Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

AI-enabled Strategic Planning: Opportunities and Constraints in Automating Corporate Decision-making Processes

Yi Shuiran[1], Huang Fei[1]*

[1]aSSIST University, Seoul 03767, Republic of Korea

*Corresponding author: huangfei@assist.ac.kr

ARTICLE INFO

Received: 18 Dec 2024

Revised: 28 Jan 2025

Accepted: 08 Feb 2025

ABSTRACT

When organizations plan their strategies, they consider their future goals and can adapt well to market changes. Because new technology has been introduced, companies can now use Artificial Intelligence (AI) to help with their strategic planning. By using AI, companies can recognize new trends beforehand and respond promptly to changes. However, it is challenging to apply AI when creating strategies. Firms in the present age may encounter biased information, ethical problems and hesitation to shift their culture as they try to find a middle ground for both humans and machines in taking decisions. This paper reviews how AI is used in planning strategy, coming up with fresh ideas and decision-making, along with the challenges involved.

Keywords: ethical, strategy, AI, promptly

AI in Strategic Planning: Opportunities

AI helps organizations collect, learn and understand information to help them see what is going to happen in the market and adapt accordingly. This section explains how AI can improve strategic planning with more precise analysis of information, enabling reliable predictions, reducing costs, hastening decision-making and offering great qualities and enhancements in their industry.

Enhanced Data Analysis and Forecasting Accuracy

Processing information in excess of human capacity is achievable today with the use of AI in strategic planning. The enormous quantities, high velocity, and complexity of data in contemporary business environments are posing difficulties to the majority of classical decision-making methods. According to Keding (2021), predictive analytics and machine learning with AI offer better analysis of data, viewing trends, and predicting what happens. Büber and Seven (2025) further state that applying AI-based analytics for planning business strategies improves the quality of business decisions because these are based on credible data to counter risks from rising economic trends.

Mariani et al. (2023) expound that AI enables firms to capitalize on structured data to create innovative ideas and predict trends in the market and technologies. From unstructured sources, firms can gain valuable information by using deep learning and natural language processing models. This facilitates organizations to prepare more effectively for different scenarios and review risks, helping to come up with effective strategies in dynamic business settings (Belk et al., 2023).

Giuggioli et al. (2024) confirm that via entrepreneurship and planning for investment using AI, its requirement becomes increasingly an issue of utmost priority. They recognize AI for facilitating precise prediction and decision-making in the face of intense uncertainty. Benbya et al. (2020) state

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

companies are relying increasingly on AI with its ability to manage tough data to drive wiser strategic decisions.

As per Sharma et al. (2022), AI helps research communities by utilizing valuable resources in the best possible manner and presenting recent and most relevant knowledge in favor of making important decisions. Real-time forecasting enables companies to become more responsive and aligns them in solving any challenge in the external world.

What makes AI unique is that it can attract outside information from the environment, such as market trends, competitive reactions, and regulation shifts and feed them into its models for forecasting. This enables business firms to anticipate the future and create strategies with foresight. Feroz and Kwak (2024) explain how this integration of external information provides a clearer picture of what is happening and enables business organizations to detect emerging opportunities and threats before their occurrence.

Real-Time Decision Support and Agility

Apart from mere crunching of numbers, AI plays an important role in enhanced strategic planning through instant decision-making. As observed from Narne et al. (2024), AI-powered decision support systems (DSS) monitor real-time operations, market trends, and competitor activity in real time and feedback instant results to managers so they can make instant course corrections to their strategies. It is important in extremely competitive markets; delay in decision-making can cause opportunities to be missed or competitiveness lost (Hamadaqa et al., 2024).

Kaggwa et al. (2024) describe how AI technology may insert successive sequential streams of data without breakdown and support the employment of adaptive action. By monitoring levels of performance and the external context, organizations can change plans in real time and align operations with their strategy goals. Flexibility on the fly is a long way from planned cycles too frequently, bound by inability to respond to sudden change.

Feroz and Kwak (2024) identify the best synergy of AI and digital transformation by pointing out that their convergence begets seamless, real-time responsiveness of strategies. The integration of AI in business models has the potential to build integrated, data-driven systems that are even more responsive to pro-active decision-making.

Kumar et al. (2023) also mention strategic benefits of AI in human resource management such that real-time analytics facilitate alignment of the workforce skills with constantly shifting organizational strategies to bring increased agility into the entire organization.

Moreover, AI use in simulation environments allows decision-makers to experiment with alternative strategies in various situations with no tangible ramifications. This "virtual sandbox" approach speeds up learning and produces improved strategic decisions, Mariani et al. (2023) find.

Cost Reduction and Efficiency

AI-based automation is a very efficient way to realize higher working capacity involving minimal staff and simultaneously cutting costs. The paradox of automation-augmentation developed by Raisch and Krakowski (2021) is a theory that draws attention to AI, which displaces routine analytical work and still extends the decision-making capacity of persons with abstract insights. The double-stage process is the means to increase productivity because strategists get off the chain on the ground-level tasks and deal with abstract cognition.

Through AI technology, Edilia and Larasati (2023) have depicted business growth plans by fully replacing human beings at work, hence no human errors, no time loss for data processing, and so on, they argued. Moreover, Eboigbe et al. (2023) believe that using AI in business is beneficial for conducting business intelligence through the transformation of resources and the optimization of production processes, which could further lead to cost-saving and efficient work in the departments.

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Through the automation of repetitive planning activities like data consolidation, reporting, and preliminary analysis, AI lowers labor costs and accelerates planning cycles (Al-Surmi et al., 2022). This improves the speed of strategy development and enables organizations to update plans more frequently and stay strategically relevant.

Kaggwa et al. (2024) note that such efficiencies assist in enabling more nimble resource management, enabling companies to divert financial and human capital to growth and innovation initiatives.

Innovation and Competitive Advantage

AI is also a catalyst for innovation that enables organizations to develop and uphold competitive advantage based on more sophisticated planning. Aldoseri et al. (2024) identify AI-enabled innovation as one of the bases of digital transformation. AI technologies facilitate the development of new products, services, and business models appropriate for changing market demands. Building on this, Rane et al. (2024) highlight the central role that machine learning and deep learning drive business strategy, observing how such AI techniques enable firms to learn new market opportunities, optimize their operations, and continuously make their strategic initiatives better to remain competitive.

Dong et al. (2025) illustrate the contribution of AI to firm growth by increasing innovative capacities and decreasing time-to-market. The results of their study indicate that adopting AI is linked with improved measures of firm performance, reflecting its strategic value in highly competitive sectors.

Büber and Seven (2025) further argue that AI enables the integration of classical, adaptive, resource-based, and processual strategic views to develop an integrated and balanced innovation management framework. This integrated framework ensures that firms remain innovative and responsive to technology while maximally exploiting core competencies.

Chui et al. (2023) propose watching for technology trends where AI disrupts and drives continuous innovation. Organizations that bet on AI-driven strategic planning stand well to spot opportunities in advance and move fast to deal with competition threats. Sharma et al. (2022) also highlight the ability of AI to accelerate innovation cycles, especially in research-oriented industries where AI-generated insights can chase new product development prospects.

Constraints and Challenges

While AI offers potential in novel and strategic planning, its application has significant limitations and complexities. The implementation challenges range from bias and data quality to ethical challenges, excessive dependence on AI risk, organizational resistance, and automation error. Organizations interested in applying AI for best use need to overcome these limitations without being affected by the risks of negative impact.

Data Quality, Bias, and Reliability Issues

One of the primary challenges with strategic planning based on AI is upholding the quality, consistency, and objectivity of data utilized to drive AI systems. AI is extremely sensitive to training and analysis data, which are bound to be biased and factually incorrect. Strauß (2021) refers to the widespread deep automation bias problem in which decision-makers overestimate AI outputs and do not critically question their correctness, especially when incomplete and biased data are used to train AI systems.

Stoycheva and Vitliemov (2024) identify that data bias stems from systemic bias in the historical data sets or representative samples, generating misleading action recommended by AI. These biases can potentially sustain existing inequalities and generate strategic choices based on dichotomized realities of markets and societies. Low-quality data can also result in inconsistent AI predictions that undermine the validity of AI-backed strategies.

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Volatility in business conditions also undermines the stability of AI systems. Past data models cannot cope with dramatically changing market conditions, and their recommendations and forecasts become obsolete or inaccurate. This "model drift" must be continually monitored and updated, making AI systems more complicated and resource-intensive.

Ethical and Privacy Concerns

Ethics and privacy are the broader concerns in the use of AI in strategic planning. Hilb (2020) raises the use of AI in business governance and how responsibility and transparency are engaged. The transparent nature of not all AI models- "black box" models- makes it hard for stakeholders to comprehend the rationale behind AI decision-making and renders it vulnerable to being called into question regarding fairness and responsibility.

Vereschak et al. (2021) outline many methods of how to quantify trust in AI decision-making, and transparency and explainability must build confidence among human decision-makers and stakeholders. It is also a matter of privacy created by the blanket use of personal and sensitive information by AI. Businesses must navigate statutes such as the General Data Protection Regulation (GDPR) and process data securely and lawfully, and it can become hugely complicated when combining various data sets.

The exploitation of AI intelligence by, for instance, surveillance or misleading advertising also stands to generate further ethical issues, damaging reputations and ending in lawsuits (Joshi, 2025). Institutions are, therefore, obligated to implement definitive ethical guidelines and governance procedures to guide AI use responsibly.

Over-Reliance on AI and Loss of Human Judgment

Excessive reliance on AI may degrade human judgment, which is still needed in strategic decision-making. Raisch and Krakowski (2021) introduce the automation-augmentation paradox, where AI automates mundane tasks but must supplement, rather than replace, human judgment. Overdependence on AI may unskilled managers and decrease critical thinking, resulting in poor or incomplete AI decisions if the latter are unsatisfactory.

Vereschak et al. (2021) also touch on a balance between skepticism and trust in AI. Excessive faith in AI advice can deprive decision-makers of an opportunity to criticize implicit assumptions or background knowledge that may not be taken into account by AI. Human instinct, moral sense, and local knowledge are important factors when interpreting conclusions drawn from AI and molding them according to business ethics.

This balance includes ongoing learning and organizational cultural evolution to enable collaboration between human experts and AI systems in comparison to adversarial or passive associations.

Integration and Organizational Resistance

Implementation of AI into existing strategic planning practices is a primary organizational concern. Structural and cultural changes for AI implementation are described below by Dobrin (2024), including worker resistance, catalyzed by automation anxiety at work, AI distrust, and lack of familiarity with the capabilities of AI.

Kumar et al. (2023) also note that AI must be done well by re-defining workflow, reskilling investment, and instilling a data-first approach at the organizational level. AI projects fail due to organizational resistance or misaligned expectations in case of the lack of leadership support and communication.

Benbya et al. (2020) argue that AI change is not technological change but a change that seeps through governance, cooperation, and decision rights. Change management practices of adaptive

change and collaboration engagement programs must be adopted in order to enable the management of the change and dismantle impediments to be adopted.

Automation Errors and Risk Management

Even the most advanced AI programs are not infallible, and these errors carry serious weight in strategic contexts. King and Prasetyo (2023) analyze situations wherein generative AI and other advanced algorithms produced incorrect responses due to data deficits, algorithmic mistakes, or unforeseen edge cases and may enable the production of errant strategic decisions.

Faishal et al. (2023) highlight the changing risk landscape regarding automation and AI and the need for efficient risk management systems. Continuous monitoring, validation, and human intervention are required to spot and rectify AI errors, limiting adverse effects on time.

In addition, highly advanced AI makes it challenging to pin the blame in case of failure. The proper measures must be employed to attribute responsibility and maintain transparency whenever high-risk judgments are made by AI systems.

Stone et al. (2020) affirm that organizations must embrace a conservative and step-by-step vision of AI implementation in strategy, balancing pilot testing with stringent evaluation measures to attain innovation with risk management.

Case Studies / Industry Examples

Real-world use of AI in strategic planning is more common in industries, varying from success stories to cautionary lessons. These lessons are vital in ascertaining how AI introduces better decision-making and the pitfalls facing organizations.

Csaszar et al. (2024) illustrate entrepreneurial activity and investment decision with examples of AI as a fundamental driver of strategic performance and resource allocation. They illustrate how start-ups leverage AI-facilitated strategies to choose market opportunities, fine-tune portfolios, and adapt business models dynamically based on new input data. Prior AI use increases flexibility and positioning in volatile markets.

Similarly, Mariani et al. (2023) document firm instances wherein AI adoption accelerates innovation cycles and facilitates strategic research. Their systematic review indicates that global organizations leverage AI for processing information and creating new insights to inform the development of products and growth markets. Such firms utilize AI in cross-functional teams to increase teamwork-based innovation aligned with strategic initiatives.

However, none of the implementations have been smooth. Stoycheva and Vitliemov (2024) analyze examples of failure by AI based on biased data sets and inadequate governance systems. They caution that strategic priorities get distorted unless the biases are corrected and unethical outcomes are produced. Hilb (2020) agrees that effective corporate governance systems must be established to avoid a lack of transparency, dishonesty, and abuse of AI. Poor governance problems could create reputational loss and business risk.

AI is also extremely helpful in niche industries. According to Stone et al. (2020), utilizing AI simplifies how marketers make optimal decisions by planning and segmenting customers. In Human resource management, Kumar et al. (2023) note that AI helps by estimating the performance of potential employees and the chances they will leave an organization. They illustrate that AI is flexible in enabling strategies in different sectors.

These case studies prove that the effective implementation of AI technologies in strategic planning will always be accompanied by considering organizational factors, structure, ethics, and readiness aside from technological capability. Firms utilizing technical AI solutions with an appropriate

Research Article

management structure and business acumen perform better than others, while those disregarding these factors experience severe challenges.

Future Trends and Recommendations

The changes in firms' strategic planning will be further advanced with the emergence of new generative AI technologies. King and Prasetyo (2023) elaborate on the potential of generative AI models to create complex content and simulations to enhance scenario planning and forecasting by producing numerous possible alternatives, thus allowing decision-makers to mitigate risks better and utilize opportunities. In addition, Chui et al. (2023) focus on the need for firms to sustain their focus on evolving trends in AI technologies so that these firms can take full advantage of the developments and remain competitive in the business world.

Incorporating AI technologies within the framework of overall digital transformation strategies is gaining greater momentum, enabling the circulation of information, integration, and communication across enterprise functions. Feroz and Kwak (2024) stress that realigning the adoption of AI with the strategies of digital transformations helps to develop more flexible organizational ecosystems that are responsive to change and support innovation at different levels. This combination provides instantaneous access to information and rapid response, essential in highly dynamic markets. In addition, integrating AI with cloud computing and edge devices greatly improves the level at which AI systems can be scaled and accessed, even by smaller firms that want to implement sophisticated strategic planning systems.

Technological innovations do not eliminate the need for ethical governance and transparency. According to Hilb (2020), there is growing concern that with AI systems becoming more entrenched within organizational procedures, there is a need to build governance models that are, by design, accountable and transparent in order to sustain stakeholder trust. Dobrin (2024) highlights a lack of policy for AI deployment that sets ethics and engagement with stakeholders involved, which poses significant risk in terms of bias, privacy, and malpractice. Vereschak et al. (2021) go a step further by challenging trust related to human-AI interaction to be questioned from the viewpoint of an ever-evolving system and suggest operationalizing transparency and user trust in terms of user confidence as iterative feedback functions.

Success and implementation of every AI project rely on organizational culture and hold the utmost importance. Dobrin (2024) stresses as far as developing a culture of constant learning and ethical data-driven decision-making in a way that enables the realization of the strategic benefit of AI is concerned. On the contrary, Faishal et al. (2023) refer to training modules of timed tests for AI readiness, adaptive leadership, and agile frameworks to facilitate workforce readiness for AI integration. Organizational objectives dictate that AI systems continuously monitor and evaluate in detecting and countering threats. Interdisciplinary AI experts, strategists, ethicists, and other experts facilitate organizational problem-solving and responsible innovation development.

Conclusion

With the help of Artificial Intelligence, strategic planning will benefit from enhanced investigation of information, offering useful advice, successful outcomes and inventive ideas. The use of technology allows firms to handle complexity faster and more precisely. Use of AI involves some risks like data bias, ethics, concerns about using too much AI, opposition from internal groups and possible human errors during automation. Clearly defining boundaries is necessary to stop situations that may cause the company to fail and lose its reputation with stakeholders. Proper use of AI in strategic planning involves combining technology, common sense, ethics and a culture ready to adopt it. When human decision-makers and AI are together in an organization, it allows the organization to benefit from AI while protecting against risks. It is meant to help businesses make better decisions and succeed as the world of technology develops.

Research Article

References

[1] Aldoseri, A., Al-Khalifa, K. N., & Hamouda, A. M. (2024). AI-powered innovation in digital transformation: Key pillars and industry impact. Sustainability, 16(5), 1790. https://doi.org/10.3390/su16051790

[2] Al-Surmi, A., Bashiri, M., & Koliousis, I. (2022). AI based decision making: combining strategies to improve operational performance. *International Journal of Production Research*, *60*(14), 4464-4486. https://doi.org/10.1080/00207543.2021.1966540

[3] Belk, R. W., Belanche, D., & Flavián, C. (2023). Key concepts in artificial intelligence and technologies 4.0 in services. Service Business, 17(1), 1-9. https://doi.org/10.1007/s11628-023-00528-w

[4] Benbya, H., Davenport, T. H., & Pachidi, S. (2020). Artificial intelligence in organizations: Current state and future opportunities. *MIS Quarterly Executive*, *19*(4). https://dx.doi.org/10.2139/ssrn.3741983

[5] Büber, H., & Seven, E. (2025). Strategic Decision-Making in the AI Era: An Integrated Approach Classical, Adaptive, Resource-Based, and Processual Views. *International Journal of Management and Administration*, *9*(17), 67-97. https://doi.org/10.29064/ijma.1637935

[6] Chui, M., Issler, M., Roberts, R., & Yee, L. (2023). Technology trends outlook 2023.

[7] Csaszar, F. A., Ketkar, H., & Kim, H. (2024). Artificial intelligence and strategic decision-making: Evidence from entrepreneurs and investors. Strategy Science, 9(4), 322-345. https://doi.org/10.1287/stsc.2024.0190

[8] Dobrin, S. (2024). *AI IQ for a Human-focused Future: Strategy, Talent, and Culture*. CRC Press. https://doi.org/10.1201/9781003486725

[9] Dong, Y., Willcott, N., Yang, X., & Yang, Y. (2025). Growing up in the modern world: how does artificial intelligence enhance firm growth?. Managerial Finance. https://doi.org/10.1108/MF-09-2024-0715

[10] Eboigbe, E. O., Farayola, O. A., Olatoye, F. O., Nnabugwu, O. C., & Daraojimba, C. (2023). Business intelligence transformation through AI and data analytics. *Engineering Science & Technology Journal*, *4*(5), 285-307.

[11] Edilia, S., & Larasati, N. D. (2023). Innovative approaches in business development strategies through artificial intelligence technology. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *5*(1), 84-90. https://doi.org/10.34306/itsdi.v5i1.612

[12] Faishal, M., Mathew, S., Neikha, K., Pusa, K., & Zhimomi, T. (2023). The future of work: AI, automation, and the changing dynamics of developed economies. World Journal of Advanced Research and Reviews, 18(3), 620-629. https://doi.org/10.30574/wjarr.2023.18.3.1086

[13] Feroz, K., & Kwak, M. (2024). Digital Transformation (DT) and Artificial Intelligence (AI) Convergence in Organizations. *Journal of Computer Information Systems*, 1-17. https://doi.org/10.1080/08874417.2024.2424372

[14] Giuggioli, G., Pellegrini, M. M., & Giannone, G. (2024). Artificial intelligence as an enabler for entrepreneurial finance: a practical guide to AI-driven video pitch evaluation for entrepreneurs and investors. Management Decision. https://doi.org/10.1108/MD-10-2023-1926

[15] Hamadaqa, M. H. M., Alnajjar, M., Ayyad, M. N., Al-Nakhal, M. A., Abunasser, B. S., & Abu-Naser, S. S. (2024). Leveraging Artificial Intelligence for Strategic Business Decision-Making: Opportunities and Challenges. https://philpapers.org/rec/HAMLAI

[16] Hilb, M. (2020). Toward artificial governance? The role of artificial intelligence in shaping the future of corporate governance. *Journal of Management and Governance*, *24*(4), 851-870. https://doi.org/10.1007/s10997-020-09519-9

[17] Joshi, S. (2025). Review of Artificial Intelligence in Management, Leadership, Decision-Making and Collaboration.

Research Article

[18] Kaggwa, S., Eleogu, T. F., Okonkwo, F., Farayola, O. A., Uwaoma, P. U., & Akinoso, A. (2024). AI in decision making: transforming business strategies. International Journal of Research and Scientific Innovation, 10(12), 423-444. https://doi.org/10.51244/IJRSI.2023.1012032

[19] Keding, C. (2021). Understanding the interplay of artificial intelligence and strategic management: four decades of research in review. Management Review Quarterly, 71(1), 91-134. https://doi.org/10.1007/s11301-020-00181-x

[20] King, S., & Prasetyo, J. (2023, December). Assessing generative AI through the lens of the 2023 Gartner Hype Cycle for Emerging Technologies: a collaborative autoethnography. In *Frontiers in Education* (Vol. 8, p. 1300391). Frontiers Media SA. https://doi.org/10.3389/feduc.2023.1300391

[21] Kumar, A., Negi, H. C. S., & Nikylina, O. (2023). Artificial Intelligence in Reinventing Strategic Human Resources. In *Disruptive Artificial Intelligence and Sustainable Human Resource Management* (pp. 97-110). River Publishers. https://doi.org/10.1201/9781032622743

[22] Mariani, M. M., Machado, I., Magrelli, V., & Dwivedi, Y. K. (2023). Artificial intelligence in innovation research: A systematic review, conceptual framework, and future research directions. *Technovation*, *122*, 102623. https://doi.org/10.1016/j.technovation.2022.102623

[23] Narne, S., Adedoja, T., Mohan, M., & Ayyalasomayajula, T. (2024). AI-Driven Decision Support Systems in Management: Enhancing Strategic Planning and Execution. International Journal on Recent and Innovation Trends in Computing and Communication, 12(1), 268-276.

[24] Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of management review*, *46*(1), 192-210. https://doi.org/10.5465/amr.2018.0072

[25] 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. https://doi.org/10.5281/zenodo.12208298

[26] Sharma, A., Virmani, T., Pathak, V., Sharma, A., Pathak, K., Kumar, G., & Pathak, D. (2022). Artificial intelligence-based data-driven strategy to accelerate research, development, and clinical trials of COVID vaccine. BioMed research international, 2022(1), 7205241. https://doi.org/10.1155/2022/7205241

[27] 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. https://doi.org/10.1108/BL-03-2020-0022

[28] Stoycheva, B., & Vitliemov, P. (2024). CHALLANGES OF USING ARTIFICIAL INTELLIGENCE IN MANAGEMENT DECISION MAKING. *Strategies for Policy in Science & Education/Strategii na Obrazovatelnata i Nauchnata Politika*, *32*. https://doi.org/10.53656/str2024-3s-4-cha

[29] Strauß, S. (2021). Deep automation bias: how to tackle a wicked problem of AI?. Big Data and Cognitive Computing, 5(2), 18. https://doi.org/10.3390/bdcc5020018

[30] Vereschak, O., Bailly, G., & Caramiaux, B. (2021). How to evaluate trust in AI-assisted decision making? A survey of empirical methodologies. Proceedings of the ACM on Human-Computer Interaction, 5(CSCW2), 1-39. https://doi.org/10.1145/3476068