

Digital Leadership and Organizational Transformation: A Literature Review

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ABSTRACT

This article aims to systematically review literature related to the role of digital leadership in driving organizational transformation in the era of technological disruption. This research employs a literature review method by collecting and analyzing scientific articles from various indexed databases, such as Scopus, Web of Science, and Google Scholar, published between 2019-2024. The inclusion criteria encompass articles relevant to digital leadership and organizational transformation themes in both public and private sectors. The review findings indicate that digital leadership contributes significantly to organizational transformation success through strengthening digital vision, change management, and enhancing innovation capacity. Digital leaders are required to possess competencies in technology, collaborative communication, and adaptive change management. However, digital leadership implementation also faces challenges such as organizational culture resistance, digital infrastructure limitations, and lack of technological literacy at leadership levels. This study recommends the need for developing digital leadership models that align with local contexts and sectoral characteristics to comprehensively enhance digital transformation effectiveness.

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INTRODUCTION

Digital transformation has become a strategic necessity for organizations, including in the education sector, which faces challenges due to intensive technological disruption. In the educational context, this change drives institutions to adapt more efficient and effective human resource management methods. Along with technological development, HR management in the education sector needs to be updated to improve the productivity and performance of educational staff, in order to meet the ever-changing demands of society (Mannayong et al., 2024; Rustandi, 2019). The digital transformation process not only encompasses

technology implementation but also requires changes in mindset and organizational culture among stakeholders (Lamuri & Laki, 2022; Suhermawan et al., 2023). Therefore, educational organizations must be proactive in implementing digitalization strategies to create an environment that supports better innovation and collaboration among all related parties (Pahira & Rinaldy, 2023).

Leadership in organizations plays a crucial role in the success of digital transformation, especially in establishing vision, strategic direction, and building an adaptive organizational culture. Effective leaders can provide clear direction regarding digital transformation goals, as well as inspire all organization members to contribute to the process. Research shows that strong leadership can transform rigid organizational culture to become more responsive to technological changes and dynamic market demands (Tulungen et al., 2022). Moreover, the role of digital leadership in the public sector becomes increasingly crucial, where leaders are required to create collaborative atmospheres that enable optimal innovation and technology utilization (Pangandaheng et al., 2022). Through inclusive and proactive leadership approaches, organizations can ensure that the digital transformation process is not only accepted but also internalized by all members, thereby creating an organizational culture ready to face future challenges (Manik & Juwono, 2024).

Digital leadership emerges as a strategic response to the demands of an increasingly rapid era of technology and innovation. In this context, leaders are expected not only to have deep understanding of technology but also the ability to leverage that technology to drive efficiency and effectiveness in organizations. Research shows that digital leadership can contribute significantly to employee performance through empowerment and increased organizational commitment, which ultimately has a positive impact on overall performance (Maharani et al., 2025). Effective leaders in the digital era must have the ability to inspire and motivate teams in responding to change, creating innovative and collaborative environments (Ruhmi & Yuliana, 2025).

In the education sector, the role of leaders becomes increasingly important to address disruption caused by technological changes. Educational leaders must apply adaptive leadership approaches to respond to challenges faced by educational institutions (Maharani et al., 2025). Research shows that principals with clear vision and good managerial capabilities can create positive and productive learning atmospheres, which are crucial for the success of digital transformation in educational environments (Maharani et al., 2025; NS et al., 2022). In other words, the success of digital transformation heavily depends on leaders' ability to direct organizational vision and culture toward an era of sustainable innovation.

In line with this, literature shows that challenges in education are not only related to technical implementation but are also closely tied to macro policies and their field implementation (Efianingrum et al., 2025). Good educational policies need to be accompanied by strong managerial support to overcome potential obstacles (Ruhmi & Yuliana, 2025). Leaders must also be able to face challenges in developing work cultures that support innovation and collaboration among educators, considering that digital transformation requires active participation from all organization members (Ruhmi & Yuliana, 2025).

Through digital leadership, leaders in the education world can take initiatives to integrate technology into learning processes, facilitate training for teachers, and adopt approaches that align curricula with the needs of industry and the ever-changing world of work (Maharani et al., 2025). This will prepare students with relevant skills to face future challenges, in line with dynamic job market needs.

Various studies show that digital competence plays a vital role in leadership structures to support organizational change across various sectors. With the increasing complexity and dynamics of today's business environment, especially in the context of digitalization, leaders with digital competence can direct their teams more effectively in overcoming challenges. Research conducted by Fitriani et al. shows that digital leadership is not merely understanding technology but also encompasses the ability to bring digital transformation in public organizations, which requires strong collaboration between leaders and teams (Fitriani et al., 2023). In the education field, digital leadership has been proven to significantly influence teacher learning practices and student performance, as shown in research (Agustina et al., 2020) on the influence of digital leadership on teachers' reflective practices (Agustina et al., 2020) and in a study by Retnowati and Santosa showing how digital leadership, digital culture, and employees' digital capabilities contribute to sustainable organizational performance in education (Retnowati & Santosa, 2023). This indicates that leaders who can integrate technology into their managerial methods not only increase organizational efficiency but also contribute to developing sustainable innovation culture (Khurniawan et al., 2024). Thus, digital competence in leadership becomes an important foundation in succeeding adaptive and responsive transformation processes to rapid change.

However, there are still gaps in the literature regarding models, approaches, and challenges in implementing digital leadership across various sectors. Although many studies have revealed the importance of digital competence in leadership, there is no clear consensus on the most effective models or frameworks in various organizational contexts. For example, Lindqvist and Pettersson noted that digital leadership in the education sector faces complexity in integrating various digital

competencies needed to drive successful change (Lindqvist & Pettersson, 2019). These findings align with research results by Fitriani et al., highlighting the behavioral leadership changes needed to keep up with technological developments and meet organizational goals (Fitriani et al., 2023). Additionally, Khurniawan et al. show that digital leadership is not only related to implementing new technology but also requires conceptual skills in leading broader organizational change (Khurniawan et al., 2024). On the other hand, research by Yu and Moon shows that digital strategic orientation can improve organizational performance; however, challenges in implementing effective digital leadership remain significant obstacles (Yu & Moon, 2021). The limited amount of research on specific challenges and appropriate implementation models demonstrates the urgency for further studies that can provide deeper insights into how organizations can optimize their digital leadership to achieve transformation success.

This article aims to systematically review literature related to digital leadership and its relationship with organizational transformation. Various studies have shown that digital leadership is a key element in facilitating necessary changes in organizations to adapt to digital era demands. Dema et al. found that transformational leadership supported by communication and collaboration capabilities can help build trust in organizations, which in turn encourages support for digital transformation (Dema et al., 2023). In the digital economy context, Liu and Khong-Khai emphasize that transformational leadership is more effective in improving employee performance and organizational commitment compared to transactional leadership (Liu & Khong-Khai, 2024). Additionally, Alajmi identified that leaders who apply digital leadership can encourage better technology integration in learning processes during the COVID-19 pandemic, showing its crucial role in the educational context (Alajmi, 2022). Another study by Khurniawan et al. underlines the importance of digital leadership in building data-oriented organizations and leveraging technology trends to achieve effective transformation (Khurniawan et al., 2024). Although there are many studies discussing the concepts and impacts of digital leadership, there are still gaps in terms of appropriate models and approaches for its implementation across various sectors, creating a need for more in-depth further studies.

METHODS

Contains This research employs a literature review approach to examine the development of studies on digital leadership and organizational transformation. Existing literature shows that digital leadership becomes crucial in facilitating

organizational transformation in the current digital era. For instance, Roman et al. emphasize the importance of digital leadership in the context of communication mediated by information and communication technology (ICT), noting that effective leaders must be able to integrate theoretical and practical insights in leadership training (Roman et al., 2018). Fitriani et al. (2023) underscore that in the current industrial era, digital leadership must become one of the main strategies implemented to ensure successful organizational transformation, especially in the public context (Fitriani et al., 2023). On the other hand, Wang et al. developed a theoretical model showing how digital leadership contributes to exploratory innovation in organizations, reinforcing the importance of strategic orientation perspectives and organizational culture in this regard (Wang et al., 2022). Additionally, Mollah et al. (2023) demonstrate that digital leadership has a significant impact on IT capabilities and organizational learning, which are necessary to achieve sustainable performance in the digital era. By collecting and analyzing existing literature, this research aims to provide comprehensive insights into the challenges and opportunities faced by leaders in leading digital transformation, as well as to identify models that can be used in implementing digital leadership across various organizational sectors.

This research uses a literature review approach to examine the development of studies on digital leadership and organizational transformation. A number of sources from indexed journals, as well as recent research findings, indicate that digital leadership becomes a key factor in driving successful organizational transformation, especially in the current digital era. Sasmoko et al. indicate that effective digital leadership is closely related to organizational innovation capabilities, where leaders possess strong global vision and collaborative abilities (Sasmoko et al., 2019). This is similarly emphasized by Ziadlou (2021), who states that leadership in digital transformation is crucial for organizations in adopting effective strategies to achieve sustainable development goals.

On the other hand, research results conducted by Ming & Mansor (2024) explain that digital leadership touches various aspects of organizational life, from education to the public sector, demonstrating its broad relevance. Furthermore, a study by Raza et al. (2024) highlights that transformative leadership style significantly influences project success, indicating the need for adaptive leadership in facing fundamental changes in organizations. This is reinforced by the opinion of Zulu & Khosrowshahi (2021), who explain that various digital leadership approaches in the construction industry need to be examined more deeply to enhance the effectiveness of digital transformation. Through the collection and analysis of obtained literature, this research aims to provide comprehensive insights

regarding challenges and digital leadership models that can be adopted to facilitate better organizational transformation.

Inclusion Criteria

The inclusion criteria for this research include articles in English and Indonesian published in the last five years (2019-2024). Therefore, irrelevant or duplicate articles will be excluded from the analysis. Various relevant references may include research on digital leadership and its impact on organizational transformation. For example, research by Gachugu examines the impact of transformational leadership on digital innovation in large organizations, showing that effective leadership can foster the innovation culture necessary to adapt in a dynamic business environment (Gachugu, 2023).

Ademola (2024) also notes that leadership has a key role in the successful implementation of e-government, highlighting leadership strategies that need to be applied to overcome challenges in the adoption of information and communication technology (ICT) in the public sector. Additionally, this is reinforced by the opinion of Qiao et al. (2024) regarding the importance of aligning leadership strategies with digital transformation initiatives to improve employee performance and organizational commitment, which highlights the interaction between leadership and digital transformation. Through this literature review, it is hoped that better guidelines can be formulated regarding the role of digital leadership in facing challenges and opportunities in the era of digital transformation.

RESULTS AND DISCUSSION

Literature indicates that digital leadership plays a key role in aligning digital strategy with organizational vision. Research conducted by Fitriani et al. (2023) confirms that digital leadership not only provides clear direction in technology implementation but also contributes to efficiency, transparency, and public participation in services. Additionally, Ademola notes that effective leadership strategies are essential to support information and communication technology (ICT) implementation in the public sector, where leadership serves as a bridge to overcome challenges during digital transformation (Ademola, 2024).

Musaigwa and Kalitanyi highlight that leaders need to possess strong network intelligence to manage organizational change triggered by digital transformation, as well as the ability to build strong partnerships (Musaigwa & Kalitanyi, 2023). Meanwhile, Ruël et al. present a theoretical model showing how leadership and organizational learning mutually influence each other in formulating digital business strategies, emphasizing the importance of alignment between leadership and organizational strategic objectives in this process (Ruël et al., 2020).

These findings indicate that digital leadership is not only important in the initial stages of transformation but also in strategy implementation that ensures organizational vision is well-integrated into the organization's daily culture and practices.

Several digital leadership models emphasize innovative, collaborative, and adaptive capabilities as core competencies for leaders in the digital era. Senadjki et al. show that leaders' digital capacity is crucial in creating coherence principles that can enhance the success of corporate digital transformation (Senadjki et al., 2023). Innovative leaders are able to create environments that encourage exploration of new ideas and adaptation to change, which is essential in rapidly changing business contexts. Additionally, Worapongpat et al. identify six core competencies that educators must develop to succeed in the digital era, including the ability to collaborate and drive organizational change (Worapongpat et al., 2024).

Meanwhile, research by Sari et al. categorizes various leadership models in the digital era, such as collaborative and transformative leadership, showing that decisions sensitive to digital context can enhance organizational effectiveness and efficiency (Sari et al., 2023). Tutar and Güler emphasize the importance of digital leadership in adapting to continuously evolving digital world conditions, requiring leaders to possess high adaptive and collaborative capabilities (Tutar & GÜLER, 2022). Through the development of these competencies, leaders can guide organizations toward sustainable innovation and success in achieving strategic goals within complex digital ecosystems.

Major challenges in digital leadership implementation include cultural resistance, limited digital infrastructure, and lack of technological literacy at leadership levels. Cultural resistance is often caused by employees' lack of understanding or inability to accept changes brought by digitalization. Sunaryo suggests that rigid organizational culture can hinder digital leadership initiatives, which should synergize with other elements in the organization to achieve strategic goals (Sunaryo, 2021).

Furthermore, digital infrastructure limitations, as explained by Paul and Victor, can be a significant barrier to digital-based public service adoption. Inadequate infrastructure, including limited broadband access and high costs, significantly affects e-service implementation across various sectors (Paul & Victor, 2023). Additionally, research by Khisro et al. (2021) highlights that limited digital infrastructure is often hampered by outdated technology and lack of stakeholder dialogue, reducing innovation potential achievable through digital leadership (Khisro et al., 2021).

Lack of technological literacy at leadership levels is also a significant challenge, often preventing leaders from effectively utilizing digital technology. Research by Mushtaq et al. shows that organizations without digitally literate leaders tend to fail in implementing digital transformation strategies, which in turn hinders organizational growth and performance (Mushtaq et al., 2024). Therefore, adequate understanding and training are essential to overcome these challenges and support successful digital leadership in organizations.

Organizational transformation led by digital leaders tends to be more responsive to change and capable of utilizing data as a decision-making basis. In this context, transformational leadership has proven to play a significant role in driving organizational capabilities to adapt to continuously changing environments. Dema et al. note that effective transformational leaders can build trust and support within organizations, as well as encourage employee involvement in innovation processes (Dema et al., 2023). This success occurs because leaders can inspire their team members to commit to larger organizational goals, which is crucial in digital transformation contexts.

Istiqomah and Burhanuddin also show that leaders capable of directing organizational change will be more effective in implementing digital strategies, making data the foundation for decision-making (Istiqomah & Burhanuddin, 2022). In their research, they emphasize that leadership driven by clear vision enables leaders to be more adaptive and responsive to challenges and opportunities faced (Istiqomah & Burhanuddin, 2022). Furthermore, Liu and Khong-Khai state that transformational leadership contributes to better performance and innovation in digital economy contexts, strengthening organizational capabilities to use data in guiding strategic decisions (Liu & Khong-Khai, 2024). Therefore, innovative and adaptive digital leadership becomes key in creating organizations that are not only responsive to change but also capable of leveraging data-based opportunities to support growth and sustainability.

However, digital leadership effectiveness is greatly influenced by industry context, organizational readiness, and internal policy support. First, industry context can influence how digital leadership strategies are implemented and accepted. Research by Samuel and Ramli shows that in manufacturing industries, efficient digital leadership can improve employee performance through empowerment and organizational commitment (Samuel & Ramli, 2024). On the other hand, specific challenges faced by certain sectors, such as education, also require different approaches suitable to the culture and dynamics within those institutions (Armianti et al., 2023).

Organizational readiness also plays an important role in digital leadership success. If organizations have made sufficient investments in digital infrastructure and employee training, they will be better able to adopt technology and digital strategies recommended by their leaders. Internal policy support from top management levels and decision-making is also crucial. When company policies support innovation and new technology use, digital leaders have more room to maneuver and make strategic decisions. Conversely, without appropriate policy support, digital leadership initiatives can be hindered. Therefore, for digital leadership to be effective, it is important for leaders to understand and consider contextual factors that influence their organizations.

Overall, the literature agrees that digital transformation will not succeed without leadership capable of bridging technology and humanity. In this digital era, transformational leadership becomes crucial for facilitating necessary changes in organizations. Dema et al. show that transformational leadership supported by communication, collaboration, and synergy capabilities can build trust and support digitalization processes in organizations (Dema et al., 2023). In this context, leaders who can create innovative work environments responsive to change play important roles in successful digital strategy implementation.

Furthermore, Liu and Khong-Khai suggest that transformational leadership shows higher efficiency compared to transactional leadership styles in the digital economy, as these leaders can motivate employees to commit to change and utilize technology effectively (Liu & Khong-Khai, 2024). In line with this, Senadjki et al. emphasize that digital leadership capability in predicting company digital transformation direction significantly influences organizational performance success (Senadjki et al., 2023).

On the other hand, internal policy support and organizational readiness also contribute to digital leadership effectiveness. Research by Comlek states that digital leadership influence heavily depends on organizational context and culture, as well as policies governing its implementation in digital transformation (Comlek, 2025). Therefore, collaboration between technology and humanity in work environments supported by effective leadership is a fundamental element determining digital transformation success in an organization.

CONCLUSION

Digital leadership emerges as a strategic element determining organizational transformation success in the continuously evolving digital era. This literature review shows that effective digital leadership demands not only

technological mastery but also skills in integrating technology with human needs, organizational culture, and long-term strategies. Visionary digital leaders can create data-based organizations, manage change responsively, and leverage technology trends to build competitive advantages.

Successful digital transformation cannot be separated from the role of leaders capable of driving business model innovation, strengthening employee engagement, and creating adaptive work environments. Transformational leadership proves superior to traditional leadership styles in fostering collaborative spirit, job satisfaction, and sustainable innovation. Digital leaders with adaptive competencies can create organizational cultures open to learning, flexible to change, and sustainability-oriented.

Nevertheless, digital leadership effectiveness highly depends on human resource readiness and organizational structure. Many organizations still face obstacles in the form of low digital literacy, lack of training, and bureaucratic structures that don't support innovation. This shows that besides competent leaders, organizations must also create positive, flexible work climates that support cross-functional collaboration. The role of internal policies, healthy work climates, and planned change management become supporting factors in strengthening organizational adaptability.

Digital leadership cannot be uniformly applied across all sectors and organizations. Therefore, contextual and sector-specific approaches are needed, for instance in education, healthcare, or creative industries. Developing digital leadership models that consider local characteristics, cultural values, and organizational technology readiness levels becomes key to designing relevant and effective implementation strategies.

This research recommends that further studies be directed toward developing practical frameworks and digital leadership measurement tools that can be used to identify competencies, measure readiness, and design more structured leadership training programs. Integration between theoretical insights and practical organizational needs becomes important to ensure that digital leadership is not just jargon but becomes the main foundation in building resilient, innovative organizations ready to face future disruption.

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