager must properly organize the collection and analysis of information about the existing knowledge of the team at the project initiation stage. Based on the analysis, the manager can timely draw conclusions about the lack of certain knowledge in the team and thereby reduce a number of risks.

Also, during the iterations, the manager must organize the collection, transfer and storage of new knowledge gained during the implementation of the project, ensure the creation of a knowledge base, and ensure the information security of the project. The innovation project manager should be focused on training the team throughout the entire project lifecycle.

Visualization tools of the project management process: dashboards and Kanban-boards also have a positive effect on management efficiency according to respondents. They allow you to track the progress of the project, see failures and lacks.

An important factor in the success of an innovative project, according to the respondents, is the high level of the project culture of the organization. Under the project culture, we understand a set of logically interrelated knowledge, skills and possessions based on generally recognized standards and principles in the field of project activity [16].

In addition, the project culture implies a high level of personal responsibility and motivation of the project team, the desire to learn, and also developed soft skills: trust building, communication, motivation, leadership, coaching.

Three respondents highlighted the importance of the leadership qualities of the team leader and the need for sufficiently broad powers to make managerial decisions.

More than half of the respondents noted the need to develop emotional intelligence among team members for successful work in an innovative project.

Emotional intelligence is the ability to perceive, evaluate and manage one's own emotions and those of others. Emotional intelligence affects the self-organization and motivation of the project team.

## 4 Conclusion

Project management, as a management methodology, currently provides a fairly large number of effective tools that allow you to successfully manage innovative projects and solve emerging problems in project teams. The use of management methods like Agile allows you to respond more quickly to changes in the internal and external environment of the project, make changes to the project plan, and focus on working with the customer.

Knowledge management, being a separate group of project management processes, also reduces the number of risks and problems of preserving and developing the team's knowledge during the management of an

innovative project. In addition, the development of soft-skills in the team also has a positive effect on the probability of achieving the goal and creating a demanded product.

An important factor influencing the effectiveness of the management of an innovative project is the quality of the project team, its ability to respond flexibly to changes, the ability to learn, the ability to communicate with each other, its level of motivation and self-organization.

Developing the project team, its knowledge and experience, you can achieve high efficiency in the management of an innovative project.

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