

Principles and Methods of Project Management in Organization

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Abstract. The relevance of the chosen topic resulted from significance of the project management due to innovative development of the Russian economy. To maximize the effectiveness, more organizations adopt this model into the business and make adequate investments for using project management by staff, teams and departments. This article discusses toolkit of project management, functional areas, which are needed for the establishment of an intersectional methodology in organization. Approaches to project management have been developed in different ways. For this reason this work runs by analyzing and structuring of approaches. This article reveals modern trends of project management due to its ongoing development. A study reveals that the implement these principles and methods is a key element in the transition to modern management structures, self-management teams, new management decisions. Active integration of intelligent systems is a key tendency of a project management in organization. It helps to handle information, to accumulate knowledge and to make effective management decision.

1. Introduction

The main reason of effective functioning of businesses is an adoption of project management in organizations due to innovative development of the Russian economy. Such organizations realize a value of this model and make adequate investments for using project management by staff, teams and departments to maximize the effectiveness.

The development of project management is an ongoing process. An integrative methodology in its implementation of project approaches can be formed by a correct usage of a toolkit. Some organizations, which main field of activity is not a realization of projects, start using a project management because it provides to be more competitive. It reveals the relevance of modern trends and features using a project management in organizations.

Despite the long existence of project management considered as an independent field of knowledge, the management notion of the term project and project management is continued to be modified influenced by trends in the development of project management theory and practice [5]. The table 1 shows given concepts [10].

The presence of various approaches related with diversity range of operations in the company which are applied project management. Comprising feature for all definitions is availability of unique possibilities and borders, seeking to formation of systems, which can help to achieve goals.

Table 1. Entity of project and project management.

Name	Main point
Project	Complex of relative activities which geared to creation of unique product or service in terms of time and recourse limitation
	Temporary activity which is designed for creation of unique products, service or results
Project management	Disposal, one-off activity or summation of activities in which clearly defined goals are achieved during fixed time Planning, organization and control for the project resources geared to effective achievement of project goals Management process of intangible and tangible resources throughout the cycle of project implementation by using contemporary management methods
	Use of knowledge, skills, toolkit and methods in the project work to meet the requirements Methodology of success (leadership skills for coordination efforts of people and usage of resources) by modern scientific methods to achieve optimum results in worth, time and quality, and also targeted at each project participants

Resource: written by authors according [5], [1], [2].

Professional project management is available if:

1. There are some methodologies which include features of functioning in organization and roles regulation in project, business processes in project management, patterns of documents in project management;
2. There is a unified information system – a toolkit for automation of project management;
3. Organization has a planning office provides with organization system which is responsible for coordination and development of project management, for accumulation data about the implementation of projects and for coordination of project managers in order for accordance to business requirements.
4. There is a qualified and trained staff which has a skill to use advanced technologies and methods in project management.

Thus, more and more managers come to understand the necessity of project management and realize all prospects for the application of this technology. With proper management of available resources, it is possible to improve the competitive position in domestic and foreign markets, regardless of the enterprise size which certainly effects on Russian position in the world. Therefore, the interest in project management as the most effective organizational and operational paradigm and management culture of project implementation demonstrates a rapid growth [11]. The main reasons for the increased interest in project management are illustrated in Figure 3.

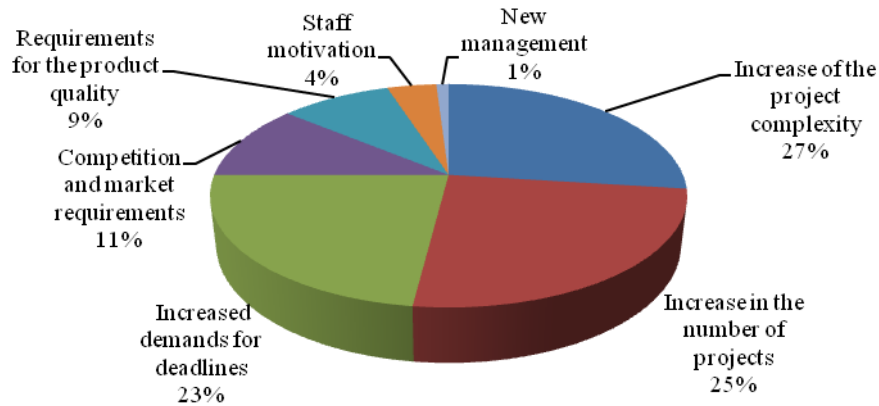


Figure 1. The main reasons of the growing interest in the project management.

The effective planning and control under a project makes it possible to optimize time, financial and human resources spending that increase a possibility to realize a project and achieve goals.

2. Approaches, principles and methods in project management

The notion of project approach contains a principle system which provides an understanding of this approach and defines its features. As main rules, principles of project management derive from patterns which could help to achieve success in making right decisions. Also they oriented to general managerial principles, having some specific features. Principles of project management are illustrated in Figure 2.

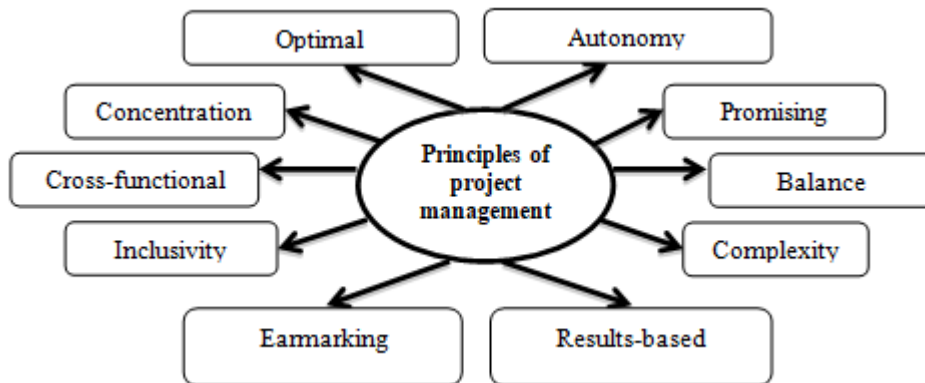


Figure 2. Principles of project approach [8].

International and Russian experience shows that project approach is a effective toolkit which can handle with strategic problems in terms of ongoing development and to reduce some imperfections in a market economy. During the existence of project management sufficient number of effective approaches, methods and standards were established which are used by organizations. For which purpose are standards needed?

First of all, standards formalize the requirements for processes and products which help to describe in what way actions should be done or what kind of criteria products should be followed by.

Secondly, standards focus on the best practices in certain field because professional groups design it which have a significant experience in it.

Thirdly, standards unify terminology.

Russian standards include [7]:

- Project management. Requirements for project management;
- Project management. Requirements for projects portfolio management;
- Project management. Requirements for program management;

- Guidance for project manager competence assessment. Areas of competence and criteria of professional conformity;
- Guidance for assessment of project management personnel competency;
- Project risk management. General;
- ISO 21500:2012 Guidance on project management;
- ISO 21504:2015 Project, programme and portfolio management – Guidance on portfolio management/

Main international project management standards are illustrated in Figure 3.

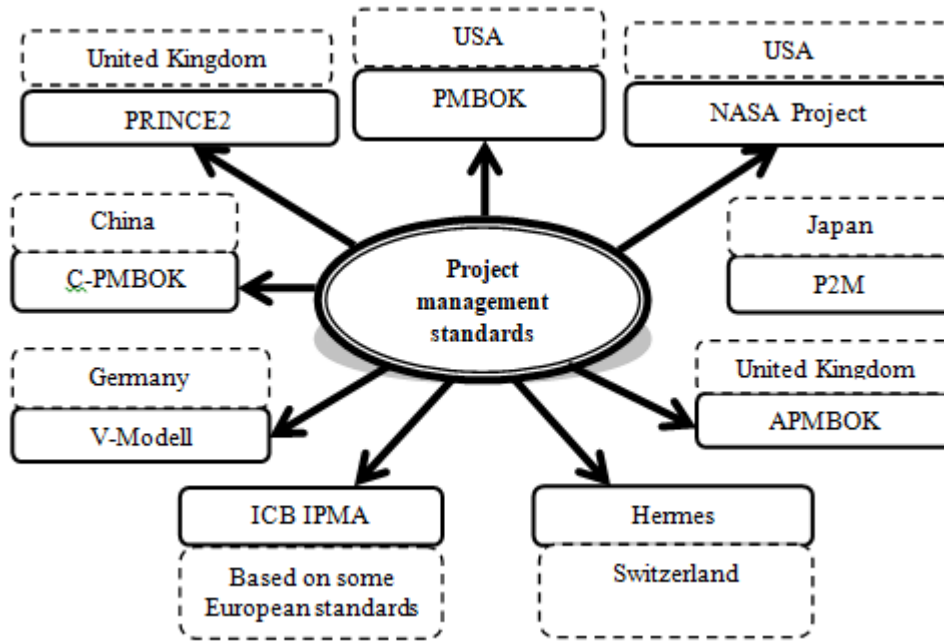


Figure 3. Main project standards and counties which established it.

The most demanded project management standard is PMBOK (Project Management Body of Knowledge) which was established by Project management institute – PMI. It’s well-spread in Russia and USA. Russian project management standards have been designed on a base of PMBOK but contains a describe of upper level. PMBOK is a combination of professional knowledge in a field of project management in which is described processes of project management, correlations with goals.

Implementation of high technologies of project management is a significant advantage for a company in a competitive market.

Established approaches differ from each other in a fields of usage, solidity and formality. The main purpose of this article is to explore approaches, principles and methods in project management. There are approaches and methods in project management in the Table 2.

Table 2. The Main approaches and methods in project management.

№	Name	Profile
1	Classic project management	Oriented on a projects which have a boarders in the sequencing of tasks
2	Agile	Oriented on a usage of interactive methodologies, dynamic formations of requirements and its realization due to interaction into working groups which consist of different experts

3	Scrum	<p>Combines the elements of the classical and the idea of a flexible approach to project management, breaks the project into parts that can be immediately used by the customer to obtain value, called products</p> <p>With this approach, all work is broken up into small delivery packages that are implemented separately and independently, but for the development of each delivery package there is a flow of operations with certain stages</p>
4	Lean	<p>Allows to optimize the chain of capacity planning, starting from the forecast of demand, planning of production tasks and balancing / distribution of these tasks on production capacities with optimization of their loading. Minimizing costs by reducing the amount of work currently performed</p>
5	Kanban	<p>Improves the efficiency of project processes and brings product to a higher quality level by reducing defects and every possible risks.</p>
6	Six Sigma	<p>An effective method of project management based on the process management.</p>
7	PRINCE2 (PRojects IN Controlled Environment s)	<p>Contributes to the project improvement at each step of implementation, using previously gained experience. By setting project goals and continuously monitoring work processes, the manager ensures success of the ultimate goal and creates value for the future customer.</p>
8	Adaptive Project Framework (APF)	<p>The methodology is aimed at the required profit. If you want to increase sales, CRM project is considered complete to an increase of sales by 15%. This condition is also true in case of establishing and building of CRM on time within the regulated budget amount.</p>
9	Benefit Realization (BF)	<p>It is based on the creation of main critical tasks, retention of their terms and the final date of the project completion. Logical connections are built between the critical works, considering possible limitations of reserve or other funds. If resources are insufficient, near-critical work processes are set up, moving in parallel with the key chain and having not-long terms.</p>
1 0	PM with the use of critical chain	<p>Basis is the project path formed by the longest working processes. The critical path sets a time frame for the entire project. The terms of completion are determined, the main stages and project results are evaluated. This methodology contributes to the conduct of a daily comparison of planned and actual parameters.</p>
	Critical Path Method (CPM)	<p>Methods of project management with macro-events layout are aimed at identifying and predicting hazards.</p>
	Event modelling	

	Project analysis with using of the Monte Carlo method and event chain plan allows to determine the possibility of certain hazards, their level of impact on the project implementation.
Extreme Programming – XP	It implies close and partnership relations with stakeholders, frequent releases, demonstrates special features of small development cycles. The groups focus on partnership and performance. The project does not have a clear stated ultimate mission. The purpose is defined during the project. There can be many adjustment stages.

The project success is determined by a few factors. The recognition and management of these factors do not guarantee the success of projects. Understanding of the factors and the role they play in successful project management is important, but equally important is the proper management of these factors. However, success factor management has not yet become an integral part of project management practices. The key factors for the successful implementation of project management are illustrated in Figure 4.

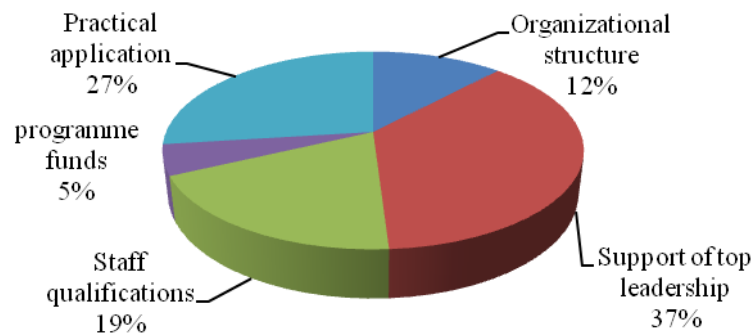


Figure 4. The key factors of successful project management application.

Professional project management allows to:

- save up to 30 % of time and up to 20% of funds;
- ensure compliance of the company's development strategy projects;
- effectively manage investments and innovations;
- ensure the implementation of projects within the established deadlines, budget and quality;
- reduce risks of failure of projects;
- effectively allocate responsibilities and obligations between the project participants;
- make projects controlled and transparent to their managers and other stakeholders.

The implementation of the project approach in the organization activities allows to ensure achievement of specific goals taking into account the interests of all stakeholders, to plan activities clearly taking into account the rational use of available resources, to distribute duties and responsibility, to ensure constant monitoring of the situation. Successful implementation of the project approach in the organization requires not only knowledge of the project management methodology, but also taking into account principles and specifics of the expected product.

References

[1] GOST R 54869-2011 The national standard of Russian Federation Project management Project management requirement <http://gostrf.com/normadata/1/4293797/4293797785.pdf>

[2] The Agile Manifesto of software development <http://agilemanifesto.org/iso/EN/manifesto.html>

- [3] Grishina K E Project management as a method of increasing efficiency Youth scientific forum: Social and economic sciences: electr. collection of articles on the Mat. XXXIX international *stud. scientific.- prakt. Conf.* **10(39)** [https://nauchforum.ru/archive/MNF_social/10\(39\).pdf](https://nauchforum.ru/archive/MNF_social/10(39).pdf)
- [4] Dorofeev V D Implementation of the project management methodology at the University http://www.al24.ru/wp-content/uploads/2013/01/%D0%BC%D0%B5%D0%BD_1.pdf
- [5] Companeytiva G A 2016 Project approach: concept, principles, factors of efficiency *The scientific-methodical electronic journal "Concept"* vol 17 pp 363-368
- [6] Report on the application of Agile 2016 and trends in the world from "Version One" URL: <https://scrummasters.com.ua/blog/agile-world-statistics-2016>
- [7] Russian and international standards for project management URL: <https://pmufa.ru/news/153-russian-and-international-standards-of-project-management.html>
- [8] The body of knowledge on project management <https://by.odt-office.eu/files/docs/Svod-znanij-po-upravljeniju-proektami.pdf>
- [9] Modern project management in the world and in Russia Status and trends of development [https://narfu.ru/upload/medialibrary/f7e/Prezentatsiya-Tovb A. S.-_14.09_.pdf](https://narfu.ru/upload/medialibrary/f7e/Prezentatsiya-Tovb_A_S._14.09_.pdf)
- [10] Phase model of project management http://pm-notes.ru/project_definition/
- [11] Churilov A A 2013 Concept, Role and relevance of project management in Russia *Young scientist* **3** pp 299-301