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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON INNOVATION MANAGEMENT

Namangan State University, Lecturer at the Department of Management
Azizbek Akramboyev
The student of Namangan state university
Abduxamidova Zumradxon

Annotation. This article analyzes the role and significance of artificial intelligence (AI – Artificial Intelligence) technologies in the system of innovative management under modern economic conditions. The study highlights the role of AI algorithms in decision-making processes, data analysis, and the transformation of managerial activities.

Keywords: innovative management, artificial intelligence, digital transformation, managerial decision-making, human capital, machine learning.

Introduction

In the context of a modern globalized economy, digital transformation processes are leading to fundamental changes in management systems. Artificial intelligence technologies enable the automation of management processes, the rapid and accurate processing of large volumes of data, and the improvement of decision-making procedures, thereby allowing innovative approaches to be implemented more effectively. Innovative management, in turn, plays a crucial role in enhancing the competitiveness of enterprises and organizations by managing the system of developing and implementing new ideas. In this regard, the impact of artificial intelligence on innovative management has become one of the central areas of scientific research and practical studies.

Artificial intelligence primarily enables deep and rapid data analysis. During the activities of an organization, a vast amount of data is generated, including financial indicators, production volumes, customer behavior, marketing results, and many other types of information, which cannot be fully analyzed by humans simultaneously. Artificial intelligence, however, processes this data using complex algorithms, identifies hidden relationships among them, and generates well-grounded conclusions. This, in turn, increases the accuracy and effectiveness of managerial decision-making.

Forecasting plays an important role in managerial decision-making. Anticipating future demand, market trends, or financial outcomes forms the basis of strategic planning. Machine learning technologies make it possible to predict future conditions based on historical data. For example, by forecasting sales volumes, an enterprise can develop a precise production plan and prevent excess inventory or product shortages. This helps reduce costs and ensures the efficient use of resources.

Demonstrating AI Technologies and Their Impact on Management

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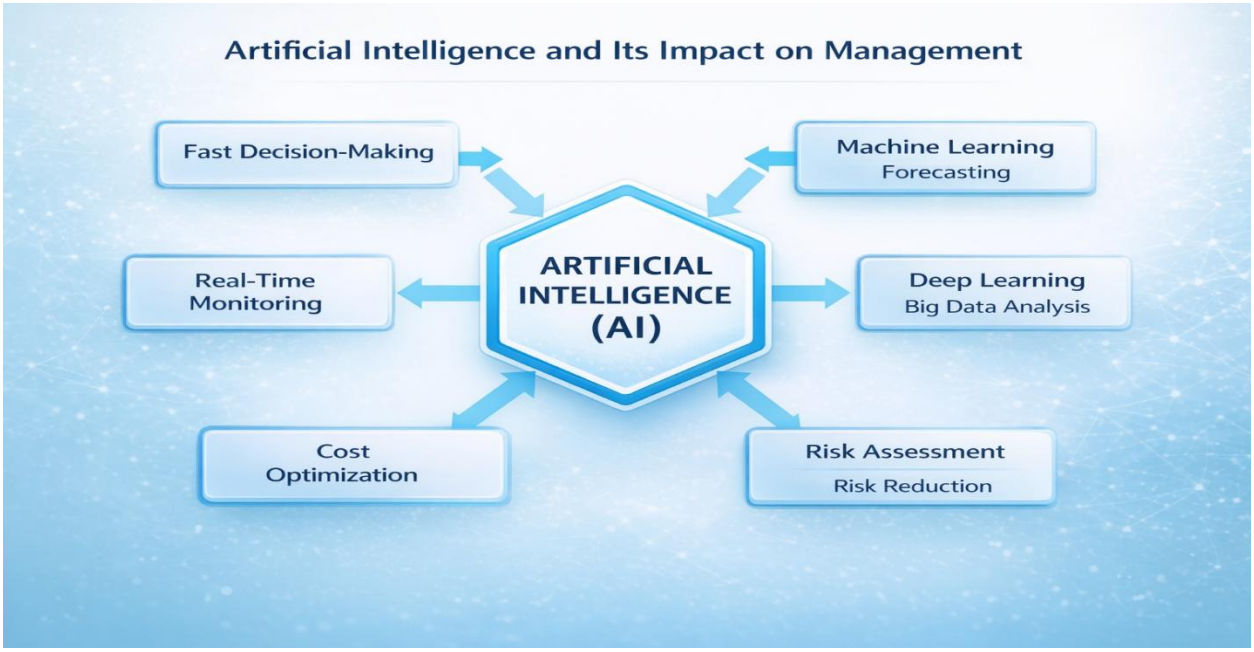

Accurately forecasting risks in innovative projects, investments, or business activities plays a crucial role in making successful decisions and optimally allocating resources. Nowadays, risk prediction relies not only on traditional statistical approaches but also on modern scientific and technological methods.

Big Data and Artificial Intelligence (AI) technologies have taken risk forecasting to a new level. Big Data analysis simplifies the identification of risk indicators by rapidly collecting and analyzing large volumes of data in real time, enabling early detection of legal uncertainties or market trend shifts. AI algorithms, including machine learning models, enhance the ability to classify risks and predict potential future developments.

Effective integration of AI into innovation management requires a step-by-step, comprehensive approach. The proposed solution encompasses the following practical stages:

Stage 1 — Diagnosis and Preparation. At this stage, the enterprise or organization's existing management system, digital infrastructure, and data repositories are analyzed. Inefficient links in the innovation processes are identified. Additionally, the technical and organizational readiness for AI implementation is assessed.

Stage 2 — Development of Data Infrastructure. High-quality and structured data are essential for AI to function effectively. Therefore, it is crucial to establish a unified digital database, standardize data, and strengthen security systems within the organization. A data governance policy is developed during this stage.

Stage 3 — Pilot Project Implementation. Initially, an AI-based system is introduced on a trial basis in a single area of innovation management, such as project risk assessment or resource allocation. The pilot project allows evaluation of the technology's effectiveness and its economic outcomes.

Stage 4 — Integration and Expansion. Following successful pilot results, the AI system is extended to other management areas. For instance, strategic planning, selection of innovative ideas, evaluation of employee productivity, and operational monitoring processes are fully digitized.

Stage 5 — Staff Training and Institutional Strengthening. Qualified specialists are necessary to manage AI technologies and utilize them efficiently. Expanding AI and data analytics programs in higher education institutions, organizing corporate training, and fostering scientific-practical collaborations are of significant importance.

Stage 6 — Monitoring and Continuous Optimization. Once the AI system is implemented, its performance is regularly analyzed, and algorithms are continuously improved. This ensures the sustainable development of the innovation management system.

Following these stages, integrating AI into innovation management can lead to significant economic efficiency within 3–5 years. In particular, faster decision-making, reduced project risks, and more effective resource utilization elevate overall management quality to a new level.

"If the proposed model is implemented step by step over a period of 3–5 years:"

Indicator	Estimated Growth
Enterprise Innovation Efficiency	35–50%
Labor Productivity	25–40%
Cost Reduction	20–30%
Competitiveness Index	Up to 30%
Share of Digital Economy (in GDP)	Additional 5–8% growth

An increase of 35–50% in overall innovation management efficiency reflects a complex positive effect resulting from faster decision-making, reduced risks, and more rational use of resources. An improvement in decision-making speed by 40–60% is associated with the automated analysis of large volumes of data and real-time monitoring systems.

A 20–30% reduction in excessive costs and a decrease in risk levels are achieved through optimal resource allocation and the prevention of erroneous strategic decisions. The increase in competitiveness is determined by enterprises' ability to quickly adapt to market conditions and the accelerated development of innovative products.

An expansion of the share of the digital economy by 5–8% indicates macroeconomic impact, meaning that the extensive implementation of AI technologies in public and private sector management can significantly enlarge the economy's digital segment.

Thus, the indicators presented in the table demonstrate the positive effects of integrating AI into innovation management not only at the micro level but also at the macroeconomic level. Overall, the efficiency of the innovation management system can increase on average by up to 40%**.**

It is also worth noting that the country is currently considering a strategy for the development of AI technologies until 2030, aiming to position Uzbekistan among the world's leading nations in AI utilization. This is outlined in Resolution **PQ-358, dated 14.10.2024**.

Conclusion

In conclusion, in the 21st century, artificial intelligence (AI) is becoming an integral part of human development, and effective utilization of AI requires humanity to explore innovative management approaches and begin applying them in practice. These efforts should lead not to crisis and ignorance, but to enlightenment and the advancement of science and knowledge.

AI has become an inseparable component of today's digital society, enhancing efficiency across various sectors. However, it is essential to consider the risks associated with AI and to ensure its responsible and safe development. The prudent use of AI technologies serves as a crucial factor in promoting a country's economic growth, fostering its innovation potential, and enhancing competitiveness.

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