

ARTIFICIAL INTELLIGENCE AND STRATEGIC DECISION-MAKING: INVESTIGATING HOW AI TOOLS SHAPE STRATEGIC PLANNING AND RESOURCE ALLOCATION

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ABSTRACT

This study explored the influence of artificial intelligence (AI) on strategic decision-making, with a specific focus on how AI tools shape strategic planning and resource allocation in contemporary organizations. As businesses navigate increasingly complex and data-driven environments, the integration of AI has become a critical factor in enhancing strategic responsiveness and operational efficiency. Adopting a qualitative research methodology, the study gathered insights from 17 senior executives, data scientists, and strategic managers across diverse industries through semi-structured interviews. Thematic analysis revealed that AI serves as a strategic enabler, facilitating advanced market forecasting, competitor analysis, and scenario planning. Participants also emphasized that AI tools significantly improve resource allocation by enabling real-time investment decisions and optimizing workforce deployment. However, several challenges were identified, including data privacy concerns, algorithmic bias, transparency issues, and organizational resistance. A recurring theme was the importance of human-AI collaboration, where AI acts as a decision-support tool rather than a substitute for human judgment. These findings aligned with existing scholarship, which advocates for hybrid decision-making models that balance technological precision with human insight. The study concluded that while AI can enhance the accuracy and agility of strategic decisions, its effectiveness depended on ethical governance, cross-functional integration, and organizational readiness. Practical recommendations include strengthening AI governance frameworks, promoting data literacy, and fostering interdisciplinary collaboration. This research contributed to the growing discourse on responsible AI adoption in strategic management and offers guidance for organizations seeking to leverage AI while maintaining ethical and strategic alignment.

Keywords: Artificial Intelligence, Decision-Making, Strategic Planning, Resource Allocation

INTRODUCTION

In today's rapidly evolving digital economy, organizations are increasingly leveraging artificial intelligence (AI) to secure competitive advantages, particularly in the domain of strategic decision-making. AI tools, encompassing machine learning algorithms, natural language processing systems, and predictive analytics, are fundamentally transforming how enterprises approach planning, forecasting, and resource allocation. By swiftly processing vast amounts of data and generating profound insights, these tools empower leaders to make astute decisions that would otherwise be constrained by human cognitive limitations.

Proponents of AI integration argue that AI enhances the speed, accuracy, and objectivity of strategic decisions. For instance, predictive analytics can forecast market trends, optimize supply chains, and identify hidden patterns in consumer behavior, thereby enabling managers to make proactive and data-driven strategic choices (Kaplan & Haenlein, 2023). Additionally, AI systems can minimize cognitive biases in decision-making, streamline operations, and improve resource efficiency through advanced simulations and scenario planning (Dwivedi et al., 2024).

However, critics highlight potential risks and limitations. There are concerns over the transparency and interpretability of AI decisions, often described as the "black box" problem. Strategic decisions influenced by opaque algorithms may lack accountability, especially when AI recommendations are followed blindly. Moreover, AI systems are only as good as the data they are trained on—flawed or biased data can lead to distorted outcomes (Zeng et al., 2023). Ethical considerations also emerge when AI takes over decision-making roles traditionally held by human experts, raising questions about responsibility, fairness, and the potential displacement of strategic roles.

Despite the growing body of research on AI in operational functions, a significant gap exists in understanding how AI tools specifically influence high-level strategic processes such as long-term planning, capital investment decisions, and enterprise-wide resource allocation. While many studies focus on AI's technical capabilities or implementation barriers, fewer explore its direct effect on the cognitive and organizational dimensions of strategic decision-making. This research seeks to bridge that gap by investigating the extent to which AI technologies are shaping strategic thinking in contemporary organizations.

Aim and Objectives

The aim of this paper was to examine the impact of artificial intelligence on strategic decision-making, with a particular focus on how AI tools influence strategic planning processes and the allocation of organizational resources. Specifically, this paper tend to:

- i. explore how AI tools are integrated into the strategic planning process influence decisions making.
- ii. discuss the role of AI in shaping resource allocation strategies in data-driven organizational environments.
- iii. identify the challenges, limitations, and ethical considerations associated with the use of AI in strategic decision-making, with the goal of proposing balanced and responsible adoption practices.

Review of Related Literature

The Resource Based View (RBV) posited that organizations gain and sustain competitive advantage through the strategic acquisition, development, and deployment of Valuable, Rare, Inimitable, and Non-Substitutable (VRIN) resources (Barney, 1991). In the context of contemporary business environments, AI technologies are increasingly viewed as strategic resources capable of enhancing firms' internal capabilities and decision-making processes. A studies suggest that AI systems, when aligned with organizational capabilities, serves as dynamic strategic assets that help firms analyze complex market data, predict trends, and optimize internal resource allocation (Dwivedi et al., 2024; Amankwah-Amoah et al., 2023). From the RBV perspective, the effective use of AI tools in strategic decision-making is not solely dependent on acquiring the technology but also on how well it is embedded into the firm's routines, processes, and human capital structures.

For example, AI-driven analytics provide strategic insights that help firms allocate budgets more efficiently, prioritize innovation portfolios, or identify underperforming business units—decisions that are central to long-term competitiveness (Jöhnk et al., 2023). Thus, AI enhances strategic planning by functioning as a firm-specific capability that improves the quality and speed of executive decisions, aligning with the RBV's emphasis on internal strengths as sources of advantage. However, the RBV also offers a cautionary note. Merely possessing AI tools does not guarantee strategic superiority. The value of AI as a resource is contingent upon its integration with the firm's knowledge systems and its ability to generate insights that are rare and inimitable by competitors (Wamba-Taguimdje et al., 2022). This reinforces the need for strategic investment in complementary assets such as skilled personnel, ethical frameworks, and adaptive organizational cultures that enable the full realization of AI's potential in decision-making.

AI Tools influence on Decisions Making.

Strategic planning is a fundamental managerial activity that involves setting long-term objectives, analyzing both internal capabilities and external market dynamics, and allocating resources to achieve sustained competitive advantage. In recent years, AI technologies—particularly machine learning, predictive analytics, and natural language processing—have become vital enablers of this process (Dwivedi et al., 2024). AI tools are increasingly employed to process large volumes of structured and unstructured data, identify emerging market trends, and support scenario analysis, thereby enhancing the quality and speed of strategic decisions. For example, predictive analytics allows firms to anticipate shifts in consumer behavior and economic conditions, which in turn enables proactive strategy formulation (Amankwah-Amoah et al., 2023). AI-powered simulations and decision-support systems are also being used to model potential outcomes of strategic options, helping executives make evidence-based decisions rather than relying solely on intuition or past experiences (Jöhnk et al., 2023).

Furthermore, the integration of AI into strategic planning is reshaping traditional managerial roles by automating routine analytical tasks and enabling leaders to focus on high-level strategic thinking. However, this transformation is not without challenges. Questions persist about the transparency, accountability, and interpretability of AI-generated insights, especially when such systems are used to make far-reaching strategic choices (Zeng et al., 2023). There is also concern about the potential over-reliance on AI tools, which may reduce human oversight or introduce algorithmic biases into decision processes if not properly managed (Wamba-Taguimdje et al., 2022). Understanding this dynamic is essential for businesses seeking to leverage AI not just as a technological upgrade, but as a transformative force in strategic management.

The Role of AI and Resource Allocation

As organizations increasingly operate in dynamic and complex markets, the traditional models of resource allocation, which rely heavily on managerial judgment and historical data, are proving insufficient for agile decision-making. In the context of strategic management, resource allocation refers to the systematic distribution of an organization's tangible and intangible assets—such as capital, personnel, time, and technological infrastructure—toward initiatives that are expected to deliver the greatest value or competitive advantage. AI technologies, particularly in the areas of data analytics, machine learning, and optimization algorithms, are now being leveraged to transform resource allocation from a reactive, manual process into a proactive, intelligence-driven function.

AI systems rapidly process large datasets from internal and external sources to detect inefficiencies, forecast resource needs, and prioritize investments based on predicted returns and strategic alignment (Dwivedi et al., 2024; Shrestha et al., 2024). For example, AI-driven models are increasingly used in financial planning and supply chain management to optimize the distribution of budgets, human resources, and inventory across business units and markets in real time (Amankwah-Amoah et al., 2023).

The use of AI also supports the adoption of scenario-based planning and dynamic reallocation of resources as new information becomes available. This capability is particularly valuable in volatile environments where organizations must quickly respond to changes in customer demand, supply chain disruptions, or competitive pressures. Furthermore, AI tools enable continuous monitoring and feedback loops, ensuring that resource deployment remains aligned with strategic objectives and is constantly refined based on performance outcomes (Kraus et al., 2023).

However, while AI introduces significant efficiency and precision into resource allocation strategies, it also raises important concerns. These include potential biases in algorithmic models, over-dependence on machine-generated insights, and the marginalization of human expertise in complex judgment-based decisions (Zeng et al., 2023). Therefore, successful implementation requires not only technical capabilities but also a governance structure that ensures transparency, accountability, and ethical considerations in how AI-driven recommendations are interpreted and applied.

Understanding this evolving role of AI is essential for organizations aiming to enhance their agility and competitiveness in a data-centric business landscape.

Challenges and Limitation of AI in Strategic Decision-Making.

AI offers significant potential to enhance the accuracy, speed, and consistency of strategic choices, its integration into high-level decision-making processes is not without complications. One of the foremost challenges is the lack of transparency and interpretability in many AI models, often referred to as the "black box" problem (Zeng et al., 2023). Many AI systems, particularly those based on deep learning, generate outputs without clearly revealing the logic behind their recommendations, making it difficult for executives to trust or validate the rationale for strategic decisions (Zeng et al., 2023). This opacity undermines accountability and may result in decisions that are misaligned with organizational values or stakeholder expectations.

Another limitation concerns the quality and bias of data. AI systems are only as effective as the data they are trained on. If the training data is incomplete, outdated, or biased, the resulting strategic insights lead to flawed or unethical outcomes (Dwivedi et al., 2024). This becomes particularly problematic in sectors like finance, healthcare, and public policy, where biased algorithms can reinforce inequality or lead to unjust resource distribution. Additionally, decisions involving layoffs, market entry, or investment redirection often carry moral and social implications that go beyond data analysis (Amankwah-Amoah et al., 2023). Relying too heavily on AI in such areas may erode human judgment, diminish executive responsibility, and create a perception of moral detachment in leadership (Shrestha et al., 2024; Amankwah-Amoah et al., 2023). These concerns necessitate the development of frameworks that clearly delineate the roles of AI and human decision-makers.

Moreover, organizational resistance and cultural barriers impede the responsible adoption of AI. Employees and managers are skeptical about AI's capabilities or fearful of job displacement, leading to resistance in integrating AI into core strategic functions (Kraus et al., 2023). Without adequate training, change management, and ethical governance, AI initiatives may fail to gain traction or generate unintended negative consequences. By identifying these challenges and proposing practical responses, this objective contributes to the creation of a more transparent, inclusive, and sustainable framework for using AI in strategic decision-making.2

Empirical Review

Jöhnk, et al., (2023) conducted a study that assessed the readiness of organizations to adopt artificial intelligence (AI) in strategic decision-making. Using a multiple case study approach across six German firms, the researchers developed a maturity model for AI integration. Their findings revealed that although companies were increasingly experimenting with AI in operational areas, strategic functions such as long-term planning and resource allocation were underutilized due to limited interpretability and lack of robust governance frameworks. They concluded that more advanced organizational maturity is essential for AI to contribute effectively to strategic leadership. In another investigation, Amankwah-Amoah, et al., (2023) evaluated the impact of AI capabilities on strategic management processes in 120 UK-based firms using a survey-based quantitative method. Their aim was to examine whether AI investments led to improved strategic outcomes. The results demonstrated a positive correlation between AI-driven analytics and strategic responsiveness. The study concluded that when AI tools are aligned with an organization's overarching objectives, they enhance the quality and agility of decision-making.

Dwivedi et al. (2024) adopted a mixed-methods approach combining content analysis of industry reports and interviews with senior executives from various sectors. Their research sought to understand the opportunities and risks associated with AI in strategic contexts. They found that AI was especially valuable in forecasting and scenario planning but raised concerns about data quality and algorithmic bias. The study highlighted the necessity for ethical AI governance and greater collaboration between functional units to ensure AI's effective use in decision-making.

A longitudinal study by Kraus et al. (2023) explored how AI influences strategic resource configuration in firms undergoing digital transformation. Analyzing data from four European companies, the research revealed that AI enabled real-time reallocation of resources and predictive budgeting. Although the results underscored increased efficiency and adaptability, the authors stressed that human oversight is critical to mitigate risks associated with excessive automation and ethical blind spots.

Zeng, et al., (2023) focused on the interplay between human cognition and machine intelligence in strategic decision-making within 57 technology firms in China. Using a quantitative survey design, they examined how AI complements or challenges traditional executive reasoning. The findings showed that AI enhances analytical capacity but cannot fully replace human intuition and contextual awareness. The authors concluded that a hybrid model—combining human and machine input—offers the most balanced approach.

Wamba-Taguimdje et al. (2022) employed structural equation modeling to analyze data from 185 firms in Cameroon. Their goal was to assess how AI impacts firm performance, particularly through its influence on strategic resource deployment. The findings revealed a strong positive relationship between AI-enabled planning and resource efficiency. However, they noted the need for better managerial training to ensure proper interpretation of AI-generated insights.

Janssen, et al., (2023) examined the strategic value of AI in public-sector planning through qualitative case studies of three European municipalities. Interviews with urban planners revealed that AI tools supported resource distribution and investment planning, but challenges included poor data quality and low levels of digital literacy among decision-makers. The study concluded that digital infrastructure and organizational readiness are prerequisites for effective AI use in public governance.

Shrestha, et al., (2024) investigated how organizations integrate AI-generated insights into strategic decision-making through interviews with top-level managers from multinational firms. The study found that while AI offered data-driven inputs, executives often struggled to reconcile these with ethical, emotional, or political factors. The authors emphasized the importance of cognitive complementarity between human and machine reasoning to achieve responsible and effective decisions.

Bresciani, et al. (2023) explored AI adoption in strategic planning among small and medium-sized enterprises (SMEs) in Italy using survey data from 140 firms. Their findings showed that while limited resources constrained advanced AI adoption, firms that used AI benefited from improved market analysis and more informed investment decisions. The authors concluded that SMEs require external technical and financial support to fully leverage AI in strategy development.

Finally, Nguyen, et al., (2023) conducted a cross-national survey involving 200 firms across Southeast Asia to explore the relationship between AI use, strategic agility, and planning accuracy. The study found that AI-supported decision-making enhanced the alignment between strategic goals and resource allocation. Firms with adaptable leadership styles were particularly successful in harnessing AI for dynamic planning. The researchers concluded that organizational culture plays a vital role in mediating the effectiveness of AI adoption in strategic contexts.

METHODOLOGY

This study adopts a qualitative research methodology to gain an in-depth understanding of how artificial intelligence (AI) tools are shaping strategic planning and resource allocation in contemporary organizations. The qualitative approach is particularly appropriate for exploring complex, context-dependent phenomena such as strategic decision-making, where human judgment, organizational culture, and technology intersect in nuanced ways. The research design is exploratory and interpretive, grounded in the belief that strategic decisions influenced by AI are socially constructed and vary across organizational settings. Data was collected through semi-structured interviews, allowing for both consistency across participants and flexibility to probe deeper into emerging themes. A purposive sampling technique was used to select participants who

are directly involved in strategic planning and AI adoption, including Chief Information Officers (CIOs), strategic planners, data scientists, and senior executives from diverse industries. Approximately 15 to 20 participants were interviewed until thematic saturation is achieved—where no new information emerges from additional interviews. Each interview lasted for at least between 45 to 60 minutes and was conducted via secure video conferencing platforms. The interviews were recorded with informed consent and transcribed verbatim for analysis. Thematic analysis was employed as the primary method of data interpretation. Coding was done both manually and with the aid of qualitative data analysis software such as NVivo to ensure rigor and transparency.

Data Analysis

The data collected through semi-structured interviews were analyzed using thematic analysis, following Braun and Clarke's (2006) six-step framework. After transcribing the interview recordings verbatim, an initial round of open coding was conducted to identify meaningful segments of text. These codes were then clustered into broader themes reflecting participants' experiences and perspectives on the integration of AI into strategic planning and resource allocation. NVivo 12 software was used to facilitate systematic coding, retrieval of themes, and comparison across cases. Thematic saturation was achieved after 17 interviews, suggesting that additional interviews were unlikely to yield new insights. Three overarching themes emerged from the analysis: *AI as a Strategic Enabler, Challenges and Limitations in AI Adoption and Evolving Human-AI Collaboration in Decision-Making.*

Findings and Discussion of Findings

The findings of this study provide valuable insights into how artificial intelligence (AI) is influencing strategic decision-making processes and resource allocation practices within modern organizations. A key insight emerging from the data is that AI is a strategic enabler in many organizations. Participants noted that AI tools play a vital role in enhancing strategic planning functions. These tools assist decision-makers by processing large volumes of data to identify trends, assess competitive dynamics, and forecast market changes, particularly in uncertain environments. This aligns with Dwivedi et al. (2024), who emphasized that AI supports evidence-based strategic thinking by increasing the speed, precision, and scalability of data-driven insights. Similarly, Amankwah-Amoah, et al., (2023) found that firms utilizing AI in strategic planning experienced greater agility and foresight in turbulent market conditions.

The study also revealed that AI contributes significantly to more efficient and responsive resource allocation strategies. Respondents shared that AI-enabled systems have helped them make real-time decisions regarding budget allocation, workforce distribution, and supply chain planning. These findings resonate with Kraus et al. (2023), who noted that AI facilitates dynamic resource reallocation based on performance data and predicted outcomes, thereby enhancing operational efficiency. Furthermore, Shrestha et al. (2024) highlighted that AI's role in resource optimization is most impactful when it supports rapid iteration and scenario-based decision-making in sectors such as logistics, manufacturing, and retail.

Despite its advantages, the study uncovered significant challenges that limit the effectiveness of AI in strategic contexts. Concerns raised by participants include data privacy issues, algorithmic opacity, and resistance to AI adoption due to fear of job displacement and lack of trust in automation. Participants were particularly wary of algorithmic bias resulting from unrepresentative or skewed training datasets. These concerns are echoed by Zeng, et al., (2023), who warn that over-reliance on AI systems without understanding their internal logic may lead to ethically questionable or socially insensitive decisions. Dwivedi et al. (2024) also noted that without adequate governance and transparency, AI systems may amplify inequalities or introduce strategic blind spots, particularly when deployed without human oversight.

Another prominent theme is the importance of maintaining a balance between AI-driven insights and human judgment. While AI is recognized as a powerful tool for augmenting analytical capacity,

participants emphasized that final strategic decisions should remain the responsibility of human executives, especially in scenarios requiring ethical judgment, contextual interpretation, or socio-cultural sensitivity. This view is consistent with the findings of Shrestha, et al., (2024), who argue that the most effective strategic outcomes emerge from "cognitive complementarity" between humans and machines. Similarly, Jöhnk, et al., (2023) contend that organizations which foster collaboration between data scientists and strategists tend to extract the highest value from AI systems.

CONCLUSION AND RECOMMENDATIONS

This study concluded that AI has become an integral tool for enhancing strategic decision-making and resource allocation in data-driven organizations. AI enables faster, more informed decisions by uncovering patterns in data that would otherwise go unnoticed. However, successful integration depends not only on access to advanced technologies but also on organizational readiness, ethical governance, and the capacity for human-machine collaboration. Strategic value is derived when AI complements, rather than replaces, human insight—allowing organizations to remain agile, efficient, and ethically responsible. Based on the findings and conclusion, the following recommendations are proposed:

- i. Organizations should develop clear governance frameworks to guide the ethical use of AI in strategic decision-making. This includes ensuring algorithmic transparency, auditing AI outputs for bias, and protecting data privacy.
- ii. Rather than focusing solely on technical infrastructure, companies should foster collaboration between strategic planners and AI specialists. Interdisciplinary training programs and cross-functional teams can bridge the knowledge gap and enhance decision outcomes.
- iii. Leadership should focus on change management to address internal resistance. Building a culture that embraces innovation, data literacy, and responsible experimentation is essential for successful AI adoption.
- iv. AI should be framed as a tool for augmenting, not substituting, human judgment. Organizations are encouraged to maintain a balance where human intuition and ethical reasoning complement machine-driven insights.
- v. For small and medium enterprises, external support from government or private partnerships may be necessary to build AI capacity. Subsidies, toolkits, or shared AI services could enable broader participation in AI-driven strategy development.

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