

EXTREME PROJECT MANAGEMENT IN THE CONDITIONS OF DIGITAL ECONOMY

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Abstract: Relevance of the research is associated with the fact that in the contemporary digital economy, classical approaches to project management are no longer efficient. With regard to this, the objective of the paper is to detail the unique particularities of extreme project management as a contemporary technology of managerial activity in projects. Here, the leading approach is the concept of extreme project management which originates from the IT sphere and was applied to project management. This allows introducing contemporary approaches into projects in conditions of historical time acceleration. The paper presents principles of extreme project management; considerable attention is paid to the method of small formats in project management, risk management, and human resources management in organizing the project activity.

Keywords: extreme management, digital economy, paradigm, project development efficiency, project management, management.

1 Introduction

The methodology of project management based on digital technologies allows improving the effectiveness of projects. The Project Management Institute (PMI) conducted the Pulse of the Profession research showing that there has been a 38% increase in the number of projects successfully completed on the set time with initial objectives achieved. These projects had the digital management system in place which helped regulating the developer team results. Meanwhile, when starting, 75% of the IT project leaders thought their projects could fail, as 21% of enterprises use a set of standard project management methodologies (Agile and Waterfall) (Reports of Statistics for 2019, 2021).

Extreme project management unites managers, users, and developers by means of efficient leadership and creates a practical setup which promotes communication and team synergy.

It is information that is the basis of management in the contemporary conditions of digital economy, so companies face the tasks of separating data from information and creating the digital infrastructure for processing large information arrays. Multiple increase of the volumes of information makes them allocate resources on an ongoing basis for improving the methods of working with big data.

When using standard technologies in project development, managers are only productive for not more than 60% of their daily working time. Nevertheless, 27% of projects being developed cannot stay within the allocated budget of costs, and further funds are needed. Insufficient sponsors' support is observed in 41% of companies reporting failures in implementation of projects (Reports of Statistics for 2019, 2021).

Many contemporary managers having mastered fundamentals of project management several years ago are not receptive to changes in project technologies which have arisen in recent time. Thinking that project management technologies do not evolve but are a set of eternal practices and technologies, they rely on formalized meetings, procedures, and documentation. However, for several running years, project management technologies have been transformed, with the transformation particularly accelerated during the global pandemic time. So, it is the technology of extreme project management that is becoming the state-of-the-art one; it corresponds to the contemporary the

technologies and objectives of business completely, and it helps attract more partners to design.

It is extreme project management using the contemporary digital technologies that enables one to unite managers, developers, and users in a team. With digital technologies, it allows engaging even the customers into the project of creating a product or service, and they become participants in the product or service value (material and emotional) design process. Thus, in the contemporary digital economy, conventional methods of working with projects lose their efficiency. They have to be adapted to the present-day realia, and for these approaches, the authors see the source of upgrade in using the project management methodology borrowed from IT.

2 Literature Review

The methodology of extreme project management stems from software development and computer programming which have become the idea basis of the new approach to projects in management. First of all, it relies on the team work uniting both designers and consumers (Zhiltsova & Sukhodoeva, 2011; Yashin et al., 2020).

In his work "Head First Agile", E. Stellman (Stellman & Greene, 2019) demonstrates that in the contemporary world, a methodology yielding excellent results in one team will create problems in another team. The effectiveness of project development differs due to using different approaches to the work. Digital technologies of IT enable one to plunge into agile development of projects and change one's attitude to them.

B. Volfson (2019) describes the agile project management methodology in more detail and suggests a new approach to the work of IT-teams in his book. So, the work differs from others in two factors: the combination of theory and practice and presentation of various practices of new product development – from the project idea to analytics of its implementation. The most significant is description of the Scrum methodology and its combinability opportunities when using the Kanban system.

Elaborating extreme project management, scientists supplement each other's points in their works. So, Jeff Sutherland (2016) was the first to find a solution for trouble-shooting in project development; he described the Scrum procedure in detail. Using it, one can improve the coordination of project development operations within the team, accomplish strategic plans, and reduce doubled developer activity processes within structural departments, with no additional financing required.

The contemporary project management has adopted some IT practices and is built upon four approaches: communication; simplicity; fast response and agility; relevance. Communication includes that with customers; relations are built with them, and the customers are involved into the project management process. As for the latter approaches, they imply working directly with the customer and adapting the project up to the customer's needs instantly. All the above makes it possible to adapt the project to the rapidly changing external environment quickly.

Similar ideas are voiced by Berkun Scott (2019) in his work: he says extreme projects only become masterpieces if developers are placed in individual parts of the project optimally, and their talents, viewpoints, and leaders' tactics used are combined correctly, regardless of the employees' having earlier awards or not.

In management, an extreme digital project is created on the basis of codified standards aimed at handing in the software to the customer when it is necessary, and not post factum. Many components of this methodology can be used across a broad range of IT management problems in general. They have been explored by scientists, the result of which was exactly the theory of extreme project management. Principal components of this kind of management include risk mitigation, quality

management, and work sphere management; they find substantiation in the general use of digital IT and can be considered as principal components in the industrial use, too.

In his works, T. DeMarco (2014) touches on questions of having to identify the quantity of developers for each stage of the extreme project, to recruit personnel for the organization in a professional way, to hire and fire employees who fail their assignments against a deadline. It is worth noting two more points: elaboration of suggestions about the internal conflict audit when approving parts of the project and protection of employees from unjustified claims of their managers. Extreme project management implies continuous working with personnel.

It is essential that standard approaches to project management frequently fail to lead to success. So, in 2020 (according to reports of companies), so few as 28% of projects were completed in full, up to the budget and technical assignment, and on time. 58% of companies recognize the value of project management, are ready to support their own project offices and implement new project management methods. However, in practice, 93% of companies use standard tools, while 68% of companies actually outsource their project work (Reports of Statistics for 2019, 2021).

Let it be noted that extreme project management uses small formats of projects (which allows mitigating risks, accelerating, and simplifying the processes) for small working groups.

The experience of project management of the contemporary IT companies is important; this experience has been analyzed by John Doerr (2019). In management, the contemporary approaches to project management were outlined in the book of Stanley E. Portny (2019) and E. Scotcher (Cole & Scotcher, 2019). L. Leach (2018) paid particular attention to project management in condition of accelerated processes and limited resources. Specific features of project management in Russian conditions and the unique regional experience in project management have been analyzed in works of L. F. Sukhodoeva (2012; Sukhodoeva et al., 2020a; Sukhodoeva et al., 2020b).

3 Research Methodological Framework

The objective of the paper is to present the unique particularities of extreme project management as a contemporary technology of managerial activity in projects.

The following tasks are set in the paper: describing the principal difficulties encountered by managers who work with classical project management technologies; presenting the project management organization process in extreme project management; outlining the method of small formats in project management; suggesting approaches to risk management within extreme project management; demonstrating the process of identifying project scopes and distributing it between subgroups of developers; highlighting the role of human resources management in organizing project activity.

Methodological framework of the research includes both general scientific methods (analysis, synthesis, analogy) and methods of the empirical level, such as observation and secondary data analysis.

4 Results and Discussion

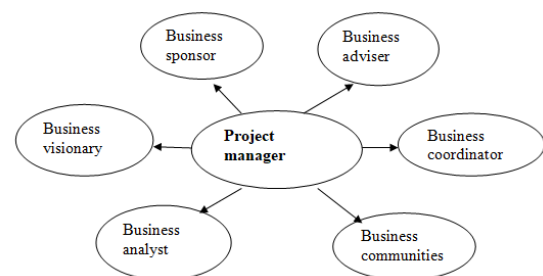
In the contemporary conditions, classical management and project work with classical technologies face a major problem associated with time pressure and limited resources. In the digital era, the external environment of any organization and project is changing quite fast, with time for decision-making and project development shrinking. Moreover, practice shows that frequently, projects cannot stay within the allocated budget, and further investment becomes necessary. Another frequent gap is between the skilled developer personnel needed and their training in project management. The essential and unique feature of extreme project management is the standardized process of delegation of authorities. In a team performing a shared project

within a short time frame, authorities are delegated in two directions (top-down and bottom-up). In these conditions, there arises the necessity of accelerating projects and reducing resource dependence. This can be accomplished by manning developer teams for performing the project so that they are optimized in quantity and competencies.

Extreme project management subdivides a large project into small formats (small projects). In fact, the problem is decomposed, and individual projects are formed which tackle parts of one general problem, each component being a part of it. It is important to emphasize that small format is not a downscaled copy of the project but a part of the large project. Essentially, this project management format needs the relevant organizational support (see Fig. 1).

Business coordinators cannot overestimate the advantage of getting feedback at the early development stages of extreme projects of small formats. It is sufficient to give examples of common project development scenarios when projects fail only due to the executing company's being unable to meet the strict deadline. The feasibility guarantee of an extreme project is the business analyst's knowledge of the said feedback. By contrast, this could not be the case if the project were considered as one unit and handed over as a whole. The feedback obtained would be exceptionally valuable in re-appraisal and re-organization of the human resource potential and those responsible for performance of the project.

Figure 1 Extreme project management level



Source: author's own processing

This method of using small formats takes the shape of vertical deployment. Vertical deployment tackles a part of the entire project and performs it from the beginning to the end, or, in other words, from the initial idea up to handing over to the user. Moving on successively through project life-cycle development steps, one can get excellent feedback from users and intermediaries at the early stages of the project. A typical small-format project can take up about 2-8 weeks; it has to be elaborated in such a way as to get some results in the end. The team's business adviser plays an active part here making sure all aspects of technical development are completed thoroughly and on schedule.

In practice, development teams usually make two mistakes concerning risk management. One of them consists in researchers' waiting for completion of the project – when risks turn into reality – and after that deciding they should pay more attention to risks. Such a situation creates three problems:

- As the cost of making modifications increases in the course of the project, late attention to risks results in considerable costs frequently;
- Late detection of potential problems excludes previously more acceptable solutions;
- Late surprises are devastating for both schedule and deadlines due to time pressure and inability to take relevant measures.

These problems can be solved by business visionaries who can forecast the future of the project being developed. Highly sought-after in the true business world, this quality of managers is considered to be the principal one when the quantitative

growth of the necessary information on the market situation is identified. Focused specialization professionals become necessary, as a business visionary needs intuition and a clear idea about the future as for the investments required. A business visionary is a strategist sensing the contemporary market and its change processes.

Another mistake in extreme project management concerns omissions by risk managers. In the classical project management, risk analysis was conducted once only, at the initial stage of project management when problematization of the project was performed. In the contemporary conditions, as the external environment is changing rapidly, risk analysis has to be conducted at each stage of working on the project.

The use of the mechanism of extreme project management is a constituent part of fulfillment of national programs. In her research, Yu. V. Zhiltsova (Zhiltsova & Sukhodoeva, 2011) notes that under the present-day resource limitations taking place in Russia's economy, priorities of and factors affecting the work of enterprises have to be identified. The principal attention is drawn to the human factor in conditions of extreme project management, and not to the standard approaches to project management. Transformation of project development stages becomes the leading focus area in creating sustainable development mechanisms for enterprises and obtaining a significant business development index. Yu. V. Zhiltsova's study (Zhiltsova & Sukhodoeva, 2011, p. 187) has conditioned systemization of approaches using which various interpretations of extreme project management are given. In the course of the author's substantial elaboration of the current resource problem of project management, the resource support system has been suggested which incorporates in its structure both the enterprise's resources and those of the digital network.

Within implementation of the national project "Digital economy", in individual developed metropolitan cities, there are various constituents of the problem considered, too, such as information technologies of project management, digital management, and personnel potential of organizations. Continuing this research topic, L. F. Sukhodoeva (2012) and other authors conclude that "In the current industry programs, as a rule, the regional dimension is underrepresented. These documents lack specific suggestions on developing project management, which hinders the development of high-quality synchronized plans and strategies of social and economic development" (p. 3).

Project scope identification is one of the components of the planning process in extreme project management (Yashin et al., 2020). The objective of identifying the scope of work in each part of a project is a clear description and agreement obtained on the logical boundaries of the project in general, on items within the project boundaries, and on what lies beyond the project scope (Sukhodoeva et al., 2020b, p. 148). The more aspects of correct breakdown of the project scope into subgroups are identified, the better the project result will be. Conventional project management incorporates using curves and digital Gantt charts. These practices serve as a means for exploring the principal areas of development within the project life cycle. Usually, life cycle of a project is considered as consisting of the following four areas: requirements, design, development, and testing. Within this paradigm, project managers break down principal planning and development components into tasks. Although these formal research means adopted by the authors were sufficient for identifying tasks, they did not contain any constant information to associate a particular task with user-defined requirements or project details. In this particular sphere, failures are quite frequent, and they often result in the business losing some functionality.

Concerning this point, extreme project management is considered proceeding from user-defined requirements (Sukhodoeva et al., 2020a). In the work, some data on the time required for completing work on each part of the project. It is suggested to re-write any orders which need reviewing, and to

consider, evaluate, and schedule any new orders for the following period.

Lawrence Leach (2018, p. 19) considers optimized the projects meeting three conditions: innovativeness of the project, optimality of budget, and a real work performance schedule. These three conditions are always interrelated; the more time is allocated for completing a project, the larger the budget size for its performance is. The larger the budget is, the more time is required for implementation of the project. The more prolonged the project performance is, the more significant changes to the project are.

Extreme project management implies human resources management (Stellman & Greene, 2019). Managing people is the most challenging process within a project, so the project leader has to be competent in the sphere of human resources management, too. In particular, the leader must be able to set and distribute tasks for the project group members. The leader also must have skills of organizing the process of training the project team in contemporary management technologies, of conducting project activity, and broadening the knowledge about the subject of project management. Alongside this, the project leader must create favorable conditions of work and relations which will promote development of the creative atmosphere and innovation thinking, enabling the project team leaders to become catalysts of work of the entire team.

Another feature of extreme project management is the continuous process of maintaining the group community feeling in the project team through joint ownership of it. All team members own a certain part of the process and of the project and understand each one's dependence on the team. This feeling provides an opportunity to organize harmonious interaction within the team. What is paramount is a complete, integral vision of the project formed in each member of the team. In particular, such an approach resolves the major organizational problem of project preparation rates getting slowed down or the project stopping at all if one or more team members leave.

Joint working on projects allows distributing project tasks among the members of the team who then unite in pairs; at the final stage of the project, all its parts have to be combined into the single result. However, this is an ideal case; more frequently, team members have different competence levels, skills, and professions. So, in this situation, it is the team and project leaders who play a very important part. Within the project, a support group is formed, with leaders of the project undertaking the role of teachers and mentors, and intrinsic value of the project being created for the team of developers. Shared ownership of the project contributes to this process, too.

5 Conclusion

Extreme project management is an answer to problems faced by project managers when working with classical project technologies, namely, time pressure, limited resources, and higher risks.

In extreme project management, work organization is based on standardizing the process of delegation of authorities, fast decision-making, and implementing such roles as business adviser, business visionary, and business coordinator. What matters here is both the speed of decision-making, continuous communication with the project customer, and including the customer into the design process. Another new point is separation of a large project into small formats, which actually allows decomposing the project, with each part of the project tackled by a designated team of developers.

The contemporary approach to risk management is another feature of the new project management technologies. Risks are managed totally from the very project management start; for this, the team has a business visionary who performs analytics for assessing and overcoming any risks.

Importantly, in extreme project management, they also pay much attention to identifying the scopes of a project, its boundaries, logical constituents, and distributing the scopes between subgroups of developers who work on the project parts simultaneously and not in a sequence (as it is done in classical project management).

In the new approach, a significant place is given to training of the personnel, their motivation, and maintaining the group community feeling; that is, extreme project management makes use of some technologies from human resources management. These approaches take into account realities of the digital economy, with its changeability, rapid pace of processes, limitation of resources, etc.

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