Digital Leadership: Managing Organisations in the Age of AI and Automation

Dr. Srividya Aravind
Independent Researcher
Hyderabad, Telangana
drsrividyaaravind@gmail.com

To Cite this Article
Dr. Srividya Aravind, "Digital Leadership: Managing Organizations in the Age of AI and Automation", Journal of Science Engineering Technology and Management Science, Vol. 03, Issue 04(1), April 2026,pp: 131-138, DOI: http://doi.org/10.64771/jsetms.2026.v03.i04(1).pp131-138
Submitted: 10-03-2026 *Accepted: 18-04-2026* *Published: 25-04-2026*

***Abstract*—The rapid advancement of Artificial Intelligence (AI) and automation is transforming the way organizations operate, compete, and are managed in the digital era. These technologies are transforming the traditional leadership models by making it possible to make decisions that are based on data, enhance the efficiency of operations, and make innovation a reality across industries. The review paper discusses how digital leadership will increase in role in organizational management in the era of AI and automation. The review paper examined the theoretical underpinnings of digital leadership, emphasizing the role of the integration of technologies and digital skills and vision in contemporary leadership. It also examines the effects of AI and automation on leadership roles, such as improved decision-making, workflow optimization, and worker redesign. Besides that, the paper outlines the main issues related to the adoption of AI, including ethical concerns, the impact of algorithms, a threat to data privacy, and the necessity of retraining employees. The literature review is done thoroughly to investigate the current studies focusing on AI-based leadership and the new models of leadership. The findings suggest that an effective digital leadership is a moderate approach that does not only entail technological skills and capabilities, but ethical leadership and management that takes into consideration human being. The paper ends with managerial implications and recommendations to organizations that seek to successfully pass through the digital transformation in the AI-enabled environment.**

***Keywords*—Digital Leadership, Artificial Intelligence, Automation, Digital Transformation, Data-Driven Decision Making, Organizational Innovation.**

I. INTRODUCTION

The progress in the economic sphere and the development of a new technological platform have radically changed the old paradigms of leadership, introducing a new one, the so-called digital leadership, which places a strong accent on the use of technology in decision-making, teamwork, and innovation. AI will play a significant role in this transition, allowing organizations to harness data-driven insights, automate repetitive tasks, and boost staff efficiency. As the AI capabilities spread to all industries, it is important that leaders adjust to the digital changes in order to have a competitive advantage [1].

Leadership in the digital age entails guiding businesses through digital transformation using data analytics, creative tools, and digital technology while maintaining focus on strategic goals and organizational dynamism [2][3]. The leaders who will be forced to utilize the space of AI not only need to introduce the integration of technology but also to address the issue of the labor force reorganization, the ethics and the human-machine interaction. The increasing necessity of using smart systems requires leaders to develop new competencies that will incorporate technology abilities, plans, and ethical issues [4][5].

The article is a review that delves into the topic of digital leadership and how it pertains to the management of businesses in this age of AI and automation. Theoretical underpinnings of digital leadership, the impact of automation and artificial intelligence on leadership tasks, and the most pressing problems facing businesses are all covered. The relevant literature is also examined within the study to outline the emerging leadership competencies and give managerial implications to organizations that are going through digital transformation.

II. CONCEPTUAL FOUNDATIONS OF DIGITAL LEADERSHIP

Accordingly, technology is playing an increasingly mediating role in the leadership process; as a result, new concepts like virtual leadership, e-leadership, and digital leadership are cropping up, all of which center on the use of technology in leadership [6][7]. Leaders in this model should be technically savvy, since they are responsible for promoting teamwork and increasing output through the use of digital resources [8]. E-leadership, as used here, is defined as "leadership in the context of the Internet, electronic resources, and the virtual environment" [9].

Digital leadership is defined as "a social influence process mediated by information technology that brings about a change in attitudes, feelings, thinking, behaviour, and/or performance in individuals, groups, and organizations" [10].

Alternately, it is said to involve utilizing and integrating electronic and conventional means of communication, necessitating up-to-date understanding of ICT, the capacity to make educated choices regarding ICT, and technical competence with the selected technologies. More recently, the term "digital leadership" has been defined in terms of the IoT, digitalization, digital

transformation, and personal-device communication [11]. The capacity of leaders to steer their companies and teams in a digital setting using technology or digital tools is called virtual leadership [12][13].

A. Characteristics of Roles of Digital Leader

As it relates to Industry 4.0, "digital leadership" is defined as "a style of leadership that places an emphasis on contemporary leadership theory and makes use of digital technology to drive organizational transformation and development" [14]. When it comes to digital transformation, it influences elements including leadership behaviour, training, digital preparedness, and trust, all of which are crucial to fostering a learning organizational culture [15]. One of the keys to a company's success in the digital age is having digital leaders that can help employees be more creative through job designing and finding the right fit between the person and the organization [16]. Leadership with strong digital competencies and a vision for the future are essential for businesses making the shift to virtual environments. These leaders will need to adapt to the demands of the digital era and successfully navigate the complex structures of virtual organizations [17].

Digital leadership (DL) has various conceptualizations, measures and research methods. These schools of thought are based on varying organizational conditions, which define the leadership behaviour at individual, group, organizational, and societal levels [18].

Traditional leadership theories identify two main leadership styles which are transactional leadership and transformational leadership. Transactional leadership defines organizational roles and expectations and reward systems to ensure that followers achieve organizational objectives [19]. Transformational leadership enables followers to develop their personal values which they will use to achieve organizational goals while they work together to improve workplace morale and productivity [20]. Research shows that digital leadership combines three leadership styles which are transformational leadership empowering leadership and transactional leadership to create a leadership style that enhances organizational innovation and adaptability. Digital leadership requires organizations to develop new solutions which they can identify through their technological expertise to drive their organizational transformation process [21].

Based on these perspectives, digital leadership during digital transformation can be characterized through five key roles: inspirational leadership, visionary leadership, uncertainty absorption, innovation orientation, and adaptability. The roles demonstrate which leadership skills and behaviour are needed to help organizations succeed in their digital transformation initiatives [22]. The roles and the associated characteristics and behaviour of a digital leader are conceptualized and presented in a framework in Fig. 1.

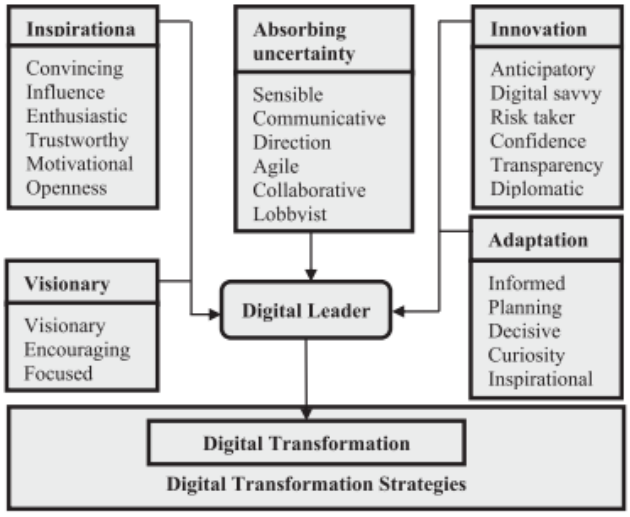

Fig. 1. Digital Leadership Framework [22].

The model lays out the various responsibilities that a digital leader is required to carry out, each of which is linked to specific traits, abilities, and actions. According to the model, a digital leader has to change their approach, making deliberate decisions depending on what's most important.

III. Artificial Intelligence and Automation in Leadership

At this very moment, there is a great deal of discussion about automation and machine learning (AI). Artificial intelligence (AI) is the capacity of machines to solve problems, make decisions, translate languages, and recognize images, all of which are normally associated with human intelligence [23]. However, in the case of automation, machines do tasks that were formerly performed by humans, like data input, logistics, and manufacturing [24].

A. Artificial Intelligence In Leadership

AI has become one of the most disruptive elements in the contemporary business development. No more of the exclusive province of technology giants or niche industries, AI technologies are now at the core of how organizations operate, innovate and compete across the industries.

Digital transformation drives business expansion through AI which creates new business models and streamlines operations and enhances customer service and speeds up research and development processes [25]. AI enables executives to make strategic decisions and create customized marketing solutions and run intelligent automation systems while they handle complex situations and pursue fresh business opportunities.

1) Enhanced Decision-Making

The ability of AI to completely alter the way decisions are made ranks high among its most impressive uses. People typically rely on three main sources when they make decisions without using creative methods. Artificial intelligence systems, on the other hand, sift through massive, diverse datasets in search of patterns using machine learning algorithms and streaming data processing [26]. The tools provide assistance in decision-making through their ability to identify trends and predict future outcomes while delivering scenario-based planning capabilities. Artificial intelligence (AI) analytics have several potential applications in the financial sector, which include investment strategy development and fraud detection, while the retail sector can benefit from improved pricing models and inventory planning through these analytics. Executives use artificial intelligence (AI) to handle essential tasks when they encounter new challenges that become apparent to them.

2) Customer Personalisation

In today's fast-paced society, customer needs evolve, thus making the idea of customization indispensable. Businesses may now learn about their consumers' habits, tastes, and opinions on a massive scale thanks to artificial intelligence technology like sentiment analysis, recommendation systems, and natural language processing systems. This allows them to deliver extremely customized experiences, such as personalized product recommendations and dynamism in the content, as well as customized marketing messages [27]. Amazon and Netflix might be regarded as the leading brands that have proven the effectiveness of AI in creating a loyalty based on personalization. Consequently, companies that use AI to gain client insights can be more effective in satisfying their customers, engaging them, and retaining them over time.

3) Operational Efficiency

Efficiency in operations is the key to continuing with profitability and competitiveness. AI, especially robotic process automation (RPA) helps to boost the internal processes by automating the most time-consuming tasks, including data entry, invoicing, and report generation. This does not only minimize the human error but also liberates the human resources to more strategic and significant activities. Due to AI-based systems, supply chains will be monitored, demand predicted, and resources managed more efficiently, and it will result in cost reduction and service delivery. The manufacturing industry, logistics, and healthcare are one of the expanding areas that use AI to optimize the processes and guarantee greater levels of accuracy and dependability.

4) Innovation Acceleration

AI has a central role in speeding up the process of innovation as it allows products and services to be developed smarter and faster. The generative AI, computer vision, and deep learning technologies assist in quick prototyping, simulating intelligent design, and testing the market virtually. These features cut down development times and minimize the financial expenses of innovation using trial and error [28]. Also, AI enables organizations to venture into new business models, including AI-based platforms and digital twins, as well as autonomous services and predictive maintenance. This means that the businesses will be able to react to the changes in the market much faster and capitalize on the new trends with a stronger, swifter reaction.

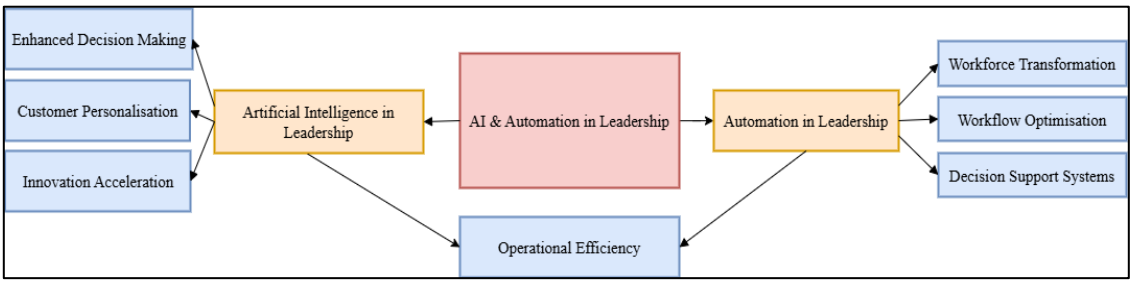

Fig. 2. Digital Leadership Framework.

The following Fig. 2 shows the major benefits of AI and automation process in leadership.

B. Automation in Leadership

Automation technologies create new organizational structures by their ability to decrease manual work which leads to improved operational efficiency through multiple business sectors including production and logistics and marketing and customer service. Organizational leaders need to comprehend how automation technologies transform their organizations through changes to operational processes and the creation of new employee duties.

Here are some of the key aspects that demonstrate the contribution of automation to effective leadership in this digital era.

1) Operational Efficiency

Automation streamlines routine and repetitive processes across departments such as manufacturing, logistics, finance, and customer service. By decreasing the need for human workers to perform tasks, leaders can achieve higher workplace efficiency,

make fewer mistakes, and better distribute their resources, which enables organizations to concentrate on their long-term goals and new business developments [29].

2) Decision Making Support

Automated systems provide leaders with an easy way to get real-time data and analytics, helping them to make better decisions in less time. Leaders can monitor performance indicators through automated reporting and monitoring tools, which also allow them to address operational issues promptly without any delay [30].

3) Workflow Optimisation

The process of automation allows leaders to change their business workflows using digital technologies and intelligent systems for their operational needs. By doing so, organizations can get rid of inefficiencies, increase team coordination, and have better process standardization [31].

4) Workforce Transformation

Besides automating the operations, companies also have to make changes in the roles of employees in terms of job responsibilities and work tasks. They should provide their staff with a set of new skills through proper training which will allow them to operate the automated systems and digital technologies [32].

Integrating AI systems with automation technology raises a host of issues that need to be tackled. AI rollouts call for chief executives to set up proper governance frameworks safeguarding data privacy, promoting algorithmic fairness and ensuring the transparency of the system as well as accountability of operations [33]. A side effect of the spread of automation technologies is the displacement of workers, which is why leaders need to cooperate with their people in crafting new skills and digital capabilities [34].

Effective leadership in the age of AI needs leaders to maintain equal balance between their technological knowledge and their ethical duties and their ability to manage human resources. The leaders who successfully implement AI and automation technologies into their company strategies will achieve better operational performance and innovative results and sustained competitive advantage.

IV. Challenges of Digital Leadership

The company's business operations and strategic framework have undergone transformation because of Artificial Intelligence (AI) which requires personnel to develop new work methods and leadership skills. AI provides benefits through productivity improvements and fundamental business transformation but companies face difficulties when they try to introduce AI into their operations according to [35]. The organization needs leaders who will address both technical and ethical issues together with social and organizational challenges through active and flexible leadership methods.

A. Ethical Dilemmas and Algorithmic Bias

The primary challenge exists through Ethical Dilemmas and Algorithmic Bias because AI systems reproduce training data biases which lead to discriminatory outcomes during the hiring process and promotions and resource distribution. The leaders must resolve the accountability problems which black box algorithms create because these algorithms prevent organizations from understanding who must take responsibility for their results and establishing their moral responsibility. The article points out two factors which restrict AI development in its current state because its speed of innovation competes against slow technology adoption [36].

B. Talent Management and Upskilling Imperative

The Talent Management and Upskilling Imperative becomes essential when AI technology takes over basic work processes because this leads to job eliminations and creates urgent needs for worker reskilling. Employees resist change because they are afraid of becoming obsolete which makes it difficult to manage change and retain employees. The problem of constructing AI-literate workforces is not new to organizations, as established by the up to 85% of leaders reporting discrepancies in technical and adaptive capabilities [37].

C. Trust Erosion in Human-AI Collaboration

One of the causes of trust erosion in human-AI collaboration is the difference of acceptance of AI: leaders usually trust AIs too much whereas team members are sceptical of AIs because of errors and privacy concerns. This paradox will disfavour teamwork and adoption of the technology since if people will rely on an AI too much they will ignore human judgment for nuanced situations. In order for a transparent human-AI symbiosis to be achieved, leaders must demonstrate vulnerability and iterative learning willingness [38].

D. Strategic Alignment and Organisational Inertia

Strategic Alignment and Organizational Inertia call for leaders to overhaul the typical system design in order to fit the flexible AI setups. More often than not, they confront the deep-rooted hierarchies and siloed departments. Data localization requirements conflict with global efficiency, whereas at the same time, the hefty demands for quick return of investments dishearten the long-term commitment to AI investments. Those companies that do not build the ever-changing capabilities risk being left behind by their competitors who are in fast-changing markets [39].

E. Regulatory Compliance and Privacy Risks

Lastly, the Regulatory Compliance and Privacy Risks are becoming more serious as the laws such as GDPR and AI Acts that change constantly require very strict data management. Those leaders who fail to comply will not only be fined but also lose their good public image. Leaders have to think ahead and include compliance in their AI plans in a world of broken global standards, finding a way to be innovative but also safe from risks [40].

V. LITERATURE REVIEW

This segment of the literature review about digital leadership highlights that currently, the realm of artificial intelligence and automation technologies impacts the leadership competencies of individuals as well as the development of organizations within a tech-driven environment.

The Dynamic Managerial Capabilities framework, designed by Hossain Fernando and Akter (2025) is one of the models that scholars can use to explore leadership in AI-based organizations. The researchers decided to carry out their research by conducting 20 semi-structured interviews and this is how they chose their sample. Through the study, they tried to find out the main skills that leaders should have to be able to deal with artificial intelligence technologies in their companies. Besides identifying the critical competencies needed in AI contexts, the researchers also intended to develop a framework for digital leadership capabilities that is appropriate for AI-enabled organizations. According to the study results, leaders who effectively manage AI technologies along with operational frameworks and data management systems demonstrate greater ability to adapt and respond to strategic requirements. The research advances both leadership theory and dynamic capability theory while demonstrating how organizations need to establish ethical governance systems to handle emerging AI technologies [36].

Skubis (2025) examined how leadership and innovation mix with humanoid robots' emerging function as organizational leaders by assessing employee viewpoint in his research study. The study employed a questionnaire-based approach in order to measure the perception of leadership style in regards to innovation development using humanoid robots. The paper examines how humanoid robots are viewed by the participants in terms of their possible benefits and demerits in leadership. According to the study results, employees are aware of the importance of innovation and do not believe that humanoid robots can be the leading force since they are concerned about the ability of robots to perceive feelings and create original ideas and their capability to make ethical choices. The respondents prefer the democratic and transformational leadership approaches to enhancing innovation and indicate a high desire to have human control in leadership positions that are dominated by AI. The paper emphasizes the need of moral principles and responsibility in the implementation of AI in leadership [41].

Zarate-Torres et al. (2025) developed a theoretical framework to model the role of leadership on the relations between AI and human intelligence (HI). Scopus and Web of Science were searched to find articles published within the last five years that addressed the aspects of leadership, artificially intelligent, and human intelligence. The review was qualitative in nature and not structured in a systematic way. Thematic analysis identified conceptual patterns and research gaps. The review-based model elaborates on the idea that leadership mediates the HI-AI relationship in a cooperative hybrid space, where human judgement and reasoning put AI decisions in context, ethical governance mechanisms emerge for AI-supported systems, and cognitive adaptability establishes a balance to algorithmic efficiency. Incorporating ethical judgements into automated processes, the suggested framework gives organizations some rules for human supervision procedures including AI-supported technologies. As a set of recommendations, it offers leadership tools that might improve communication between AI and humans. By illustrating leadership's role as the connecting force between human and technical systems, the suggested model provides leadership mediation of human-AI interaction along four dimensions. A hybrid interaction that is extraordinarily adaptable, productive, and overseen ethically is born out of hierarchical interaction [42].

Emmanuel Aniebonam (2025) investigated how AI and automation technologies are advancing through their growing adoption, which brings about major changes to current leadership methods. The researchers demonstrate through their study that AI technology transforms leadership methods because it affects how leaders make decisions, develop their organizational policies, and carry out their daily operations. AI brings organizational advantages through its ability to improve efficiency and foster innovation and enable organizations to adjust to changing circumstances, but it creates major problems through its impact on data security and creation of unfair algorithms and loss of jobs. The researchers used a combination of qualitative and quantitative methods to analyze how leadership characteristics and teamwork performance and organizational reactions operate in environments that use artificial intelligence. The research results show that organizations need to implement ethical governance practices and AI ethics training programs and human-centered leadership strategies to achieve responsible AI adoption, which will help them maximize their technology advantages [38].

Frimpong and Wolfs (2024) research work investigates how Artificial Intelligence AI technology creates a substantial impact on organizational leadership methods through its growing implementation. The research demonstrates how AI technology enables leaders to make better decisions by handling repetitive work and increasing employee participation. The study examines three major companies IBM Google and Amazon through qualitative case studies to show the advantages and difficulties that organizations face when they implement AI technology into their leadership systems. The research results show that AI technology creates new leadership skills and organizational models which match the requirements of technology-based environments. The research will need more empirical research based on quantitative measurement systems and predictive analysis models to estimate the long-term impacts of AI implementation on leadership performance [43].

The key studies reviewed in this section are summarized in following Table I, which highlights the research context, methodology, focus areas, major findings, and implications related to digital leadership and artificial intelligence in organizations.

TABLE I. KEY LITERATURE ON ARTIFICIAL INTELLIGENCE AND DIGITAL LEADERSHIP

Author(s) & Year	Research Context	Research Method	Sample/Data Source	Major Findings	Research Implications
Hossain, Fernando & Akter (2025)	AI-driven organisations	Qualitative study using semi-structured interviews	20 leadership professionals	Leaders who effectively manage AI tools and processes demonstrate higher adaptability, strategic responsiveness, and improved decision-making in AI-enabled environments.	Highlights the importance of digital leadership capabilities and ethical management of AI technologies.
Skubis (2025)	AI and robotic leadership	Survey-based quantitative study	63 respondents	Employees recognise innovation potential but remain skeptical about humanoid robots as leaders due to concerns regarding emotional intelligence, creativity, and ethical accountability.	Emphasises the need for human oversight and ethical guidelines in AI-supported leadership systems.
Zárate-Torres et al. (2025)	Human–AI collaboration in organisations	Qualitative literature review	Scopus & Web of Science publications (last 5 years)	Leadership plays a mediating role in balancing AI efficiency with human judgment, ensuring ethical governance and cognitive adaptability in hybrid human–AI systems.	Provides a conceptual framework highlighting leadership as a key integrator of human and AI capabilities.
Aniebona m (2025)	AI-driven organisational leadership	Mixed-method, multi-level analysis	Organisational leadership practices	AI improves efficiency, innovation, and strategic decision-making but also introduces ethical concerns such as algorithmic bias, data privacy issues, and workforce displacement.	Recommends AI ethics training, transparent governance, and human-centric leadership approaches.
Frimpong & Wolfs (2024)	AI adoption in global corporations	Qualitative case study analysis	Case studies of IBM, Google, and Amazon	AI enhances leadership effectiveness through automation and improved employee engagement but requires new leadership competencies and adaptive frameworks.	Suggests the need for empirical research and predictive models to evaluate long-term leadership effectiveness.

The literature analyzed states that artificial intelligence is altering the dynamics of leadership rather seriously because on the one hand, it enables data-driven decision-making, increased automatization, and enhanced organizations, which, on the other hand, offers more innovation. Some of them point to the emergence of the new leadership capabilities that combine technological expertise with strategy and ethical governance. At the same time, such issues as the displacement of the workforce, artificial bias, and the trust of organizations in human-AI cooperation remain urgent problems to organizations. In as much as the currently available studies provide valuable conceptual and qualitative data on AI-led leadership, empirical research and quantitative evidence are needed to develop a more accurate vision of the long-term impacts of AI application to the leadership performance and performance of a company. Such realizations highlight the increased necessity to possess digital leadership qualities within the management of technology-oriented organizations.

VI. MANAGERIAL IMPLICATIONS

AI and automation contribute to the change in managerial practices and leader behaviors of contemporary organizations. Digital technologies are becoming the core of business activities and therefore managers need to acquire skills that merge both technological knowledge with strategic and ethical decision-making.

To start with, leaders need to embrace data-driven decisions by using AI-powered analytics and decision-support systems. These tools give real-time information about the trends in the market, the performance of operations, and the behaviour of customers which allow making smarter and more timely strategic decision-making. Second, organizations have to focus on digital capabilities and reskilling of workforce. The process of automation is altering the role of the jobs and managers should initiate ongoing training to increase the digital capacities of the employees and equip them to co-exist with intelligent systems. Third, responsible AI implementation requires ethical governance. To allow the use of AI ethically and in a way that can be trusted, leaders should ensure that the policies to be implemented address many problems like bias in algorithms, transparency, and privacy of data.

Lastly, managers need to promote human-AI partnership, in which technology supplements human creativity and judgment. Productivity, innovation and organizational resilience is enhanced by such integration in technology-driven environments.

VII. CONCLUSION AND RECOMMENDATIONS

The current review paper examined how the role of digital leadership is changing in the era of Artificial Intelligence (AI) and automation. The discussion reveals that the increased rate of technological advances is altering the traditional forms of leadership by introducing different types of data-driven decision-making, autonomous intelligence, and digital-enabled types of organizational designs. Relying on the assistance of AI technologies, the leaders can become efficient in their work, enhance their customer experiences, become more innovative, and develop their strategies more robustly with the assistance of high-quality data analytics and predictive insights.

However, besides such benefits, AI and automation also pose numerous challenges to organizational leaders. These issues as the impartiality of the algorithms, protection of the personal data, replacement of employees, and the trustworthiness of the human-AI collaboration are to be approached with the sensitive eye and responsible attitude. According to the analyzed literature, to maintain a successful digital leadership, one needs to possess a blend of technological knowledge, ethical consciousness, and vision in order to help guide AI in its responsible use in companies.

The results allow various recommendations to be undertaken. Organizational management must invest in leadership development projects that would help in increasing technological literacy and digital skills of their employees. The organization must carry out continuous training sessions that would equip the employees with new skills needed to work in artificial

intelligence workplaces. Organizations should be able to establish ethical artificial intelligence governance structures whereby their automated decision-making procedures are held accountable and fairly and transparently. Companies aiming to attain sustainable development and push innovation and competitiveness in the digital economy must put in place effective digital leadership practices.

REFERENCES

[1] N. C. Kukkala, "Digital Leadership in the Era of AI: Transforming Workforce Productivity and Innovation," *J. Inf. Syst. Eng. Manag.*, vol. 10, no. 23s, pp. 878–883, Mar. 2025, doi: 10.52783/jisem.v10i23s.3787.

[2] F. J. Quijada, "Digital leadership and transformation: Key considerations for organizational success," *Open Access Res. J. Sci. Technol.*, vol. 13, no. 2, pp. 057–063, Mar. 2025, doi: 10.53022/oarjst.2025.13.2.0027.

[3] A. Fenwick, G. Molnar, and P. Frangos, "The critical role of HRM in AI-driven digital transformation: a paradigm shift to enable firms to move from AI implementation to human-centric adoption," *Discov. Artif. Intell.*, vol. 4, no. 1, p. 34, May 2024, doi: 10.1007/s44163-024-00125-4.

[4] D. S. W. Nguyen and M. M. Shaik, "Impact of Artificial Intelligence on Corporate Leadership," *J. Comput. Commun.*, vol. 12, no. 04, pp. 40–48, 2024, doi: 10.4236/jcc.2024.124004.

[5] E. Lochner, R. Schmoll, and S. Kaiser, "Less human, less positive? How AI involvement in leadership shapes employees' affective well-being across different supervisor decisions," *Comput. Hum. Behav. Artif. Humans*, vol. 6, p. 100239, Dec. 2025, doi: 10.1016/j.chbah.2025.100239.

[6] A. M. Machado and C. Brandão, "Leadership and Technology: Concepts and Questions," in *Advances in Intelligent Systems and Computing*, 2019, pp. 764–773. doi: 10.1007/978-3-030-16184-2_73.

[7] M. Sukmawati, M. Giatman, and H. Maksum, "E-Leadership: Concept and Influence of Digital Leadership," *J. Teknol. Inf. dan Pendidik.*, vol. 17, no. 1, pp. 87–97, Jan. 2024, doi: 10.24036/jtip.v17i1.811.

[8] C. Tuschner, H. Hörsch, N. Lorenz, and H. von Korflesch, "Leading Virtual Teams in the Context of e-Leadership: Insights into Challenges from Leaders' Perspectives," in *Elsevier BV*, 2025, pp. 542–556. doi: 10.1007/978-3-031-88052-0_43.

[9] S. Çuhadar, "Challenges and opportunities of e-leadership in organizations during Covid-19 crisis.," *SEA Pract. Appl. Sci.*, 2022.

[10] B. J. Avolio, S. Kahai, and G. E. Dodge, "E-leadership," *Leadersh. Q.*, vol. 11, no. 4, pp. 615–668, 2000, doi: 10.1016/S1048-9843(00)00062-X.

[11] T. Karakose, I. Kocabas, R. Yirci, S. Papadakis, T. Y. Ozdemir, and M. Demirkol, "The Development and Evolution of Digital Leadership: A Bibliometric Mapping Approach-Based Study," *Sustainability*, vol. 14, no. 23, p. 16171, Dec. 2022, doi: 10.3390/su142316171.

[12] P. M. H. E. Bin Hasnor, "Developing Virtual Leadership in Digital Technology E-commerce," *KnE Soc. Sci.*, May 2024, doi: 10.18502/kss.v9i16.16271.

[13] F. Cordova-Buiza, P. Aguirre-Parra, M. Gustavo Garcia-Jimenez, and D. Carolina Martinez-Torres, "Virtual leadership as a development opportunity in business context," *Probl. Perspect. Manag.*, vol. 20, no. 2, pp. 248–259, May 2022, doi: 10.21511/ppm.20(2).2022.20.

[14] D. M. Hargitai and A. Bencsik, "The Role of Leadership in Digital Learning Organizations," *Emerg. Sci. J.*, vol. 7, pp. 111–124, May 2023, doi: 10.28991/ESJ-2023-SIED2-09.

[15] A. Sacavém, A. de B. Machado, J. R. dos Santos, A. Palma-Moreira, H. Belchior-Rocha, and M. Au-Yong-Oliveira, "Leading in the Digital Age: The Role of Leadership in Organizational Digital Transformation," *Adm. Sci.*, vol. 15, no. 2, p. 43, Feb. 2025, doi: 10.3390/admsci15020043.

[16] J. Zhu, B. Zhang, M. Xie, and Q. Cao, "Digital Leadership and Employee Creativity: The Role of Employee Job Crafting and Person-Organization Fit," *Front. Psychol.*, vol. 13, May 2022, doi: 10.3389/fpsyg.2022.827057.

[17] H. Tutar and S. Guler, "Digital Leadership As A Requirement For The New Business Ecosystem: A Conceptual Review," *Cankiri Karatekin Univ. J. Fac. Econ. Adm. Sci.*, vol. 12, no. 3, pp. 323–349, Dec. 2022, doi: 10.18074/ckuiibfd.1162792.

[18] M. Hernandez, M. B. Eberly, B. J. Avolio, and M. D. Johnson, "The loci and mechanisms of leadership: Exploring a more comprehensive view of leadership theory," *Leadersh. Q.*, vol. 22, no. 6, pp. 1165–1185, Dec. 2011, doi: 10.1016/j.leaqua.2011.09.009.

[19] R. Kark, D. Van Dijk, and D. R. Vashdi, "Motivated or Demotivated to Be Creative: The Role of Self-Regulatory Focus in Transformational and Transactional Leadership Processes," *Appl. Psychol.*, vol. 67, no. 1, pp. 186–224, Jan. 2018, doi: 10.1111/apps.12122.

[20] J. M. Longshore and B. M. Bass, "Leadership and Performance beyond Expectations," *Acad. Manag. Rev.*, vol. 12, no. 4, p. 756, Oct. 1987, doi: 10.2307/258081.

[21] J. Tidd and J. Bessant, *Managing Innovation: Integrating Technological, Market and Organizational Change*, 7th ed. John Wiley & Sons Inc, 2021.

[22] M. M. Magesa and J. Jonathan, "Conceptualizing digital leadership characteristics for successful digital transformation: the case of Tanzania," *Inf. Technol. Dev.*, vol. 28, no. 4, pp. 777–796, Oct. 2022, doi: 10.1080/02681102.2021.1991872.

[23] S. Pearlson, "Review: 'The Second Machine Age,' by Erik Brynjolfsson and Andrew McAfee - The Washington Post," Washington Post.

[24] M. E. Virgillito, "Rise of the robots: technology and the threat of a jobless future," *Labor Hist.*, vol. 58, no. 2, pp. 240–242, Mar. 2017, doi: 10.1080/0023656X.2016.1242716.

[25] Y. R. Shrestha, S. M. Ben-Menahem, and G. von Krogh, "Organizational Decision-Making Structures in the Age of Artificial Intelligence," *Calif. Manage. Rev.*, vol. 61, no. 4, pp. 66–83, Aug. 2019, doi: 10.1177/0008125619862257.

[26] M. Madanchian, M. Vincenti, and H. Taherdoost, "Redefining Leadership in the Age of AI: Tools, Applications, and Limitations," 2024, pp. 551–565. doi: 10.1007/978-981-99-8438-1_40.

[27] I. Stepnov, "Introduction: The Limits of Digital Leadership: From 'Agile' to 'Great Leap,'" in *Technology and Business Strategy*, Cham: Springer International Publishing, 2021, pp. 1–15. doi: 10.1007/978-3-030-63974-7_1.

[28] S. K. Maheshwari and J. Yadav, "Leadership in the digital age: emerging paradigms and challenges," *Int. J. Bus. Glob.*, vol. 26, no. 3, p. 220, 2020, doi: 10.1504/IJBG.2020.110950.

[29] Daniel Ajiga, Patrick Azuka Okeleke, Samuel Olaoluwa Folorunsho, and Chinedu Ezeigweneme, "The role of software automation in improving industrial operations and efficiency," *Int. J. Eng. Res. Updat.*, vol. 7, no. 1, pp. 022–035, Aug. 2024, doi: 10.53430/ijeru.2024.7.1.0031.

[30] A. Önden, "A Systemic Approach to Decision Support and Automation: The Role of Big Data Analytics and Real-Time Processing in Management Information Systems," *Systems*, vol. 14, no. 2, p. 216, Feb. 2026, doi: 10.3390/systems14020216.

[31] P. Sundari, G. Felas Silitonga, and T. Setiyarti, "Revolutionizing Workflows: The Role of Efficiency in Organizational Success," *Ambidextrous J. Innov. Effic. Technol. Organ.*, vol. 2, no. 01, pp. 1–10, Aug. 2024, doi: 10.61536/ambidextrous.v2i01.60.

[32] M. Bashir, S. Noor-e-Zahra, and Z. Qaisar, "The Gig Economy and Automation: Implications for Human Resource Management in Pakistan," *Inverge J. Soc. Sci.*, vol. 3, no. 3, pp. 41–53, Sep. 2024, doi: 10.63544/ijss.v3i3.90.

[33] P. Radanliev, "AI Ethics: Integrating Transparency, Fairness, and Privacy in AI Development," *Appl. Artif. Intell.*, vol. 39, no. 1, Dec. 2025, doi: 10.1080/08839514.2025.2463722.

[34] B. Y. Kassa and E. K. Worku, "The impact of artificial intelligence on organizational performance: The mediating role of employee productivity," *J. Open Innov. Technol. Mark. Complex.*, vol. 11, no. 1, p. 100474, Mar. 2025, doi: 10.1016/j.joitmc.2025.100474.

[35] S. L. Burton, "Technological Digital Disruption in the Age of Artificial Intelligence," in *In Cultivating Entrepreneurial Changemakers Through Digital Media Education*, 2021, pp. 1–35. doi: 10.4018/978-1-7998-5808-9.ch001.

[36] S. Hossain, M. Fernando, and S. Akter, "Digital Leadership: Towards a Dynamic Managerial Capability Perspective of Artificial Intelligence-Driven Leader Capabilities," *J. Leadersh. Organ. Stud.*, vol. 32, no. 2, pp. 189–208, May 2025, doi: 10.1177/15480518251319624.

[37] M. M. Syed, M. S. A. Khan, and M. H. S. Mohammed, "Digital Leadership in the Age of AI Strategies for Business Growth and Innovation," *J. Business, IT, Soc. Sci.*, vol. 1, no. 1, pp. 4–8, Mar. 2022, doi: 10.51470/BITS.2022.01.01.04.

[38] E. E. Aniebonam, "The Future of Leadership in the Context of Artificial Intelligence and Automation: Navigating Ethical and Operational Challenges," *Br. J. Bus. Psychol. Res.*, vol. 1, no. 1, pp. 52–62, 2025, doi: 10.47297/ppibjbpr2025010104.

[39] V. Suljic, "Strategic Leadership in AI-Driven Digital Transformation: Ethical Governance, Innovation Management, and Sustainable Practices for Global Enterprises and SMEs," *SBS J. Appl. Bus. Res.*, vol. 13, no. 1, p. 17, Feb. 2025, doi: 10.70301/JOUR/SBS-JABR/2025/13/1/2.

[40] N. A. A. Albannai, M. M. Raziq, S. Bani-Melhem, and M. Moazzam, "Digital leadership in the age of generative AI: a systematic literature review using thematic analysis," *Glob. Knowledge, Mem. Commun.*, pp. 1–22, Nov. 2025, doi: 10.1108/GKMC-05-2025-0328.

[41] I. Skubis, "AI and Leadership in the Age of Automation: A Critical Analysis of Generation Z's Perspectives on Humanoid Robot Leaders," *Int. J. Humanoid Robot.*, vol. 22, no. 05, Oct. 2025, doi: 10.1142/S0219843625500069.

[42] R. Zárate-Torres, C. F. Rey-Sarmiento, J. C. Acosta-Prado, N. A. Gómez-Cruz, D. Y. Rodríguez Castro, and J. Camargo, "Influence of Leadership on Human–Artificial Intelligence Collaboration," *Behav. Sci. (Basel).*, vol. 15, no. 7, p. 873, Jun. 2025, doi: 10.3390/bs15070873.

[43] V. Frimpong and B. Wolfs, "Predictive Effect of AI on Leadership: Insights From Public Case Studies on Organizational Dynamics," *Int. J. Bus. Adm.*, vol. 15, no. 3, p. 39, Sep. 2024, doi: 10.5430/ijba.v15n3p39.