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Project-Based Approach to Anti-Crisis Management of Enterprises in Wartime

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ABSTRACT

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The potential of project management as an effective tool for crisis management in enterprises during wartime is demonstrated in this paper. A range of general scientific methods, including analysis, synthesis, comparison, generalization, logical modelling and a systems approach, is employed in the study. The specific nature of the crisis processes caused by Russia's full-scale military aggression against Ukraine, as well as their impact on the functioning of domestic enterprises, is analyzed. Particular attention is paid to the problems of labor force loss, the complication of logistics processes, disruptions to supply chains, energy shortages, rising costs and physical threats to the operation of enterprises. A comparative analysis of the key aspects of crisis management and project management is conducted, through which significant similarities between them are identified in such areas as timely decision-making, management of limited resources, leadership, team interaction and the adaptability of organizational structures. Based on the concept of the Project Management Triangle, a crisis is interpreted as a project that, from the outset, exceeds the permissible limits of time, cost and scope of implementation. The value of using project management tools to respond to both sudden and long-term crises is substantiated. Furthermore, the practical aspects of implementing a project-based approach to crisis management are examined using the Ukrainian company Hydrosila APM as a case study. The problems of the enterprise's production system functioning under wartime conditions are analyzed, the objectives of the crisis management project are formulated, and a set of management decisions regarding the adaptation of the organizational structure of production, the reorganization of production units, the reconfiguration of equipment, and the more efficient use of personnel is proposed. It is demonstrated by the results of the study that the use of a comprehensive project-based approach not only allows a rapid response to crisis challenges to be ensured, but also contributes to the systematic implementation of anti-crisis measures, the optimization of the organizational structure, and the enhancement of the efficiency of enterprise resource utilization under wartime conditions.

KEYWORDS

anti-crisis management; project management; economic security; wartime; adaptive management; organizational transformation; resilience.



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Проектний підхід до антикризового управління підприємствами в умовах війни

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СТАТТЯ

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Основною метою статті є обґрунтування можливостей використання проектного менеджменту як ефективного елементу антикризового управління підприємствами в умовах воєнного часу. Для проведення дослідження використано комплекс загальнонаукових методів, зокрема аналіз, синтез, порівняння, узагальнення, логічне моделювання та системний підхід. У межах дослідження проаналізовано специфіку кризових процесів, спричинених повномасштабною військовою агресією росії проти України, а також їхній вплив на функціонування вітчизняних підприємств. Особливу увагу приділено проблемам втрати трудових ресурсів, ускладнення логістичних процесів, порушення ланцюгів постачання, дефіциту енергетичних ресурсів, зростання витрат та фізичних загроз для функціонування підприємств. У статті здійснено порівняльний аналіз ключових аспектів антикризового та проектного менеджменту, що дозволило виявити значну подібність між ними за такими напрямками, як своєчасність прийняття рішень, управління обмеженими ресурсами, лідерство, командна взаємодія та адаптивність організаційних структур. На основі концепції Project Management Triangle запропоновано трактування кризи як проекту, який із самого початку виходить за допустимі межі часу, вартості та змісту виконання. У статті обґрунтовано доцільність використання інструментів проектного менеджменту для реагування як на раптові, так і на довгострокові кризові ситуації. Крім того, досліджено практичні аспекти реалізації проектного підходу в антикризовому управлінні на прикладі українського підприємства Hydrosila АРМ. Проаналізовано проблеми функціонування виробничої системи підприємства в умовах війни, сформовано цілі антикризового проекту та запропоновано комплекс управлінських рішень щодо адаптації організаційної структури виробництва, перепрофілювання виробничих підрозділів, переналаштування обладнання та ефективнішого використання персоналу. Результати дослідження засвідчили, що використання комплексного проектного підходу дозволяє не лише оперативно реагувати на кризові виклики, але й забезпечує системність антикризових заходів, оптимізацію організаційної структури та підвищення ефективності використання ресурсів підприємства в умовах воєнного часу.

КЛЮЧОВІ СЛОВА

антикризове управління; проектний менеджмент; економічна безпека; воєнний час; адаптивне управління; організаційна трансформація, резильєнтність.

1. Introduction

As a result of the full-scale military aggression of Russia, a vast majority of enterprises in Ukraine, regardless of size or sector, have faced an unprecedented crisis in their activities. This crisis is characterized by a unique combination of rapid and multidirectional spread, prolonged and multifactorial impact on business activities, and a high risk of operational suspension or complete shutdown.

In fact, it can be asserted that after February 24, 2022, within a very short timeframe (ranging from several days to a week), enterprises lost the ability to continue operating in their usual manner. It was about all key domains of activity, including procurement, sales, staffing, production, finance, economics, and logistics.

As the crisis unfolded, its impact on enterprise operations deepened. Notable manifestations of this influence include:

- a reduction in labor availability due to mobilization and migration to other regions or countries;
- increasingly complex logistics, particularly for export- and import-oriented companies, due to the cessation of air and sea transport;
- loss of traditional business partners, both suppliers and consumers, as a result of occupation, business shutdowns, or the reluctance of foreign partners to cooperate due to elevated risk levels;
- difficulties in energy supply owing to blackouts and systemic shortages;
- rising costs for most resources (material, energy, etc.) driven by currency depreciation, more expensive logistics, and market shortages;
- the physical threat to enterprises, which necessitates periodic work stoppages during air raids and compels investment in personnel safety measures such as shelter construction or business relocation.

In light of these factors, we believe Ukrainian managers urgently require effective tools for crisis management.

2. Literature Review

In recent years, the topic of crisis management has gained considerable attention in Ukrainian academic discourse, especially in light of the war. A lot of publications are dedicated to various aspects of anti-crisis management during the war.

Dzhur O., Dzhyha L., and Salamanina S. conceptualize crisis management as a mindset, promoting internal and external communication tools, pursuing organizational excellence, and operating as a multi-level system. [1] Orekhov M. advocates for updating anti-crisis strategies to ensure a swift and effective response to emerging challenges, emphasizing the importance of developing solutions in the most economically advantageous manner.[2] Riabenko H., Verlanov O., Zviagintseva O., and Klymenko S. highlight the importance of integrating financial crisis management into an enterprise's overall strategy to enhance resilience and competitiveness. [3] Matviichuk V. and Matushevskiy O. identify key directions for minimizing financial and economic risks under martial law, including crisis strategy development, resource differentiation, financial planning, insurance, and data backup. [4]

Moshkivska D.'s scientific research focuses on studying the essence of crisis phenomena at an enterprise, emphasizing that crisis processes can be caused by both internal management problems and external economic, political, or social factors, which require the timely application of anti-crisis measures [5].

Pohrebniak A. argues that a business plan tailored for a crisis-stricken enterprise is a vital management tool that provides a strategic edge through the application of the most effective methods and tools [6].

In the scientific work of Kerzner H., a comprehensive systemic approach to project management is presented, covering planning, organization, resource allocation, implementation control and change management, while the author emphasizes the importance of adaptability, leadership and effective coordination of actions in complex and crisis conditions of organizations [7].

Hillson D.'s scientific research is devoted to modern approaches to risk management in project activities [8]. Meredith J., Shafer S., Mantel S. and Sutton M. highlight practical aspects of applying project management in the activities of organizations, in particular, the formation of project teams, resource

management, communications and risks. Particular attention is paid to the use of the project approach to solve complex management problems and ensure organizational efficiency [9].

The article by Kovbasiuk B examines the essence of anti-crisis personnel management and its role in ensuring the stability of the enterprise's activities. The author emphasizes the need to adapt personnel policy to crisis conditions, preserve labor potential and increase the efficiency of management decisions [10].

Koval N. and Lyn T. define the main principles of building an anti-crisis management system at the enterprise, including prevention, adaptability, comprehensiveness and responsiveness. The need to form a holistic system of crisis management is substantiated [11].

In the scientific work of Tkachenko A., crisis management is considered as a comprehensive system of crisis prevention, which includes risk monitoring, early detection of threats and development of preventive measures. The author emphasizes the importance of a strategic approach to ensuring sustainable development of the enterprise [12]. Nonetheless, most Ukrainian scholars rely on conventional approaches to crisis management in wartime. Also, they tend to focus on the separate wars' influence on enterprise operations, without offering an integrated approach.

In the present international academic literature, the focus of crisis management is predominantly on natural disasters (such as the COVID-19 pandemic) or on the consequences of emerging technologies. For example, Edward Segal (2023) from Forbes identifies monitoring of weather phenomena as a critical step in crisis management. He notes that only 9% of companies are prepared to handle risks associated with artificial intelligence [13].

3. Problem Statement

The primary objective of this paper is to identify a potentially effective approach to crisis management for Ukrainian enterprises during wartime. In particular, the study aims to develop a relevant methodology for utilizing project management as a component of anti-crisis measures.

4. Methods and Materials

Within the scope of this study, the authors have adopted a systematic and comprehensive approach to examining the potential for using project management as an element of crisis management in enterprises during wartime. The research methodology is based on the use of general scientific methods of analysis, synthesis, comparison, generalization and logical modelling, which enabled the investigation of the specific nature of crisis processes in Ukrainian enterprises and the development of an integrated approach to the implementation of anti-crisis measures. The research was conducted in several stages:

At the first stage, an analysis was carried out of the specific nature of the crisis phenomena caused by Russia's full-scale military aggression against Ukraine, as well as their impact on enterprise operations. The key areas of the war's destructive impact on business operations were examined, in particular: the loss of labor resources due to mobilization and population migration; complications in logistics processes; the loss of traditional partners and sales markets; energy supply issues; rising resource costs; and physical threats to the operation of enterprises.

The second stage of the study was devoted to a theoretical analysis of contemporary approaches to crisis management and the identification of its key characteristics in wartime conditions. As part of this stage: the scientific approaches of Ukrainian and foreign authors to the interpretation of the essence of crisis management were analyzed; the main components of effective crisis management were identified, including: the timeliness of management decisions, thrifty resource management, strong leadership, team cohesion, and the adaptability of organizational structures and business processes; a comparative analysis of the principles of crisis and project management was conducted, and a conceptual approach to interpreting a crisis as a project that exceeds acceptable limits in terms of time, cost and scope of implementation was formulated.

The third stage of the study focused on developing a methodology for the use of project management tools in crisis management within enterprises. Within this framework: the feasibility of using project management tools to respond to sudden and long-term crises was substantiated; key project management tools that can be adapted for crisis management measures were identified, in

particular: planning, project team formation, communication, risk management and stakeholder engagement; the specific features of applying the project triangle (time, cost, scope) in crisis management contexts were investigated; and approaches to using flexible and simplified management tools in the event of crises were developed.

At the fourth stage, the proposed approach was tested in practice using the example of the Ukrainian company Hydrosila APM, which operates under wartime conditions. As part of this stage: the company's main production problems following the outbreak of full-scale war were analyzed; the objectives of the anti-crisis project to adapt the organizational structure of production were formulated; a set of management decisions was developed regarding the optimization of the production structure, the reorganization of production units, the reconfiguration of equipment and the more efficient use of personnel, and the results of implementing the project-based approach to anti-crisis management of the enterprise were assessed.

This comprehensive approach has made it possible to explore the potential for integrating project management into a company's crisis management system and to demonstrate its practical effectiveness in wartime conditions.

5. Results and Discussion

In management theory, a crisis is typically viewed as a critical impact on an organization. It means a period of instability or decisive changes that poses a significant risk of highly undesirable outcomes for the organization. Key components of effective crisis management include: timely decision-making, frugal resource management, strong leadership, team cohesion, and the adaptability of structures and business processes.

Timely decision-making is paramount during a crisis, as the absence of decisions often leads to the worst outcomes. Delayed decisions may also result in significant damage. Frugal resource management involves accurately identifying the resources needed to overcome or mitigate a crisis, particularly under conditions of scarcity. It is vital to allocate resources rationally as well as to track the effectiveness of their use. The presence of a strong leader becomes critical in a crisis. On the other hand, a motivated and cohesive team can often achieve better results than a single strong leader acting alone. Under crisis conditions, organizations must adapt to survive. Flexibility and proactive responses to shocks are essential.

A closer examination of these key elements reveals their alignment with the principles of project management. This relationship is illustrated in Table 1.

Table 1. Comparative Analysis of Key Aspects in Anti-Crisis and Project Management

Key Aspect	Anti-Crisis Management	Project Management
Timely Decision-Making	Critical for success.	Is a basic prerequisite for successful project implementation.
Frugal Resource Management	Crisis typically involves constrained resources.	Projects inherently operate under resource constraints.
Strong Leadership	Has a decisive impact on the effectiveness of anti-crisis efforts.	The project manager serves as a leader by definition.
Team Cohesion	Its absence makes satisfactory results unattainable.	Project success relies on the performance of the project team.
Structural and Process Adaptability	Crisis generally demands organizational change.	Adaptability is a core feature of projects.

Source: Compiled by the authors.

Thus, it can be concluded that crisis management and project management are closely interrelated, as they both employ similar approaches. However, there is also a fundamental difference between them. Project management typically deals with pre-planned, clearly defined, and justified initiatives. In contrast, crisis management often addresses unforeseen events or those anticipated with a low degree of certainty.

Nevertheless, if we refer to the widely recognized tool in project management known as the Project Management Triangle, we can propose the following definition of crisis. Crisis is a project that,

from its inception, falls significantly outside acceptable boundaries in terms of time, cost, and scope. Therefore, it is problematic in terms of outcome quality.

Consequently, when confronted with a crisis—or, more precisely, when faced with a situation that escalates into a crisis—the initiation of projects may represent a critical step for management in problem solving.

Many tools developed within the framework of project management can be effectively leveraged in anti-crisis efforts. However, these tools require thoughtful application and adaptation to be truly effective in crisis contexts. From this perspective, it is important to distinguish between crises and long-term ones.

In the case of a crisis (typically classified as an emergency situation), there is no opportunity to deploy the full range of formal project management tools during the first 24–72 hours. Nonetheless, it is advisable to apply these tools—but in a much more flexible and informal way than usual.

In projects aimed at responding to crises, the project manager often does not participate in initially defining the project's objectives. Instead, they are presented with a goal and a set of constraints, within which they must operate. The manager must quickly assess whether the goals can realistically be achieved within those constraints. Given this situation, the following project management tools are advisable during a crisis: planning, project team formation, communication, risk management, and stakeholder engagement.

Planning. A plan forms the foundation for task execution. In this context, rather than building a full Work Breakdown Structure (such as Gantt charts or network diagrams), it is more appropriate to use simple checklists outlining immediate actions required over the coming hours or days.

Project Team. Forming a team is critically important. However, the project manager is constrained by the staff currently available on-site. It is therefore necessary to quickly obtain a list of available personnel, assemble a team, and assign roles.

Communication. It is advisable to conduct regular, quick team meetings to keep everyone aligned and ensure coordinated efforts. Brief situational updates may be sufficient to inform about ongoing tasks and progress.

Risk Management. Create basic lists of current issues and potential risks, assigning priority levels based on potential impact. This enables the project manager to focus on the most critical or time-sensitive matters while maintaining situational awareness.

Stakeholder Engagement. It is beneficial to broaden the circle of stakeholders, potentially including local authorities, government and international organizations, and the local people.

About the Project Management Triangle, time and scope take on primary importance during a crisis, while cost considerations become secondary.

Long-term crises, which deepen gradually over time, theoretically afford much more opportunity for the comprehensive application of project management tools. While swift action remains necessary, there is greater potential to implement structured project management practices effectively. An important distinction: in the case of long-term crises, the project manager is typically involved in defining the project's objectives. Therefore, during long-term crises, the same tools used in crises should be applied—but more extensively and systematically.

If we face a long-term crisis, it is advisable to develop a detailed project plan. A Work Breakdown Structure (WBS) or similar hierarchical planning method should be used. Tasks should ideally have a minimum duration of two days to ensure appropriate granularity but without descending into micromanagement. A Gantt chart is highly suitable in this case. The same structured approach applies to: team formation, communication, risk management, and stakeholder involvement. A written project description is recommended, encompassing project goals, performance evaluation criteria, an execution plan, the project team composition, identified risks, and key stakeholders.

Cost management becomes not only relevant but essential in long-term crises. The project's cost must be defined, and its execution must be monitored regularly. This marks a shift in anti-crisis management toward applying the classic Project Management Triangle—time, scope, and cost.

It is worth noting that a critical advantage of applying project management in the context of anti-crisis measures lies in its comprehensive and systematic approach to problem-solving. It contrasts sharply with the so-called 'firefighting' management style, characterized by reactive and short-sighted decision-making.

Within this study, we have provided a theoretical rationale for the use of project management as an efficient element of crisis response. This raises the question of practical applicability, which we have also studied.

The long-term crisis caused by the military aggression of Russia has created a strong demand for anti-crisis projects, such as establishing new supply chains, relocating enterprises to safer regions, restructuring organizational frameworks, optimizing the company's product portfolio, etc.

In our previous studies, we focused on optimizing the product portfolio [14] and building a procurement system that is resilient in an emergency [15]. In our opinion, the most successful demonstration of the proposed approach will be a project aimed at adapting the organizational structure to the challenges of war at a Ukrainian enterprise named Hydrosila APM. Hydrosila APM is the manufacturer of hydraulic axial piston pumps and motors for agricultural, construction and road-building equipment. The company has extensive experience in implementing projects related to production, technology, and personnel management.

After the initial shock of the war's early weeks, the enterprise resumed its operations. However, it faced several challenges in production management: instant mobilization of skilled production personnel, particularly CNC operators; partial loss of control due to the mobilization of some managerial staff; uneven workload of production teams, from downtime to overload; loss of suppliers, resulting in a lack of workpieces provided by the technological process.

It was determined that the existing production management structure no longer aligned with current operational realities, which negatively impacted the enterprise's ability to fulfill its production plans. Instead of reacting with short-term fixes, it was proposed to initiate a production restructuring using a comprehensive project-based approach.

The project's objective was to develop a new organizational structure for production management that would:

- take into account the current operational conditions and available resources;
- ensure the fulfillment of production plans;
- enable future scaling of production output.

Effectiveness criteria were established to ensure that the performance indicators of the new structure would be no worse than those of January 1, 2022. The evaluation metrics included:

- the number of management levels;
- the number of production shops and production teams;
- the number of productions foremen per one shop manager;
- the number of workers per one production foreman.

A project team was assembled, led by the Chief Production Officer. The project duration set three months. A project schedule was developed with top-level tasks including: implementation of the new organizational structure; retraining and redeployment of existing personnel; relocation and reconfiguration of production equipment. The project team developed specific solutions to the identified problems, which are presented in Table 2.

Table 2. Key Production Challenges and Applied Solutions

Production Challenge	Applied Solution	Expected Outcome
Partial loss of control due to the mobilization of some managerial staff	Reducing the number of the organizational structure's elements	Restored control over production processes by the remaining management personnel
Uneven workload of production teams - from downtime to overload	Liquidation/reprofiling of some production teams	Balanced workload across all teams
Instant mobilization of skilled production personnel, particularly CNC operators	Formation of a new structure based on similar products/processes	Expanded production capabilities using existing CNC staff
Loss of suppliers, resulting in a lack of workpieces provided by the technological process	Reconfiguration of production equipment	Adaptation of machinery to available materials and workpieces

Source: Compiled by the authors.

In accordance with the defined objectives, the project was completed within the designated timeframe. The comprehensive project-based approach to anti-crisis measures not only addressed

existing challenges but also significantly optimized the organizational structure by reducing the number of production shops and teams, improving the layout of production equipment, and enhancing the efficiency of personnel utilization.

7. Conclusions

Thus, the outcome of this study is the development and applicability demonstration of a methodology for applying an integrated project-based approach as an effective element of anti-crisis management in enterprises. The foundation of this methodology lies in the assertion that crises and projects share significant characteristics.

The theoretical conclusions reached in this study demonstrate broad potential for practical application, especially at Ukrainian enterprises. A promising direction for future research is the further development and refinement of this methodology.

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