ENTREPRENEURSHIP AND INNOVATION REVIEW
Volume 3, Issue 2, December 2025 | pp. 80-94
https://doi.org/10.54518/eir.3.2.2025.1336

Digital Leadership: Shaping the Future of Organizations in the Age of Technology

Intania Nurafifah[1] ✉, Mara Celia[1], Intan Ratna Wati[1]

Universitas Diponegoro, Semarang, Indonesia[1]

ABSTRACT

This study centers on the central research question of how digital leadership functions to prepare organizations for the future in the context of accelerating technological transformation and the integration of artificial intelligence (AI). The advancement of digital technologies necessitates a paradigm shift in leadership, from traditional models towards approaches that are inherently adaptive, collaborative, and oriented toward innovation. Employing a literature study methodology, this research analyzes a body of conceptual and empirical work to identify the key competencies required for digital leaders. These competencies include technological literacy, emotional intelligence, adaptive capability, and ethical awareness in managing human-AI collaboration. The synthesis of findings indicates that digital leadership plays a strategic role in fortifying an innovative culture, enhancing organizational performance, and building institutional readiness and resilience against technological disruption. Furthermore, this study highlights a significant gap in the literature, particularly in developing nations such as Indonesia, where empirical studies on developing digital leadership capacity remain limited. Ultimately, these findings contribute to strengthening the conceptual framework for constructing a sustainable and technology-oriented model of future leadership.

Keywords: *Artificial Intelligence, Digital Leadership, Leadership Transformation, Organizational Readiness.*

CORRESPONDING AUTHOR:
Intania Nurafifah
Diponegoro University, Semarang, Indonesia
contact: *niaaafifah@gmail.com*

ARTICLE HISTORY
Received : May 29, 2025
Final Revised : September 15, 2025
Accepted : December 08, 2025
Published : December 30, 2025

1. | INTRODUCTION

In recent years, digital transformation has become a global phenomenon that has fundamentally changed the way organizations operate, innovate, and exercise leadership. According to Del Barone, De Gennaro, and Buonocore (2024), more than 70% of public organizations in Europe have integrated digital transformation initiatives to improve agility and responsiveness to business environment uncertainties. A similar trend is also occurring in the private sector: Yusuf et al. (2023) report that the implementation of digital leadership strategies contributes directly to a 23% improvement in the performance of public organizations in Indonesia, particularly in the dimensions of service innovation and operational efficiency.

One of the main catalysts for this transformation is artificial intelligence (AI), which has now become a strategic pillar in modern organizational design. A study by Basalamah and Basalamah (2025) found that organizations with technological readiness and digital leadership support were able to increase employee skill development by up to 35% higher than organizations that had not yet undergone digital alignment. AI now transcends technical functions it is not only a tool for automation, but also a strategic partner in decision-making and innovation (Callari & Puppione, 2025). However, this transformation also brings new challenges. According to the McKinsey Global Survey (2024) report, 46% of organizational leaders worldwide admit to facing a significant skills gap in terms of digital literacy and AI ethics. Hina, Azad, and Islam (2025) emphasize that the biggest obstacle to AI adoption in the workplace stems from a lack of leadership readiness in understanding the social and ethical implications of the technology, rather than from infrastructure limitations.

This change also marks a paradigm shift: traditional leadership models are becoming increasingly irrelevant in the context of data-driven organizations. As stated by Myszak & Filina-Dawidowicz (2025), digital leaders must balance AI-based efficiency with human values to ensure that organizational decisions remain inclusive, ethical, and responsible. For example, a study by Tao et al. (2025) on police agencies in the United States shows that transformational leadership accelerates the ethical adoption of generative AI and increases organizational capacity by up to 28%. Furthermore, Frangos (2025), through an integrative literature review, found that the success of digitalization is 80% more determined by the readiness and competence of leaders, not just technological investment. However, in developing countries, including Indonesia, empirical studies on digital leadership and AI are still very limited (Yusuf et al., 2023). In fact, according to data from Deloitte Digital Indonesia (2024), only 32% of organizations have a systematic digital leadership development strategy. This condition shows a real gap between the potential of technology and the readiness of human resources to support it.

Based on these facts, this study focuses on reviewing the latest literature on the relationship between digital leadership, technological transformation, and human-AI collaboration, with the aim of identifying the key competencies of future digital leaders including technological literacy, emotional intelligence, adaptability, and ethical awareness. In addition, this study also seeks to develop a conceptual framework for the development of a sustainable, technology-oriented leadership model that remains rooted in human values.

2. | LITERATURE REVIEW

The Concept of Digital Leadership in the AI Era

The acceleration of digital transformation has driven a paradigm shift in leadership from conventional hierarchical models to more open, adaptive, collaboration- and technology-oriented digital leadership patterns. Digital leadership requires a leader's ability to integrate technological sophistication with human values so that organizations can survive and adapt in an increasingly complex environment (Myszak & Filina-Dawidowicz, 2025). In this context, the role of a leader is no longer limited to strategic decision-making, but also as an enabler and facilitator who drives the digital transformation process throughout the organization (Yusuf et al., 2023). According to Frangos (2024), the emergence of the concept of digital leadership is a response to the need for organizations to improve their organizational readiness for AI, namely the readiness of structures, processes, and human resources in adopting artificial intelligence. Therefore, digital leadership does not only focus on mastering technology, but also on the ability to build a clear digital vision, motivate teams, and create a sustainable innovative culture.

This view is in line with Basalamah and Basalamah (2025), who emphasize that digital leadership has an important role in developing employee competencies during the digital transformation period. Digital leaders must be able to create a culture of continuous learning and identify the need for digital skill development through a technology readiness-based approach. Thus, digital leaders serve as a bridge between technological advances and strengthening human resource capacity. Furthermore, Callari and Puppione (2025) assert that collaboration between humans and artificial intelligence creates a new form of meaningful work that is formed through interactions between leaders and team members in a digital work ecosystem. In this situation, effective leaders must be able to maintain a balance between the use of technology and the values of empathy and humanity, so that innovation does not override the ethical dimension within the organization. Meanwhile, Hina et al. (2025) found that human-AI collaboration in the field of human resources, particularly recruitment, raises new challenges related to ethics, algorithm transparency, and potential system bias. Therefore, a digital leader not only needs technological understanding but must also possess digital literacy, emotional intelligence, adaptability, and high ethical sensitivity to ensure that technology is implemented responsibly. In addition, Tao et al. (2025) emphasize that an organization's success in implementing generative technologies such as AI is greatly influenced by a transformational leadership style that fosters trust, encourages participation, and strengthens organizational capacity. Thus, digital leadership in the AI era must be able to balance technology-based efficiency with human values, as well as data-based decision making and moral wisdom in determining the direction of the organization.

Overall, the literature shows that digital leadership in the era of artificial intelligence is not merely the ability to manage technology, but also the art of managing people and change. Future leaders are required to have strong digital competencies as well as empathy, reflection, and deep ethical awareness so that digital transformation can be inclusive, equitable, and sustainable.

Digital Transformation and the Role of AI in Organizations

Digital transformation is a comprehensive change process that utilizes digital technology to improve organizational performance, efficiency, and value (Hess et al., 2016). However,

this transformation does not only involve the adoption of new technology, but also changes in the culture, structure, and mindset of the organization (Kane et al., 2019). In this context, Artificial Intelligence (AI) is the main catalyst that drives innovation and business process efficiency. According to Taraba et al. (2023), the application of AI in organizations includes the automation of routine tasks, predictive data analysis, and improved data-driven decision making. This enables organizations to work faster and more accurately. However, AI integration also requires organizations to be prepared in terms of digital infrastructure, human resource competencies, and ethical data governance.

Chen (2025) asserts that effective digital transformation can only be achieved if organizations are able to balance the use of technology with human capacity development. Leaders need to ensure that AI-based innovations do not eliminate human values in the work process. Myszak and Filina-Dawidowicz (2025) also highlight the importance of ethics in digital transformation, particularly in ensuring that AI algorithms and systems are used fairly, transparently, and responsibly. Thus, digital transformation is not merely a technology project, but rather a strategic change that requires strong leadership vision, mature digital governance, and a balance between technological efficiency and organizational social responsibility.

Challenges of Leadership Development in the AI Era

The development of artificial intelligence (AI) technology has brought fundamental changes to the way leaders make decisions, interact with teams, and manage organizations. According to Wilson and Daugherty (2018), this shift has created "collaborative intelligence" where humans and machines work side by side but often cause tension in the division of roles and responsibilities. Leaders are required to understand the potential of AI without losing sensitivity to the human dimension of work. Kane et al. (2019) emphasize that one of the main challenges in digital leadership development is the digital competency gap. Many traditional leaders are not yet ready to adapt to new technologies, so strategic decisions are often not in line with the direction of organizational digitalization. This is reinforced by the findings of Sinar et al. (2024), which show that only about 40% of global leaders have sufficient digital literacy to lead AI-based transformation.

Furthermore, Taraba et al. (2023) found that the implementation of AI in organizations often raises ethical and psychological challenges, such as employee resistance to automation, concerns about job loss, and algorithmic bias that can affect organizational fairness. These challenges require leaders to have empathy, cross-generational communication skills, and sensitivity to social justice in every data-driven decision. Chen (2025) adds that successful leadership in the AI era is not only measured by the ability to adopt technology, but also by adaptive learning leadership the ability to unlearn and continuously develop new perspectives. Myszak and Filina-Dawidowicz (2025) reinforce this view by emphasizing the need for a balance between digital efficiency and ethical values. Overall, leadership development in the AI era faces three major challenges: (1) the digital skills gap, (2) ethical issues and social responsibility of technology, and (3) the need for an adaptive and sustainable leadership mindset. These three challenges are important foundations for organizations to design leadership training and development strategies that are relevant to the AI era.

Current Research Directions: AI-Driven Leadership Development

The direction of research in the field of digital leadership is now increasingly focused on how Artificial Intelligence (AI) not only supports decision-making but also shapes a data-driven leadership learning ecosystem. This shift is evident in the literature of recent years,

where the focus of research has shifted from technology mastery to the development of collaborative, ethical, and adaptive leadership capabilities in relation to artificial intelligence (Myszak & Filina-Dawidowicz, 2025; Chen, 2025). A study by Zhang et al. (2024) in the Journal of Business Research found that organizations implementing AI-enabled leadership development systems showed a significant increase in the speed of leaders' adaptation to digital change, especially when these systems integrated machine learning feedback loops to monitor performance and decision-making patterns. These findings indicate that AI is beginning to be used as a tool to model effective leadership behavior, not just to support organizational efficiency.

Meanwhile, Eom and Lee (2023) highlight the emergence of hybrid leadership models — leadership models that synergistically combine human and AI capabilities. Their study shows that leaders with high digital literacy can leverage AI analytics to strengthen strategic decisions, while leaders with high empathy become more effective in moderating the algorithmic impact on employees. The combination of the two results in more inclusive and evidence-based leadership. In addition, research by Del Barone, De Gennaro, and Buonocore (2024) underscores the importance of AI-driven leadership in strengthening organizational resilience. Based on a cross-country survey of 460 public sector managers, they found that AI adoption significantly improves organizational responsiveness to digital crises and accelerates the process of public service innovation. However, they also note that organizational cultural readiness is a key factor determining the success of implementation. Recent research has also begun to explore the ethical aspects and algorithmic bias in digital leadership. Callari and Puppione (2025) emphasize that one new direction of research is how AI can play a role in developing leaders' ethical awareness for example, through AI-assisted ethical decision training that trains leaders to identify moral dilemmas in the context of automation. Overall, the current research directions can be grouped into four major themes:

AI as a leadership learning ecosystem – the use of AI for analyzing leader behavior and personalizing learning. Human-AI hybrid leadership – collaboration between humans and machines in strategic decision-making processes. AI ethics in leadership – developing ethical awareness and data governance in the context of digital leadership. Leadership analytics and resilience – the use of big data and AI to improve organizational resilience to disruption.

This research direction indicates that the future of leadership development will no longer focus on individuals, but on digital ecosystems that support continuous learning. Thus, AI-driven leadership development becomes a new foundation for organizations to balance technology-based performance with human values that remain essential in 21st-century leadership.

3. | RESEARCH METHOD

This study uses a qualitative approach with a descriptive analytical literature study method. This approach was chosen because the study does not aim to test hypotheses statistically but focuses on a deep understanding of concepts, theories, and previous research results related to digital leadership in the era of artificial intelligence (AI).

Through this approach, the researcher seeks to identify, analyze, and synthesize various relevant scientific literature to build a conceptual understanding of how digital leadership functions in preparing organizations for increasingly rapid technological transformation. The research design used is integrative, in which results from various scientific sources are

combined to form a new theoretical framework that is comprehensive and relevant to the latest developments in the field of digital leadership and organizational transformation.

This literature study approach also allows researchers to explore the relationship between theory and practice, particularly in terms of how digital leaders are able to balance the use of advanced technology with human values, ethics, and organizational social responsibility. Thus, this research is exploratory and conceptual in nature, while also providing a theoretical foundation for future empirical research.

The data in this study is entirely sourced from secondary data, namely the results of previous research, scientific articles, books, and academic reports. Data collection was carried out by searching various scientific sources through reputable international databases such as Scopus, ScienceDirect, Emerald Insight, SpringerLink, and Google Scholar To ensure relevance, the search process was conducted using keywords such as digital leadership, leadership transformation, artificial intelligence and leadership, organizational readiness, human–AI collaboration, and ethical leadership in the digital era. The collected literature sources included publications between 2018 and 2025, as this period represents a time when research on digital leadership and AI has developed rapidly, both conceptually and practically.

In the literature selection process, researchers applied several inclusion and exclusion criteria. The inclusion criteria included:

Scientific articles or research reports that focus on issues of digital leadership, technological transformation, or human-AI collaboration. Sources that have undergone peer review and been published in reputable academic journals. Literature that presents a theoretical framework or empirical results relevant to the research topic.

Meanwhile, literature that does not have a strong theoretical basis, is opinion, or was published before 2018 is not included in the study. Through this selection process, several literatures with direct relevance to the research focus was obtained, which was then analyzed in depth.

Data analysis in this study was conducted using a thematic content analysis approach. This approach was used to examine in depth the various literature that had been collected, with the aim of finding patterns, themes, and conceptual relationships that describe the dynamics of digital leadership in the era of artificial intelligence (AI).

Thematic content analysis allows researchers to systematically interpret the text or content of literature qualitatively. This process focuses not only on the explicit content of each publication but also on the implied conceptual meaning, especially that related to the role and competencies of digital leaders in facing technological change.

The analysis was carried out in four main steps. First, the researchers conducted an initial reading and familiarization with all relevant articles and literature sources. At this stage, the researchers noted the research context, objectives, main results, and theoretical framework used in each source. Second, data coding was carried out by marking keywords, important terms, or core concepts that frequently appeared and were related to the research theme. Some of the main concepts identified at this stage included technological literacy, emotional intelligence, adaptive abilities, and ethical awareness. The third stage is theme development, which is the process of compiling the coding results into major themes that reflect the main dimensions of digital leadership. Through this process, the researchers successfully identified four main themes that describe the core competencies of digital leaders, namely the ability to manage technology, empathy and emotional leadership, the ability to adapt to change, and

ethical awareness in decision making. These themes were then linked to organizational goals such as increasing innovation, readiness for disruption, and developing a digital work culture. The fourth stage is synthesis and interpretation. At this stage, researchers integrate all findings from various literature to form a complete conceptual framework. This process not only presents the findings but also interprets the relationships between variables and explains how digital leadership a determining factor in the success of organizations is in facing technological transformation. The synthesis is carried out by linking major theories, such as Transformational Leadership Theory and Technology Readiness Model, with contemporary research findings discussing the application of AI in modern leadership.

Through this thematic analysis process, the research can produce a deeper conceptual understanding of how digital leaders shape innovative and sustainable organizational strategies. Thus, this analysis technique not only serves to describe the literature data but also to construct a framework that explains the relationship between digital leadership competencies, organizational readiness, and innovation culture in the AI era.

The conceptual framework in this study is based on a combination of theories and research results discussed in Chapter 2. By analyzing various scientific sources thematically, it appears that digital leadership is an important factor in helping organizations prepare for technological change and artificial intelligence (AI).

Conceptually, digital leadership is a leader's ability to combine the use of digital technology with human values, thereby forming an organization that can adapt, innovate, and be sustainable.

In this situation, the role of a leader is not only as a decision maker, but also as a motivator and change agent who encourages cooperation between humans and technology. According to the results of a literature review (Myszak & Filina-Dawidowicz, 2025; Chen, 2025; Callari & Puppione, 2025), there are four main competencies that form the basis of effective digital leadership in the age of AI, namely:

Technological Literacy. This competency reflects a leader's ability to understand, manage, and strategically utilize digital technology and artificial intelligence in organizational processes. Technological literacy encompasses not only technical skills but also an understanding of the social and ethical implications of technology use. Leaders with high digital literacy are able to create innovation and guide organizations to keep pace with global technological developments.

Emotional Intelligence. In an increasingly complex digital work environment, leaders need to have emotional intelligence to build empathy, maintain balanced human relationships, and create a collaborative and inclusive work environment. Emotional intelligence is an important factor in moderating the impact of technology on employees, especially in the face of uncertainty, pressure for change, and potential resistance to AI-based systems.

Adaptive Capability. Rapid technological change requires leaders to be able to adapt dynamically to new conditions. Adaptive capability includes learning speed, flexibility of thinking, and the courage to experiment in managing the risks of digital transformation. Adaptive leaders not only respond to change but also anticipate it through proactive, innovation-based strategies.

Ethical Awareness. With the increasing use of AI technology, ethical issues have become increasingly central to digital leadership. Leaders need to have a high level of ethical awareness

to ensure that technology is used fairly, transparently, and responsibly. Ethical awareness serves as a moral

guide that balances digital efficiency and human values, so that organizations do not fall prey to algorithmic bias or data misuse.

These four dimensions work together to form a general picture of digital leadership. Leaders who understand technology will find it easier to apply AI in their work, but their success depends heavily on their ability to manage teams with empathy and adapt to change. In addition, all leadership actions must be based on an understanding of ethics so that digital transformation takes place in a responsible and sustainable manner.

Conceptually, the relationship between variables in this study can be explained as follows:

Digital leadership is the main variable influenced by four key competencies, namely technological literacy, emotional intelligence, adaptive ability, and ethical awareness.

These four competencies collectively strengthen the organization's readiness to face technological change and encourage the creation of a culture of innovation and organizational resilience.

Thus, the conceptual framework of this study emphasizes that the success of digital transformation is not only determined by technological advances, but also by the quality of leadership that is able to maintain a balance between technological and human aspects. This conceptual framework forms the basis for analysis in the next chapter, which will explain how these four competencies are interrelated and contribute to the effectiveness of future AI-based digital leadership.

4. | RESULTS

Characteristics of the Reviewed Studies

This study reviewed 42 scientific studies published between 2018 and 2025 that discussed digital leadership, technological transformation, and the application of Artificial Intelligence (AI) in organizations. Most of the articles came from reputable international journals, including the Journal of Business Research, Government Information Quarterly, International Journal of Information Management, Leadership Quarterly, and Technological Forecasting and Social Change.

Table 1. Study Characteristics Based on Publisher

Publisher / Academic Journal	Number of Articles	Percentage (%)
Journal of Business Research	6	14.3
Government Information Quarterly	5	11.9
Technological Forecasting and Social Change	5	11.9
International Journal of Information Management	4	9.5
Leadership Quarterly	4	9.5%
MIT Sloan Management Review	3	7.1%
Human Resource Development Review	3	7.1
Technology in Society	3	7.1
Springer / SpringerLink	5	11.9
Emerald Insight	4	9.5
Total	42	100

Table 2. Study Characteristics Based on Publication Year

Year	Number of Articles	Percentage
2018	1	2.4
2019	2	4.8%
2020	3	7.1%
2021	4	9.5%
2022	5	11.9%
2023	7	16.7%
2024	9	21.4%
2025	11	26.2%
Total	42	100

Table 3. Study Characteristics Based on Research Approach or Method

Research Approach/Method	Number of Articles	Percentage
Conceptual Study / Literature Review	17	40.5
Quantitative Survey	10	23.8
Case Study	7	16.7
Mixed Methods	3	7.1
Experimental Study (AI-based Simulation/Experiment)	5	11.9

Table 4. Characteristics Based on Research Focus and Theme

Research Approach/Method	Number of Articles	Percentage
Digital Leadership Competencies (technology literacy, EI, adaptive, ethical)	12	28.6
Digital Transformation & Organizational Readiness	10	23.8
Human–AI Collaboration in Leadership	8	19.0
AI-driven Leadership Development	7	16.7
AI Ethics in Leadership	5	11.9
Total	42	100

Literature Analysis Results

Thematic analysis of the 42 studies reviewed shows that the development of digital leadership in the era of artificial intelligence is based on four interrelated key competencies. These four themes are inseparable; rather, they together form a comprehensive and holistic framework for digital leadership. This will then influence an organization's ability to cope with continuous technological change.

Technological Literacy as the Foundation of Digital Leadership.

Technology literacy was a major topic in the studies analyzed. This shows that a leader's ability to understand, adopt, and apply digital technology is an important requirement for organizations to survive in an increasingly data-driven business world. Research shows that leaders with high technological literacy can identify strategic opportunities from technological advances, drive business process change, and encourage innovation using AI, big data analytics, the Internet of Things (IoT), and automation systems.

Beyond technical skills, technological literacy also involves understanding the ethical, social, and structural impacts of technology use. Therefore, digitally literate leaders can

connect technology with organizational goals, create appropriate digital policies, and ensure that innovations benefit employees and stakeholders.

The Central Role of Emotional Intelligence in Human-AI Collaboration.

The second theme shows that humans remain central to the digital transformation process. Emotional intelligence emerges as an important skill because the adoption of technology, especially AI, often triggers fear, resistance, or uncertainty among employees. The analyzed research confirms that leaders with high emotional intelligence are able to build good relationships, facilitate smooth communication, and create a supportive work environment amid rapid change.

Digital leaders not only make decisions but also act as emotionally stable individuals to ensure that employees feel valued, heard, and involved in the change process. Thus, emotional intelligence is essential in building trust, reducing conflict, and strengthening cooperation between humans and technology. The study also emphasizes that without emotional intelligence, the implementation of advanced technology often fails and leads to resistance and failure in organizational digital transformation.

Adaptive Ability as the Key to Organizational Resilience.

The third theme shows that the ability to adapt is an important indicator in assessing the effectiveness of digital leadership. Continuous technological changes force leaders to not only respond to changes, but also to predict and encourage them. Many studies show that adaptive leaders have a continuous learning mindset, are able to let go of old habits, and quickly adjust their strategies according to constantly changing external conditions.

Additionally, adaptive leaders must be flexible in leading teams composed of different generations and academic backgrounds, especially in hybrid work environments filled with uncertainty. In this context, adaptive abilities not only help organizations remain strong in the face of challenges but also play an important role in building a more responsive and future-oriented culture of innovation. Organizations led by adaptive leaders tend to innovate faster, be more resilient to digital disruption, and be better prepared to compete in the global marketplace.

Ethical Awareness in the Use of AI Technology.

This fourth theme emphasizes the importance of considering ethical aspects of leadership in the digital world. Many sources indicate that although AI can improve efficiency and accuracy, its use can also cause problems such as assessment gaps, privacy violations, unfairness, and unclear automated processes.

Good digital leaders must have a sense of ethical responsibility so that technology can be used fairly. This ethical awareness includes the ability to understand the social impact of AI use, implement good data protection rules, and ensure that algorithm-based decision-making processes are in line with company principles and values. Leaders who do not understand ethical aspects can cause distrust within the organization and damage the company's reputation, especially in sensitive processes such as recruiting employees, evaluating performance, and making strategic decisions.

In general, analysis based on these themes shows that these four points are interrelated and form a complete digital leadership model. Technological literacy provides a knowledge foundation, emotional intelligence strengthens communication within the team, adaptability enables continuous innovation, and ethical awareness ensures responsible use of technology. By combining these four capabilities, a leader can not only manage digital change well, but

also build an innovative, inclusive, ethical, and competitive organization in the era of artificial intelligence.

Based on a literature review, it can be concluded that digital leadership is a complex concept that encompasses various dimensions. In essence, this approach requires a balanced combination of technical expertise and people skills, especially in the face of technology-driven change. In other words, digital leadership is a synthesis of technical leadership and people-focused leadership.

The key findings of this analysis can be summarized in four main pillars:

Technological Foundations and Limitations:

Technological literacy is an absolute foundation for a digital leader to understand the opportunities and challenges of AI advances. However, research shows that technical expertise alone is not enough. Often, the failure of digital transformation stems from leaders' inability to overcome resistance, anxiety, and uncertainty among employees, rather than a lack of technical competence. Therefore, technological mastery must be complemented by people leadership skills.

The Central Role of Emotional Intelligence.

In an era where the adoption of AI raises concerns about the replacement of human roles, emotional intelligence is crucial. A leader needs to be sensitive to the feelings and perspectives of their members, as well as maintain positive interpersonal relationships. Technological literacy that is not balanced with empathy will only widen the gap between leaders and their teams, which will ultimately hinder transformation. Building trust, open communication, and encouraging participation are tangible forms of empathetic digital leadership.

Adaptability as an Agent of Change:

Digital leaders are required to be proactive agents of change, not just waiting and reacting, but also initiating and directing change. Adaptive skills enable them to manage the fast-paced and uncertain dynamics of technology. They are able to adjust strategies, unlearn old mindsets, and create a flexible and innovative organizational culture. This flexibility also increases the organization's readiness to navigate digital risks and take advantage of opportunities from AI integration.

The Inevitable Ethical Dimension:

The use of AI brings with it moral challenges, such as algorithmic bias, data privacy issues, and reduced accountability. Therefore, ethical awareness is becoming increasingly central to digital leadership. Leaders are required to ensure that technology is implemented based on the principles of fairness, transparency, and responsibility. Ethical governance is not merely about complying with regulations but also serves as the foundation for building organizational trust and moral legitimacy in the eyes of employees.

In conclusion, digital leadership is an integrated leadership model that harmoniously combines technological competence, emotional intelligence, adaptability, and ethical principles. These four elements are interrelated and form human-cantered leadership of the future. Thus, successful leaders in the digital age are not only required to be tech-savvy but also must have moral wisdom and sensitivity to human psychological aspects. This integration is the key to maximizing the benefits of AI while ensuring that digital transformation is inclusive, sustainable, and responsible.

5. | DISCUSSION

Based on the research findings, digital leadership can be understood as a form of leadership that consists of many dimensions, formed from a combination of technological expertise, emotional competence, adaptability, and ethical integrity. These four pillars of competence are interrelated and form a leadership foundation capable of responding to challenges as artificial intelligence advances. These findings contribute significantly to contemporary leadership studies by emphasizing that digital leadership is not merely an evolution of conventional leadership models, but a separate paradigm that synergizes technical advances with humanistic principles.

From a theoretical perspective, understanding technology is crucial for leaders to analyze the opportunities and impacts of AI in advancing their organizations. However, technical expertise alone does not guarantee the success of digital transformation. Various literature reveals that many digital initiatives fail precisely because of leaders' weak ability to handle interpersonal relationships and psychological dynamics during the change process. This confirms that digital leadership is essentially human-oriented leadership. A leader must not only be technically skilled, but also possess emotional intelligence to maintain trust, establish effective communication, and reduce employee anxiety and resistance to new technologies.

On the other hand, the capacity to adapt is a determining factor that distinguishes leaders who are able to guide their organizations through rapid and unpredictable technological changes. Adaptive leaders demonstrate flexibility in thinking, a willingness to let go of old knowledge, and resilience in making decisions amid uncertainty. Literature reviews prove that organizations led by adaptive figures tend to have better digital resilience and are more capable of producing continuous innovation. The combination of technological literacy, emotional intelligence, and adaptive abilities creates a type of leader who not only understands technology but is also capable of strategically directing organizational transformation with a human approach.

Furthermore, ethical awareness serves as a moral guardian in the digital transformation process. The application of AI in organizations brings with it various ethical implications, such as bias in algorithms, data protection issues, accountability for automated decisions, and the social impact on workers. Without ethically grounded leaders, the use of AI risks creating injustice and eroding trust in the organization. Therefore, digital leadership must be based on ethical principles that ensure that every decision involving technology is aligned with organizational values and continues to consider human interests.

In practical terms, this research provides several recommendations for organizations. First, organizations need to design leadership training programs that provide a balanced mix of digital competencies and soft skills such as empathy, communication, and adaptability. Second, leaders must be able to foster a culture of innovation that supports experimentation, collaboration, and

continuous learning. Third, organizations need to implement AI ethics governance that prioritizes transparency, fairness, and social responsibility. Ultimately, digital transformation will only be successful if technology is used as a means to empower humans, not to carelessly replace them.

Despite its important contributions, this study has several limitations. The literature review method used means that the findings are highly dependent on the quality and context of the research cited, most of which comes from developed countries. Therefore, the dynamics of digital leadership in developing countries, including Indonesia, still need to be studied further. Future research should use empirical approaches such as interviews, surveys, or case studies to gain a more contextual understanding. In addition, longitudinal analysis is also needed to observe how technological developments influence leadership styles over time.

Overall, this discussion confirms that digital leadership is a future leadership model that requires humans and technology to work together in harmony. Digital leaders are those who not only master technology but also possess moral wisdom, emotional sensitivity, and adaptability to guide organizations in facing challenges and opportunities in the era of artificial intelligence. With a human-cantered leadership approach, organizations can achieve inclusive and sustainable digital transformation and increase strategic value amid global technological disruption.

6. | CONCLUSION

This study seeks to examine the role of digital leadership in preparing organizations for accelerated technological transformation, particularly in the era of artificial intelligence (AI). Based on a literature review of 42 recent studies, this study successfully identified four key competencies that constitute the framework of digital leadership, namely technological understanding, emotional intelligence, adaptive capacity, and ethical principles. The consistent appearance of these four aspects in various

literature reinforces the view that digital leadership is a multidimensional model based on the integration of technology, people, and moral values.

The findings of the analysis reveal that technological understanding is the foundation that enables leaders to understand, utilize, and direct the application of AI in organizations. However, the success of digital transformation is not solely determined by technical expertise. Various studies emphasize that human competencies, particularly emotional intelligence, play a vital role in creating a supportive, inclusive, and change-ready work environment. Emotionally competent leaders are able to foster trust, reduce resistance, and encourage harmonious collaboration between humans and AI.

Furthermore, adaptability is a determining factor in an organization's resilience and innovation amid uncertain technological changes. Adaptive leaders have the flexibility to adjust strategies, unlearn old ways of thinking, and manage change with a forward-looking vision and a proactive attitude. At the same time, ethical awareness is a fundamental pillar to ensure that technology is used responsibly. A digital leader must be able to understand the moral impact of AI, uphold justice, and maintain transparency in every decision-making process involving algorithms.

In essence, this research confirms that digital leadership goes beyond technology-based leadership. It is a form of leadership that synthesizes digital skills with empathy, moral wisdom, and adaptability. A digital leader is required to be able to balance technological efficiency with human values, so that digital transformation can be realized in an inclusive, sustainable manner that is oriented towards the welfare of the organization and all its members. Although it provides important theoretical and practical contributions, this study has

limitations because it relies on literature that is largely sourced from developed countries. Therefore, future research needs to explore the application of digital leadership in the context of Indonesian culture or other developing countries through empirical approaches such as surveys, in-depth interviews, or case studies.

By understanding the core competencies of digital leadership, organizations are expected to be able to develop appropriate leadership development strategies, strengthen a culture of innovation, and optimize AI technology without neglecting ethical values and concern for humanity. This study provides a solid conceptual foundation for the development of a future leadership model that is not only responsive to technological advances but also upholds social and moral responsibility in every digital transformation process.

Acknowledgment

We gratefully acknowledge the contributions of individuals who supported the completion of this article.

Funding Information

This research did not receive any funding.

Conflict of Interest Statement

The authors declare that there is no conflict of interest.

Ethical Approval and Originality Statement

Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

Basalamah, A. &. (2025). Digital readiness and leadership capability in AI-driven organizations. *Journal of Organizational Change Management*.

Callari, F. &. (2025). Human–AI collaboration and the emergence of meaningful work. *Technology in Society.*

Chen, X. (2025). Adaptive leadership in the era of artificial intelligence. Leadership Quarterly.

Del Barone, R. D. (2024). Digital transformation in the public sector: AI-enabled resilience. *Government Information Quarterly.*

Eom, S. &. (2023). Hybrid leadership models in AI-supported organizations. International *Journal of Information Management.*

Frangos, A. (2024). Organizational readiness for AI and the role of leadership. *MIT Sloan Management Review.*

Hess, T. M. (2016). Options for formulating a digital transformation strategy. Business & Information Systems Engineering. *Business & Information Systems Engineering*, 58(6), 393–399.

Hina, S. A. (2025). Ethical issues in AI-based recruitment: Implications for HR and organizational culture. *Human Resource Development Review*.

Hina, S. A. (2025). Ethical issues in AI-based recruitment: Implications for HR and organizational culture. *Human Resource Development Review*.

Kane, G. C. (2019). Accelerating digital innovation: The leadership and talent imperative. *MIT Sloan Management Review*.

Myszak, J. &. -D. (2025). Ethical leadership in the digital age: Challenges and opportunities. *Journal of Business Ethics.*

Sinar, E. C. (2024). Global Leadership Forecast 2024: Leading in the Age of AI. *Development Dimensions International (DDI).*

Tao, S. W. (2025). Transformational leadership and generative AI adoption in public safety organizations. *Policing: An International Journal*.

Taraba, M. V. (2023). AI integration and its impact on organizational innovation and performance. *Technological Forecasting and Social Change*.

Wilson, H. J. (2018). Collaborative intelligence: Humans and AI at work. *Harvard Business Review.*

Yusuf, M. R. (2023). Digital leadership and organizational performance in Indonesian public sector institutions. *Journal of Public Administration Studies.*

Zhang, Q. L. (2024). AI-enabled leadership development systems: A data-driven approach to leadership learning. *Journal of Business Research*.