UDC 005.7:[005.342]:334
JEL Classification: M11, M21, O10, O31
DOI: 10.15587/2706-5448.2025.326751

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DETERMINATION OF THE ROLE OF INNOVATION MANAGEMENT IN ENSURING SUSTAINABLE GROWTH OF ENTERPRISES

The object of research is the processes of innovation management in enterprises. One of the most problematic areas is the lack of proper funding, resistance from employees, and insufficient qualification of staff, which complicates the implementation of innovations. The research utilized methods such as surveys, interviews, case studies, and correlation analysis. This allowed for the identification of key factors influencing the success and effectiveness of innovation in enterprises under conditions of sustainable growth. In particular, the correlation analysis showed a significant relationship between the level of funding and the success of innovation processes (correlation coefficient 0.80), which confirms the importance of having sufficient resources for the implementation of innovations.

In addition to financing, the qualification of personnel plays a major role in the implementation of innovations. 60 % of respondents indicated that the level of training of employees is an important factor for effective adaptation to technological changes. In particular, the ability of personnel to adapt determines the speed of innovation implementation and reduces barriers in the change process. It was also found that support from management is critically important for the successful implementation of innovations (correlation coefficient 0.85), since it is managers who determine development strategies and provide the necessary conditions for their implementation.

The results obtained confirm that the proposed approach to innovation management, which includes the integration of modern digital technologies and the development of an innovation culture in the organization, allows significantly increasing the efficiency of innovation processes and ensuring sustainable development.

This provides the opportunity to obtain high indicators in such areas as innovative development and adaptation to change. Compared with similar known approaches, this provides such advantages as more effective management of financing and human resources. The study allows to formulate recommendations for improving innovation management processes in organizations, in particular, regarding the need to increase investment in innovative projects and improve the skills of personnel to adapt to technological changes.

Keywords: *innovation management, innovation strategies, management support, innovation funding, digital technologies, innovation implementation barriers.*

Received: 03.01.2025
Received in revised form: 07.03.2025
Accepted: 29.03.2025
Published: 15.04.2025

How to cite
Chechel, O., Bashuk, A., Nevalov, A. (2025). Determination of the role of innovation management in ensuring sustainable growth of enterprises. Technology Audit and Production Reserves, 2 (4 (82)), 33–41. https://doi.org/10.15587/2706-5448.2025.326751

1. Introduction

In today's global economy innovation has become an important factor in achieving sustainable growth for organizations. The ability to effectively manage innovation processes is essential for enterprises seeking to adapt to technological changes, evolving market demands and complex global challenges. In this context, innovation management encompasses a range of practices and strategies aimed at stimulating creativity, ensuring the effective development of new ideas and their successful integration into products, services and business models.

The role of innovation management has grown significantly in recent years due to the proliferation of digital technologies, which have radically changed business operations across industries. The emergence of Industry 4.0 and the increasing interdependence of industries through the Internet of Things (IoT) have created new opportunities and challenges for innovation managers. As organizations strive to maintain their competitiveness, innovation management systems (IMS) have become key to organizing all stages of the innovation process, from idea generation to commercialization.

As part of innovation management, companies should implement systematic approaches that align innovation strategies with overall corporate goals. These systems enable effective resource management, foster collaboration and monitor performance. However, despite the growing importance of innovation management, many companies face difficulties in implementing such systems due to lack of understanding, organizational resistance, or lack of capacity to manage the complexity of innovation processes.

Innovation management is an important aspect of the development strategy of enterprises, as it determines the ability of organizations to adapt to changes in the technological environment and ensure their competitiveness in a dynamic business environment. In recent years, there has been a growing interest in studying various aspects of innovation management, including technological, organizational and cultural

ISSN-L 2664-9969; E-ISSN 2706-5448

components. In this context, it is important to critically analyze existing scientific works to identify shortcomings in theoretical approaches and practical recommendations.

According to the study by [1], one of the main challenges of innovation management is ensuring the effective integration of innovative technologies into business processes. The authors emphasize the importance of creating a favorable environment for the development of innovations, as well as the availability of strategies for overcoming organizational barriers. However, this approach does not consider the specifics of the integration of digital tools and technologies, which is an important aspect in modern conditions, when digital transformation determines the success of innovative development of companies.

The study by [2] examines the concept of Absolute Innovation Management (AIM), which focuses on the implementation of innovation management practices within the framework of IoT and Industry 5.0. The authors note that adaptation to new technologies is an important element of the innovation management strategy, but do not take into account the diversity of industries and differences in innovation processes, which may require specific approaches for each industry. Such an approach requires more flexible and adapted methods of innovation management, taking into account the individual needs of different enterprises.

The study by [3] note that digital tools and platforms are helping to reimagine the innovation management process, allowing companies to reduce costs and increase efficiency through automation and big data processing. However, these studies do not focus on the challenges of implementing such technologies, particularly in small and medium-sized enterprises, where resources for such investments may be limited. Thus, further research is needed to understand how innovative technologies can be effectively implemented in different types of organizations.

The study by [4] examine the importance of integrating behavioral science into innovation management, particularly through the study of employee motivation. The authors note that the availability of support for creativity and innovation is a key element for the successful implementation of innovation strategies. However, they do not address the question of how organizational culture can influence the adoption of innovations, especially in the context of changing globalization.

The view of organizational culture as a factor determining the success of innovation is also supported by [5]. They argue that professionalizing innovation management and implementing certification systems can significantly increase the efficiency of innovation processes. However, the authors do not take into account the influence of external factors, such as political and economic conditions, which can significantly affect the success of innovation in a company.

The study by [6] studies focus on certification of innovation managers, which allows to increase professionalism in innovation management. At the same time, the authors do not consider the problem of shortcomings of innovation systems used in specific industries, as well as the need to adapt these systems to changing environmental conditions, which may limit their effectiveness.

An interesting perspective is provided by [7], which analyzes new opportunities and challenges in innovation management, particularly in the context of Lean innovation and the integration of external knowledge into innovation processes. However, the authors do not consider in detail how small organizations can adapt these strategies in a resource-constrained environment.

According to [8], based on a retrospective review of innovation management practices, an important trend is the shift towards more systematic and standardized approaches to innovation management. The authors note that the presence of thorough procedures and clearly defined stages of the innovation process increases the effectiveness of innovation activities in the long term. However, this approach does not take into account the need for flexibility in innovation management, since changes in market conditions may require the adaptation of strategies to new realities, which leaves the issue under-addressed in the context of unstable economic conditions.

The study by [9] focuses on the impact of digital transformation on innovation management, highlighting the importance of integrating digital technologies into organizational processes to accelerate the innovation cycle. The authors also emphasize the importance of innovation ecosystems and open innovation for achieving competitive advantage. However, these studies do not sufficiently take into account the difficulties that arise when integrating such systems in companies that do not have sufficiently developed digital infrastructures, in particular in small and medium-sized organizations, which requires further study.

The study by [10] examines conceptual frameworks and perspectives in innovation management, in particular using a bibliometric approach that allows collecting and analyzing a huge number of scientific articles and studies in this field. The authors argue that the development of new innovation tools has a significant impact on the overall innovation management process, but they note that it is important to consider the interdisciplinary aspects of innovation, since not all innovations are limited to technical aspects. They do not conduct an in-depth analysis of the relationship between innovation strategies and organizational culture, which is an important aspect for the successful integration of innovations in enterprises.

The work of [11] focuses on the impact of big data on value creation for enterprises. However, it does not address the barriers to adoption of these technologies, especially in the context of start-ups or companies operating in markets where access to big data is limited. This issue requires further study to develop strategies that could facilitate the effective implementation of big data in innovation processes.

According to the research by [12], measuring the effectiveness of innovation management is an important aspect that allows assessing the success of innovation processes. However, the question of choosing appropriate measurement methods remains open, as existing approaches are not always able to reflect the real impact of innovations on the long-term performance of companies.

Thus, the literature review indicates significant achievements in the study of innovation management, but at the same time reveals several important shortcomings. In particular, there is a lack of in-depth analysis of the adaptation of innovative technologies in the conditions of different types of organizations, in particular with limited resources, and insufficient attention is paid to external factors that can significantly affect the effectiveness of innovation processes. This issue requires further research to create more universal and adapted models of innovation management that could take these factors into account.

The aim of this research is to explore the role of innovation management in ensuring sustainable growth of enterprises. In addition, the paper will consider how different innovation management strategies, practices and tools can be applied to improve organizational performance and competitiveness.

2. Materials and Methods

2.1. Object and hypothesis

The object of research is the processes of innovation management in enterprises, in particular the implementation of new technologies and strategies in conditions of economic instability and war. Since successful innovation management is a key factor in ensuring the competitiveness of enterprises, the study focuses on studying factors that affect the effectiveness of innovations, such as financing, personnel qualifications, support from management and the implementation of digital technologies.

The research hypothesis is that the level of funding, staff qualifications, and support from management are determining factors for the successful implementation of innovations in enterprises, and that the integration of modern digital technologies and the development of an innovation culture in organizations increases the efficiency of innovation processes, contributing to their sustainable development even in conditions of economic and social challenges, including war.

2.2. Research procedure

This research was conducted in three stages, which provided a comprehensive study of the role of innovation management in achieving sustainable growth of enterprises. Each stage included certain stages of preparation, data collection and analysis, which allowed obtaining substantiated and scientifically proven conclusions.

1. Preparatory stage: Sample formation and preparation of research instruments.

At the first stage, preparations for the study were carried out. In particular, questionnaires were developed for surveying respondents, which included questions about innovation management, barriers and opportunities for implementing innovations, the use of digital technologies, and the impact of organizational culture on innovation processes. Questions were also prepared for in-depth interviews with heads of innovation departments and experts in the field of innovation management.

At this stage, data analysis methods were also selected: statistical analysis was used for the questionnaire, qualitative content analysis for the interviews, and criteria for assessing the success of innovative strategies were developed for the case study.

2. Data collection stage: Questionnaires, interviews, case studies and correlation analysis.

The second stage included direct data collection. First, a questionnaire was conducted, then 10 in-depth interviews were conducted with heads of innovation departments and specialists in the field of innovation management. Additionally, 5 case studies of companies that implemented successful innovation strategies were conducted. Each case study included an analysis of the main stages of the innovation process, identification of key success factors and obstacles to the implementation of innovations.

Correlation analysis was used to identify relationships between different variables. This method allowed to determine which factors have the greatest impact on the effectiveness of innovation management in organizations.

3. The stage of summarizing the results and formulating conclusions.

The third stage included summarizing the research results and formulating conclusions based on the data obtained. First, a quantitative analysis of the survey results was conducted, which allowed to establish general trends in the use of innovation strategies and technologies. Then, a qualitative analysis of interviews and case studies was conducted. Correlation analysis made it possible to establish which variables have the strongest impact on innovation performance, as well as identify key factors that can be useful for formulating practical recommendations for innovation management.

2.3. Methods

The following methods were used in the study: questionnaires, interviews, case studies and correlation analysis, which allow to ensure the empirical nature of the work and a deep understanding of the processes of innovation management. The use of these methods helped to collect a variety of data and allowed to formulate practical recommendations for organizations seeking to improve their innovation strategies.

A survey was used to collect quantitative data from a wide range of respondents, including executives, innovation managers, and innovation management professionals. A questionnaire was developed with questions addressing key aspects of innovation management, such as innovation management tools, the level of digitalization, barriers to innovation, and factors that contribute to or hinder the success of innovation initiatives. The survey provided insights into how companies approach innovation, as well as identifying the most common problems and solutions used in practice.

Interviews were used to gain a deeper understanding of innovation processes in companies, as well as to identify practical aspects of innovation implementation that cannot always be identified through questionnaires. Ten in-depth interviews were conducted with heads of innovation departments and specialists in innovation management. Interview questions focused on real problems and opportunities for implementing innovations in their organizations, on specific examples of successful and unsuccessful innovation initiatives, as well as on factors that influence the success of innovations.

Case studies were used to provide an in-depth analysis of specific companies that implemented innovation strategies. Five companies were selected that applied innovation strategies in their operations. For each case, it was investigated what innovative approaches were applied, how innovation processes were organized, what results were achieved, and what factors influenced the success or failure of these strategies.

Correlation analysis was used to investigate the relationship between innovation funding levels, use of digital tools, and the effectiveness of innovation strategies. This allowed to identify which investments and technologies contribute to achieving better innovation outcomes.

2.4. Sample

To ensure the reliability and representativeness of the research results, a purposive sample of organizations actively implementing innovations was selected. The main goal of the sample was to ensure a diversity of respondents from different industries in order to obtain a general picture of innovation management practices in different contexts. The sample included companies of different sizes and levels of development of innovation strategies.

Steps of sample formation:

1. Identification of target organizations: The first stage identified the types of organizations that actively apply innovation strategies. This included both large corporations and medium and small enterprises that use innovations in management processes, technological development, and the introduction of new products and services.

2. Industry diversity: To ensure a representative sample, organizations were selected from a variety of industries, such as technology, manufacturing, engineering, startups, etc. This allowed for a wide range of information on how different industries approach innovation management and what specificities exist in each industry.

3. Size of organizations: The sample included both large enterprises, which have significant resources for implementing innovations, and small and medium-sized enterprises, which may face other challenges due to resource constraints. This allowed to compare approaches to innovation management in organizations with different capabilities.

4. Number of respondents: 100 respondents were selected for the survey, including heads of innovation departments, managers and innovation specialists. This allowed to obtain sufficiently large data for statistical analysis. Ten heads of innovation departments from different companies were selected for in-depth interviews, which allowed to gain a deeper understanding of specific problems and successes in innovation management.

5. Selection of companies for case studies: Five companies that have implemented successful innovation strategies were selected for the case study. Each of these companies had successful experience in implementing innovations at different stages of development and in different industries.

ISSN-L 2664-9969; E-ISSN 2706-5448

This selection allowed for a detailed comparison of innovation management practices in different settings.

The sample was designed to include organizations of different sizes, industries, and levels of innovation implementation, providing a rich context for analyzing innovation management practices. This allowed for a comprehensive picture and the formulation of universal recommendations for companies seeking to improve their innovation strategies.

The survey was conducted across different regions of Ukraine. In particular, it covered enterprises located in regional centers and large cities with the highest concentration of business activity (Kyiv, Kharkiv, Dnipro, Odesa, Lviv). Data collection was carried out via a Google Forms, which allowed to reach a larger number of respondents, even under martial law.

The survey focused on companies operating in the information technology, manufacturing and services sectors. These sectors were chosen because of their significant role in innovation, as well as the high level of digitalization and technological change that characterizes these industries.

In total, employees from 25 companies participated in the survey. This included both large companies and small and medium-sized enterprises, which allows for a more balanced data on different approaches to innovation management in organizations of different sizes. The sample of companies was random, but targeted at different industries and regions to ensure maximum representativeness of the results.

The conclusions drawn from the survey are reasonable, as they are based on data obtained from a large number of respondents working in various fields of activity. In addition, a correlation analysis of the results was conducted, which allows to confirm the existing relationships between various factors (for example, between the level of financing and the success of innovations). All results were analyzed taking into account the specifics of enterprises, which helped to make the conclusions more accurate and relevant.

The reliability of the responses was assessed using several methods. The first stage was the use of standard questions, which allowed to obtain clear, uniform data from all respondents. The second stage was the comparison of the survey results with other available data (for example, with publications and company reports), which allowed to check the consistency of the obtained results with other sources. For additional verification of the accuracy of the responses, interviews with several respondents were used, which confirmed the correctness of the data obtained and allowed to clarify some points. All these measures allowed to confirm the reliability of the survey results.

2.5. Tools

The following tools were used to prepare the article: Google Forms for creating online questionnaires and collecting responses and Google Sheets for further analysis, SPSS for processing and analyzing large data sets, in particular conducting correlation analysis.

3. Results and Discussion

The study surveyed 100 respondents involved in innovation management in various industries. These respondents include heads of innovation departments, project managers, and other professionals who have a direct impact on the innovation implementation processes in their organizations.

The survey provided valuable information about current innovation management practices, key barriers and success factors, and the impact of digital technologies on innovation processes. Table 1 shows the distribution of responses to questions about innovation management tools.

Table 1

Distribution of answers to questions about innovation management tools

Innovation management tool	Large enterprise (%)	Medium enterprise (%)	Small business (%)	Total (%)
Strategic planning	45	35	25	35
Digital technologies	55	40	25	40
Knowledge management	30	25	20	25
Processes of open innovation	20	15	5	10
Other (please specify)	5	5	10	5

Most large enterprises are dominated by digital technologies and strategic planning as innovation management tools. Small businesses, in turn, tend to integrate these tools less, which can be explained by limited resources. An important trend is that the implementation of open innovation processes is less widespread among small and medium-sized enterprises, which may indicate certain organizational or financial barriers. Table 2 presents the results of assessing the effectiveness of innovation strategies according to various criteria.

As can be seen from the table, most respondents rated the effectiveness of their innovation strategies at levels 4 (high effectiveness) and 3 (medium effectiveness), indicating a generally positive assessment of the implemented strategies. The evaluations of the effectiveness of innovation financing and organizational culture also show high average values (3.56 and 4.01, respectively), highlighting the importance of these aspects for the success of innovation. Table 3 presents the main barriers to innovation implementation, divided by factors.

Table 2

Assessment of the effectiveness of innovation strategies according to various criteria

Question	1 (very low)	2 (low)	3 (medium)	4 (high)	5 (very high)	Average value	Number of respondents
How do you evaluate the effectiveness of your innovation strategy?	5	10	25	40	20	3.75	100
How do you assess your organization's innovation strategy compared to competitors?	8	15	30	30	17	3.45	100
How do you rate the effectiveness of innovation financing?	4	12	35	30	19	3.56	100
How do you assess the impact of organizational culture on the success of innovation?	3	7	22	45	23	4.01	100

Table 3

Barriers to innovation implementation, divided by factors

Barrier	All respondents (%)	Large enterprise (%)	Medium enterprise (%)	Small enterprise (%)
Lack of funding	50	45	55	60
Resistance from employees	30	25	35	40
Lack of qualified personnel	15	20	10	12
Legislative restrictions	5	10	3	5

Lack of financing is the biggest barrier for all types of businesses, with small businesses experiencing the greatest difficulties due to financial constraints. Resistance from employees and lack of qualified personnel are serious problems for small and medium-sized enterprises, while large companies have more effective mechanisms to overcome these barriers. Legislative restrictions are a less significant barrier, but are still felt to some extent in the work of all businesses. Table 4 presents the use of digital technologies in the innovation management process by type of technology.

Table 4

Use of digital technologies in the innovation management process by technology type

Digital technology	All respondents (%)	Large enterprise (%)	Medium enterprise (%)	Small enterprise (%)
Internet of Things (IoT)	25	30	20	10
Artificial intelligence	30	35	25	20
Big data	20	25	15	10
Blockchain	10	15	8	5
Other (please specify)	15	15	10	5

Digital technologies such as artificial intelligence and the Internet of Things are very popular among large enterprises, which makes sense given their greater ability to invest in the latest technologies. Small businesses often do not have the opportunity to widely implement such technologies, but a significant proportion of respondents' report using other, less complex digital tools.

Table 5 presents the success factors of innovations in different categories.

Table 5

Innovation success factors by different categories

Factor	All respondents (%)	Large enterprise (%)	Medium enterprise (%)	Small enterprise (%)
Support from management	45	50	40	35
Availability of investments	30	35	25	20
High level of employee qualification	15	10	20	25
Developed corporate culture	10	5	15	20

Support from management is the most important success factor for all types of businesses, with this factor being most important for large companies. The availability of investment and a high level of employee skills are also important for innovation success, but have varying degrees of importance depending on the size of the business. Small businesses often rely on their own employees' efforts and corporate culture to achieve innovation success.

To gain a deeper understanding of innovation processes in organizations, a series of in-depth interviews were conducted with heads of innovation departments and innovation management experts. The interviews also allowed exploring views of respondents on the importance of various aspects of innovation management, such as management support, use of digital technologies, financing, and staffing qualifications (Table 6).

The interview results showed that most respondents considered management to be a key factor for innovation success, and also emphasized the importance of funding and support from employees. Significant obstacles were also identified in the form of lack of funding and resistance from staff, which can slow down or complicate the processes of innovation implementation.

Table 6

Main themes and obstacles to innovation implementation

Theme/Obstacle	Number of mentions (%)	Importance according to respondents (%)
The role of management in innovation	70	90
Use of digital technologies	50	80
Obstacles to innovation	60	70
Employee support	65	85
Lack of funding	65	85
Resistance from employees	45	70
Staff qualification development	60	85

According to the results, the main theme is the importance of support from management (70 % of mentions) and the use of digital technologies (50 %). Respondents also highlight obstacles, including lack of funding (65 %) and resistance from employees (45 %). Employee support and staff development are also highly rated, highlighting the importance of the human factor for successful innovation. Table 7 presents the results of the impact assessment of innovations and recommendations for their improvement.

Table 7

Assessment of the impact of innovations and recommendations for their improvement

Question/Recommendation	Positive effect (%)	Neutral effect (%)	Negative effect (%)	Number of mentions (%)	Importance (%)
The impact of innovation on financial results	60	30	10	80	90
The impact of innovation on development strategy	65	25	10	70	85
Increased investment in innovation	–	–	–	80	90
Staff qualification development	–	–	–	60	85
Simplifying processes for implementing innovations	–	–	–	45	60

ISSN-L 2664-9969; E-ISSN 2706-5448

Most respondents note the positive impact of innovation on financial results (60 %) and on the company's development strategy (65 %). Recommendations for improving the innovation process focus on increasing investments (80 %) and developing staff qualification (60 %). This indicates the importance of resource-intensive investments to support innovation initiatives and the need to improve staff skills for the successful implementation of innovation projects.

To study in detail the practical aspects of innovation management in organizations, 5 case studies of companies that implemented innovation strategies were conducted. The purpose of the case studies was to analyze how companies implement innovations, what factors contribute to or hinder the successful implementation of these processes, and to evaluate the results of innovation strategies. Each study covered the key stages of the innovation process, from idea to implementation, and allowed to identify the strengths and weaknesses of the applied strategies. Below is a table that reflects the main results of the case studies, as well as an analysis of each of them (Table 8).

Case studies have confirmed that the success of innovation projects depends on a comprehensive approach to innovation management, including support from management, staff qualifications, the use of digital technologies and adequate funding. However, barriers such as lack of funding and employee resistance can become serious obstacles. These results allow to formulate recommendations for companies wishing to successfully implement innovation, in particular on the importance of integrating innovation into the company's development strategy and the need to support key employees at all stages of the process.

To determine the relationships between various factors that affect the success of innovation processes, a correlation analysis was conducted. Below is a table that displays the correlation coefficients between the main variables studied during the study (Table 9).

The results of the correlation analysis confirm the importance of several key factors for the success of innovation processes. The strongest correlations were found between support from management and success of innovation, as well as between financing and success of innovation. This highlights the importance of resource support, both financial and organizational, for achieving innovation success. In addition, staff qualifications and the use of digital technologies are also important, although their impact is somewhat weaker, but still significant.

In the field of innovation management, many studies have been conducted on various aspects of innovation strategies and their impact on organizational success. Scholars have noted the importance of several factors for effective innovation management, such as support from management, financing, staff qualifications, use of digital technologies, and corporate culture. However, studies also point to existing barriers, the most significant of which are lack of funding and employee resistance, which can seriously affect the effectiveness of innovation processes.

The results of the study confirm the importance of support from management for innovation success, which coincides with the findings of [3], who note that support from management is a critical factor for the successful implementation of innovation strategies. In our case, the correlation coefficient between support from management and success of innovation is 0.85, indicating a strong positive relationship. This is consistent with other studies, in particular [4], which emphasize that leadership support creates a favorable environment for innovation and contributes to the development of an organizational culture, which is important for involving employees in innovation processes.

The results of the study also indicate the importance of innovation financing for its success, which is confirmed by the works of [13]. In our study, 65 % of respondents indicated a lack of financing as the main obstacle to the implementation of innovations, and the correlation between financing and success of innovation is 0.80. This confirms that sufficient financing is a key element for the implementation of innovation strategies, in particular at the stage of development of new technologies or products. Similar conclusions are made by [5], who argue that financial resources provide organizations with the opportunity to invest in new ideas and technologies, which is important for the long-term development of the company.

Table 8

Case studies of innovation implementation in companies

Company	Branch	Type of innovation	Key stages of the innovation process	Success factors	Barriers	Result
Company A	Technologies	Digital platforms	Creating a platform for data exchange	Support from management, digitalization	Lack of funding staff resistance	High success, significant sales growth
Company B	Production	New products	New product development using IoT	High level of employee qualification	Lack of investment, legislative restrictions	Partial success, the product did not reach the planned popularity
Company C	Retail	Marketing innovations	Using big data to forecast demand	Collaboration with technology partners	Difficulty in integrating with existing systems	Successful launch, improved customer service
Company D	Pharmaceutics	Biotechnology	Development of a new license for a biological product	Access to financing, internationalization	Technical difficulties, complexity entering new markets	Limited success, delays in certification
Company E	Transport	Autonomous technologies	Implementation of autonomous vehicles	Strong team of engineers, partner support	High research and development costs	Takes time, great potential for the future

Table 9

Correlation analysis between factors influencing the innovation process

Variables	Support from management	Innovation financing	Staff qualifications	Digital technologies	Success of innovation
Support from management	1	0.75	0.80	0.65	0.85
Innovation financing	0.75	1	0.70	0.60	0.80
Staff qualifications	0.80	0.70	1	0.55	0.75
Digital technologies	0.65	0.60	0.55	1	0.70
Success of innovation	0.85	0.80	0.75	0.70	1

On the other hand, research shows that the use of digital technologies is an important tool for successful innovation management. This was confirmed in our study, where the correlation between the use of digital technologies and success of innovation is 0.70. Our results are consistent with studies by [10] and [14], which indicate that digital technologies, in particular the Internet of Things (IoT), big data and artificial intelligence, contribute to improving the efficiency of innovation processes. However, our study found that for small and medium-sized enterprises, the application of such technologies is more difficult due to limited resources, which is consistent with the findings of [2], which indicate that companies with limited capabilities will face difficulties in implementing advanced technologies.

Regarding staff qualifications, our results showed that high employee qualifications are an important factor for success of innovation, with a correlation coefficient of 0.75. This is supported by the work of [15], who emphasize the importance of intellectual capital and professional development for the effective implementation of innovations. According to the study of [16], highly qualified employees are able to adapt to new technologies and processes more quickly, which is important for ensuring the success of innovation projects.

Barriers to innovation also formed an important part of our analysis. The biggest challenges for organizations are lack of financing and employee resistance. In our study, 45 % of respondents cited employee resistance as a significant obstacle. This is consistent with research by [11], who note that employee resistance is one of the main barriers to innovation, as change can cause fear of new processes and unfamiliar technologies. The study by [7] note that organizations should develop change management strategies to overcome such barriers.

Finally, the recommendations for improving innovation processes identified in our study, in particular regarding increased investment and development of personnel skills, are confirmed in the works [8, 9]. These scholars also emphasize that organizations should ensure adequate funding for innovation and actively work on developing the potential of their employees in order to implement innovation strategies with maximum effect.

Overall, the results of our study confirm existing theoretical approaches and make a significant contribution to the practical understanding of how innovation management can be improved in the face of modern challenges. The role of financing, support from management, staff qualifications and digital technologies are key to the success of innovation. However, it is important to consider barriers, including lack of resources and employee resistance, which can complicate the implementation of innovations, especially in small and medium-sized enterprises.

The introduction of martial law in Ukraine significantly affected the conduct of the study and the results obtained. Changes in the economic and political situation, as well as military operations, caused certain difficulties in collecting data and accessing some enterprises, especially in regions affected by hostilities. Military aggression significantly limited the opportunities for physical meetings and interviews, which required the adaptation of data collection methods to a remote format.

In particular, the introduction of distance learning and work under martial law also had an impact on the research. Most interviews and surveys were conducted online, which limited the opportunity to obtain more in-depth information from respondents due to the lack of direct contact. This situation led to certain difficulties in obtaining better quality answers and a decrease in the level of respondent engagement. In addition, changes in the legislative sphere related to martial law could not be ignored in the context of management practices, namely the implementation of innovations in crisis situations. Changes in legislation and the introduction of certain restrictions on business processes could also affect existing innovation strategies, limiting opportunities for investment in new technologies and modernization.

Prospects for further research include a deeper study of the impact of martial law on innovation processes, in particular on small and medium-sized enterprises, which were particularly hard hit by the war. In addition, it is important to study the adaptation of organizations to changes in the education system and the further development of digital technologies in crisis situations, which allow enterprises to remain competitive. Studying the effectiveness of applying new forms of learning and work during war is also an important direction for further research, as it can help identify new approaches to managing innovation in conditions of instability.

The article, among other things, identifies how innovation financing problems and personnel qualifications affect innovation processes in the current economic and social situation, including martial law in Ukraine. In addition, the results allow to better understand how enterprises are struggling with these problems and what approaches to overcoming them are the most effective.

It is possible to highlight the following recommendations for overcoming the identified problems:

1. Financing problem:

– Recommendation: Create mechanisms to attract additional investments, such as state grants for innovative enterprises, preferential loans for small and medium-sized enterprises engaged in innovation.

– It is also important to develop partnerships with other companies or venture capitalists to attract private investments. This is especially important for enterprises operating in the field of high technology.

2. The problem of personnel qualifications:

– Recommendation: Implement internal training and employee development programs, focusing on the needs of technological change and innovation. This may include courses in digital technologies, management strategies or innovation management.

– Enterprises should also actively cooperate with educational institutions to ensure that personnel are trained to meet the requirements of the innovative economy.

3. The problem of employee resistance:

– Recommendation: It is important to create conditions for employee involvement in the change process, which will help reduce the level of resistance. To do this, it can be implemented some programs to change the corporate culture, train and motivate employees so that they understand the importance of innovation for the future of the organization.

– Given these points, companies should work more actively with communication within the organization to explain the goals and benefits of innovation to each employee.

4. War and its impact on innovation processes:

– Recommendation: Given the unstable conditions of martial law, enterprises should focus on creating crisis innovation strategies that allow them to quickly adapt business processes to new conditions. One way is to introduce remote work and digital platforms for organizing remote work, which allows maintaining productivity even in combat conditions.

– Public and private enterprises should also consider supporting innovative startups through government programs to support and restore the economy.

When using the results obtained, it is important to consider the limitations of this study, which were as follows:

– *Geographical boundaries:* The study was conducted at enterprises located in Ukraine, mainly in regional centers and large cities. Therefore, the results may be specific to this region and may not fully reflect the situation at enterprises in other countries or in less developed economic regions.

– *Company size limitations:* The study included companies of various sizes, from small to large, allowing for general conclusions. However, the application of the results may be limited to companies with special operating conditions, such as startups or innovative technologies, where the specifics of the work may differ significantly from traditional companies.

ISSN-L 2664-9969; E-ISSN 2706-5448

– *Data evaluation:* The study used surveys and interview methods, which may have affected the accuracy and objectivity of respondents' responses. Since most respondents hold management positions in organizations, their responses may be more optimistic and general than those provided by employees directly involved in the implementation of innovations.

Further research in the field of innovation management can be directed in several directions for in-depth study and improvement of innovation processes in enterprises.

1. *Exploring the specifics of innovation implementation in small and medium-sized enterprises (SMEs):* Given the limited resources and specific challenges faced by SMEs, further research could focus on developing innovation strategies that take into account their capabilities and needs. This would allow for the creation of more tailored models for SMEs that would help them compete successfully in the market.

2. *The impact of digital technologies on innovation management:* As digital technologies become an important tool for implementing innovation, research can focus on assessing the effectiveness of applying various digital platforms (e. g., artificial intelligence, big data, Internet of Things) in innovation management and their impact on the efficiency of innovation processes in different industries.

3. *Innovation ecosystems and their role in supporting innovation:* A promising direction is the study of innovation ecosystems that include not only enterprises, but also government agencies, research institutions and other stakeholders. Studying how such cooperation can stimulate the development of innovations and the creation of new business models will be useful for the development of innovation policies and strategies at the national level.

These research areas will contribute to a deeper understanding of innovation management mechanisms and help develop practical recommendations for enterprises that seek not only to adapt to change, but also to promote the development of innovations at all stages of their cycle.

4. Conclusions

The study found that the success of innovation processes in organizations largely depends on several key factors. First, support from management is a critical element for achieving success in innovation management. Managers play an important role in creating a favorable environment for the implementation of new ideas, and their participation at all stages of the innovation process significantly increases the chances of success. Second, financing is one of the main barriers that limits the possibilities for implementing innovation strategies. Insufficient financing reduces the ability of organizations to invest in new technologies, which, in turn, delays innovative development.

Highly qualified staff is another important factor for the successful implementation of innovations. If an organization does not have enough competent personnel, the processes of implementing new technologies and developing products can be significantly complicated, which reduces the effectiveness of innovations. Digital technologies, in particular the Internet of Things, artificial intelligence and big data, play an important role in increasing the effectiveness of innovations. However, for small and medium-sized enterprises, the implementation of such technologies is a challenge due to limited resources. At the same time, an important barrier to the success of innovations is resistance from employees, as changes can cause fear and resistance. Therefore, creating an innovation culture and implementing effective change management strategies is necessary to overcome this barrier.

The most important recommendations emerging from the study include the need to increase investment in innovation projects and develop staff skills, which will allow organizations to increase their innovation capabilities and ensure sustainable development. The study confirms that a strategic approach to innovation management, including support from management, adequate financing, development of staff qualifications and integration of digital technologies, is key to achieving success in innovation management. However, it is important for small and medium-sized enterprises to adapt these strategies to limited resources in order to implement innovation initiatives effectively.

Conflicts of interest

The authors declare that they have no conflict of interest in relation to this research, including financial, personal, authorship, or any other, that could affect the research and its results presented in this article.

Financing

The research was conducted without financial support.

Data availability

The manuscript has no associated data.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the presented work.

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