

The Impact of Organizational Development and Artificial Intelligence on Decision-Making

Dr. Abdul Wahab Samad

Institut Bisnis dan Informatika Kosgoro 1957

Email: w_abdoel@yahoo.com

Abstract

This study's goal is to examine how Artificial Intelligence (AI) and organizational characteristics affect decision-making in organizations by using the SMART PLS approach. A quantitative strategy was used, which involved collecting primary and secondary data through questionnaires and documentation. The research included hypothesis testing, which was carried out with the use of SmartPLS software. The results show that AI has a large and positive impact, with a coefficient of 0.269. This demonstrates how AI improves the efficiency of data analysis, automates processes, and provides data-driven insights that help make decisions more quickly and accurately in changing situations. On the other hand, organizational factors had a greater impact, with a coefficient of 0.824. This highlights the significance of aspects like organizational structure, work culture, and managerial engagement in promoting strategic decisions that are in line with the organization's vision. The quality of decision-making and the overall effectiveness of an organization are improved by the combination of artificial intelligence and organizational aspects.

Keywords: Decision-Making, Artificial Intelligence, Quantitative Approach, Ethics.

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Introduction

The fast development of technology, especially in the field of artificial intelligence (AI), has become a major factor in the digital transformation of many different industries, including businesses and enterprises. Artificial intelligence is a tool that can be used

to increase operational efficiency and decision-making processes. Artificial intelligence (AI) is one of the most impressive innovations, and it is changing the way that businesses function and communicate with their staff. For enterprises to be competitive in a market that is becoming more

complicated and dynamic, it has become necessary for them to digitize their information and business processes, which means converting them into digital representations. It is essential for enhancing efficiency, production, and the quality of service in enterprises.

Artificial intelligence (AI) technology, which is powered by big data, allows for advanced calculations such as machine learning, deep learning, and natural language processing. This technology can intelligently collect, analyze, and interpret data. Artificial intelligence (AI) is the ability of computers to learn and adapt based on data while making automatic judgments without the need for human involvement. This capability brings about major changes in the way that information systems are implemented, operated, and consumed (Muzakir et al., 2023).

Making decisions that are intended to enhance the performance of an organization is inherently complicated since it necessitates taking into account several elements that frequently contradict the objectives of the business. Decision-making processes are made more difficult by the absence of clarity on short-term and long-term objectives, especially in smaller companies or institutions. This can hurt financial conditions and firm performance (Zaman et al., 2023). However, decision-makers frequently encounter obstacles and hurdles when they are making important judgments. In this case, artificial intelligence is essential for thoroughly examining data according to market trends. Additionally, artificial intelligence offers insights that are more precise and relevant. In addition to helping with decision-making, AI allows businesses to quickly adjust to changes that are always happening.

Organizations need to have efficient ways to filter, analyze, and extract insights from data to make decisions (Zakik et al., 2022). To stay up with the fast-paced business world, it is necessary to make decisions quickly in the digital age. On the other hand, the necessity to make decisions quickly can often lead to a lack of extensive analysis, which is necessary for making appropriate conclusions (Ryandono et al., 2022). It is a significant difficulty for companies to find a balance between speed and accuracy. Artificial intelligence (AI) plays a major role in decision-making in the digital age by improving human abilities, evaluating enormous amounts of data, and providing useful insights (Mahmood et al., 2024).

Dynamic and complicated corporate environments have a significant impact on the decision-making processes of businesses. Businesses are obligated to use quantitative methods and artificial intelligence to make decisions based on data to enhance their efficiency and accuracy (Anderson et al., 2023; Danish & Senjyu, 2023). In addition, ethical considerations and emotional aspects are important in making sure that judgments are fair and sustainable (Ho, 2024).

This article categorizes the discussion into three main variables:

1. Quantitative approach to decision-making.
2. The role of AI in decision-making.
3. Ethical dimensions and data in decision-making.

Nisa and Suwaidi (2023) conducted research that showed that digitization has a favorable impact on how organizations operate and perform. Digitalization helps businesses automate processes that are common and

repetitive, such as entering data, processing information, and handling transactions. This improves efficiency and reduces the likelihood of human error. Furthermore, businesses can analyze huge and complicated datasets quickly and correctly, which allows them to make better decisions and speed up the decision-making process.

Organizations may make better decisions and build deeper relationships with stakeholders by taking advantage of the unique qualities of both humans and artificial intelligence. When artificial intelligence is combined with human emotional intelligence, it not only improves operational efficiency but also helps to establish trust and public engagement with the company. This endeavor necessitates a methodical and strategic approach to maximize the functions of each component, guaranteeing that decisions are sustainable and adaptable in a dynamic setting.

This research investigates the use of artificial intelligence (AI) technology and organizational elements in the decision-making process. The results of this conversation are anticipated to offer important information about the part that artificial intelligence plays in decision-making processes, which will ultimately help with long-term success.

Literature Review

2.1 Decision Making

The process of decision-making starts with establishing the background and defining the issue. This process is a way of exploring problems that leads to conclusions or recommendations. After that, these recommendations are used as a starting point for making judgments. According to Hidayat et al. (2024), decision-making is "a human cognitive process that results in

selecting beliefs or actions among several alternative options." According to the theory, decision-making requires reasoning and consideration based on values, interests, and individual beliefs.

In today's corporate world, making decisions based on quantitative data and analysis is an important part of the process. The indicators for this variable include the following: • The Role of Quantitative Approaches, AI, and Technology (X1.1): The application of AI and technology helps enterprises traverse complicated and dynamic settings (Borissova, 2024).

- Quantitative Approaches (X1.2): Camm et al. (2023) pointed out that statistical methods give an unbiased basis for making decisions.
- Decision Making Based on Data (X1.3): Data gives you a greater understanding and deeper insights that help you make decisions (Blacksmith & McCusker, 2024).
- Decision Making Under Uncertainty (X1.4): Goerigk and Hartisch (2024) highlighted the significance of combinatorial optimization when it comes to handling uncertain situations.

This method allows organizations to make more solid judgments that can respond to the changes that occur in their environment.

2.2 Artificial Intelligence

Artificial Intelligence (AI) is a technology designed to enhance human intelligence. In general, it envisions a world where partnerships between humans and machines improve our capabilities and allow us to excel in uniquely human tasks. AI refers to applications and programming instructions enabling computers to perform tasks

deemed intelligent or typically done better by humans (Tjahyanti et al., 2022).

AI plays a critical role in organizational decision-making, with indicators as follows:

- AI Enhancing Decision Quality (X2.1): AI can analyze large datasets quickly and accurately, thus improving the quality of decisions (Borissova, 2024).
- The Role of AI in Decision Making (X2.2): In the context of IoT, AI facilitates real-time risk management and proactive solutions (Boulila et al., 2024).

AI reduces decision-making bias by providing fact-based analytical data, especially in intelligent manufacturing (Tyagi et al., 2023).

2.3 Organization

Organizational theory examines the performance within an organization, focusing on how it fulfills and actualizes its vision and mission.

Ethics and the use of multi-criteria data serve as the foundation for more humane and objective decision-making. The indicators include:

- Ethical Dimensions (X3.1): Ho (2024) highlighted that ethics are essential in maintaining trust and organizational integrity.
- Multi-Criteria Data Normalization (X3.2): Mukhametzhanov (2023) explained that data normalization supports the evaluation of complex and objective decisions.
- Emotional Factors (X3.3): Intrinsic factors, such as emotions and perceptions, can influence decision

quality in situations requiring creativity (Ho, 2024).

Research Methodology

This study is quantitative research with a causal approach, aiming to identify the cause-and-effect relationship between independent variables and the dependent variable. The research utilizes two data sources: primary and secondary. Primary data is collected directly by the researcher within a specific period through questionnaires distributed to respondents. These questionnaires contain questions regarding the influence of Artificial Intelligence and organizational factors on decision-making. Meanwhile, secondary data is obtained from pre-processed sources such as literature, records, and documents related to decision-making, presented in the form of tables or diagrams. The hypothesis testing in this study is conducted using SmartPLS (Partial Least Squares Structural Equation Modeling) to analyze the relationships and assess the impact of variables on decision-making.

Discussion

4.1 Data Processing Results in SMART PLS

The implementation of Artificial Intelligence (AI) technology has become highly beneficial and has had a positive impact on organizational decision-making processes. The application of AI in management has fundamentally transformed the way data is collected, processed, and used for decision-making. Through natural language processing and precise data analysis, AI systems can automate management tasks, reduce manual workloads, and increase productivity. The accuracy of data processing has also become a focal point, producing high-quality data that serves as

the foundation for making informed decisions. In the context of management, a more sophisticated analysis of issues is one of AI's main contributions. With AI's ability to detect patterns and trends not visible to the human eye, managers can make better decisions and develop more effective strategies. However, the application of AI is not without challenges and consequences, particularly concerning the structured data and quality required.

To measure the influence of AI and organizational factors on decision-making, this study utilized questionnaire data filled out by employees. The collected data has fulfilled the dimensional aspects of each variable in this study and was processed using the statistical software, SmartPLS. The results of the study are as follows:

Based on the SMART PLS analysis, here are the results of the influence of AI (X2) and organization (X3) on decision-making (X1) can be seen in Tabel 1 below.

Table 1

The Relationship between AI, Organization and Decision Making

Relationship	Original Sample (O)	T-Statistics	P-Value	Confidence Interval (2.5% – 97.5%)
X2 -> X1 (AI)	0.269	4.220	0.000	0.157 – 0.394
X3 -> X1 (Organization)	0.824	13.389	0.000	0.684 – 0.941

- AI (X2) has a positive and significant impact on decision-making with a coefficient of 0.269. AI helps improve data analysis efficiency, especially in dynamic environments.
- Organization (X3) has a stronger impact (0.824) on decision-making. This underscores that internal organizational elements such as organizational structure, work culture, and managerial involvement play a crucial role in determining the quality of decisions made.

4.2 Analysis of Findings Based on Variables

1. AI's Impact on Decision-Making

Artificial Intelligence (AI) has a positive and significant influence on the decision-making process in organizations, with a coefficient value of 0.269. This indicates that while the impact may not be as large as other factors such as organizational aspects, AI still plays an important role in supporting more effective and efficient decisions. In an increasingly dynamic and competitive business environment, the role of AI has become more relevant, especially in helping organizations

tackle challenges that require speed and accuracy in processing information.

Organizations can benefit from AI by automating processes, gaining actionable insights from data analysis, and improving customer and employee engagement. Developing AI capabilities enables organizations to identify suitable AI applications, implement them effectively, and digitally transform operations to enhance overall performance (Mikalef, Lemmer, et al., 2023). AI's ability to influence process automation in public organizations by driving changes in efficiency and effectiveness through digital technology use motivates organizations to implement AI to improve performance. AI can enable the automation of manual document processing, leading to enhanced efficiency and reduced process bottlenecks in public organizations (Wang, 2022). Additionally, AI capabilities can increase knowledge about decision-making processes and enhance insights for key decision-makers in public organizations, ultimately contributing to better overall process automation. By developing AI capabilities, public organizations automate manual tasks, enhance decision-making processes, and enable the application of various AI applications for digital transformation and performance improvement (Mikalef et al., 2023).

2. Organizational Impact on Decision-Making

Organization has a significant impact on decision-making, with a strong influence value of 0.824. This emphasizes that internal organizational elements such as organizational structure, work culture, and managerial involvement play a crucial role in determining the quality of decisions made. A well-structured organization enables more effective communication and decision-

making processes, while a work culture that supports collaboration and innovation can drive more creative decisions that respond to external dynamics. Additionally, managerial involvement provides strategic direction, ensuring that decisions align with the organization's vision and mission.

A well-structured organization enables more effective communication and decision-making processes, while a work culture that supports collaboration and innovation can foster creative decisions that respond effectively to external changes. Moreover, managerial involvement ensures that decisions align with the organization's vision and mission. Organizations can strive to balance human interaction and AI by leveraging the strengths of both. While AI agents can enhance efficiency and scalability, human agents provide empathy and a personal touch, which are essential for building relationships between the organization and the public (Ahmed et al., 2022).

Conclusion

Based on the results of the SMART PLS analysis, this study demonstrates that both Artificial Intelligence (AI) and Organization have a positive and significant impact on decision-making, with coefficients of 0.269 and 0.824, respectively. AI contributes to data analysis efficiency, process automation, and data-driven insights, supporting faster and more accurate decision-making in dynamic environments. Meanwhile, the organization has a stronger influence through its structure, work culture, and managerial involvement, which facilitate communication flows, collaboration, and strategic decision-making aligned with the organization's vision.

Recommendations

Organizations should integrate AI with a quantitative approach while considering ethical aspects in their operations to achieve optimal and responsible decision-making. This integration will enhance the ability to make data-driven decisions, automate processes efficiently, and align decision-

making with organizational values and social responsibilities. Additionally, organizations should ensure that AI systems are implemented transparently, fairly, and in a manner that aligns with ethical standards to avoid potential biases and ensure accountability in decision-making.

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