

Artificial Intelligence in Managerial Decision-Making: An Empirical Examination

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In an organization the role of leadership is very necessary. One of the roles in leadership is decision making. The increasingly developing digital era has given rise to AI which has unusual abilities and has the potential to help make better decisions in the managerial sphere. The aim of this research is to empirically analyze artificial intelligence in managerial decision making. The research method used is a survey method with a quantitative approach. The population in this study was all company managers in City X. The sampling technique used was random sampling, so that X respondents were obtained. The data that has been obtained is continued to be analyzed by SPSS statistical program. The research results show that

Keywords: AI, Managerial, Decision Making, Leadership.

1. Introduction

Leadership needs to be understood further and is not only related to power in moving and influencing other people. Many indicators can help in moving someone, such as threats to rewards (Sukatin et al., 2022). One of the many important roles of leadership is decision making, a leader needs to devote the majority of his time to thinking in understanding decision making activities. The higher a person's position in the leadership of an organization, the decision-making process becomes the main thing that needs to be done. The attitude and way of leading the decision-making process also influences subordinates. So that it can determine the level of performance in achieving predetermined goals (Mahanum, 2021).

Increasingly rapid digital developments mean that technology is used in various aspects of life, including business and management. The existence of Artificial Intelligence gives birth to extraordinary abilities and has the potential to develop efficiency and make better

decisions in the management sphere. Artificial Intelligence is based on the development of computerization which can help with various jobs previously carried out by humans. Artificial Intelligence is carried out with very sophisticated computerization, such as machine learning, deep learning, and natural language processing, which is responsible for collecting, analyzing, and interpreting data intelligently (Ramadhana & Nasution, 2024). Artificial Intelligence (AI) is an interpretation of human intelligence that is modeled by machines programmed to resemble humans (Nasution, 2019). So Artificial Intelligence is the process of accommodating computer machines with various skills to show machine intelligence that is programmed and made as similar to humans as possible (Sudaryanto & Hanny, 2023).

In a difficult decision-making process, a person may try to find a strategy to solve the problem rather than looking for a solution. So Artificial Intelligence helps in carrying out organizational management work, which is used as a supporting tool in assessing the performance of directors and managers. Although not all companies use it, in general the use of Artificial Intelligence can help in the decision-making process (Mertens, 2023). Although not all decisions come from consideration of existing information. So it is necessary to have tools that help in finding factors related to making the right decision. Decisions taken are based on data, modeling and predictive analysis which can be done with AI. There are other supporting tools such as algorithms that can help predict various potential outcomes that will occur from decisions that have been taken (Salsabila et al., 2024).

Someone always gets me confused throughout my life regarding the choices that need to be made. The aim is to continuously improve life for the better in the future. Alternative selection is also known as decision-making activity (Sinaga, 2023). So a decision-making process means the result of a thinking process in choosing one of several options which ultimately anchors on just one option (Hidayat et al., 2024).

Previous research conducted by Suwandita et al., (2023) stated that operational efficiency, development of innovative goods or services, and business decision making are based on better analysis. The development of AI is seen as a significant change in the business sphere. AI helps in improving organizational culture such as collecting, processing and using data used in decision making (Johanis & Yulianadewi, 2023).

The novelty of this research is that it uses empirical data from real companies to evaluate the effectiveness of AI in decision making. Use of survey methods to collect data from managers using AI tools. By exploring the applications of AI, this research can identify how this technology can help managers process large and complex data, speed up analysis, and provide more precise recommendations based on patterns and trends that may not be detected by humans. Apart from that, this research can also reveal the impact of AI on organizational performance, such as increasing productivity, innovation and company competitiveness. By understanding the advantages and challenges of implementing AI, the results of this research can provide practical guidance for managers and business leaders in effectively and ethically integrating AI into their managerial strategies. The aim of this research is to empirically analyze artificial intelligence in managerial decision making.

2. Research Methods

This research applies a survey method with a quantitative approach. Surveys are a process of observing things of a social nature (Julpatar, 2021). Meanwhile, the quantitative approach is a method of research that uses various numerical data in analyzing it (Yam & Taufik, 2021). The population in this study was all company managers in City X. The sampling technique used was random sampling, so that the sample obtained was a number of company managers in City Next, the data is combined with the data obtained from the questionnaire indistributed to respondents. The data that has been collected is then analyzed using the SPSS statistical program.

3. Results and Discussion

Results

Reliability Test

Reliability testing is used to simultaneously test all research questionnaire questions. The basis for making reliability test decisions is based on the Cronbach's Alpha value which must be greater than 0.60 so that the data can be said to be reliable.

Table 1. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
,682	4

Judging from the table above, the Cronbach's Alpha value is XX, so it can be concluded that the questionnaire has high consistency and is reliable for further research.

Normality test

The normality test is used to test whether the data obtained is normally distributed or not.

Table 2. Normality Test Results

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
X	,191	100	,000	,877	100	,000
Y	,176	100	,000	,901	100	,000

a. Lilliefors Significance Correction

Based on the table above which uses the Kolmogorov-Smirnov test for the Artificial Intelligence (X1) and Managerial Decision Making (Y) variables, a significance value of 0.000 is obtained, so it can be said that the data obtained is normally distributed.

Regression Test

Regression testing is used to determine the relationship between two or more variables.

Table 3. Regression Test Results

Coefficients ^a		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	3,944	1,569		2,513	.014
	X	,271	,047	,552	5,749	,000

The table above shows that the regression test carried out gets a significance value of 0.000, smaller than 0.05, so it can be said that Artificial Intelligence (X) has an influence on Managerial Decision Making (Y).

Discussion

The research results show that Artificial Intelligence (AI) has a significant influence on managerial decision making. This research reveals that AI is able to improve the quality of decisions made by managers by providing more accurate and in-depth data analysis. With AI's ability to process and analyze large amounts of data at high speed, managers can gain more comprehensive insights into various aspects of the business. This allows them to make decisions that are more based on data rather than intuition or experience alone.

Management in a company has a very important position. Managers act as leaders who make strategic decisions, organize resources and manpower, and ensure the efficiency and effectiveness of the company according to plan (Wahyuningsih & Setiawan, 2024). Management helps ensure that all company resources are used efficiently and effectively to achieve predetermined goals. Management also helps create a harmonious and productive work environment for employees, thereby helping to improve overall company performance. Thus, management has a key role in determining the success of the company. The management function is a series of activities carried out by a manager to achieve organizational goals (Utomo, 2023).

The management functions according to Hamdi (2020) include planning, organizing, mobilizing, and controlling.

a. Planning

Planning is the process of determining company goals and the steps that will be taken to achieve these goals. This involves identifying long-term and short-term goals, as well as creating an action plan to achieve these goals.

b. Organizing

Organizing involves arranging tasks, responsibilities, and resources within the organization. It involves efficiently dividing tasks and resources so that each part of the organization can work in a coordinated manner towards achieving common goals.

c. Actuating

Actuating is the process of motivating employees to work towards set goals. It involves the use of various motivational strategies, such as recognition, incentives, and training, to ensure that employees are motivated to work well and efficiently.

d. Controlling

Controlling is the process of monitoring and evaluating the performance of the organization to ensure that goals are achieved. It involves measuring performance, monitoring progress, and making adjustments where necessary to keep the organization on track.

Management is very important in decision making because management involves the process of planning, organizing, directing, and controlling organizational resources so that organizational goals can be achieved effectively and efficiently (Musnaeni et al., 2022). With good management, the decision-making process will become more structured and systematic, thus helping to evaluate existing options and choose the best decision to achieve organizational goals. In addition, management also helps in coordinating collective efforts between various parts or individuals in the organization, thus ensuring that the decisions taken can be implemented properly and have a positive impact on the entire organization (Huliatunisa et al., 2023). Decision making by a manager is very important in determining the direction and sustainability of a company. A manager must be able to choose the best option from various alternatives, as well as consider risks, company goals, and market conditions. The right decision can lead the company to success, while inappropriate decisions can potentially harm the company. Thus, the ability of managers to make quality decisions is indispensable for business continuity and growth (Halimahturrafiah et al., 2022).

A decision is an activity in deciding something in completing the work carried out in the organization. Decision also means activities in problem analysis related to problem identification until a conclusion is obtained (Maylanie, 2022). The decision-making process in an organization is carried out in all departments, although it is basically in the hands of a leader because all decisions must have important characteristics such as being sustainable and can be used in the future, which more importantly can be used to influence the organization (Saimo, 2022). The decision-making process is one of several aspects influenced by organizational culture. In the decision-making process, it is defined as the activity of choosing one of several options. Each choice needs to be analyzed from various points of view of the organizational culture used (Rizky, 2020).

The decision-making process is related to the selection process, for example, when managers plan, manage, control, they make decisions. However, classical theorists do not explain these decisions in general (Kusnadi, 2015). Managerial decision making by organizational leaders is very important because the decisions made will affect the performance and direction of the organization as a whole. A leader must be able to identify problems, analyze information, and choose the best alternative to achieve organizational goals. Good managerial decisions can help organizations face the challenges and opportunities that exist in an ever-changing business environment. In addition, managerial decisions can also help organizations to allocate resources such as time, money, and manpower efficiently and effectively. Thus, leaders who are able to make the right managerial decisions can lead the organization to success and sustainable growth.

The continuous evolution of digital technology has pushed Artificial Intelligence (AI) into various aspects of daily life. Pratama et al. (2023) underscore the transformative impact of AI on the decision-making paradigm, emphasizing its role in offering in-depth analysis and forecasting potential risks with unparalleled accuracy. By utilizing advanced algorithms and

predictive analytics, AI can identify and assess potential risks proactively, enabling preventive measures to be taken. This proactive approach not only improves operational efficiency but also minimizes vulnerabilities and optimizes resource allocation. As AI continues to evolve, its ability to anticipate and mitigate risks will be further refined, empowering decision-makers to navigate an increasingly complex and uncertain landscape with confidence (Tubman, 2022).

Artificial Intelligence (AI) has emerged as an important force reshaping the managerial decision-making process. With machines capable of simulating human-like thinking and behavior, AI blurs the lines between human intelligence and artificial intelligence. This transformative technology empowers managers with advanced tools for data analysis, predictive modeling, and scenario planning, allowing them to make the right decisions quickly and effectively. By leveraging AI, organizations can harness the power of automation and cognitive computing to optimize processes, minimize risks, and take advantage of emerging opportunities in today's dynamic business environment (Ashrita & Reddy, 2023).

AI helps reduce biases in decision-making. Humans tend to be affected by various cognitive biases that can hinder objectivity in decision-making. AI, with algorithms designed to focus on data and facts, can help reduce these biases, resulting in more objective and fair decisions. This is especially important in a competitive business environment where the right and quick decisions greatly affect the success of the company (Anggraeni & Nugroho, 2022). AI also plays a role in improving operational efficiency by automating routine and administrative tasks. By reducing the workload on these tasks, managers have more time and resources to focus on business strategy and more complex decision-making. In addition, AI can assist in predicting market trends and consumer behavior, providing valuable information for managers to anticipate changes and respond more quickly (Salsabila et al., 2024).

The presence of artificial intelligence (AI) has brought a transformation in managerial decision making by providing more accurate, faster and comprehensive data analysis. Through the ability to process large amounts of data and detect complex patterns, AI enables managers to make better and more informed decisions. With machine learning algorithms, AI can predict market trends, identify opportunities and manage risks more efficiently. Additionally, AI systems can provide personalized suggestions based on individual data, assisting managers in selecting the most effective strategies to achieve their business goals. Thus, the presence of AI significantly improves managerial capabilities to make more timely, relevant and effective decisions.

4. Conclusion

The research results show that artificial intelligence (AI) has a significant impact on managerial decision making. AI improves the quality of decisions by providing accurate and in-depth data analysis, and helps reduce cognitive bias in the decision-making process. Additionally, AI improves operational efficiency by automating routine tasks, so managers can focus more on complex business strategies. However, to implement AI effectively, a change in organizational culture and adequate training is required. With proper integration,

AI can become a powerful tool to support and strengthen managerial decision-making capabilities.

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