

# Analysis of Sources of Risk of Construction Projects in the Plane of Value-Oriented Management

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*This paper formulates the cause of the risks of construction projects that are associated with value-oriented management. The correlation between the increasing influence of stakeholders and the development of the information society, its features and characteristics is shown. The analysis of current trends in project management with the increasing influence of stakeholders on the results of the project is presented. The analysis of project management methodologies, which give a special role to the management of project stakeholders, is carried out. The contradiction between the stakeholders of the project is formulated, which forms the reason for a special group of risks of construction projects using a value-oriented approach*

**Keywords:** value-oriented approach, stakeholder management, risks of construction projects

**Introductory part.** The development of the lifestyle of modern civilization has led to the formation of a new paradigm of life, to the information society.

It is characterized by an increase in the role of information and knowledge in human life, an increase in the share of information technology in all sectors of the economy. One of the products of the information society is the global information space, which provides unhindered information interaction between people, access to world information resources and the satisfaction of their social and personal needs for information products and services [1, p.12; 2, 3].

As identifying particulars of the information society, researchers identify [1, p, 13]:

- mass use of network information technologies;
- a high level of information needs of all members of society and their actual satisfaction for the bulk population;
- high information culture;
- free access of each member of the society to information;
- a single information space.

This led to at least two results regarding project activities. 1) The shift in emphasis from the economic satisfaction of human needs that prevailed in post-industrial society to the satisfaction of value needs that go beyond material consumption.

2) Free access to the telecommunications space of almost any inhabitant of the planet, and the possibility of his free informational influence on the event of which he became a witness.

How will this paradigm affect project management?

1) It is necessary to manage projects taking into account the provision of its participants, not only material and economic results and benefits, but more and more valuable and informational.

2) A sharp increase in the stakeholder of the project due to free telecommunications space.

3) A sharp increase in the possibility of their influence (informational impact) on the project and the likelihood of its successful completion [3].

4) All of the above increases the risks of project stakeholders as a result of their dissatisfaction and the possibility of their active influence on the project. It follows that the overall risks of the project increase and the likelihood of its successful completion is reduced.

**Main part.** Existing value management systems in projects do not take these changes into account. The standard number of project stakeholders is considered, their limited impact on the project is taken into account, and there are no effective models and methods.

In this regard, an important and urgent task arises due to the demands of practice, which is aimed at improving the effectiveness of risk management of value-oriented management of construction projects.

The purpose of the study is to analyze current trends in the management of construction projects on the basis of a value-oriented approach and formalize the problem of the occurrence of risks while meeting the expectations of stakeholders.

The working scientific hypothesis of the study is the assumption that improving the risk management of construction projects should be carried out by expanding the group of its stakeholders, which gain their value during the operation phase of the project product, i.e. outside the generally accepted GZP. This requires the development of new methods and models aimed at minimizing the consequences of the risks of implementing construction projects on the basis of the CPC.

Confirmation of the hypothesis requires solving problems, which, in essence, have the form of a contradiction, since it is necessary to take into account the opinion of stakeholders who are functioning and gaining the value of the project beyond the limits of the classical life cycle. In view of this, there are no tools to take into account their opinions at the stages of project initiation and planning. This forms a specific group of risks that are becoming increasingly relevant and influential with the development of the information society. And it is for this risk group that it is necessary to develop management tools that will ensure the successful completion of construction projects in the context of the transformation of modern society.

The study is based on existing methodologies, regulatory and fundamental documents of project management and related fields of knowledge.

In the work, two basic methodologies were adopted as the main ones: RMVoK and P2M, as well as their industry and practical extensions.

A Guide to the Project Management Body of Knowledge (PMBoK) [4], a basic standard for the Project Management Institute (PMI) of the United States.

Project management has been decomposed into 47 processes and ten areas of expertise, the use of which must ensure the successful completion of projects. There are two areas of the standard's knowledge: stakeholder management and project risk management. Value is considered only as the value of the organization, or business value. Disadvantages: there is no interdependence of the expected value of the project - stakeholders - risks.

Practice standard for project risk management. PMI, 2009. As presented in the standard itself [5, p. 1], his "goal is to:

- a) provide a standard for project management professionals and other stakeholders that defines aspects of project risk management, which in most cases are recognized as good practice in most projects;
- b) provide a standard that is applicable worldwide and is applied consistently.

Disadvantage: The standard of practice has a descriptive purpose, and not one that is used for training or educational purposes.

In the PMBOK ® Guide "Building Expansion" [6, p. 3], describes additional knowledge and practices, which in most cases are generally accepted as best practices for construction projects. The expansion of the construction includes areas specific to the construction industry that are not specified in the PMBOK ® Guide: health, safety, environmental protection and project management; and project finance management. these knowledge areas are aligned with the process groups in the PMBOK ® Guide.

International Stakeholder Engagement Standard AA1000SES, 2015 edition [7].

The AA1000SES standard belongs to the group of AA1000 standards for sustainability reporting developed by The Institute of Social and Ethical AccountAbility, UK.

AA1000SES Stakeholder Engagement Standard (AA1000 Stakeholders Engagement Standard) is a generally applicable public regulatory framework for planning, executing, evaluating, informing and non-financial auditing the quality of interaction with stakeholders in the reporting process and the accountability of organizations in the field of effective municipal management (for LSG bodies).

The standard is based on practical experience in preparing and verifying social reports from more than 1000 companies around the world.

A Guidebook of Project and Program Management for Enterprise Innovation - P2M (Japanese National Standard on Enterprise Innovation Projects and Programs Management) [8]. The P2M methodology is based not on product or process orientation, but on value creation for mission-oriented and goal-oriented businesses through a strategy to deliver innovative projects and programs that ensure the success of the enterprise project activity.

A P2M project is defined as the responsibility of the project manager to create value in accordance with the mission of the program and the organization as a whole.

In P2M, the concept of service model of the project was first introduced.

The disadvantages of the P2M standard are usually its declarative nature and the lack of direct instruments to implement.

Current trends in project management as of 2019 are developing in three directions: active involvement of top managers in projects, tightening control over project boundaries and increasing the value of project results [9].

Moreover, the latter should ensure the minimization of risks, cost control and increase the benefits of projects. For this, it is recommended to use predictive, phased and flexible incremental approaches to product development.

The benefits of the project outcome should exceed the formal project outcome.

The growth of the final result of the project is ensured by:

- detailing the requirements and expectations of the customer;
- reduced feedback data analysis;
- monitoring progress in achieving project results.

Business value is defined as the net, quantifiable benefit derived from the implementation of projects, which may be tangible, intangible, or a combination of both.

The commercial value of a project is the benefit that the results of a particular project bring to its stakeholders.

The material benefits include: money; equity capital; network engineering; fixed assets of the enterprise; technologies and tools; market share, etc.

Intangible benefits include: goodwill and goodwill; brand recognition; public good; registration or acquisition of a trademark; strategic alignment of the business and so on.

To increase the value of project results in the PMBOK standard [4, p. 546] a Project Benefit Management Plan is proposed. It includes a documented clarification defining the processes for creating, maximizing and supporting the benefits provided by the project during the operation of its results in operational activities.

Thus, focus on meeting the values of stakeholders as the main result of the project remains a priority. The realization of benefits will remain an important indicator of the success of projects, and a value-oriented approach as a means of achieving this.

Another trend of 2019 in project management is Emotional Intelligence (EQ) [10]. This need is determined by the large number of project participants working together with different cultural differences. And for the project manager, it is important to correctly understand the various aspects of the emotional intelligence of all his stakeholders.

The main trend in the management of construction projects of the past decade, was the introduction of digital technologies both in the technological processes of construction production and in the management of construction projects [11].

Three global directions are distinguished here:

1. Virtual reality for planning high-level projects
2. Laser scanning using drones for accurate projections
3. Artificial intelligence for recognizing, connecting, and interpreting workflow data

To get virtual and practically real prototypes of projects, specialists have already begun to use Building Information Modeling (BIM), which can provide instrumental opportunities for stakeholders to participate from all stages of the building's life cycle. Previously, this was impossible! Using high-definition scanning devices, it will be possible for stakeholders in construction projects to provide a complete picture of the physical and functional characteristics of future designs.

The participation of artificial intelligence in construction today relies on 50 GB of data, which is created by Autodesk estimates, for a typical construction project.

These data must be processed and analyzed. Their interpretation using artificial intelligence will provide construction management with a significant competitive advantage, and project managers will receive not only relevant information, but also analytics for effective management.

An analysis of the trends reviewed indicates the preventive role of stakeholder engagement in projects, which in turn requires the introduction of a value-based approach using special methods for managing construction projects.

They are usually characterized by a high degree of uncertainty; changes in turbulent environments; various requirements on the part of managers, customers, sponsors who have excellent, and often opposite interests, etc.

The processes of interaction between stakeholders in projects are present in the P2M and Agile methodologies. Stakeholders are developing options for further development of the project to achieve their values, taking into account current changes in the project environment, including the life of the stakeholders themselves.

The author [12] defines interaction as a key factor in the success of a project when it approves the need to change the project development trajectory and stakeholders reorient to new goals. How does this happen, for example, when the sailboat moves, when its trajectory is developed before the start of the movements, and the achievement of the goal is monitored in the process of sailing along the chosen trajectory. In this case, the regulation or control of the movement is carried out as necessary, in the case of a sailing ship - its steering, in the case of a project - the head of his team [13].

And since the project is an obligation to create value, according to the P2M methodology, interaction management in such situations has a value-oriented entity, that is, it is value-oriented [12].

**Conclusions.** The contradiction is that the satisfaction of all stakeholders of the project, i.e. providing them with value does not provide the maximum financial return for the investor, and therefore, he, intentionally, as the main stakeholder of the project, will not deal with issues of ensuring such value, rather, on the contrary, which forms the cause of the risks in the plane of the value-oriented approach.

Therefore, it is necessary to manage the project in such a way that meeting the expectations of stakeholders (providing them with value) is a necessary condition for maximizing profit for the investor.

On the other hand, today the development of society in the information-digital, public opinion, deduces the requirement to meet the interests of stakeholders, in key indicators of modern life.

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