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Application of the P3.Express Method in Risk Management in a Manufacturing Enterprise

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Abstract:

Purpose: *The purpose of this article is to evaluate the applicability of the P3.express method in the risk management process at a manufacturing company and to determine its impact on the effectiveness and efficiency of implemented projects. The study analyzed the risk management process, starting with risk identification, through the assessment of its impacts, to risk monitoring at various levels, using the principles of the P3.express method based on a case study from the manufacturing industry.*
Design/methodology/approach: *A literature review and a case study were employed to assess the practical aspects of implementing the method. The research findings clearly indicate that the P3.express method supports the risk management process, improves organizational decision-making, and enhances control over project execution within the organization. The obtained results confirm that implementing the P3.express method in an organization can help mitigate the adverse effects of risk and improve the effectiveness of project management in the manufacturing industry.*
Findings: *The results obtained indicate that the application of the P3.express method can serve as a valuable complement to existing project risk management approaches in manufacturing enterprises. The analysis demonstrated that the primary strength of this methodology lies in its integration of the fundamental principles of risk management with simplicity, enabling organizations to reduce barriers associated with excessive documentation, ineffective communication, and overly formalized approaches to project management.*
Originality/value: *The article contains information that can be used to supplement an organization's risk management standards. It is primarily intended for professionals responsible for risk management within an organization.*

Keywords: *P3 express method, risk management, project management.*

JEL Codes: *M11, O32, L23, D24.*

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1. Introduction

Contemporary manufacturing enterprises operate in an environment of dynamic global structural, technological, economic, and organizational changes, which increase the complexity of the projects they undertake. The development of the industry 5.0 concept, the automation of manufacturing processes, and the growing integration of global supply chains have created a need to implement projects involving the deployment of new technologies, the modernization of existing infrastructure, and the continuous improvement of organizational processes.

At the same time, these characteristics of the project environment increase the level of uncertainty, making the application of effective risk management methods and techniques essential (Kagermann, Wahlster, and Helbig, 2013).

Risk is one of the fundamental challenges in contemporary project management. According to ISO 31000:2018, risk is defined as the effect of uncertainty on an organization's objectives. This approach clearly indicates that risk management should not be regarded solely as a process of minimizing the negative consequences of random events but rather as a systematic approach that enhances organizational resilience and improves the quality of decision-making (ISO, 2018).

Purdy (2010) emphasizes that ISO 31000 established a universal framework for risk management that can be applied across different sectors regardless of an organization's size or characteristics.

2. Literature Review

In scientific literature, risk management is commonly presented as a process consisting of several stages: risk identification, probability analysis, impact assessment, the development of response strategies, and continuous monitoring of changes occurring in the project environment (Aven, 2016). According to Aven (2016), the contemporary approach to risk should consider not only classical probabilistic models but also knowledge limitations and uncertainty resulting from the complexity of organizational systems.

Hillson (2009) further argues that effective project risk management requires integration with the overall project management process and the active involvement of all project stakeholders.

The issue of risk management is particularly significant in manufacturing enterprises. The specific nature of this sector exposes organizations to numerous risk factors related to machine reliability, material availability, process stability, quality requirements, and delivery performance. As Chapman and Ward (2011) point out, effective risk control in projects requires moving away from reactive problem-solving toward proactive measures that anticipate potential disruptions. In

manufacturing companies, this approach is especially important due to the high costs associated with production downtime, additional resource expenditures, investment delays, and deteriorating customer relationships.

Project risk management is an integral component of recognized project management standards. The *PMBOK® Guide* defines project risk as an uncertain event or condition that, if it occurs, may have either a positive or a negative impact on the project's objectives, scope, schedule, and quality—the so-called "project management triangle" (Project Management Institute [PMI], 2021).

Kerzner (2022) presents a similar perspective, arguing that mature project-oriented organizations should implement formal mechanisms for risk identification and control throughout the entire project life cycle. However, Trocki (2017) notes that comprehensive project management methodologies may impose a considerable organizational burden, particularly on enterprises with limited administrative resources.

The limitations associated with the complexity of traditional project management standards have contributed to the development of simpler and more flexible project management approaches. One example is P3.express, described as a minimalist project management system. Its primary objective is to provide essential project control mechanisms while minimizing excessive documentation and administrative procedures (P3.express, 2024). Unlike comprehensive project management standards, P3.express focuses on practical team activities, effective communication, and systematic project monitoring.

One of the key components of the P3.express methodology is risk management. This process begins during the project initiation phase with the identification of potential risks and the development of appropriate response strategies. Risk-related information is recorded in a project register that supports the monitoring of risks, issues, and changes throughout the project lifecycle.

The methodology also assigns responsibility for specific actions to designated team members, thereby promoting an active and proactive approach to risk management while ensuring clear accountability for decisions and actions taken (P3.express, 2024).

The project management literature increasingly emphasizes hybrid and agile approaches (e.g., Agile and Scrum), which enable organizations to tailor management practices to the specific characteristics of both the organization and the project. Hillson and Simon (2020) argue that the effectiveness of risk management depends not merely on the number of procedures and techniques employed but primarily on the quality of risk identification, communication, and the organization's ability to respond rapidly to emerging threats. In this context, the P3.express methodology may represent an attractive and versatile solution for manufacturing

enterprises seeking a balance between comprehensive project control and operational flexibility.

Despite the growing interest in various project management methodologies, a review of the literature reveals a limited number of studies concerning the application of P3.express to project risk management, particularly within the manufacturing sector. Existing research has focused predominantly on traditional project management standards, risk maturity models, and risk analysis techniques. Consequently, a research gap exists regarding the assessment of minimalist project management methodologies in manufacturing environments characterized by high levels of technological and organizational interdependencies.

The objective of this article is to analyze the potential application of the P3.express methodology to risk management in a manufacturing enterprise. Particular attention is devoted to evaluating the methodology's potential for risk identification, risk response planning, and improving the effectiveness of manufacturing project implementation.

3. Research Methodology

The objective of this study was to evaluate the applicability of the P3.express methodology to the risk management process in a manufacturing enterprise. The analyzed company does not employ a formally established risk management methodology; instead, it primarily relies on crisis management and attempts to resolve problems only after they have occurred.

The study was intended as a pilot example to assess whether the P3.express methodology could also be applied in other industries. Achieving the research objective required an analysis of both the theoretical foundations of project risk management and the practical aspects of project management systems operating within a manufacturing organization. A qualitative research approach based on the case study method was adopted for this study.

The research was conducted in three main stages. The first stage consisted of a literature review covering project risk management, project management standards, and methods applied in manufacturing enterprises. The analysis included scientific publications focusing primarily on traditional (predictive) project management methodologies, as well as literature related to project and risk management. Attention was devoted to identifying the key elements of an effective risk management process, including risk identification, risk assessment, response planning, and monitoring of preventive actions.

The second stage involved an analysis of the assumptions underlying the P3.express methodology and an assessment of its potential application to the risk management process. A comparative analysis was conducted between the components of the

P3.express methodology and the requirements specified in established risk management standards.

The third stage consisted of a case study of a manufacturing enterprise implementing projects in the fields of intralogistics and industrial logistics. The existing risk management practices within the organization were examined, and the potential application of P3.express components to improve these practices was evaluated.

Research data were collected through an analysis of project documentation, risk assessment sheets, and observations of project management processes within the organization. The dataset analyzed was based on completed projects, with particular emphasis on those considered strategically significant for the organization.

A qualitative analysis technique was employed in the study. The analyzed materials included risk registers, project schedules, customer reports, documentation of corrective actions, and the organization's internal project management procedures. This analysis enabled the identification of the most frequently occurring risk categories and the assessment of the extent to which the organization's current practices aligned with the principles of the P3.express methodology.

The following research questions were formulated:

1. Can the P3.express methodology support the risk management process in a manufacturing enterprise?
2. Which elements of the P3.express methodology can be applied to improve project risk management?
3. What are the potential benefits and limitations associated with implementing the P3.express methodology in a manufacturing enterprise?

The following research hypothesis was also formulated:

H1: The application of selected elements of the P3.express methodology can improve the effectiveness of the risk management process in a manufacturing enterprise by structuring the risk identification process, enhancing project communication, and ensuring the systematic monitoring of risk-related activities.

The selected research methodology enables a comprehensive analysis of the research problem and facilitates the assessment of the practical applicability of the P3.express methodology under real organizational conditions.

However, it should be noted that the qualitative nature of the study limits the generalizability of the findings to the entire population of manufacturing enterprises. Therefore, the results should be regarded as a foundation for further comparative research involving a larger number of manufacturing organizations and, subsequently, organizations operating in other sectors.

4. Results and Discussion

The analysis of the assumptions of the P3.express methodology and its potential application in a manufacturing enterprise demonstrated that this methodology may serve as one of the tools supporting the project risk management process, particularly in organizations operating within a project-based structure. The research results indicate that the greatest value of P3.express lies in integrating activities related to risk identification, monitoring, and communication with ongoing project management processes.

In the first stage of the research, a comparative analysis was conducted of risk management elements present in standard project management methodologies and in the P3.express methodology. The results of the analysis are presented in Table 1.

Table 1. *Comparison of the risk management approach according to standard project management*

Risk management area	**Standard methodologies**	**P3.express methodology**
Risk identification	Systematic identification of risk sources within the organization	Identification of project risks during project initiation and periodic project reviews
Risk analysis	Assessment of probability and impact	Qualitative and quantitative analysis; practical assessment of the impact of risks on project implementation
Risk response planning	Development of actions aimed at reducing the effects of risks; risk response strategies for threats and opportunities	Definition of follow-up actions and assignment of responsibilities
Risk monitoring	Continuous supervision process; risk control throughout the entire project lifecycle	Regular reviews and updating of the risk register
Documentation	Adapted to the organization's needs; extensive project documentation	Minimalist documentation focused on practical actions

Source: *Own elaboration based on standard methodologies and the P3.express methodology.*

The analysis showed that all three approaches treat risk management as a continuous process; however, they differ significantly in terms of the documentation applied. Standard methodologies provide a set of techniques and tools from which each organization must select those that best correspond to its specific characteristics.

This is also the case in the analyzed enterprise, where techniques and tools derived from standard project management approaches are used, although they are applied somewhat unconsciously. In contrast, P3.express is characterized by a simplified approach that emphasizes practical project team activities, rapid information flow, and effective communication.

The case study analysis of the manufacturing enterprise enabled the identification of the main risk areas occurring during project implementation. The most frequently occurring risk categories included:

- **Technical risk** related to the reliability of machines, equipment, and implemented technological processes (approximately 40%);
- **Organizational risk** resulting from inadequate resource planning and communication channels (approximately 25%);
- **Schedule risk** associated with delays in the implementation of individual project stages (approximately 15%);
- **Supply risk** related to the availability of materials and components domestically and internationally (approximately 10%);
- **Quality risk** concerning product compliance with applicable customer requirements (approximately 10%).

The percentage distribution of individual risk categories illustrates the types of risks the organization faces on a daily basis. These risks are the most significant from a project management perspective and have a direct impact on the project management triangle. However, the risk management matrix currently used within the organization does not fully meet the requirements for effective risk management and rapid response to emerging threats.

Table 2. *Risk Management Matrix in the Organization*

Risk matrix					
Risk factor	Probability (very low 1–5 very high)	Impact (very low 1–5 very high)	Risk	Owner / Risk owner	Response method / Risk response strategy

Source: *Own elaboration based on documents from the manufacturing company.*

The analysis showed that the current approach to risk management in manufacturing companies is often reactive in nature. This means that corrective actions are mainly taken after a problem has occurred, while less emphasis is placed on the systematic identification of potential threats at earlier stages of project implementation. This results in a lack of coordinated action and a response only when a risk occurs. The application of P3.express principles enables a change in this approach by introducing regular risk reviews and assigning responsibility for monitoring specific threats to members of the project team.

An important result of the research was the identification of potential benefits resulting from the implementation of P3.express in a manufacturing company. The most significant ones include:

1. **Improvement of the risk identification process** – regular project meetings (once a week, or more frequently in critical situations) and the use of a risk register enable earlier detection of threats and the implementation of preventive actions.
2. **Improvement of project communication** – clearly defined responsibilities for individual risks increase the transparency of the management process and reduce the risk of overlooking important information (a responsibility matrix for individual tasks, including the assignment of responsible persons).
3. **Reduction of administrative workload** – simplified documentation can contribute to faster responses to occurring risks.
4. **Increased operational flexibility** – the ability to adjust the intensity of management processes to the scale and complexity of a project allows organizations to better respond to changing project conditions.

At the same time, the analysis identified certain limitations and areas for improvement related to the application of P3.express. The most important limitation is the lower level of detail compared with more comprehensive project management standards.

In the case of large, complex projects with high value, extensive scope, and a large number of stakeholders, it may be necessary to supplement P3.express with additional quantitative risk analysis tools, such as Monte Carlo analysis, expected value analysis, or various simulation models. However, the decision to apply additional methods should be made after a prior analysis of risks within the organization in order not to introduce unnecessary additional activities.

The obtained results indicate that P3.express may be particularly useful in manufacturing companies implementing projects with a medium level of complexity, where fast decision-making, effective communication, and the reduction of excessive administrative procedures are of significant importance. However, this

methodology should not be treated as a replacement for standard risk management systems, but rather as a tool supporting everyday project management practices.

In conclusion, the conducted analysis confirmed the research assumption that the application of elements of the P3.express methodology can contribute to increasing the effectiveness of risk management in a manufacturing company by organizing the process of identifying threats, improving communication, and systematically monitoring risk-related activities. It should also be emphasized that the entire project team plays an important role, as it is responsible for risk management throughout the organization.

5. Conclusions

The results obtained indicate that the application of the P3.express methodology may constitute a valuable complement to existing approaches to project risk management in manufacturing companies. The conducted analysis showed that the main value of this methodology lies in combining fundamental elements of risk management with simplicity, which allows organizations to reduce barriers related to excessive documentation, ineffective communication, and a formal approach to project management. The research results are consistent with the literature review.

The analysis conducted also confirms the importance of the continuous nature of the risk management process. In this context, solutions applied in P3.express, such as cyclical risk reviews and the use of an action log, are consistent with the fundamental principles of modern risk management. At the same time, the methodology simplifies the implementation of these activities, which may increase their acceptance among project teams and stakeholders.

The results obtained also indicate that one of the key challenges faced by manufacturing companies is the transition from a reactive to a proactive approach to risk management. In organizational practice, there is often a focus on solving problems only after they occur, whereas effective risk management requires the early identification of potential threats.

This approach can lead to significant organizational problems and result in substantial costs for the company. The introduction of mechanisms characteristic of P3.express may support this change by enabling regular analysis of the project situation and assigning responsibility for risk monitoring to specific individuals. Therefore, it is necessary to introduce a certain standard for meetings aimed at assessing and analyzing potential risks.

The obtained results indicate that many project failures result not from a lack of risk identification, but from inadequate information flow and the absence of clearly defined responsibilities for actions aimed at mitigating threats. P3.express addresses this issue by integrating risk management into the daily organization of the project

team's work, which may increase the transparency of the decision-making process and influence the speed of decisions made.

At the same time, the research results indicate that P3.express should not be treated as a complete alternative to comprehensive risk management standards. Instead, P3.express focuses primarily on practical project management and team communication; therefore, its application should be adapted to the size of the project, its level of complexity, and the maturity of the organization in this area.

However, certain limitations resulting from the research conducted should be taken into account. The primary limitation is the qualitative nature of the analysis and the lack of possibility to fully generalize the results to all manufacturing companies. Furthermore, the limited number of scientific publications related to P3.express, resulting from the relatively recent development of the methodology, means that some conclusions are based on an analysis of the methodology's assumptions and comparisons with recognized project management standards.

Despite the identified limitations, the conducted research provides valuable insights by indicating the possibilities of using a minimalist project management methodology in the area of risk management in manufacturing companies. The results suggest that P3.express may serve as a tool supporting the development of risk management, particularly in organizations seeking solutions that combine operational flexibility with a basic level of project control.

Further research should focus on empirical verification of the effectiveness of P3.express through the analysis of a larger number of manufacturing companies, the use of quantitative methods, and the comparison of results achieved by organizations applying different project management methodologies.

In conclusion, the research conducted indicates that the P3.express methodology has the potential to be used as a practical tool supporting risk management in manufacturing companies. Its greatest value lies in its simplicity, flexibility, and ability to increase the involvement of project participants in the process of risk identification and control. At the same time, a full assessment of the effectiveness of this methodology requires further empirical studies conducted under real organizational conditions.

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