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APPLICATION OF IT TECHNOLOGIES FOR PROJECT MANAGEMENT IN THE ENTERPRISE

Abstract. The article considers the current issues of the application of information technologies in the field of project management at modern enterprises. In the conditions of high dynamics of the market environment, global competition and digital transformation, the implementation of innovative IT solutions in project management processes is becoming a key factor in increasing the efficiency of enterprises. It is determined that project management is an effective system of methods and means of planning, organization, motivation and control, which ensures the achievement of strategic goals within limited resources, time and budget. The importance of delimiting responsibility centers, predictive planning, the formation of competent teams and systemic motivation as the main principles of effective project management is emphasized. Particular attention is paid to the role of information technologies in ensuring the successful implementation of the project approach. Modern trends in the development of IT tools that allow automating management processes, contributing to increasing transparency, accuracy and speed of making management decisions are analyzed. The classification of software products for project management is considered – from local license systems to cloud services and complex corporate platforms. The advantages of using collaboration systems that provide simultaneous participation of multiple users, promote effective communication and integration with other digital services are identified. The main functional capabilities of IT project management systems are presented, including real-time collaboration, centralized documentation exchange, time tracking, generation of analytical reporting, visualization of work processes and the ability to integrate with popular platforms (Google Drive, Box, Evernote, etc.). It is emphasized that the implementation of such technologies allows to increase labor productivity, reduce costs, minimize risks and ensure stable development of the enterprise in conditions of market uncertainty. It is concluded that the use of modern IT tools within project management is a necessary prerequisite for the digital transformation of business. The use of innovative technologies ensures flexibility, adaptability and competitiveness of enterprises at the national and international levels. Further research in this area should be aimed at the formation of integrated IT ecosystems capable of supporting effective interaction between all participants in project activities and ensuring sustainable development of the enterprise in the context of globalization.

Keywords: project management, information technology, IT systems, digitalization, automation, enterprise, management efficiency, innovation, enterprise management.

Problem statement. The current economic situation is characterized by high rates of change, increased competition, and active processes of digital transformation. In such conditions, traditional approaches to managing the activities of enterprises lose their effectiveness, as they do not provide the necessary speed of response to changes in the external environment and flexibility in making management decisions. One of the most effective tools for adapting to these challenges is the implementation of project management, which is based on the use of modern information technologies. However, despite the rapid development of digital solutions and the availability of a large number of software products, domestic enterprises still face difficulties in effectively integrating them into their own business processes.

An additional complication for Ukrainian companies is the military risks caused by Russia's full-scale invasion of Ukraine. The war has created unprecedented challenges for the economy – destruction of infrastructure, disruptions in logistics, loss of personnel, and the need for a prompt response to a changing environment. Under these conditions, the use of IT technologies in project management acquires particular importance, as it allows ensuring the continuity of management processes, remote coordination of teams and data storage in cloud environments. At the same time, the high level of cyber threats, risks of data loss and limited access to technical resources during military operations necessitate additional security measures and adaptation of existing systems to crisis conditions.

Thus, the problem arises of developing effective approaches to the implementation and use of IT technologies in the project management system at Ukrainian enterprises, taking into account the specific risks of wartime. Solving this problem is a key prerequisite for increasing the stability, flexibility and competitiveness of Ukrainian business in the post-war period of economic recovery.

Analysis of recent research and publications. The issue of the use of information technologies in the field of project management has become particularly relevant in recent years due to the processes of digital transformation, business globalization and the growing role of flexible management methodologies. In modern research, more and more attention is paid to the combination of IT tools with classical and flexible project management methods, which ensures increased efficiency in the implementation of strategic objectives of enterprises.

A significant contribution to the study of this problem has been made by Ukrainian researchers who analyze the possibilities of improving the risk management system in Ukrainian IT companies. In particular, the work [1] emphasizes the need to develop quantitative and qualitative methods of risk assessment, improve management decision-making processes and increase the efficiency of project management. The authors emphasize that it is the domestic IT sector that can become a driver of innovative development of the economy, provided that modern technological management tools are effectively used.

In the study [2], attention is focused on the competencies of IT project managers, which in the digital economy should include not only technical skills, but also emotional intelligence, the ability to interdisciplinary interaction and an orientation towards sustainable development. This approach reflects the global trend of shifting emphasis from technological aspects to human-oriented factors that directly affect the effectiveness of project management.

A relevant direction of modern research is also the integration of the Industry 4.0 concept with project management practices. A systematic review [3] indicates that the digitalization of production, process automation, the use of big data and artificial intelligence form a new paradigm of project management. At the same time, the need to adapt traditional management approaches to the conditions of the digital environment is emphasized.

The development of artificial intelligence and machine learning technologies defines a new stage in the transformation of the project management system. In [4] it is emphasized that the use of analytical platforms based on AI allows to automate planning, risk forecasting and task execution control. At the same time, the authors emphasize that insufficient maturity of technologies and lack of qualified specialists remain significant barriers to the widespread implementation of such systems.

In the context of Ukraine, publications devoted to project management issues during war and in the process of post-war reconstruction attract special attention. In particular, the study [5] considered the ethical, social and security aspects of using IT solutions in business under martial law. The authors note that the implementation of digital technologies should be based on the principles of resilience, cyber security and ethical data management. This approach meets the modern challenges of Ukrainian society and confirms that IT project management is not only a technical but also a socially significant phenomenon.

Separate studies [6] focus on the specifics of the implementation of a project-oriented approach by Ukrainian enterprises, in particular on the problems of implementing international standards (PMBOK, ISO 21500) in the national economic environment. It was found that the main obstacles are a centralized management structure, an insufficient level of digital maturity and limited financial resources. At the same time, positive results are demonstrated by enterprises that actively integrate IT technologies into their own management processes, which allows them to ensure stability even in conditions of military risks. Thus, an analysis of scientific works of the last five years indicates a significant increase in interest in the digitalization of project management. In the international dimension, the priority areas of research remain process automation, the implementation of artificial intelligence and the development of managers' competencies in the digital environment. In the Ukrainian context, the emphasis is on increasing the resilience of enterprises, risk management and the formation of a safe IT space during war. Generalizing the results of these studies allows us to assert that the introduction of IT technologies into project management is not only a tool for increasing efficiency, but also a strategic factor in ensuring competitiveness and national economic security.

Purpose of the article. The purpose of the article is to study the theoretical and practical aspects of the application of information technologies in the process of project management at enterprises, as well as to determine their role in increasing the efficiency of management processes in the conditions of digital transformation and military risks. The work is intended to analyze modern IT solutions for project management, determine their advantages, implementation problems and potential for use to ensure the flexibility, stability and competitiveness of Ukrainian enterprises during the period of military and post-war challenges.

Presentation of the main material. The modern economic situation, characterized by high dynamics and competition, determines the need for enterprises to implement innovative approaches to management. One of the most effective approaches in this area is project management, which allows to increase the efficiency of the implementation of strategic tasks.

German researchers are actively studying the issue of the effectiveness of using information systems in project management. The work of A. Kock, B. Schulz, J. Kopmann and H. G. Gemünden [7] examined the

impact of the maturity of project portfolio management processes on the overall efficiency of organizations. The authors prove that Project Portfolio Management Information Systems significantly increase the efficiency of enterprises, provided that the processes are properly structured and the company is digitally mature.

Another study by German scientists C. Schultz, O. Gretsche and A. Kock [8] is devoted to the study of the common perception of innovation in research projects between universities and business. The results demonstrate that a consistent vision of innovation within IT platforms contributes to more effective project coordination and increases the overall level of cooperation between the academic and corporate sectors.

French researchers also pay significant attention to digital transformation in the field of project management. For example, I. Lacombe and A. Jarboui [9] in their work analyze the mechanisms of managing digital transformation projects in the financial sector. The authors propose a conceptual model of IT management that combines flexibility (agility) and process regulation, which ensures the successful implementation of digital strategies in banking and insurance companies.

The study by A. Bénart and F. Bouchet [10] focuses on issues of digital transformation in education and science. Scientists explore scenarios for implementing IT innovations in higher education institutions, considering information systems as the basis for improving the efficiency of scientific and educational project management. The work emphasizes the importance of creating integrated digital ecosystems that ensure transparency, collaboration, and sustainability. Taken together, these works demonstrate the unity of approaches among European researchers in considering information technology as a key factor in the success of project management, especially in the context of global digital transformation.

According to the Project Management Institute (PMI), organizations that do not implement project management standards report project failure 50% more often than those that use them [11].

Project management is a system of methods and tools that provides planning, organization, motivation and control of processes to achieve goals within the constraints of time, budget and resources. It is based on three key principles:

1. Delimitation of responsibility centers.
2. Comprehensive predictive planning and control.
3. Formation and motivation of effective teams [12, p. 58].

Project management is an effective tool for coordinating employee efforts, optimizing costs and achieving defined results with maximum return on investment.

The role of IT in implementing the project approach.

Without the use of modern information technologies, effective project management is practically impossible. Over the past decades, there has been a rapid development of hardware and communication technologies, which have radically changed approaches to the organization of project activities [13].

Figure 1 shows a diagram of the relationship between IT solutions and management processes.

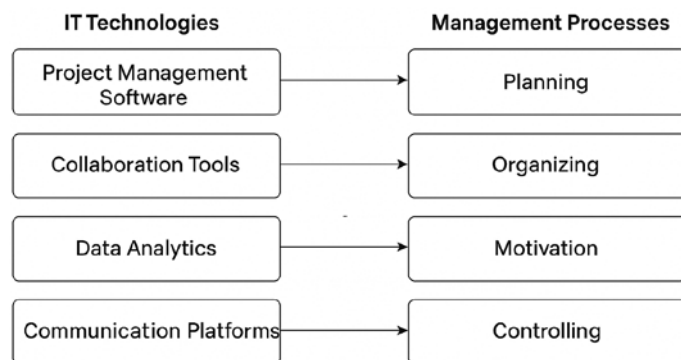


Figure 1 – Diagram of the relationship between IT solutions and management processes

Automated project management systems perform a number of key functions: data storage and processing; analysis of implementation progress; support for the decision-making process [14]. There are several main types of project management software solutions [15, pp. 39–41]:

1. On-premises software – installed directly on the company's servers, provided under a license.
2. Cloud systems – web applications used under a subscription.
3. Collaboration systems – allow multiple users to participate in a project simultaneously.
4. High-end systems – comprehensive platforms for large organizations and complex projects.

Effective project management software should include the following components:

1. Real-time collaboration – allows project team members to communicate and coordinate their actions quickly.
2. File and documentation exchange – a centralized environment for storing and managing documentation.
3. Time tracking – recording time spent on tasks to optimize processes.
4. Reporting – tools for analyzing project progress and assessing resource efficiency.
5. Workflow visualization – Kanban boards and other visual task management tools.
16. Integration with other services – the ability to integrate with popular platforms (Google Drive, Evernote, Box, etc.) for a comprehensive IT environment [16].

The use of IT tools within project management is an indispensable condition for increasing productivity, reducing risks and ensuring flexibility in the work of enterprises. In modern conditions of technological development and globalization, companies need to implement innovative solutions that meet the requirements of the time and contribute to international integration. Today, an important part of the use of IT services is third-party integrations. The management tool must integrate with other popular tools. Nowadays, every quality project management tool is equipped with many third-party integrations, such as Google Drive, Pocket, Box, Evernote and many others.

A description of the stages of implementing information technologies into the enterprise project management system is shown in Fig. 2.

The implementation of information technology (IT) into the enterprise project management system is a complex process that requires a strategic approach, systems thinking and interdisciplinary interaction.

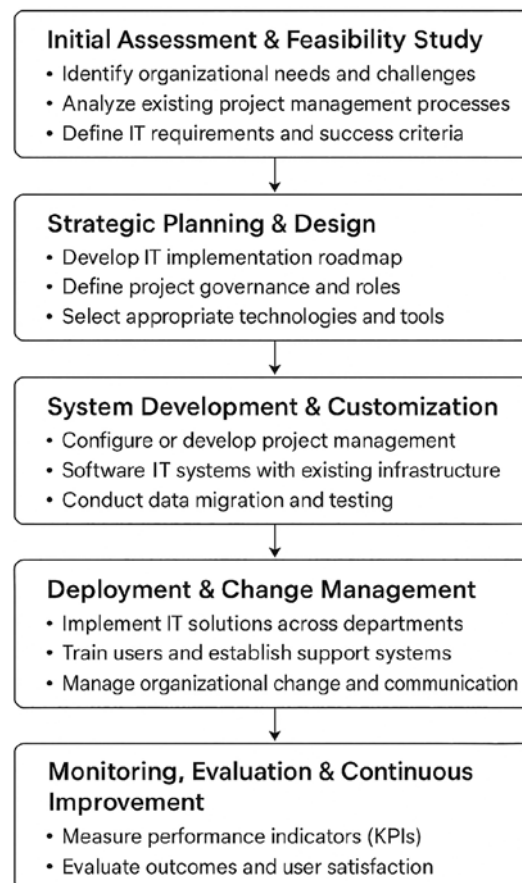


Figure 2 – Implementing Information Technology in Enterprise Project Management

The diagram shown in the figure reflects five consecutive stages of this process: Initial Assessment & Feasibility Study, Strategic Planning & Design, System Development & Customization, Deployment & Change Management and Monitoring, Evaluation & Continuous Improvement. Each of these stages has its own goals, objectives and implementation tools, which together ensure the effective implementation of IT solutions in the corporate environment.

The first stage “Initial Assessment and Research” is fundamental, as it determines the feasibility and potential benefits of future implementation. At this stage, an analysis of the current needs of the enterprise

is carried out, problems in the existing project management system are identified, and the goals of digital transformation are defined. It is important to carry out a comprehensive assessment of the organization's readiness for change, including technical, financial and personnel aspects. The result of this stage is a Feasibility Report, which justifies the feasibility of investing in IT infrastructure.

The second stage is aimed at developing a detailed IT implementation strategy. A roadmap is formed, which defines the timeframe, implementation stages, responsible persons and resources. At the same time, the project management structure is determined – a steering committee or project management office (Project Management Office, PMO) is created, roles, functions and a communication system between participants are defined. Also at this stage, technological platforms, software and technical requirements for the future system are selected. The main task is to create a coordinated vision of IT integration that meets the strategic goals of the enterprise.

The third stage involves the creation, adaptation or configuration of software according to the needs of the organization. This can be applied to both the development of an in-house IT solution and the integration of ready-made corporate systems (for example, ERP, CRM, or specialized project management platforms – Microsoft Project, Jira, Trello, etc.). It is important to ensure the integration of new solutions with the existing IT infrastructure of the enterprise, as well as to perform testing of functionality, performance and security. This stage often involves pilot implementation in selected departments to identify shortcomings and further optimization.

The fourth stage involves the large-scale implementation of IT solutions in the activities of the enterprise. Particular attention is paid to change management – because technological innovations inevitably affect the organizational culture, communication structure and work processes. Personnel training is carried out, methodological recommendations are developed and user support services are created. A key factor in success is a communication strategy that helps reduce resistance to change and ensure a positive attitude of employees towards new technologies. During this period, IT solutions actually become part of the company's operational activities.

The final stage “Monitoring, Evaluation and Continuous Improvement” is aimed at analyzing the effectiveness of the implementation. Key performance indicators (KPIs) are used to assess the level of productivity, economic benefits, quality of project management and user satisfaction. The evaluation results form the basis for improving the system, updating it and scaling it. In modern conditions, this stage has no clear boundaries – the monitoring and improvement process is a continuous cycle that supports the sustainability and competitiveness of the enterprise in conditions of rapid technological evolution.

The implementation of information technologies in the project management system of the enterprise is a multi-level process that combines technical, organizational and social aspects. The proposed scheme demonstrates a logical sequence of stages, each of which is critical for the successful implementation of digital transformation. A systematic approach to IT implementation allows you to increase management efficiency, ensure process transparency and create a basis for making informed management decisions within the framework of a modern enterprise. Thus, the use of IT tools during the implementation of the project approach in enterprise management increases the efficiency of work and is undeniable. Services that implement the project approach have functionality that simplifies and at the same time increases the efficiency of the enterprise. Within the framework of the constant development of technologies and global globalization, it is necessary to introduce the latest technologies as soon as possible to improve the work of enterprises and the possibility of international collaboration.

Conclusions. Thus, the implementation of information technologies in the project management system of an enterprise is a multi-level process that combines technical, organizational and social aspects. The proposed scheme demonstrates a logical sequence of stages, each of which is critical for the successful implementation of digital transformation. A systematic approach to IT implementation allows you to increase management efficiency, ensure process transparency and create a basis for making informed management decisions within a modern enterprise. It is concluded that the use of modern IT tools within project management is a necessary prerequisite for the digital transformation of business. The use of innovative technologies provides flexibility, adaptability and competitiveness of enterprises at the national and international levels. Further research in this area should be aimed at the formation of integrated IT ecosystems that are able to support effective interaction between all participants in project activities and ensure sustainable development of the enterprise in the context of globalization.

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ЗАСТОСУВАННЯ ІТ-ТЕХНОЛОГІЙ ДЛЯ УПРАВЛІННЯ ПРОЕКТАМИ НА ПІДПРИЄМСТВІ

Анотація. У статті розглядаються актуальні питання застосування інформаційних технологій у сфері управління проектами на сучасних підприємствах. В умовах високої динаміки ринкового середовища, глобальної конкуренції та цифрової трансформації впровадження інноваційних ІТ-рішень у процеси управління проектами стає ключовим фактором підвищення ефективності діяльності підприємств. Визначено, що управління проектами – це ефективна система методів та засобів планування, організації, мотивації та контролю, яка забезпечує досягнення стратегічних цілей у межах обмежених ресурсів, часу та бюджету. Підкреслюється важливість розмежування центрів відповідальності, прогностичного планування, формування компетентних команд та системної мотивації як основних принципів ефективного управління проектами. Особлива увага приділяється ролі інформаційних технологій у забезпеченні успішної реалізації проектного підходу. Аналізуються сучасні тенденції розвитку ІТ-інструментів, що дозволяють автоматизувати процеси управління, сприяють підвищенню прозорості, точності та швидкості прийняття управлінських рішень. Розглянута класифікація програмних продуктів для управління проектами – від локальних ліцензійних систем до хмарних сервісів та складних корпоративних платформ. Визначено переваги використання систем співпраці, що забезпечують одночасну участь кількох користувачів, сприяють ефективній комунікації та інтеграції з іншими цифровими сервісами. Представлено основні функціональні можливості систем управління ІТ-проектами, включаючи співпрацю в режимі реального часу, централізований обмін документацією, відстеження часу, генерацію аналітичної звітності, візуалізацію робочих процесів та можливість інтеграції з популярними платформами (Google Drive, Box, Evernote тощо). Підкреслено, що впровадження таких технологій дозволяє підвищити продуктивність праці, знизити витрати, мінімізувати ризики та забезпечити стабільний розвиток підприємства в умовах ринкової невизначеності. Зроблено висновок, що використання сучасних ІТ-інструментів у рамках управління проектами є необхідною передумовою цифрової трансформації бізнесу. Використання інноваційних технологій забезпечує гнучкість, адаптивність та конкурентоспроможність підприємств на національному та міжнародному рівнях. Подальші дослідження в цій галузі мають бути спрямовані на формування інтегрованих ІТ-екосистем, здатних підтримувати ефективну взаємодію між усіма учасниками проектною діяльністю та забезпечувати сталий розвиток підприємства в умовах глобалізації.

Ключові слова: управління проектами, інформаційні технології, ІТ-системи, цифровізація, автоматизація, підприємство, ефективність управління, інновації, управління підприємством.

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