# THE DEVELOPMENT OF AI-SUPPORTED LEADERSHIP MODELS[1]

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**ABSTRACT**

The rapid development of AI technologies has been a transformative factor for organizational leadership. This study discusses the effects of AI on organizational leadership from a theoretical perspective through a literature review. This paper analyzes the impacts of AI on organizational leadership from different points of view. The results showed that AI is important in providing more realistic and data-driven solutions by accelerating the reliability of decision-making processes. Big data analytics and AI algorithms develop the strategic decision-making skills of leaders more effectively and on time. AI further builds up the emotional intelligence of leaders by making them more capable of communicating with their subordinates. Hereby, employee motivation increases and cooperation across organizations grows stronger. It is observed that leaders using AI-supported tools understand the needs of their employees better and develop more adapting solutions for them. However, this study also emphasizes AI's ethical and social challenges in leadership. It is stated that the automation processes generated by AI can redefine job descriptions and raise concerns about job security and privacy among employees. In this respect, leaders are encouraged to take these worries into account and ensure a justified transition process in the process of integrating AI technologies within organizations. AI, though presenting a variety of opportunities for organizational leadership, also presents some challenges that require being addressed with a corresponding gravity. AI is an instrument for enhancing the efficiency of organizations, which cannot function without supporting innovation. Meanwhile, leaders should also pursue a balanced approach regarding ethics and social responsibility.

**Keywords:** Artificial Intelligence, Organizational Leadership, Ethics, Strategic Decision-Making

**JEL Codes:** M12, O33, D83

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## 1. INTRODUCTION

Artificial intelligence (AI) has become prominent as an important technology which shapes the organizational structures and leadership perception in today's business life. While AI components like data analytics, machine learning and automation put quickness and correctness in the decision-making processes of leaders, they also ensure new approaches in strategic management (Makarius et al., 2020). This development does not only increase the operational efficiency of leaders but also ensures the employees develop motivation and cooperation.

Studies on the effects of AI on organizational leadership show that AI supports leaders to make more effective and data-oriented decisions both on an individual and team basis. This change not only strengthens leadership performance but also encourages an innovative approach in leaders' communication with employees (Estherita & Shanmugam, 2024). In this paper, various aspects of AI on leadership, the opportunities it provides and the ethical-social challenges it brings with it will be discussed. This study aims to examine the role of AI in organizational leadership and to understand the long-term implications of AI integration on leadership. In this context, the advantages of AI, such as data-driven decision-making, rapid strategic intervention and increased employee satisfaction, as well as challenges such as job security and ethical issues will be considered (Trunk et al., 2020). In line with these objectives set out in the introduction, the article will analyze the effects of AI on leadership performance and potential future application areas.

## 2. THE RELATION BETWEEN AI AND LEADERSHIP

The development of AI technologies is forcing leadership processes that are more radical in nature. Conventional leadership is increasingly giving away to leadership models supported by AI, a model that is more rational, data-driven, analytic, and fast. Using AI techonology tools enabled leaders make decisions that are wiser, more effective due to the deeper analysis of complex information sets. For this reason, they will be more vital in strategic decision-making and crisis management (Bhima et al., 2023).

AI adds value in leadership processes and helps leaders get into closer relatiosn with employees. AI-supported leadership models help leaders communicate by understanding the emotional states of their employees better. In turn, leaders contribute to increasing employee motivation and commitment (Rožman et al., 2023).

AI can also support leaders effectively in managing the teamwork processes. The AI-powered analysis tool measures the degree of cooperation within the teams and delivers comprehensive reports to the leader, which helps a leader better identify the team's strengths and weaknesses for better functioning of the teams (Arslan et al., 2021).

However, AI-supported leadership has a few probable problems like the ethical and social consequences of AI. Particularly, leaders have to address issues such as neutrality in

algorithms of AI and protection against violation of privacy rights among employees. Concerns among the workforce that AI threatens job security show that this process must be handled with care by the leaders (Jarrahi, 2018).

## 3. AI AND DECISION-MAKING PROCESSES

Decision-making is a critical competency within organizational leadership processes. AI-empowered tools allow leaders to put forward fast, data-driven, and analytical solutions, thereby creating a great deal of advantage for leaders in strategic decision-making processes in particular. Thanks to AI's data-driven analytical capability, leaders will become better prepared against possible future scenarios by taking insight from past data (Trunk et al., 2020).

AI's contribution to decision-making supports leaders to develop accurate solutions in the face of uncertainty and complexity. Especially in situations with high uncertainty, AI provides the necessary data for leaders to see their options more clearly and accelerate the decision-making process. AI-supported algorithms provide flexibility in the decision-making process of organizations by making their risk analyses faster and more accurate (Vincent, 2021).

Decision-making process can be more reliable by using AI technology. As an advantage, it minimizes human error. In that respect, the AI algorithm handles biases and informational deficiencies caused by human factor more objectively and with much grounds for data, thereby letting the decisions be objective and more reliable.

It has therefore provided important support for leaders, especially in the ethics decision-making processes (Dignum, 2018). Besides, some studies have determined that AI will not only provide speed and efficiency in decision-making but also strategic insight that guides leaders. Predictive nature of AI-supported analysis about market trends and consumer expectations helps leaders make their decisions more long-term-oriented and strategic (Charitha & Hemaraju, 2023).

AI-driven decision-making processes also raise ethics and privacy concerns. For example, leaders have to be open about how algorithms work and on what data they are based for employees to trust the processes. Furthermore, among the important factors a leader has to consider in their decision-making process is data privacy and algorithmic biases (Baum, 2017).

## 4. AI-SUPPORTED LEADERSHIP AND EMOTIONAL INTELLIGENCE

AI contributes not only to decision-making mechanisms in leadership development but also in the development of leaders with emotional intelligence competencies. Traditional leadership approaches include emotional intelligence, which is very crucial and helps leaders effectively communicate with employees. With the AI-supported analyses, leaders

make stronger communications by better understanding the needs, expectations, and emotional states of the employees (Mesmer-Magnus et al., 2008).

AI-enhanced leadership may allow leaders to enhance employees' motivation and increase better collaboration. For example, emotion analysis systems supported with artificial intelligence provide data to the leader immediately about job satisfaction, stress levels, and motivations of all employees. By doing this, leaders would devise techniques that are based on employee emotional states and consequently can allow them to increase their level of engagement (Shukla et al., 2023).

Another positive impact of AI deals with the fact that with the help of AI, many leaders are able to develop their empathetic, social sensitivity skills. AI tools, when joined with emotional intelligence, present leaders as more sensitive relating to the needs of any employee. This enhances workforce satisfaction and helps in maintaining a friendly work environment within an enterprise (Cawthorpe, 2023).

Moreover, it is noticed that AI-supported tools assist leaders even in assessing their own emotional intelligence. The development of the leaders' skills in managing stress, empathy, and emotional awareness increases the quality of organizational leadership. In this respect, through AI-supported leadership practices, leaders may establish deeper and more meaningful bonds with their employees and ensure that teams work in harmony (Webber et al., 2019).

## 5. AI AND SOCIO-ETHICAL PROBLEMS

The use of AI technologies in organizational leadership has various social and ethical challenges as well as advantages. The integration of AI into organizational leadership processes raises concerns such as job security, privacy and algorithmic bias, especially among employees. Addressing these concerns will be possible only if leaders implement AI technologies in an ethical framework (Beccalli et al., 2020). We can list the possible social and ethical problems that AI technologies will create as follows:

*Job Security and Privacy Issues:* The proliferation of AI in organizations can cause concerns about job security among employees. Especially the automation of repetitive tasks causes some employees to concern about losing their jobs. To address these concerns, leaders need to communicate transparently and reassure employees that AI will be only used as a supportive tool (Ammer et al., 2023).

*Algorithmic Biases and Ethical Decision-Making:* Another important issue in the utilization of AI systems is algorithmic biases. Since AI algorithms give out decisions based on historical data, biases in the data are reflected in the AI decisions. This requires leaders to take necessary precautions to ensure fairness and unbiasedness in the operation of AI systems. Besides, leaders should offer transparency in ethical decision-making processes and inform employees about those processes (Dignum, 2018).

***Ethical Concerns from Employee Perspective:*** Employees are concerned about privacy when the leaders use IA-supported technologies in performance management systems. Possible interventions with AI may be perceived as interventions in both professional and private lives of the employees. So, leaders are obliged to protect the privacy rights of the employees while using AI technology in their organizations (Syed et al., 2023).

***Fair Integration Process:*** AI integration in organizations puts employees at the risk of having to adapt to this technology. Fair transition and integration mean employees are in a very good position to adopt these AI applications. The extent to which leaders are including and organizing trainings for all on AI means greater usage and effectiveness. Understanding and considering ethical and social responsibilities during AI's integration into an organization is a critical factor for success. Leaders who can perform by considering ethical responsibilities are able to support the integration of AI into the organization, creating trust among employees (Joshi & Masih, 2023).

## 6. AI INTEGRATION IN ORGANIZATIONS

Today AI is the most fundamental element of the technological revolution and is driving radical changes not only in business processes but also in perspectives on leadership. It is changing the leading role, from mechanistic ways up to making a decision and giving strategic directions to managing strategic human-machine collaboration. It is this development that brings into sharp focus the role of the leader in leading their organizations through data-driven decisions, ethical responsibilities, and interaction designs involving employees and AI. Research investigating the consequences of AI on leadership across several dimensions, such as unleashing improvement in productivity, strategic management, ethical challenges, and cultural transformation, are boundless.

In 2020, Makarius et al. conducted research to understand how AI technologies integrate into organizations. In the scope of the research, the influence of AI technologies on the organization was measured by using the sociotechnical framework. It was argued that with the findings of this study, 80% of big companies integrate AI technologies into their business processes, and this rate increased by 70% within the last five years. However, it is not unmentioned that 70% of these projects do not give the assumed effects and therefore have a high rate of failure. When these cooperation results between AI and human brains are analyzed, it is viewed to reduce the error rates to 0.5%. To optimize this integration between AI and employees, the authors introduced the Socio-technical Capital Model. They present, within this model, six various types of human-AI interaction according to dimensions of AI innovation level and scope. According to the model, the socialization process consists of anticipatory, encounter, and metamorphosis phases that support employees to adapt to AI. The study emphasizes that human and machine collaboration should be strategically addressed in creating an organizational competitive advantage.

Pereira et al. conducted a study in the year 2021, contributing to the findings on the results of the business outcomes on organization AI usage in HR management using a "Systematic Literature Review". The review compiled up to 60 full published articles between the two periods 1995 and 2000 which indicated various technologies of AI. In the context, machine learning showed 36% while generally artificial intelligence applications occupy 28% on each technology area reviewed. While 42% of the articles were analyzed at the organizational level, individual and team-level analyses were only done for 15%. It is stated that with the results of the analysis, AI applications can increase employee performance up to 20%, and the capacity related to information sharing and solving problems can be increased up to 30% more. Further, it was spotted that AI-supported ergonomic analyses—basically increasing occupational safety—can reduce occupational accidents in the workplace by 10%. The study shows which areas of human resource management most often reach significant improvements with Artificial Intelligence integration: productivity, ability, and information sharing on safety.

The article discusses how AI influences leadership, in which the changing roles of a leader take priority in directing human and artificial intelligence interactions. It also indicated that for the successful implementation of strategic transformation, 70% of leaders have to articulate their vision clearly and create transparent communications. It was also said that AI will change leaders' roles in decision-making processes. It will be 60% more important for leaders to focus on their ability to evaluate data quality and manage human-AI collaboration, rather than technical details. The point emphasized by 75% of the employees was that a company culture had to be developed in accordance with AI implementation, and with the cultural approach of having a high fault tolerance when adopting AI, the rate of success in the process of change can be increased up to 20%. While human-AI collaboration is said to enhance business process efficiency by 30%, it is of paramount importance that the ethical values of the enterprise and employee contribution are ensured in this respect. As this work mentions, AI embedding should be approached as human-centred transformation and not just a form of technological change (Peifer et al., 2022).

In the study conducted by Rüth & Netzer in 2024 on the effects of AI on leadership, it is stated that AI reshapes the decision-making and strategic planning processes of leaders, while it also has a transformative effect on organizational structures. It was stated that leaders making more informed and data-based decisions by using the data provided by AI increases organizational efficiency. It is also pointed out that human-machine collaboration increases productivity by up to 20% in operational processes. The study also accentuates the use of AI with ethical concerns and highlights that leaders should minimize possible biases of AI and act with ethical responsibilities. In short, the integration of AI brings about a shift in leadership roles, embedding a culture of collaboration between man and machine, leading to innovation.

## 7. THE EFFECT OF AI ON FUTURE LEADERSHIP APPLICATIONS

In the future, AI technologies are likely to play an even more influential role in organizational leadership. Integrating AI into leadership development programs and developing ethical implementation strategies will contribute to the adaptation of leaders to digital transformation. The use of AI in leadership training has been of growing importance in this context (Rožman et al., 2023).

AI-enabled training programs make the leader effective in emotional intelligence, empathy, and communication. For example, simulation-based AI-enabled leadership training programs give leaders a scope to try themselves out in different situations. This is uniquely positioned to develop crisis management and strategic thinking among the leaders (Shukla et al., 2023).

Starting the use of AI commonly in organizations requires the development of strategies that take into consideration ethical responsibilities. It is very important to integrate ethical principles in AI-supported decision-making processes for the sustainability of organizations. In this respect, leaders' fair and transparent use of AI technologies can increase trust in the organization (Cao et al., 2021).

## 8. CONCLUSION AND RECOMMENDATIONS

Artificial Intelligence shapes the future of organizational leadership by offering tools and frameworks that accelerate decision-making processes, promote innovation, and develop human-machine cooperation. Various studies draw attention to the transformative effect of artificial intelligence on leadership roles, adding that data-focused decision-making has to be developed alongside emotional intelligence (Peifer vd., 2022; Rüth & Netzer, 2022). AI not only accelerates strategic processes but also provides important benefits in areas such as employee motivation, organizational efficiency, and collaboration (Makarius vd., 2020). On the other side, these developments also come with challenges: ethical concerns, data privacy, and how to get rid of algorithmic prejudices (Trunk vd., 2020).

The critical importance of adopting AI-supported leadership models to cultural and sectoral needs exists in increasing the potential of this technology into upper levels. Further, the integration of AI in leadership interventions within an ethical framework is a priority and a very important need in the balance between innovation and social responsibility (Vincent, 2021). Leaders can easily integrate AI into leadership processes in a sustainable way by harmonizing the AI tools with organizational goals and setting a trust-promoting culture. Applying AI technology to leadership practices, therefore, requires a human-centred approach that prioritizes transparency, inclusiveness, and continuous learning for all stakeholders.

## REFERENCES

Ammer, M. A., Ahmed, Z. A. T., Alsubari, S. N., Aldhyani, T. H., & AlMaaytah, S. A. (2023). Application of Artificial Intelligence for Better Investment in Human Capital. *Mathematics*, *11*(3), 612. https://doi.org/10.3390/math11030612

Arslan, A., Cooper, C. D., Khan, Z., Golgeci, I., & Ali, I. (2021). Artificial intelligence and human workers interaction at team level: a conceptual assessment of the challenges and potential HRM strategies. *International Journal of Manpower*, Vol. 43 No. 1, pp. 75-88. https://doi.org/10.1108/ijm-01-2021-0052

Baum, S. (2017). Social choice ethics in artificial intelligence. *AI & Society*, 35 (2), 165-176. https://doi.org/10.1007/s00146-017-0760-1

Beccalli, E., Elliot, V., Virili, F. (2020). Artificial Intelligence and Ethics in Portfolio Management. In: Agrifoglio, R., Lamboglia, R., Mancini, D., Ricciardi, F. (eds) Digital Business Transformation. *Lecture Notes in Information Systems and Organisation*, Vol 38. Springer, Cham. https://doi.org/10.1007/978-3-030-47355-6_2

Bhima, B., Rahmania Az Zahra, A., Nurtino, T., & Firli, M. Z. (2023). Enhancing Organizational Efficiency through the Integration of Artificial Intelligence in Management Information Systems. *APTISI Transactions on Management*, *7*(3), 275–282. https://doi.org/10.33050/atm.v7i3.2146

Cao, G., Duan, Y., Edwards, J., & Dwivedi, Y. K. (2021). Understanding managers' attitudes and behavioral intentions towards using artificial intelligence for organizational decision-making. *Technovation*, Vol. 106, 2021, 102312. https://doi.org/10.1016/j.technovation.2021.102312

Cawthorpe, D. (2023). Leadership constructs and artificial intelligence: Introducing a novel organizational assessment survey. *Qeios*. https://doi.org/10.32388/wvguqe

Charitha, C., & Hemaraju, B. (2023). Impact of Artificial Intelligence on Decision-making in Organisations. *International Journal For Multidisciplinary Research*, Volume 5, Issue 4, July-August 2023. https://doi.org/10.36948/ijfmr.2023.v05i04.5172

Dignum, V. (2018). Ethics in artificial intelligence: introduction to the special issue. *Ethics and Information Technology*, 20(1), 1-3. https://doi.org/10.1007/s10676-018-9450-z

Estherita, A., & Shanmugam, V. (2024). Influence of artificial intelligence on leadership dynamics. *AIP Conference Proceedings*, 3112(1), 020013. https://doi.org/10.1063/5.0211330

Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, Vol. 61, Issue 4, 2018, pp. 577-586. https://doi.org/10.1016/J.BUSHOR.2018.03.007

Joshi, A., & Masih, J. (2023). Enhancing employee efficiency and performance in industry 5.0 organizations through artificial intelligence integration. *European Economic Letters (EEL)*, *13*(4), 300–315. https://doi.org/10.52783/eel.v13i4.589 (Original work published September 15, 2023)

Makarius, E. E., Mukherjee, D., Fox, J. D., & Fox, A. K. (2020). Rising with the machines: A sociotechnical framework for bringing artificial intelligence into the organization.

*Journal of Business Research*, 120, 262-273.
https://doi.org/10.1016/j.jbusres.2020.07.045

Mesmer-Magnus, J., Viswesvaran, C., Joseph, J., & Deshpande, S. (2008). The role of emotional intelligence in integrity and ethics perceptions. *Research on Emotion in Organizations*, 4, 225-239. https://doi.org/10.1016/S1746-9791(08)04010-8

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, *58*(3), 103434. https://doi.org/10.1016/j.im.2021.103434

Peifer, Y., Jeske, T., & Hille, S. (2022). Artificial intelligence and its impact on leaders and leadership. *Procedia Computer Science*, 200, 1024-1030. https://doi.org/10.1016/j.procs.2022.01.301

Pereira, V., Hadjielias, E., Christofi, M., & Vrontis, D. (2021). A systematic literature review on the impact of artificial intelligence on workplace outcomes: A multi-process perspective. *Human Resource Management Review*, Vol. 33, Issue 1, 2023, 100857. https://doi.org/10.1016/j.hrmr.2021.100857

Rožman, M., Tominc, P., & Milfelner, B. (2023). Maximizing employee engagement through artificial intelligent organizational culture in the context of leadership and training of employees: Testing linear and non-linear relationships. *Cogent Business & Management*, *10*(1), 2248732. https://doi.org/10.1080/23311975.2023.2248732

Rüth, R., & Netzer, T. (2022). *The* impact of AI on leadership: New strategies for a human-machine-cooperation. *Global Journal of Management and Business Research*, 22(A8), 1-7. Retrieved from https://journalofbusiness.org/index.php/GJMBR/article/view/102724/27770

Shukla, A., Algnihotri, A., & Singh, B. (2023). Analyzing How AI And Emotional Intelligence Affect Indian IT Professional's Decision-Making. *EAI Endorsed Transactions on Pervasive Health and Technology*, [Internet]. 2023 Dec. 20 [cited 2024 Nov. 28];9. https://doi.org/10.4108/eetpht.9.4654

Syed, S. M., Subbalakshmi, A. V. V., Singh, D., Emani, S., & Basava, R. K. (2023). Design and Analysis of Human Resources Using Artificial Intelligence. *Journal of Law and Sustainable Development*, *11*(9), e829. https://doi.org/10.55908/sdgs.v11i9.829

Trunk, A. D., Birkel, H., & Hartmann, E. (2020). On the current state of combining human and artificial intelligence for strategic organizational decision making. *Business Research, 13*, 875–919 (2020). https://doi.org/10.1007/s40685-020-00133-x

Vincent, V. U. (2021). Integrating intuition and artificial intelligence in organizational decision-making. *Business Horizons, Vol. 64*, Issue 4, July–August 2021, pp.425-438. https://doi.org/10.1016/J.BUSHOR.2021.02.008

Webber, S., Detjen, J., MacLean, T., & Thomas, D. (2019). Team challenges: Is artificial intelligence the solution? B*usiness Horizons, Vol. 62*, Issue 6, November–December 2019, pp.741-750. https://doi.org/10.1016/j.bushor.2019.07.007