

## **ON THE THEORY AND MODERN PRACTICE OF PROJECT QUALITY MANAGEMENT**

### **Abstract**

The article discusses various approaches to the definition of the term "project management", as well as the origin of a science called project management. Project management should be distinguished as a practical activity and as a scientific subject. Project management emerged as a practical activity in ancient times, when humanity faced the need to implement the first major projects. The formation of project management as a scientific and theoretical subject occurred in the middle and second half of the XX century. Professional associations of project management played an important role in creating the subject of project management. The article provides a scientific overview of this field of knowledge on a global scale, as well as the practice of neighboring countries and Kazakhstan. The analysis of the weak points of project quality management in Kazakhstan is carried out, and the reasons for the need to develop this area of scientific knowledge in the Republic are given. The paper presents statistics based on data from the Institute of project management in the United States, showing the effectiveness of project management. The analysis of the reasons for reducing the effectiveness or failure of projects, based on the results of research on the success of projects, the analysis of the structure of project quality management, approaches to the interpretation of this concept are carried out. The methods and stages of general quality management are described, their impact on the implementation of the project, and recommendations are formed within each method. The methods of measuring the performance of work and their quality with specification of their strengths and weaknesses are given. Through the prism of international requirements for quality management systems, the issues of personnel competence, their training and professional development, the universal involvement of project team members and senior management in the project quality management process are considered.

Key word: project management, quality of management, performance evaluation, communication, educational processes, personnel competence.

The scientific direction "Project Management" in comparison, it is considered young, however, it should be noted that, it should be noted that the history of the development of project management has its roots far back in antiquity, and are observed in architectural masterpieces (for example, Egyptian pyramids). The basis of each such project is careful planning at all stages. The construction of ancient magnificent structures required the management of resources, time, quality of objects, which essentially means – project management.

There are different definitions for "project management" concept in literature.

Research scientists [1] state that project management is a method or technique for organizing, arranging, managing financial and material assets through the project duration which is aimed to successful accomplishment of its objectives by applying modern methods, strategies and innovation to attain the outcomes characterized by the scope of the project [1, p. 28].

Similarly, Shafer S. M defines that a project management is the process of overseeing and planning fabric assets all through the venture life cycle by applying administration strategies and data innovations to attain the comes characterized within the extend in terms of the scope of work, their fetched, timing and quality [2].

Other scientists like Heagney J state that project management is a set of apparatuses, advances and information, which application to your venture makes a difference to attain the finest comes about [3, p. 15].

PMI Guide is a globally recognized project management standard, which is implemented by international non-profit project management Institute (PMI). This report summarizes and makes it conceivable to apply the endless involvement of different ventures, distinctive nations, and distinctive scales.

The proposed guideline presents a definition to the concept of project management, which is widely shared by other researchers. Thus, we will take the given definition as fundamental.

The word "project" comes from Latin word "projectus" which means "thrown forward". The project is arranged occasion, which is organized to produce different products or services. It is a

process that involves administration activities with ambition to achieve results which correspond to time and resource limitation given.

Project management has been formed as a scientific discipline since the middle of 20th century. Experts' opinions differ towards the place where the project management evolved.

There is an opinion that the project management was evolved in US by the result of improvement of aviation and defense industries. However, the others think that the project management started to begin in United Kingdom due to the development of construction business.

In the beginning of 20th century project management first tool was introduced to the world. USA engineer Gant introduced Gant chart, which is proposed to present the schedule of the amount of work, planned for the project. Even the Gant chart was introduced in early 1903, it is widely used in these days.

In CIS project management concept came only in 2000s. The researcher V.N. Pounds gives following reasons for this matter: Firstly, it's a data vacuum that existed in post-soviet union countries until the 1990s, secondly the traditional manner of doing business in the companies of these countries, which are opposed to any innovations [5].

Project management came to Kazakhstan around 20 years ago. In the study of project management in Kazakhstan were involved Kuznetsova I.V., V.V. Shakhgulari. To improve the project management in Kazakhstan we need to consider global experience in this area. However, there are many reasons which explain the drawbacks in project management development in the country.

Firstly, the project management development in the country is spontaneous and chaotic. Secondly, traditional administration framework of Kazakhstan companies does not correspond to advanced commerce conditions of global market and encompasses a negative affect on their competitiveness. The project management standard was adopted in Kazakhstan only in November 2014.

To promote and implement new progressive ideas, the Astana Business Campus innovation cluster was created at Nazarbayev University. The main idea is to unite in one place foreign and Kazakh companies, small and medium-sized businesses, venture funds, scientists, businessmen, students, inventors—all those who think progressively, and help make their dreams come true. To develop an innovative environment, Astana Business Campus has a commercialization office, a Technopark, research centers and a business incubator.

The purpose of the business incubator is to help young aspiring professionals and businessmen find dynamic business models, as well as comprehensive support for projects—from the original idea to its implementation. Founded in 2012, the student business incubator of the Science and technology Park at KazNU. Al-Farabi supports startup projects of young entrepreneurs at all stages of development. At the moment, there are 4 projects operating on the basis of the Technopark. Successful projects: 23 Academy, Mars.Studio, Studio MetrX.

For the development of project management, the government of Kazakhstan allocates huge investments.

Only in 2018, 970 billion tenge (6 billion 500 million dollars) were invested to develop 288 projects. We should mention that there is high shortage in professionals who could work in this field.

Alexey Tsekhev, the President of the SPMRC states that nowadays there is no national framework for standardization and certification. Thus, there is no definition for the concept “project” and its clear classification in Kazakhstan. On the other hand, the Committee for technical regulation and standardization has a will to develop such standard in the country.

In order to save money and time, research groups should first build a framework of connections between entrepreneurs. It is also essential to compose the venture Constitution and a progressive structure of work, to define roles and responsibilities, and stages of the project. The described method is a great tool which simplifies the process and assists the project members to clarify their roles and responsibilities, the deadlines and the financial budget.

Even though there are some drawbacks in project management in Kazakhstan, we need to focus on further improvement of this area.

It is clarified by next reasons:

- ◆ existence of tasks with cycle, cost, time and results;
- ◆ need in frameworks which are aimed to achieve goals and objectives;
- ◆ unstable dynamic Kazakhstan market;

- ◆ need in higher professionals in project management;
- ◆ need in high competitive national companies;
- ◆ the presence of many projects which are not able to achieve their goals;
- ◆ the discoordination between departments of organization in project implementation.

Based on PMI institute information, 70% of project managers agree with the significance of project management in reaching project goals.

Organizations that apply project management tools and strategies in their work, reach their goals in 74% of projects, whereas who do not reach the goals only in 54% [9].

According to research data the main causes for project failures are provided below (Figure 1):

- ◆ insufficient definition of requirements – 34%;
- ◆ absence of professional specialists – 20%;
- ◆ weak risk management – 17%;
- ◆ insufficient control of project work – 15%;
- ◆ poor interaction – 14%.

To dispense with these causes or diminish them, you must work with each parameter independently.

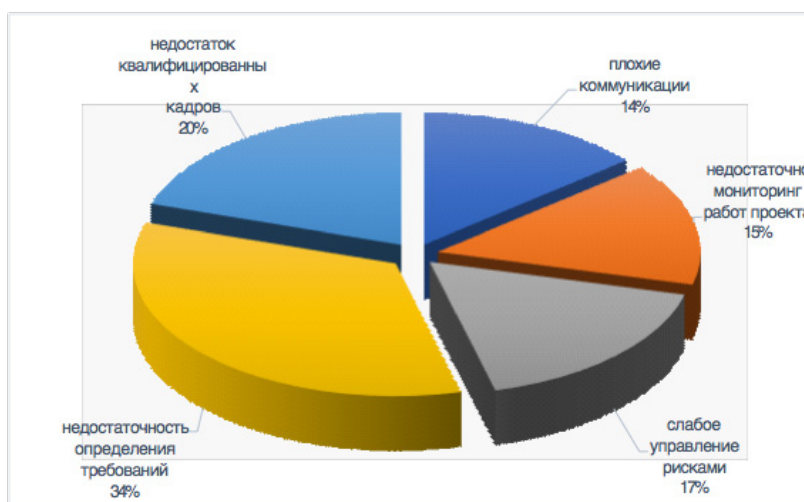


Figure 1 – Reasons for project failure or low efficiency

If we analyze the figure 1 we can see that shortage of professionals in the project management is related to education in this field. To overcome the shortage of the specialists in this field we need to develop the connection between the education institutions and industry. At the moment we have only two universities in Kazakhstan that prepare specialists in the field of “project management”.

Some training companies have professional courses in project management. The courses are held only few days and they have high cost. Based on another research only 54% of people who has different positions than managers do know about project management. Therefore, it is important to move forward the level of preparing professionals in PM, to raise awareness of the field project management, to organize conferences and seminars about project management.

The other causes which are insufficient definition of requirements, weak risk management, insufficient control of project work, poor interaction are related to project management itself.

Removing those causes is probably possible in a certain environment of project management of some company.

To consider the possibility of eliminating the causes of project failure, consider the project management system in a single company.

In our opinion, all participants of the project should effectively interact during the project duration. Every member of the project should be aware of the tools and methods of the project management.

Beside the professional skills, participants should have the knowledge in project management and they should be able to interact as one team to achieve the project goals. Project management skills

allows the employee to regulate time constraints of the project, plan the phases of project, define the resources required for the project.

Right evaluation at this phase importantly eliminates the main failure of the project – the failure of deadlines.

Project cost management incorporates the budget plan and allocation and also correspondence with the budget at the final stage of the project. Right distribution of the budget in project duration permits to realize the objective and eliminate the risk of insufficient money.

Next essential phase to consider is the analyses of project execution. The volume method can be used to analyze the effectiveness of the allocated money and to forecast coming costs based on the rates at the moment.

The important cause of project failures is the insufficient definition of requirements (34%). It is about proper understanding of project requirements, time and resource constraints. Composing correct project Charter, and defining clearly its requirements to the participants can sufficiently decrease the percentage of this type of failure.

Project and product quality is another important issue to consider. The company should arrange the quality policy and goals which correspond with project requirements.

Human resource management is another significant area since project members should be qualified and have knowledge about goals and objectives of the project. One important reason for failure is poor interaction of the project. Therefore to accomplish successfully project you need to pay attention for communication.

Project management is mainly based on documentation. The organization should develop its own system of standards and regulations in this field. Effective monitoring is required at each phase of project implementation. Weak monitoring leads to project failure (15%). Thus, there should be developed a framework in the organization which involve submitting reports both in oral and writtenly at each stage of project management. Kazakhstan has a big potential to improve the project management in our country and use the best global experience in our projects.

In order to further develop project management in our country the state support is required. Paying attention to education system in this area will also have positive effects. It is also required to create a framework for interaction and communication of the specialists from this community allowing them to create their own environment in project management.

Lack of project management standards and regulation in state level is a great drawback for development by quality of project management in Kazakhstan. Therefore, while creating those standards we need to use world best experiences in this area. This can help us save time and money.

Beside this, the national standard should include specific features of the country like social and economic development, traditions, trends and other phenomena. In coming feature each organization in Kazakhstan should be able to develop their own project management strategy based on national standard.

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### **Аңдатпа**

Мақалада «жобаларды басқару» терминін анықтаудағы әртүрлі тәсілдер, сонымен қатар ғылымды жобаларды басқару ретінде пайда болуы туралы айтылады. Жобаны басқару практикалық қызмет ретінде және ғылыми пән ретінде ерекшеленуі керек. Жобалық менеджмент практикалық қызмет ретінде ежелгі уақытта, адамзат алғашқы ірі жобаларды жүзеге асыру қажеттілігіне тап болған кезде пайда болды. Жобалық менеджменттің ғылыми және теориялық пән ретінде қалыптасуы ХХ ғ. ортасы мен екінші жартысында орын алды. Жобаларды басқару пәнін құруда маңызды рөлді жобаларды басқарудың кәсіби қауымдастықтары атқарды. Мақалада ғаламдық ауқымда білімнің осы саласына ғылыми шолу жасалынды, сондай-ақ көрші елдер мен Қазақстанның тәжірибесі қарастырылды. Қазақстандағы жобалардың сапасын басқарудың әлсіз жақтарына талдау жасалды, республикада ғылыми білімнің осы саласын дамыту қажеттілігін көрсететін себептер келтірілген. Жұмыста АҚШ-тағы Жобаларды басқару институтының деректері негізінде жобаларды басқарудың тиімділігі көрсетілген статистика келтірілген. Жобаның сәттілігін зерттеу нәтижелеріне, жобаның сапаны басқару құрылымына, осы тұжырымдаманы түсіндіру тәсілдеріне негізделген тиімділіктің төмендеуінің немесе жобалардың сәтсіздігінің себептеріне талдау жүргізілді. Жалпы сапаны басқарудың әдістері мен кезеңдері сипатталған, олардың жобаны іске асырудағы әсері, әр әдіс аясында ұсыныстар жасалады. Жұмыстың тиімділігі мен сапасын олардың күшті және әлсіз жақтарын көрсете отырып өлшеу әдістері ұсынылған. Сапа менеджменті жүйесіне қойылатын халықаралық талаптарды ескере отырып, қызметкерлердің құзыреттілігі, оқыту және біліктілігін арттыру, жобалық топ мүшелері мен жоғары басшылықтың жобаны басқару үдерісіне жаппай тартылу мәселелері қаралды.

Тірек сөздер: жобаны басқару, басқару сапасы, тиімділікті бағалау, тиімділік, коммуникациялар, оқу процестері, қызметкердің құзыреттілігі.

### **Аннотация**

В статье рассматриваются различные подходы к определению термина «управление проектом», а также происхождение такой науки, как управление проектами. Управление проектами следует различать как практическую деятельность и как научную дисциплину. Управление проектами возникло как практическая деятельность в древние времена, когда человечество столкнулось с необходимостью реализации первых крупных проектов. Формирование управления проектами как научно-теоретической дисциплины произошло в середине и второй половине ХХ в. Важную роль в создании предмета управления проектами сыграли профессиональные ассоциации управления проектами. В статье проведен научный обзор данной области знаний в мировом масштабе, а также рассмотрена практика ближнего зарубежья и Казахстана. Проведен анализ слабых сторон управления качеством проекта в Казахстане, приведены причины, указывающие на необходимость развития данного направления научного знания в республике. В работе приведена статистика, основанная на данных Института проектного менеджмента в США, показывающая эффективность применения проектного управления. Проведен анализ причин снижения эффективности или провала проектов, основанный на результатах исследования успешности проектов, анализ структуры управления качеством проекта, подходов к трактовке данного понятия. Описываются методы и этапы всеобщего управления качеством, их влияние на реализацию работ по проекту, формируются рекомендации в рамках каждого метода. Приводятся методы измерения результативности работ и их качества с конкретизацией их сильных и слабых сторон. Через призму международных требований к системам менеджмента качества рассмотрены вопросы компетентности персонала, его обучения и повышения квалификации, всеобщей вовлеченности участников команды проекта и высшего руководства в процесс управления качеством проекта.

Ключевые слова: управление проектами, качество менеджмента, оценка эффективности, коммуникации, образовательные процессы, компетентность персонала.