

Using Integrated AI for Better and Effective Management Decision in an Organizational Context

Praveen K Harkawat

Head Quality - BU, L&T Technology Services Limited L&T Knowledge City, Special Economic Zone
(IT/ITES) West Block – II, NH No. 8, Village Ankhol, Vadodara,
Gujarat 390019

Abstract

The integration of Artificial Intelligence (AI) into organizational decision-making is transforming how businesses operate across industries. AI enables smarter, faster, and more informed managerial choices, enhancing both the effectiveness and agility of decision-making processes. This paper explores the impact of AI on the quality, speed, and accuracy of managerial decisions, highlighting significant improvements in data analysis and decision execution. The study demonstrates that AI is reshaping management practices, allowing companies to operate more efficiently, make precise decisions, and foster innovation. Organizations equipped with AI-driven tools can process vast amounts of data swiftly, empowering leadership with timely and insightful information. Ultimately, the adoption of AI in decision-making leads to better business outcomes and is redefining the future of organizational operations.

Keywords: Artificial Intelligence, New Tools, Managerial decisions making, Businesses.

Date of Submission: 01-11-2025

Date of acceptance: 10-11-2025

I. Introduction

Managing businesses in the age of Artificial Intelligence (AI) presents both unprecedented challenges and exciting opportunities, especially on a global scale. As AI continues to evolve, organizational leaders must remain agile, adapting to the shifting technological landscape, leveraging emerging tools, and staying vigilant about associated risks. AI, alongside robotics, is revolutionizing the very foundation of organizational operations, from routine tasks to strategic planning, fundamentally transforming how work is executed across industries.

Artificial Intelligence refers to computer systems designed to mimic human cognition—processing information, learning from experience, making decisions, and adapting over time. By enabling smarter, more targeted decision-making, AI helps businesses save time and resources. It can collect data, analyze trends, and predict future outcomes, thereby accelerating and enhancing the decision-making process. One of AI's key advantages lies in its ability to rapidly analyze vast datasets, identify patterns, and recommend optimal actions, reshaping decision-making across sectors.

Ahmed et al. (2022) highlight that AI technologies can process diverse forms of information, images, text, and sensor data, using algorithms ranging from simple rules to complex neural networks. Through machine learning, AI systems improve over time, becoming more accurate and efficient in decision-making. This kind of automation is already driving faster and more precise choices in domains such as retail, finance, communication, and media.

Benbya et al. (2021) emphasize that businesses are increasingly adopting AI tools to streamline operations, reduce costs, and enhance overall efficiency. Integrating AI into decision-making processes can fundamentally alter how organizations function and plan for the future. Chesbrough (2017) further asserts that AI enables faster execution, reduces errors, and fosters innovation, empowering companies to make data-driven decisions in a rapidly evolving and competitive environment.

AI's influence spans multiple sectors, including banking, healthcare, manufacturing, and advertising, contributing to improved risk management, resource optimization, and policy development. According to Precedence Research, the global decision intelligence market was valued at approximately USD 10.55 billion in 2022 and is projected to reach nearly USD 45.15 billion by 2032, growing at a compound annual rate of 15.7% from 2023 to 2032. Jarrahi (2018) acknowledges the growing role of AI in decision-making, as more organizations harness its capabilities to enhance performance and profitability.

II. Literature Review

Artificial Intelligence (AI) refers to the capability of machines to replicate human thinking and learning processes. As Tien (2017) notes, the primary goal of AI is to solve problems and make decisions swiftly, minimizing human error. In technical terms, such systems are often referred to as “smart bots.” Over time, advancements in technology have significantly expanded AI’s capabilities, making it a vital component in business decision-making—particularly in data processing tasks.

AI systems can analyze vast amounts of information, generate reliable predictions, and support accurate decisions without human intervention. Their ability to learn and improve over time makes them increasingly valuable to organizations. As AI processes more data, its decision-making becomes more refined. It builds intelligent models by analyzing large datasets, enabling self-improvement and deeper insights.

Rane et al. (2024) found that most business leaders are adopting smart technologies such as machine learning, natural language processing (NLP), and computer vision to achieve strategic goals. However, successful implementation requires more than just using these tools—it involves integrating them with human judgment and data to make optimal decisions. Decision-making impacts every aspect of a business, from product development and financial management to customer engagement.

Stone et al. (2020) observed that despite challenges, investment in AI has increased, with more businesses incorporating it into their decision-making processes. Previously, only 40% of organizations allocated more than 5% of their digital budgets to AI. Today, AI is central to shaping business strategies and operations.

Business decisions can be categorized into strategic, operational, and tactical levels. Strategic decisions, made by top management, guide the long-term direction of the organization and require careful planning. Operational decisions, typically handled by mid-level managers, focus on day-to-day activities and medium-term goals. Tactical decisions are short-term and task-specific, aimed at solving immediate issues or improving specific areas of business performance.

Effective decision-making is crucial for organizational success. AI enhances this process by supporting various stages of decision-making. It helps identify problems by analyzing large datasets, uncovering hidden patterns, anomalies, and emerging trends that may be overlooked by humans.

Paramesha et al. (2024) emphasize that technologies like machine learning, NLP, and data mining enable businesses to extract valuable insights from massive data volumes. AI can analyze internal records and external sources such as social media sentiment to suggest innovative strategies. Tools like chatbots and machine learning systems help businesses understand customer preferences and satisfaction levels. Before AI became integral to decision-making, leaders often relied on incomplete or unreliable data. Shrestha et al. (2019) highlight that AI introduced data-driven models and simulations, allowing for more informed managerial decisions. These systems continuously learn by processing large volumes of business data, improving their recommendations over time.

In healthcare, AI supports clinical decision-making by analyzing patient data and recommending personalized treatments. It reviews medical records and test results to suggest optimal care options, helping providers allocate resources effectively and prepare for potential disease outbreaks.

In finance, AI aids investment planning by analyzing historical trends and market behavior. Wu et al. (2025) found that AI delivers actionable insights that help financial experts make better decisions and improve returns.

AI also plays a critical role in supply chain and logistics. It provides intelligent insights that help companies optimize inventory levels, reduce storage costs, and streamline operations. By analyzing customer demand, machine performance, and material availability, AI enables efficient production scheduling and minimizes delays.

In marketing, AI helps segment audiences and tailor strategies by analyzing diverse data types. Marketers can create personalized campaigns that resonate with specific customer groups. AI tools go beyond numerical analysis—they can process unstructured data like text and images at scale.

Mah et al. (2022) explain that NLP enables computers to understand human language, facilitating automation of tasks such as customer service, sentiment analysis, and data interpretation. Prescriptive analytics offers actionable recommendations by identifying trends and contextual insights. Generative AI can process vast information, identify patterns, and generate insights faster and more comprehensively than humans. When these tools are integrated, businesses can effectively align data, performance metrics, strategic plans, and daily operations—ultimately boosting efficiency and driving growth.

Olayinka (2019) recognized that machine learning programs can analyze historical business decisions and large datasets to provide leaders with actionable insights and respond to data-driven queries. This demonstrates how AI supports smarter, more informed decision-making. Predictive analytics, for instance, identifies patterns and relationships in data to forecast future events—such as seasonal shifts—allowing businesses to proactively adjust their strategies. Retailers, for example, use predictive tools to manage inventory more effectively, ensuring product availability aligns with customer demand.

Generative AI further enhances decision-making by rapidly processing vast amounts of information, identifying trends, and delivering real-time, contextual insights. This not only saves time but also reduces the need for prolonged team discussions, accelerating consensus and action. AI is transforming business leadership by offering faster, more efficient workflows, personalized insights, intelligent data handling, reduced bias, optimized resource use, and improved analytical capabilities.

Beyond customer-facing applications, AI also enhances internal operations. Sun & Jung (2024) highlight how Human Resources departments utilize AI to recruit and retain talent, optimize shift planning, and improve training programs. Chatbots provide instant responses to employee queries, fostering a more supportive and engaging workplace environment.

In the financial sector, AI tools are instrumental in detecting fraudulent or suspicious transactions. By analyzing historical data, AI can identify anomalies and early warning signs, helping institutions address risks such as fraud, market volatility, or supply chain disruptions before they escalate. Walmart's use of AI for inventory management exemplifies how smart technologies enable automated, data-driven decisions.

Kowalska & Ashraf (2023) found that AI systems can process diverse data sources—including weather forecasts, satellite imagery, and soil monitoring—to offer farmers timely and practical recommendations, enhancing agricultural decision-making. Seamless integration of AI into existing decision-making frameworks is essential to unlocking its full potential. Businesses must focus on developing AI solutions that align with their current technological infrastructure, data ecosystems, and operational workflows.

III. Objective

To study the Role of AI Integration on the Better and Effectiveness of Management Decision.

IV. Methodology

To study the role on integrated AI on Better and Effective Management Decision in an Organizational Context, researcher decided to collect data from the secondary source.

Next section summarizes the findings of the research.

V. Findings

The integration of Artificial Intelligence (AI) into organizational decision-making processes has significantly transformed how businesses operate and strategize. AI empowers managers to make data-driven decisions by rapidly processing vast volumes of structured and unstructured data, identifying patterns, and delivering real-time insights. This capability enhances the accuracy and timeliness of decisions, reducing reliance on intuition and minimizing human error and cognitive biases.

Predictive analytics, a key component of AI, enables organizations to forecast future trends and events, such as seasonal demand fluctuations, allowing for proactive planning and resource allocation. Generative AI further accelerates decision-making by providing contextual insights quickly, reducing the need for prolonged deliberations and enabling faster consensus. These technologies collectively contribute to more efficient workflows, personalized insights, and intelligent data handling.

AI also plays a vital role in internal operations. In human resource management, AI tools assist in talent acquisition, shift scheduling, and personalized training programs. Chatbots enhance employee engagement by offering instant support, thereby fostering a more responsive and satisfying workplace environment. In the financial sector, AI is instrumental in detecting fraudulent activities and managing risks by analyzing historical data for anomalies and early warning signs.

Applications of AI extend across various industries. Retailers utilize AI for inventory management, ensuring product availability aligns with customer demand. Agricultural decision-making is enhanced through AI systems that analyze weather forecasts, satellite imagery, and soil data to provide timely recommendations. In logistics and supply chain management, AI helps optimize inventory levels, reduce storage costs, and streamline operations.

Marketing departments leverage AI to segment audiences and tailor campaigns based on customer behavior and preferences. AI's ability to process unstructured data—such as text and images—adds depth to customer insights, enabling more targeted and effective strategies. Technologies like Natural Language Processing (NLP), machine learning, and prescriptive analytics empower businesses to automate tasks, interpret human language, and generate actionable recommendations.

The seamless integration of AI into existing decision-making frameworks is essential to unlocking its full potential. Organizations must focus on developing AI solutions that align with their current technological infrastructure, data ecosystems, and operational workflows. When effectively implemented, AI enhances strategic, operational, and tactical decision-making, ultimately driving organizational efficiency, innovation, and long-term success.

AI tools used for various organizational decision-making activities

AI Activity Area	Purpose / Function	Commonly Used Tools
Data Processing & Pattern Recognition	Analyze large datasets, identify trends, deliver real-time insights	Tableau AI Insights, Microsoft Power BI (Copilot), IBM Watson Analytics, Alteryx AiDIN, Qlik Answers, Sisense AI
Predictive & Generative Analytics	Forecast trends, generate contextual insights, support proactive planning	Alteryx AiDIN, Power BI (Copilot), Tableau Pulse, ThoughtSpot, RapidMiner, KNIME, H2O.ai, DataRobot
Human Resource Management	Talent acquisition, shift scheduling, training, employee engagement	Eightfold.ai, SeekOut, Paradox, SC Training, Docebo, Quinyx, CoachHub, Leena AI, Culture Amp
Finance: Fraud Detection & Risk Management	Detect anomalies, manage financial risks, ensure compliance	IBM Watsonx, Feedzai, Resistant AI, Lucid Financials, Fynhaus, TurinTechevoML
Retail & Logistics	Inventory optimization, supply chain planning, demand forecasting	Blue Yonder, IBM Watson Supply Chain, Kinaxis Maestro, SAP Ariba, Oracle SCM, o9 Solutions
Marketing & Personalization	Audience segmentation, campaign targeting, customer behaviour analysis	Peak.ai, Optimove, Clearbit, Heap, FullStory, BlastPoint, Graphite Note
NLP, ML & Prescriptive Analytics	Automate tasks, interpret language, generate recommendations	OpenAI GPT-4, Google BERT, Microsoft Azure Cognitive Services, Hugging Face, IBM Watson NLP, Amazon Comprehend

Above table shows an indicative list. Additionally, companies can use more tools for specific domain and industry as per the business needs.

VI. Conclusion

Despite ongoing concerns surrounding the adoption of Artificial Intelligence (AI), particularly in areas such as data security and ethical use—its advantages in supporting decision-making are increasingly evident in today's data-driven business environment. AI plays a crucial role in managing the vast and diverse information that organizations encounter daily, enabling smarter, faster, and more informed decisions. This study reaffirms that, notwithstanding the challenges, AI significantly influences how managers approach decision-making by offering numerous benefits, including time savings, operational efficiency, and the ability to deliver personalized customer experiences.

Anastasios and Maria (2024) concluded that advancements in AI will continue to shape decision-making across various sectors, guiding individuals and organizations toward more intelligent and timely choices. The future of AI in decision-making is promising, with its potential to continuously improve managerial capabilities and redefine how strategic, operational, and tactical decisions are made. Organizations that integrate

AI effectively are likely to gain a competitive edge by enhancing their decision-making processes and adapting more swiftly to changing market conditions.

Moreover, AI contributes to sustainability efforts by optimizing resource usage and reducing waste, thereby supporting environmentally responsible business practices. The key factors driving the impact of AI on decision quality and speed include enhanced data processing and analysis, predictive and prescriptive analytics, and the ability to generate actionable insights from complex datasets. These capabilities collectively empower managers to make better decisions with greater confidence, precision, and agility.

References

- [1]. Anastasios, P., & Maria, G. (2024). Predictive AI in Business Intelligence Enhancing Market Insights and Strategic Decision-Making. *American Journal of Technology Advancement*, 1(8), 72-90.
- [2]. Ahmed, I., Jeon, G., & Piccialli, F. (2022). From artificial intelligence to explainable artificial intelligence in industry 4.0: a survey on what, how, and where. *IEEE Transactions on Industrial Informatics*, 18(8), 5031-5042.
- [3]. Benbya, H., Pachidi, S., & Jarvenpaa, S. (2021). Special issue editorial: Artificial intelligence in organizations: Implications for information systems research. *Journal of the Association for Information Systems*, 22(2), 10.
- [4]. Chesbrough, H. (2017). The future of open innovation: The future of open innovation is more extensive, more collaborative, and more engaged with a wider variety of participants. *Research-Technology Management*, 60(1), 35-38.
- [5]. Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, 61(4), 577-586.
- [6]. Kowalska, A., & Ashraf, H. (2023). Advances in deep learning algorithms for agricultural monitoring and management. *Applied Research in Artificial Intelligence and Cloud Computing*, 6(1), 68-88.
- [7]. Rane, N. L., Paramesha, M., Choudhary, S. P., & Rane, J. (2024). Artificial intelligence, machine learning, and deep learning for advanced business strategies: a review. *Partners Universal International Innovation Journal*, 2(3), 147-171.
- [8]. Stone, M., Aravopoulou, E., Ekinci, Y., Evans, G., Hobbs, M., Labib, A., ... & Machtynger, L. (2020). Artificial intelligence (AI) in strategic marketing decision-making: a research agenda. *The Bottom Line*, 33(2), 183-200.
- [9]. Paramesha, M., Rane, N. L., & Rane, J. (2024). Big data analytics, artificial intelligence, machine learning, internet of things, and blockchain for enhanced business intelligence. *Partners Universal Multidisciplinary Research Journal*, 1(2), 110-133.
- [10]. Shrestha, Y. R., Ben-Menahem, S. M., & Von Krogh, G. (2019). Organizational decisionmaking structures in the age of artificial intelligence. *California Management Review*, 61(4), 66-83.
- [11]. Mah, P. M., Skalna, I., & Muzam, J. (2022). Natural language processing and artificial intelligence for enterprise management in the era of industry 4.0. *Applied Sciences*, 12(18), 9207.
- [12]. Olayinka, O. H. (2019). Leveraging predictive analytics and machine learning for strategic business decision-making and competitive advantage. *International Journal of Computer Applications Technology and Research*, 8(12), 473-486.
- [13]. Sun, Y., & Jung, H. (2024). Machine Learning (ML) Modeling, IoT, and Optimizing Organizational Operations through Integrated Strategies: The Role of Technology and Human Resource Management. *Sustainability*, 16(16), 6751.
- [14]. Tien, J. M. (2017). Internet of Things, real-time decision-making, and artificial intelligence. *Annals of Data Science*, 4, 149-178.
- [15]. Wu, M., Subramaniam, G., Li, Z., & Gao, X. (2025). Using AI Technology to Enhance Data-Driven Decision-Making in the Financial Sector. *Artificial Intelligence-Enabled Businesses: How to Develop Strategies for Innovation*, 187-207.