Project Management Transformation in the Digital Economy

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Abstract In modern society, digital transformation is gaining pace and interest in project management in all areas of activity and across the world is growing annually. The Russian Federation is not an exception. The number of specialists in the field of project management is rising. This circumstance is fully justified because project management has proved its effectiveness in the world and has been recognized as a high-class organizational and intellectual culture of accomplishing various kinds of projects. The development of project management methodology in our century is contingent to a great extent on the state of the world economic system, science and technology, and new domains of knowledge. Nowadays, one of the key development trends of society as a whole is the digitalization of the economy. It affects shaping a new outlook of project management as a whole. The article explores the current trends of project management transformation in the digital economy that have primary importance for the sustainable economic development of Russia. This fact is confirmed by the adopted program "Digital Economy of the Russian Federation". Findings: 1. The peculiar effect of digital technologies on the project management has been revealed. 2. The vision of the project management advantages has been formed. 3. Various interpretations of the term "digital economy" have been studied and the author's definition has been given. 4. Examples of the impact of digital economy tools on project management have been found out and summarized.

Keywords Transformation · Informatization · Development · Digital economy · Digitalization · Management · Economy · Project management · Digital transformation

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1 Introduction

The growth of digital technology is changing the current economic system in all developed countries with traditional processes of production and consumption. Today, digital technologies create a new reality for governments, people, enterprises, organizations, global markets and promise a new flourishing path to any country [1].

Society has become more digital and connected with computers and algorithms that in some way mediate most of the people's daily activities. Digitalization is abstract and hard-to-understand, which makes thinking about the detachment of the digital environment [2].

In our opinion, project management has long earned recognition as one of the leading management concepts of today. Let's highlight that over the fifty years of development, project management has expanded the scope of its application and worked out the entirety of methods and tools for project managers.

The global trend of digital transformation makes to take a fresh look at the project management methodology. In our country there all the prerequisites and opportunities for unfolding the digital potential and stepping up the transformation of project management in the digital economy.

2 Methodolgy

This study has been conducted using the basic methods of economic science, logical description of the components and functions of digital technologies reflecting their essential properties, and integrated approach, that allows for the profound investigation of the scientific problem.

The methodological background of the study is composed of the general scientific principles of an integrated approach; analysis methods such as logical, factorial, comparative, strategic, managerial, economic and organizational-structural simulation, quantitative and qualitative research of the main trends in digital infrastructure.

Also, the fundamental concepts and provisions of domestic and foreign scientists in the field of management, system analysis, strategic management and planning, design of control systems formed the methodological basis of the study.

3 Findings

To date, new digital technologies dramatically affect the management, i.e. contribute to the emergence of new forms of communication between people, a higher standard of living, as well as the development of business in the country. Russia possesses the essential intellectual and scientific base, demonstrates unique solutions from the organizational and technological perspective, that allows for the establishment and development of an effective infrastructure of the digital economy in the country.

The entry into the era of the digital economy and forward movement towards digital transformation can be rightly considered the main stage in the evolution of project management. The development of the economy and its transformation when shifting to the next level (digital) induces to adapt available management approaches and tools [3].

In witness thereof, we can cite the words of Martin Sedlmeier (vice president of the International Project Management Association IPMA): "Digital transformation entails changes in project management" [4]. It is no accident that he entered computer technology in the five main trends in the development of project management.

However, in practice, there are discrepancies in the conceptual framework of the digital economy. Unambiguous definitions that could fully and clearly describe the essence of processes aren't available. Besides, there is no specific description of the impact of the digital economy on project management practices.

It was the desire to get to the root of the digital economy and to show its role in project management that inspired us to write this article.

Let's discover the essence of the term "digital economy", as well as its alternatives. For making a cut-off stand on this issue, first of all, we should familiarize ourselves with definitions formulated and presented in various expert sources. In this article, we will dwell on some of them.

Thus, in the opinion of I. V. Shevtsov, the digital economy is a well-established term, which is understood as an entirety of electronic goods and services manufactured by e-business and e-commerce [5].

K. A. Semyachkov means by the "digital economy" the modern type of economic management prevailed by data and its management methods as a defining resource in the field of production, distribution, exchange, and consumption [6].

V. V. Ivanov and G. G. Malinetskiy stress that the modern concept of the digital economy speaks about changing the technological pillar of the economy that will automate routine operations. This circumstance steps up the execution of many processes, opens up new opportunities, but does not touch the basics of the economy [7].

Other authors such as E. A. Nesterenko and A. S. Kozlova come to the conclusion that the digital economy is a system of economic, social, and cultural relations using digital information and communication technologies [8].

S. G. P'yankova finds out that the digital economy is up to provide high-quality ICT infrastructure and summon up ICT opportunities for the benefit of consumers, businesses, and the state [9].

Thus, having examined various interpretations of "digital economy", we can conclude that all definitions are similar, but are not comprehensive. In our opinion, the digital economy should be construed as a modern type of economic management where the people communicate in the virtual space through the technological infrastructure to gain benefits in material and information exchange, as well as to automate routine operations.

Within this topic, we will pay attention also to related terms "digitalization" and "digital transformation". As far as there is a single concept of the digital economy, these terms are regarded as alternatives. However, it is necessary to make a distinction between them. The digital economy is a result, while digitalization and digital transformation are only strategies of the digital economy through technical and methodological transformations.

Let's identify the advantages of the digital economy for project management methods and specify them.

From the perspective of project management, digitalization and digital transformation projects are not much different, apart from the scope. Digitalization is the automation of separate business processes, while digital transformation is a complex of digitalization projects converting customer's key business processes into digital form. Note that digital transformation in the sector of the real economy is a suite of projects to this date [10].

Unlike routine digitalization (automation), digital transformation, as a rule, is premised on some innovative business ideas and is delivered within a specific strategy. But no matter how viable the strategy, the company's ability to bring it to reality is crucial. Here it's possible to reckon upon long-standing project management methods.

Let us mark that the nature of project management is reflected in its subsystems. Subsystems can be called functional separation of key elements of project activities [11]. Some scientific schools of project management list about 14–15 subsystems of project management.

We will regard the most high-potential subsystems in terms of digital transformation. In that way, the primary subsystem is project content management. The content should be understood as an entirety of project goals, works, and fruits, as well as links between them [12].

Digitalization of the management operations in this subsystem allowed saving the time of setting goals and activities, automating their decomposition, representing the project in various structural models that facilitated the estimation of financial and material costs both for a suite of works and particular actions. The contribution of digitalization in multi-project companies carrying out several projects at the same time is invaluable. For example, using the potential of Big Data helps to take more right decisions in assessing the portfolios of real and potential projects, as well as gather valuable information both about customers or partners and competitors.

Utilization of blockchain technology as a distributed ledger in the management of company communications and projects allowed for recording and saving any information that should be made accessible to the public and protected from any editing or deleting. Digital identification without the transfer of personal information

will prevent any type of fraud, protecting the user from the unfair use of his personal data [13].

The next subsystem is the management of advertising and promotion of projects, as well as the running of advertising projects based on blockchain technology.

Here, the blockchain is capable of shaking the positions of intermediaries, so far as it gives direct control over the placement of ads and advertising costs. Still, the statistics on advertising campaigns can be rather easily tampered, but after the transition to blockchain this will be impossible

Breakthrough technologies raise the productivity and performance of the engineering company.

Thus, project management in the digital economy is foremost a software platform consisting of some programs that facilitate the automation of routine processes and the emergence of appropriate information space for intercommunication of stakeholders.

The main feature of digital transformation projects is in their potential to change the traditional business model for the model of multilateral markets.

To date, it should be made a distinction between projects on digital transformation. First of all, it is the need for a high-quality theoretical organization of the domain area and training of the project team before the launch of the project [10]. Next, special attention should be paid to the strategy and flexible approaches in planning, including the possibility of swift readjustment of the project under a three-stage scheme "as it is - as it should be - as it would be perfect". Also, with a view to understanding digital transformation as not only good programs, but also a proper business model canceling out the transaction costs for market participants, the solutions should be opened through interfaces and marketplaces as soon as possible. One should bear in mind that the digital economy is absolute and stiff globalization, therefore, digital transformation projects are continuously evaluated in relation to the level of international standards.

For example, with the development and promotion of the digital economy, the IT sector has grown rapidly, which affects the emergence of new software products and the upgrade of existing ones. They have become multi-purpose, more convenient for work, and easy-to-understand. Besides, it is worth noting the convenience of communications thanks to the abundance of instant messengers, social networks, and mailing services.

The transformation of project management in the digital economy is peculiar because in most situations they are related to the inculcation of information technologies. According to experts, it is hard to assess their fruitfulness, although thanks to digital transformation, projects are now developed and implemented faster than before.

It makes sense to pay due attention in digital transformation projects to risk management, including technological ones, with an account of the considerable innovative component. Also, the heed should be paid to recent flexible approaches, such as Kanban, Scrum, Agile, etc. [14]. In this vein, an effective and competent selection of skilled people for work on projects in a fast-changing environment comes to the

forefront. Alexander Tovb, President of the SOVNET Project Management Association, also took note of the growing popularity of IT and flexible methods: “Methods such as Agile arose in the field of developing applications. This is an important trend in project management. They can also be employed in the public sector, but in harmony with conventional methods.” In other words, he believes that the future lies in hybrid approaches combining flexible and conventional project management methods [15].

For example, specialized programs for the introduction of SCRUM in project management make the process more flexible and degree of control over resource efficiency higher.

New management tools will lower uncertainty, raise the flexibility and adaptability of projects to dynamic external and internal conditions. From then it follows that the organizations delivering the innovation development strategy should have software and hardware to execute the business process on project management. The digital economy sets new standards for project manager competencies. Managers of this competence will appear only when the company will change its corporate culture. Incentives for risk, building cross-functional teams, lifelong learning, exchange of experience, discussion of project ideas with top management, and cultivation of personal liability for the implementation of projects contribute to a highly innovative culture that encourages complex projects and motivates employees to take on new ambitious tasks.

A variety of techniques are suggested today for an evaluation of return on IT-investments. Among them area financial techniques, probabilistic methods, and qualitative analysis tools.

The merit of the financial method, as already specified, is in the application of criteria generally accepted in the financial sector and the availability of the required statistical base for calculations. The idea of probabilistic methods is to assess the probability of risk and the emergence of new opportunities (enhance the competitiveness of products and lower the risks of on-time project completion) using statistical and mathematical models. The essence of qualitative (heuristic) methods is in both quantitative and qualitative assessment of investment projects.

The main drawback of such methods is that their application requires the company to develop its scorecard and introduce it in all functional units along the entire added-value chain.

Thus, we can conclude that the methodical issues of assessment of digitalization performance have not yet resolved in domestic science and practice, which purports their further elaboration.

According to the above, we can enumerate the following advantages of the method making it demanded in almost any field:

- resource efficiency. Project management methods enable efficient management (allocation, redistribution, and optimization) of the main types of resources (terms, materials, contractors, funds).

- versatility. Project management has no functional constraints. Versatility consists in that the management of project-based activities can effectively achieve well-defined goals despite the variety of basic parameters.
- specification and preciseness. The main activity in the first stages of project management is setting goals, objectives, and works. Such a procedure allows detailing the entire range of works to be performed for the achievement of goals. Besides, thanks to the obtained knowledge, it is more convenient for companies to state both operational and strategic goals.
- focus on the implementation of specific tasks. Some companies need in the implementation of different (or specialized) in comparison with their principal activity. In such situations, the execution of intended tasks with design methods seems most effective.
- risk accounting system. One of the project management tools is a risk management system. Its advantages are an investigation of weaknesses (at the stage of project design), their classification, assessment, and development of smoothing measures.
- integral structure of methods and tools. Project management, like science, has existed and evolved for decades. Over the years, experts have developed, summarized, and proved various theoretical and practical tools and management methods. Such a system allows working on projects in an efficient and convenient way.

Thus, the transformation of project management in the digital economy should be a continuous process. This is the main idea since there can be no universal solutions for all sectors and companies.

4 Conclusions/Recommendations

Nowadays, there are various methods of project management. For instance, flexible project management techniques are most effective in the upgrade of systems, their adaptation, and the extension of functions. At the initial stage of implementation, it's advisable to follow the conventional approach, which sets strict deadlines for implementing and functional stuffing of the system. This allows the customer to fold the service on a particular day. We believe that one of the canons of the project management methodology is change management the observance of which will help to solve problems in the context of global-scale adjustments to requirements and goals of projects.

In project management software, there are both individual types of programs and convenient software packages that include all essential hardware for the provision of the main subsystems' operation and fruitful corporate communication between the project team members. Thanks to the above, the management process has become more convenient, efficient, and (what is more) faster. That's a particular achievement of the digital economy for the science of project management.

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