

# The Role and Significance of Artificial Intelligence in Management

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**ABSTRACT:** Artificial intelligence (AI) is rapidly evolving in the modern world of the present, becoming more ubiquitous, and holds great potential to transform the management process. This cutting-edge technology has the potential to revolutionize the daily work of managers, their functions, and interactions. Over the next decade, we can expect even more rapid advances in the development process of artificial intelligence and its applications. Therefore, it is important to understand the significance of artificial intelligence and its potential impact on the management process. This technology is increasingly integrated in various areas of enterprise management. Artificial intelligence involves a variety of techniques and algorithms that allow computers to perform tasks that normally require human intelligence, such as transforming management through process automation, planning, organizing, storing large databases, improving decision-making, image recognition, language translation, saving money and time, and increasing efficiency in various business areas. These include machine learning, deep learning, and natural language processing. Artificial intelligence occupies a key role in modern management, enabling enterprises to be competitive in a rapidly changing business environment. Its implementation requires a strategic approach, but the benefits in the form of improved processes, greater accuracy, and a better understanding of data are of great importance for the advancement of management and the progress of enterprises in general.

**KEY WORD:** artificial intelligence, management, managerial functions

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## I. Introduction

In the past, popular culture has marketed the appearance of artificial intelligence through comics and films, and cinema has literally introduced the notion to us all, which in the 1970s and 1980s seemed like something from the realm of impossible science fiction. Many films from that era offered visionary glimpses of the future development and use of AI more than 50 years ago. What was once considered irrational and impossible is now becoming commonplace.

Artificial intelligence is a broad branch of computer science that deals with building smart machines capable of performing tasks that typically require human intelligence. AI is an interdisciplinary science with multiple approaches, but advances in machine learning and deep learning are creating a paradigm shift in literally every sector of the tech industry. With the strategic application of AI to certain processes, data collection and task automation are occurring at great speed and scale. Compared to the "mountains" of data created by humans, AI systems perform intelligent searches, interpreting both text and images to uncover patterns in complex data and then act on insights they glean from these data. The goal of artificial intelligence research is to develop programs (software) that will enable computers to behave in a way that could be characterized as intelligent (Russell, Norvig, 2010).

Artificial intelligence today can simply look at data, analyze it, detect patterns, and do some of the analysis for humans. It can also perform basic financial accounting tasks.

According to author George F. Luger, artificial intelligence is defined as the branch of computer science that deals with the automation of intelligent behavior. This definition emphasizes the belief that artificial intelligence is a part of computer science and as such must be based on well-established theoretical and applied

principles in the field. These principles include the data structures used in the presentation of knowledge, the algorithms needed to apply that knowledge, and the languages and programming techniques used to implement them (Luger, 2008).

Hence, it can be stated that artificial intelligence has a significant impact on the advancement and facilitation of the work activity management process, as it can provide more detailed data insights, help make better decisions based on data analysis, automate routine tasks and processes, improve business efficiency, and enable predictive maintenance of systems. This can lead to increased productivity, reduced costs, and improved overall enterprise performance.

### **The Role of Artificial Intelligence in the Management Process**

Artificial intelligence is significantly revolutionizing the management process across all industries, providing new tools and approaches to decision-making, optimizing resources, and improving organizational efficiency. Here are a few key roles of AI that have a significant impact on the management process:

**Data analytics** – AI tools enable the processing of large amounts of data and the realization of complex analysis in real-time. This helps managers identify trends, patterns, and correlations that would be difficult to achieve with traditional methods. AI models (e.g., machine learning) are used to predict future trends, sales, demand, and risks.

**Decision Making** – AI provides decision support, analysis and suggestions based on facts and data, which reduces the risk of subjectivity in decision-making. Algorithms can simulate different situations and scenarios to assess the potential efficiency and effectiveness of decisions before they are implemented.

**Process automation** – robotic process automation (RPA) – allows routine administrative tasks such as data entry, document processing, or responding to email messages to be automated. AI systems enable workflow optimization, enable rapid identification of deficiencies, and improve workflows.

**Human resource management** – AI simplifies the recruitment and selection process, analyzes the profile of candidates and compares them to the needs of the enterprise, allowing for faster and more objective selection. AI platforms manage performance, track individual and team performance, and offer recommendations for development and training.

**Improve customer collaboration** – Through automated communication, such as chatbots and virtual assistants, AI enables continuous support and resolution of issues and problems with minimal human factor involvement. AI systems enable customer segmentation and anticipation of their needs, which increases the effectiveness of marketing campaigns.

**Risk prevention** – AI algorithms identify and detect suspicious activity by analyzing patterns in the data. Machine learning systems can identify potential risks in various sectors, such as manufacturing, finance, logistics, etc.

The role of AI in the management process is of paramount importance, as it allows for increased efficiency and productivity, reduced operational costs, and improved strategic planning. However, the application of AI can also have drawbacks, such as integration with existing systems, lack of trained staff to manage AI technologies, ethics and privacy issues, etc. (Jančić, Nikolić, 2021).

### **The Impact of Artificial Intelligence on Managerial Functions**

Artificial intelligence has a wide range of applications in managerial functions, which significantly requires improving management processes, decision-making, and optimizing business activities. AI has an impact on the following managerial functions:

- **Planning**, as a conscious activity, is practiced at all stages of enterprise management. It is related to the management process of these enterprises that cares about the future, about quality, and about the paths by which the goals set for these enterprises can be most effectively achieved. Those goals need to be achieved at a certain level, within a certain timeframe, with certain available resources and with specific executors. AI uses large amounts of data, analyzes it for strategic planning and trend forecasting, analyzes competitive position, and recommends strategic goals. Machine learning algorithms can predict and simulate scenarios to help create plans based on real-world risks and opportunities. The application of AI in planning has several significant benefits, such as: increased accuracy and precision: AI-based predictions and analyses are more accurate and accurate, leading to better and more dynamic planning; faster decision-making and the constant updating of plans (Shuklev, 2016).

- **Organizing** is a key managerial function that involves allocating resources, defining the structure of the organization, defining tasks and responsibilities, and ensuring coordination between the different parts of the organization (Dimitrovski, 2008). AI can significantly improve this process through process automation, organizational structure, and resource optimization. Routine tasks, such as resource scheduling or administrative activities, can be automated, freeing up time for managers. AI systems can automatically assign tasks to employees based on their skills, job responsibilities, and priorities. AI tools can help manage employees'

time by analyzing their schedules and suggesting optimal time frames for completing tasks. AI can analyze resource needs and suggest optimal ways to allocate them, with the aim of minimizing costs and maximizing efficiency.

- Coordination is one of the basic managerial functions that involves organizing and aligning an organization's activities and resources to achieve goals. Coordination refers to ensuring that all parts of the organization work together harmoniously and efficiently (Shuklev, 2016). AI also improves the coordination process by over-automating routine tasks, with managers focusing on strategic activities and coordinating more complex processes, by anticipating future trends and trends, managers are focused on better coordinating things and resources. AI can analyze how resources are used, how they are coordinated, and suggest ways for their distribution and use. AI can support interactive communication platforms that facilitate information sharing and coordination between teams, such as chatbots. By using AI in coordination, managers can improve the efficiency and effectiveness of an organization, ensuring and coordinating activities and all employees, in order to work together in the most efficient way possible.

- Controlling is basically carried out by managers in order to be able to determine whether the tasks set, which lead to the achievement of the general goal, are within the expected framework or not. Control, in principle, should be understood as a positive activity that allows, at the stage of task execution, to detect weaknesses and errors, correct them and prevent their repetition (Anthony, Dearden, Vancil, 1995). AI can significantly improve the control process in the following ways: Real-time monitoring, AI offers capabilities for continuous monitoring of processes, task execution, and team performance. Algorithms can identify deviations from the plan, such as inefficiencies or irregularities, detect problems and quickly correct them. AI processes data and analyzes results to provide detailed insights into how decisions affect an enterprise's goals. Using AI in control can result in more effective management, faster response to problems, improved performance, and increased organizational competitiveness.

- Decision-making as a managerial function is one of the key aspects of managerial work and refers to the process of selecting the best options and solutions in the face of uncertainty and limited resources. It is a fundamental element of strategic management and also of operational planning, because every managerial move has an impact on the enterprise and its success. AI simplifies the decision-making process by eliminating subjectivity and bias, providing objective suggestions based on the analysis of large amounts of data. With the ability to process information in real-time, AI enables it to react quickly to changes, making quick and effective decisions, especially in critical situations. AI complements managerial decisions by identifying risks and recommending alternative strategies.

The integration of AI into managerial functions can significantly improve the performance of organizations and enable more efficient management of resources and time. AI has the potential to transform many aspects of management and improve decision-making, resource management, and operational efficiency.

## **II. Conclusion**

Artificial intelligence has a significant impact on the management process, transforming managers' decision-making, resource management, communication with teams, and meeting enterprise goals. With advances in technology, AI has become a key tool that helps automate processes, analyze data, and improve operational efficiency.

The importance of AI in the management process is multi-layered and provides significant value through automation, improved decision-making, and process optimization. Managers who successfully integrate AI into their work can create a competitive advantage, enabling more efficient and innovative management.

One of the key elements of AI's impact on the management process is the support in decision making. Thus, AI allows managers to make faster and more accurate informational decisions. AI-based systems can analyze large amounts of data, identify patterns, and provide actionable insights. AI tools can analyze historical data to predict future trends, which aids in strategic planning. AI contributes to the significant automation of many operational tasks, which frees managers from routine tasks and allows them to focus on strategy and management. AI helps improve human resource management through personalized approaches to training, development, and candidate selection. AI algorithms can recruit candidates by analyzing and evaluating their qualifications, experiences, and skills. AI systems help track employee performance and recommend personalized strategies for motivation and skill development.

In today's digital age, enterprises create vast amounts of data. AI plays a key role in analyzing and interpreting this data. AI can analyze trends and predict when and where increased demand for certain products or services will occur, allowing for better production planning. AI improves internal communication in the enterprise and teamwork through smart collaboration tools that improve the productivity of teams and managers.

AI is radically changing the nature of management and improving the efficiency and effectiveness of enterprises. With automation, improved data analytics, and new ways of making decisions, AI helps managers

be faster, more accurate, and more informed in their operations. However, it is necessary to consider the ethical, legal, and organizational aspects when integrating these technologies.

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