
Systemic Application of Security-Oriented Project Management Methodology for the Organisation and Implementation of Scientific Research in Economics and Management

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Abstract. *The relevance of the study is explained by the fact that if the solution to a certain scientific problem is a product that is expected to be obtained as a result of the project, then scientific research and its implementation will actually become such a project with all its inherent methodology, theoretical basis and practical tools. In the context of scientific research organisation and the search for methodological tools for their high-quality implementation, there is a necessity to explore ways to effectively transform the tools for increasing the efficiency of the functioning of socio-economic systems and their management. The project approach has the potential to facilitate this. The objective of the present study was to specify the possibilities and identify methodologies for the systematic utilisation of security-oriented project management for scientific research in economics and management. The research methods employed included synthesis and analysis, facilitating a comprehensive study of literary sources, regulatory documents, and digital information resources. The application of generalisation and abstraction methods enabled the formalisation and generalisation of the principles underpinning the utilisation of project management methodologies. The existing approaches, practices and principles of project management were organised using classification and systematisation methods. The study posits the proposition that projects should be conceptualised as episodic, time-limited endeavours undertaken by teams of specialists, with the objective of developing unique, innovative products or services, or attaining specific social or economic outcomes at the behest of the client, who is recognised as the initiator of the project. Project management is defined as the process of planning, organising, implementing project activities, motivating project team members and controlling the results obtained by them. In contradistinction to routine tasks, scientific research, particularly that which is characterised by the presence of clearly defined deadlines, the generation of unparalleled results, and the necessity for the expeditious consideration of novel data, is optimally suited to the implementation of a project management methodology. This methodology deviates from conventional approaches by incorporating risk management at all stages of the project, with a focus on proactive identification, assessment and minimisation of risks. This approach ensures the timely completion and reliable outcomes of the research process, a matter of particular importance in circumstances where resources allocated for scientific projects are limited*

and the complexity of successfully addressing scientific problems in the fields of economics and management is increasing. The practical value of the provided proposals is ensured by the possibility of their use in the process of scientific activity of educational and scientific institutions and teams of independent researchers.

Keywords: *management, project management, methodology, security-oriented management, economic security management, organisation of scientific research, economics.*

JEL Classification: *D81, M10, O32*

1 Introduction

The existence of numerous theoretical and practical problems in the fields of economics and management that are worthy of scientific research by the domestic scientific community indicates that there are currently no effective methodologies, approaches, principles and techniques that would assist scientists in solving urgent issues of paradigm transformation in the economic and management spheres. Since the modernisation and updating of scientific research methodology are more philosophical and conceptual aspects of the existence and development of economic and management sciences rather than issues to be resolved at the applied level, it is precisely in the context of organising scientific research and searching for methodological tools for its qualitative conduct that it is necessary to seek ways to effectively transform the tools for improving the efficiency of socio-economic systems and their management. The efficacy and feasibility of project management principles in various domains of economic organisation and implementation has been demonstrated. Project management has emerged as a novel policy aimed at optimising the potential of flexible management. Consequently, it is recommended that its methodologies be examined to facilitate their utilisation in conducting scientific economic research and addressing contemporary organisational management challenges. If the solution to a scientific problem is regarded as a product to be obtained as a result of the project, then scientific research and its implementation will in fact become such a project, with all the inherent methodology, theoretical basis and practical tools that are associated with it. The validity of this approach in economic and management sciences, and whether it will prove to be a fruitful or futile endeavour, is yet to be determined by the findings of this study.

The utilisation of project management principles in processes pertaining to the functioning of socio-economic systems has been corroborated by a substantial corpus of scientific publications. For example, Bardas A. and Avramenko O. (2023) examine the possibilities of using agile methodology for project management in banking organisations; Bokovets V. and Zaiats O. (2022) provide a general overview of modern project management methods

and their features; Voronovska M., Khomiak Ya., Kudliak V., Zakharuk N., and Pihur R. (2024) trace the process of introducing innovations in project management, from the formation of an idea to its implementation. Danchenko O. and Fedotova N. (2024) present an overview of contemporary models and methods of conflict management in projects. Some sources, such as Zadorozhna R. (2024) and Zachosova N. (2024), explore the potential of using generational theory in project team management, as well as the specifics of managing scientific project teams during wartime. Zybareva O., Pashniak Ye., and Kravchuk I. (2024) analyse the concepts and models of project-oriented business management; Koleshnia Ya. and Kozak I. (2024) focus on the specifics of applying project-oriented enterprise management under modern conditions. Korolev D. (2024) examines the feasibility of a project-based approach to change management in a company's personnel management system. Lirko T. (2024) addresses the integration of risk-oriented project management into modern business models, while Liubarets V. and Hrybova L. (2024) identify the features of project and risk management in education. Finally, Nazarenko S. and Nosan N. (2023) assess the prospects for implementing project management technologies in the public administration of Ukraine during times of crisis. The present study will concentrate on the features of the project management methodology and the ability of its approaches to enrich economic science with means of solving urgent problems, which are increasingly becoming the focus of attention of Ukrainian researchers.

The objective of this study is to delineate the potential applications and identify methodologies for the systematic utilisation of security-oriented project management in the context of scientific research in economics and management.

2 Project Management Methodology and its Suitability for Use in the Scientific Fields of Economics and Management

A project is defined as an episodic activity undertaken by a team of specialists, with a defined temporal framework, aimed at developing a unique and innovative product or service, or achieving

a social or economic result at the behest of the customer, who is also the initiator of the project. In order for a particular activity or development to acquire the characteristics of a project, it must be defined by clearly formulated goals, precise task setting, time constraints (deadlines), the availability of a resource budget in the amount the client is prepared to allocate, and a division of the implementation process into distinct stages of the life cycle – from initiation to completion – in accordance with the predetermined objectives, with mandatory documentation of results at each stage.

Figure 1 provides a synopsis of the seminal concepts underpinning the definition of "project".

Project management can therefore be defined as the process of planning, organising, implementing project activities, motivating project team members and controlling the results obtained by them. From a scientific perspective, project management can be defined as a system of knowledge, competencies, tools and methods of flexible management that are used to achieve project goals through the effective distribution of planned resources (material, time, financial, intellectual, personnel, etc.), taking into account existing and potential risks and interests of stakeholders.

In the scientific and applied spheres, the terms project management and management of project are used in parallel and synonymously. However, upon

detailed scrutiny, it can be concluded that project management is a field of management science with its own paradigms, concepts, principles and tools. The management of projects is characterised as a process of using competencies in planning, implementing and coordinating project activities in a practical sense. Consequently, the focal point of this study will be on the methodology of project management and the capacity to expand the boundaries of its application in various domains of economic and management sciences.

A distinguishing feature of project management that differentiates it from classical organisational management is its extensive use of the Agile methodology. Agile methodology is a set of principles aimed at ensuring flexible and rapid problem solving in the process of project implementation. This approach was developed to address the limitations of the waterfall method of project management, where all stages of the project are planned in advance and determined in detail before the commencement of work. As posited in the study by Bardas A. and Avramenko O. (2023), the agile approach is predicated on several value orientations, including the following: interaction between individuals; prioritisation of tasks over associated documentation; collaboration between the customer and the executor (developer); and rapid response to changes.

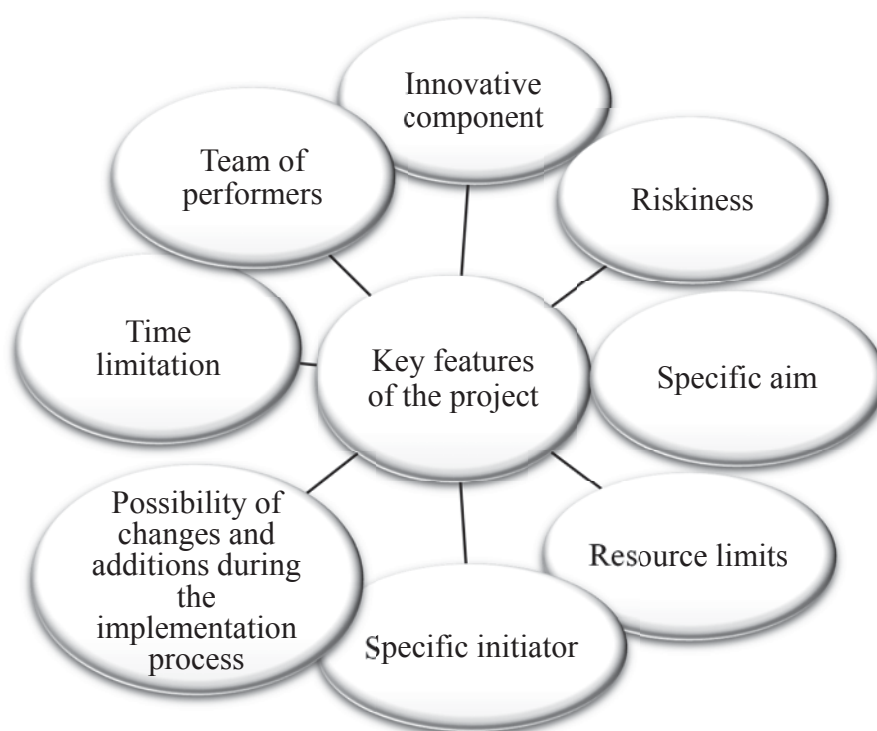


Figure 1 Forming concepts of the definition of "project"

Source: authors' scientific vision

The most resonant problems in modern economic and management areas, based on the content analysis of professional economic literature, are currently considered to be:

- The functioning of various types of enterprises, institutions, organisations under the influence of risks and uncertainty, the search for methods to increase the efficiency of their activities (Bardas, Avramenko, 2023);

- differences in approaches to ensuring the effectiveness of management of business entities, including using the principles of project management (Bokovets, Zaiats, 2022; Koleshnia, Kozak, 2024; Liubarets, Hrybova, 2024);

- strategies and tactics of innovative management; the need to introduce innovations and overcome resistance to change on the way to transforming the usual ways of functioning and developing socio-economic systems (Voronovska, Khomiak, Kudliak, Zakharuk, Pihur, 2024);

- features of stakeholder interaction in the process of financial, economic, innovative and project activities of business entities;

- obstacles to the implementation of processes for ensuring financial and economic security and building security-oriented management systems in modern organisations;

- resolving conflict situations in the process of economic activity of economic systems and clarifying the role of the human factor in the mechanisms of evolution of economic phenomena and processes (Danchenko, Fedotova, 2024);

- the influence of the theory of generations on economic development and functioning of economic structures (Zadorozhna, 2024);

- the need to ensure personnel security of business under the influence of wartime risks and the preservation of human capital to guarantee the possibilities of restoring the national economy in the post-war period (Zachosova, 2024);

- shifting the emphasis from traditional to innovative tactics and methods of business management (Zybareva, Pashniak, Kravchuk, 2024);

- countering risks and threats in personnel management systems, finding opportunities to motivate and stimulate employees to increase the level of efficiency and effectiveness of their professional activities (Korolov, 2024);

- the possibilities of using risk-oriented management at the current stage of development of the economy of Ukraine (Lirko, 2024);

- increasing the efficiency and social significance of the functioning of the sphere of public management and administration (Nazarenko, Nosan, 2023);

- using of teamwork technologies in various sectors of economic life (Oliarnyk, Romanovskiy, 2023).

A defining feature of a project is its defined duration: it has a beginning and an end, and once completed, the team moves on to other tasks. Solving routine and classical problems in economics and management cannot be considered projects because they do not have clear deadlines or goals, nor do they produce unique results in the form of final solutions or products of scientific research. However, the modern economic and management challenges listed above could form the basis of scientific research projects.

If the implementation of scientific research cannot be, or is not conveniently, formalised into distinct sequential stages, and new factors, circumstances, or results from experiments and observations constantly emerge – all of which must be promptly incorporated into the research methodology – it is advisable for the initiator to apply a project management approach such as agile management. Agile is an iterative method of planning and managing processes and projects, which involves short development cycles and allows for ongoing updates based on changes in the nature of the studied managerial or economic problem. In addition, Kanban – a management system that supports a flexible and efficient process of conducting scientific research – and lean management (the lean approach), which ensures maximum efficiency in the development process and reduces project implementation costs, may be used (Bardas & Avramenko, 2023). This is particularly relevant under conditions of limited financial support for the scientific sector in Ukraine. Kanban is a project management method involving the formation of a continuous flow of tasks, implemented with maximum efficiency to ensure effective results. Its defining feature is the visualisation of work on the project (Bokovets, Zaiats, 2022), ensuring information transparency and enabling the team to clearly understand the stage of implementation or completion of a specific task. It is important to acknowledge that, in principle, Agile is a set of ideas and principles that govern the implementation of projects. These principles and best practices have served as a foundation for the development of separate, flexible methods, which are known as frameworks (e.g., Scrum, Kanban, Crystal). It is evident that each framework possesses its own unique characteristics. For instance, the Scrum project management method is predicated on the compulsory utilisation of clearly formulated rules. During the implementation phase, project teams are established, comprising specialists from diverse

industry sectors (Bokovets, Zaiats, 2022). For the purposes of scientific research, the use of such a method is appropriate when preparing applications for grants or funding the development of scientific projects, as this process requires the involvement of specialists from various departments: the finance and accounting departments – to calculate the project's budget indicators; the material support department – to organise tenders, and to procure and supply the necessary equipment and materials; and the public relations department (or an equivalent unit) – to ensure that various stakeholder groups are informed about the progress and results of the research.

Some authors argue that "general trends in project management indicate that innovation is the main factor of success in the conditions of a modern rapidly changing environment. Flexible methodologies, automation, artificial intelligence and the latest tools contribute to increasing the efficiency of processes, reducing costs and time for project implementation, and also help organizations be more adaptive to changes and challenges" (Voronovska, Khomiak, Kudliak, Zakharuk, Pihur, 2024). A number of tasks addressed through scientific research can be treated as individual projects, for the implementation of which project management principles may be applied. These principles are outlined in standards such as PMI, PRINCE2, and ISO 21500, as well as in generally accepted practice. Key principles include: a focus on specific outcomes (e.g., increasing the efficiency of economic systems or the digitalisation of business processes); consideration of the interests of various stakeholder groups (research institutions, government bodies, the general public, public authorities); preliminary planning of work stages and expected results at each phase; separation of the phases of project implementation; change control and managing resistance within research teams; risk management of scientific activities; role distribution among team members; ongoing communication; quality assurance and research integrity; and the analysis of results in terms of scientific novelty and practical applicability.

3 The Feasibility and Features of Using the Methodology of Security-Oriented Project Management in Economic Research and for Solving Problems in Economic and Management Sciences

The following discussion will provide an explanation of the concept of security-oriented project management and the rationale behind its utilisation in contemporary scientific research on economic and management issues.

Security-oriented project management is distinguished from traditional project management in that its primary objective, or one of its secondary objectives, is to mitigate risks that could impede the project's successful completion or result in a state of economic, personnel, and legal security following the project's conclusion. The emphasis on security objectives is congruent with the pursuit of sustainable development goals, which are the primary objectives of contemporary economic and social systems. Concurrently, the advent of warfare has rendered it impracticable to undertake scientific research in an environment devoid of risk. Moreover, the establishment of a state of national security, particularly in the economic sphere, is a significant problem that requires the allocation of financial resources from the state budget and the National Research Fund of Ukraine on an annual basis.

Therefore, the use of security-oriented project management methods in research on economic and management problems is possible in the following areas:

- Project management for the popularisation of scientific research and scaling its impact (as an approach to organising scientific events, scientific paper competitions, and the exchange of scientific personnel with compliance with all necessary security measures);

- project management in scientific activities (when preparing grant applications, scientific projects for obtaining funding from external sources, when writing articles and other scientific papers in co-authorship and ensuring the ability to work online while in safe places);

- project management in the management of a scientific institution or higher education institution with strict adherence to safety rules and techniques (as an alternative to classical authoritarian management with a clear horizontal structure of management authority, a high level of bureaucracy in making management decisions, and a complex mechanism for proposing and approving initiatives).

As illustrated in Figure 2, the methodology of security-oriented project management is integral to the organisation and implementation of scientific research in the field of economics and management.

The use of project management methodology can help solve such problems of conducting scientific research in the economic and management spheres as:

- Bureaucratic nature of management processes within the framework of scientific activity, significant time spent on making management decisions regarding the start, financing, and continuation of research;

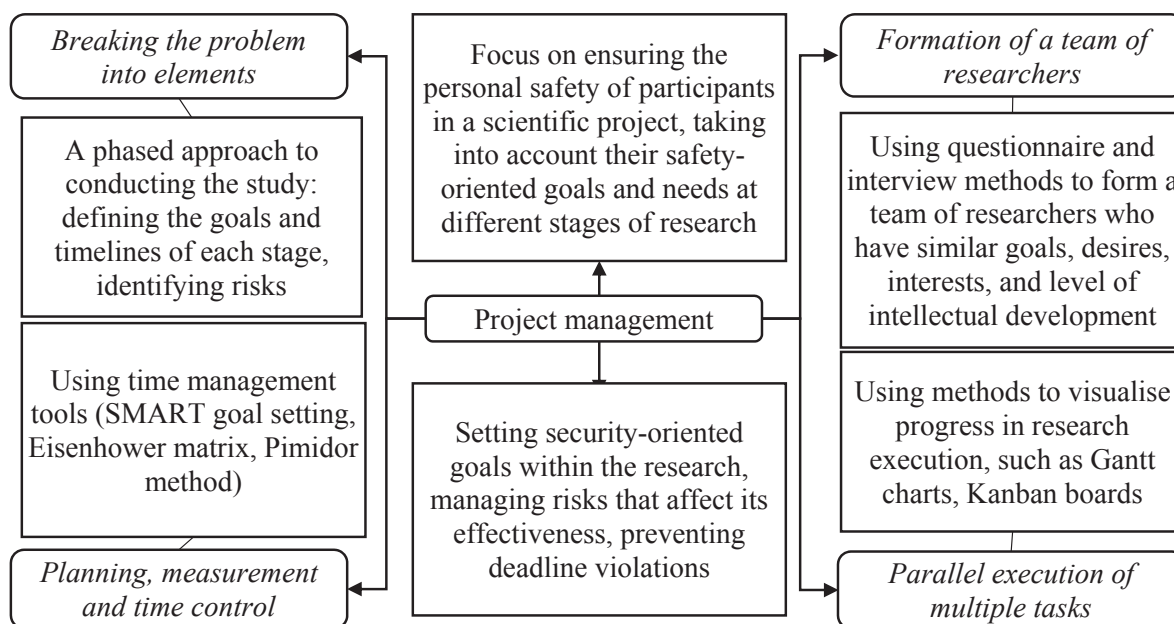


Figure 2 Methodology of security-oriented project management in the organisation and implementation of scientific research on problems of economics and management

Source: authors' scientific vision

- low level of professional interaction, communication between researchers of economic and management problems in different countries, including due to the existence of a language barrier;
- information opacity and disorderly communication, resistance to innovative changes due to the opaque information policy of scientific institutions and organisations that finance scientific research through charitable and grant programs;
- uneven distribution and access to financial and other resources necessary for scientific research;
- duplication of functions and tasks, uneven professional workload on participants in scientific research (in particular, due to gender aspects, ageism, nepotism);
- low level of digitalisation of scientific and management processes in educational institutions and scientific institutions.

The rationality and relevance of utilising the methodology of security-oriented project management is elucidated by the perpetual escalation in the degree of intricacy and information load of research on economic and management predicaments. The augmentation in the volume of information requisite to formulate an informed decision based on the findings of the research is concomitant with manifold risks and threats of economic, managerial, and legal character. A security-oriented approach facilitates the timely identification, assessment, ranking, and mitigation or avoidance of such risks.

Furthermore, a security-oriented approach is aimed at ensuring a high level of reliability, trustworthiness, and data protection from cyber risks. In the domain of economic research, the quality, timeliness, reliability, and security of the information obtained are of paramount importance for the successful execution of scientific projects. The methodology of security-oriented management involves the introduction of mechanisms for the protection, preservation, limitation of access to, and control of use of scientific information, thus increasing the reliability of scientific results obtained in the research process.

The potential for the application of security-oriented project management principles in the context of scientific research organisation and implementation is contingent upon the availability of human resources, namely researchers and participants in scientific teams and collectives who are prepared and capable of embracing change. It is imperative that leaders of scientific teams exhibit a favourable attitude towards innovations. The authority and respect accorded to team leaders by the collective will provide support for teams of performers and facilitate the transition to project management principles in scientific activity.

In circumstances where there has been a total loss of human capital, one of the most pressing and prevalent risks is that of inadequate and substandard staffing for the execution of scientific projects and research. In the context of scientific institutions and

higher education institutions, where scientific work is conducted, the phenomenon is primarily attributable to the inadequate remuneration of scientists. In the context of the scientific sphere, a number of personnel risks have been identified. These include a perceived lack of staff competence in understanding the features of project management, high staff turnover, and the allocation of additional tasks to scientists that are related to planning, reporting, and coordination of stages of scientific research. Furthermore, there is a perceived lack of motivation among scientific and pedagogical staff in higher education institutions to participate in project activities.

Security-oriented project management demands the establishment of a "culture" or "policy" of safety within the research team. Each participant in the study must have a clear understanding of their role in the successful implementation and ensuring the safety of the results of the scientific project. It is therefore recommended that the project team leader should take responsibility for the initiation of regular training measures, with the aim of increasing awareness among scientists of security issues, and of creating a system of responsibility for violations of established security-oriented regulations.

In order to implement a security-oriented project approach to achieve research goals in the economic and management spheres, there is justification for the use of specialised tools. Such tools include Threat Modelling, Vulnerability Assessment, Penetration Testing, and monitoring of compliance with security standards (for example, ISO 27001).

Consequently, the incorporation of methodological techniques of security-oriented project management into economic research and into the paradigm of management science in the future will facilitate not only the enhancement of the quality and reliability of the obtained scientific results, but also the assurance of continuity and protection from resource overspending of the research process itself. This is a critically important theoretical and methodological task for the development of science in the realities of wartime.

4 Conclusions

The study of the possibilities of systematic use of the methodology of safety-oriented project management for the organisation and implementation of scientific research in economics

and management made it possible to draw the following conclusions.

1. Within the scientific and methodological domain, the term "project" is frequently employed in a broad manner, exhibiting numerous semantic interpretations, thereby impeding the comprehension of the mechanisms for implementing the project approach in the administration of higher education institutions by the heads of these institutions and their employees. It is proposed that the project be regarded as a temporary professional activity for employees of an educational institution, with the objective being the achievement of a unique scientific, educational, financial result, with a clearly defined goal for the executors, fairly distributed resources, established deadlines and a defined sequence of implementation stages. Project management in this context is defined as a system of management approaches, tools, methods and principles of their application, which allows for the timely achievement of project goals through the flexible implementation of such classic management functions as planning, organisation, motivation and control.

2. Modern economic and managerial challenges, particularly in wartime, mean that the use of security-oriented project management methodology in scientific research is not just desirable, but critically necessary. Unlike routine tasks, scientific research – especially projects with clear deadlines and unique results that require prompt consideration of new data – is ideally suited to project management methodology. This methodology deviates from conventional approaches by incorporating risk management at all stages of the project, with a focus on proactive identification, assessment and minimisation of risks. This approach ensures the timely completion and reliable outcomes of the research process, a matter of particular importance in circumstances where resources allocated for scientific projects are limited and the complexity of successfully addressing scientific problems in the fields of economics and management is increasing.

The development of contemporary theoretical and methodological approaches to the implementation of research into management problems and the assurance of economic security at the regional and national levels using a project approach and the capabilities of artificial intelligence while adhering to the norms of academic integrity is recommended.

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