**MODERN LEADERSHIP APPROACH: DIGITAL LEADERSHIP IN THE COMPLEXITY OF THE DIGITAL AGE**

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**Abstract**

The complexity of the digital age has changed the business landscape and demanded that organizations transform profoundly. A modern leadership approach known as digital leadership is essential to managing this dynamic. Digital leadership refers to the ability of leaders to leverage digital technology to create innovation, drive organizational change, and maintain competitiveness in the global market. This approach involves a combination of technical competence, adaptability, and managerial skills to manage human resources, technology, and a dynamic business environment. This study reveals that digital leadership plays a key role in driving innovation, accelerating digital transformation, and creating resilient and sustainable organizations. The study also highlights the importance of integrating digital leadership in organizational strategies to create an adaptive, inclusive, and customer-oriented work culture. This study recommends the development of training and development programs to equip leaders with relevant competencies, the adoption of agile work methodologies, and the application of data analytics as the basis for strategic decision-making. Digital leadership is not only a solution to the challenges of the digital era, but also a catalyst for transformation to create an organization that is ready to face the future.

**Keywords:** Digital Leadership, Complexity of the Digital Era, Modern Leadership, Digital Transformation, Innovation, Change Management, Organizational Strategy.

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**Introduction**

The digital age has brought about fundamental changes in various aspects of life, including how organizations operate, compete, and innovate. Technological developments such as artificial intelligence (AI), big data analytics, the Internet of Things (IoT), and blockchain have created new opportunities, although they pose significant challenges for organizational leaders. In this context, traditional leadership approaches that tend to be hierarchical and procedure-based are considered less able to accommodate the dynamics of the digital era (Junita, 2021). Therefore, there is a need for a modern leadership approach known as digital leadership. Digital leadership is not only related to the ability to utilize digital technology, but also includes strategic vision, change management, and the creation of an innovative and collaborative work culture. As expressed by Kane in (Wulandari et al., 2023) "Digital transformation is about more than technology; it is about how organizations adapt to new ways of working that enable them to survive and thrive in the digital ecosystem." In other words, digital leaders must be able to integrate technology into organizational strategy while building a mindset that supports innovation and flexibility.

The complexity of the digital age also introduces several challenges that require a unique leadership approach. These challenges include resistance to change, digital skills gaps, cybersecurity threats, and pressure to stay relevant in a rapidly changing marketplace (Redhana, 2024). Leaders are not only required to overcome these challenges but also to strategically leverage digital technology to create added value for the organization. According to Westerman et al. in (Dewi, 2024) "Digital leadership is the ability to build a clear vision and empower the organization to adopt relevant technologies in ways that deliver real business impact." Furthermore, the digital age has changed the way organizations interact with customers, partners, and employees. Expectations for speed, personalization, and accessibility are higher, so organizations need to be more adaptive and customer-oriented. In this case, digital leaders need to create a work ecosystem that utilizes technology, strengthens cross-functional collaboration, empowers human resources, and encourages continuous innovation. Fitzgerald et al. in (Tulungen et al., 2022) mentioned that "successful digital leaders are those who can bridge the gap between technology and people, creating an environment where technology can be optimally utilized to improve performance."

However, the implementation of digital leadership is not free from obstacles. One of the main obstacles is resistance to change, both at the individual and organizational levels (Norliani et al., 2024). Many employees are uncomfortable with digital transformation because they have to abandon old ways of working and learn to use new technologies. In addition, the digital skills gap is a significant challenge, especially among traditional leaders who do not yet have a deep understanding of technology (Jayanthi & Dinaseviani, 2022). Nonetheless, digital leadership provides great opportunities for organizations to improve their efficiency, innovation, and competitiveness. By leveraging technology strategically, leaders can create relevant solutions for modern business challenges, such as improving customer experience, optimizing operational processes, and accelerating decision-making. Therefore, digital leadership is not only a necessity but also the key to creating a resilient and sustainable organization in the digital age.

This approach demands a profound change in the way leaders view technology, organizational culture, and their mindset. In this research, digital leadership will be explored as a modern leadership approach that can manage the complexities of the digital era, overcome challenges, and take advantage of opportunities to create sustainable value for the organization. As asserted by Bawany in (Ferinia, 2022) "The future of organizations depends on the ability of leaders to adopt digital leadership strategies that not only focus on technology but also human empowerment."

**Methodology**

This research uses a literature review approach to examine the concept of digital leadership in the context of organizational transformation in the digital era. The literature review is a research method that relies on collecting, analyzing, and synthesizing relevant sources of information to gain a deep understanding of the topic under study. (Kusumastuti & Khoiron, 2019). This approach is useful for building a theoretical foundation, identifying existing knowledge gaps, and providing an overview of trends and best practices in digital leadership. The selection of literature sources is an important first step in a literature review. For this research, the selected sources include scientific journal articles, books, industry reports, and publications from leading thinkers that discuss topics related to digital leadership and digital transformation in organizations. The data collection process in this study was conducted by searching and identifying literature relevant to the topic of study.

**Result and Discussion**

**Definition of Digital Leadership**

Digital leadership is a modern leadership concept that developed in response to the fundamental changes brought about by advances in digital technology in various sectors of life, including in organizations and businesses. The definition of digital leadership is not limited only to the technical ability to use technology, but more broadly includes the ability to lead technology-driven change, create innovation, and build an organizational culture that is adaptive to digital dynamics. Westerman et al. define digital leadership as the ability of leaders to leverage digital technology as a strategic tool to transform organizations, create new ways of working, and increase the value generated by the organization (Kosasih & Aditya, 2024). In other words, digital leadership focuses not only on the technology itself but also on how the technology is used to achieve greater goals.

Digital leadership also emphasizes the leader's role in designing a future-oriented strategic vision. This vision includes how digital technology can be integrated into business strategies, operating models, and interactions with customers. Kane et al. (Turyadi et al., 2023) stated that "digital leadership is not just about adopting technology but about reimagining how the organization operates and delivers value in a digital-first world." Digital leaders must be able to identify new opportunities created by technology, such as the use of big data for decision-making, the implementation of artificial intelligence (AI) in business processes, and the adoption of the Internet of Things (IoT) to improve operational efficiency. In this case, digital leaders not only facilitate technology adoption but also create a strategic roadmap that leads the organization towards digital transformation.

One important aspect of the definition of digital leadership is the focus on managing change. Digital transformation often involves major changes in organizational structure, work processes, and work culture. Therefore, digital leaders must have the ability to lead organizations through this period of change. According to Kotter in (Wulandari et al., 2023), the success of organizational transformation depends heavily on the leader's ability to create urgency, build a clear vision, and empower the team to implement the change. In the context of digital leadership, leaders not only act as technology executors but also as change agents who can manage resistance, increase employee engagement, and create a work environment that supports collaboration and innovation (Haudi et al., 2021).

Furthermore, digital leadership requires leaders to be competent in data-driven decision-making. Digital technologies have generated massive amounts of data that can be used to support strategic decisions. Digital leaders must be able to understand, analyze, and use this data to make faster, more informed decisions. McAfee and Brynjolfsson emphasize that organizations led by leaders who can make good use of data tend to be more competitive and innovative than those that still rely on traditional intuition (Junita, 2021).

In addition, digital leadership also includes aspects of team development and empowerment. Digital leaders must be able to recognize new skill needs in the digital era and provide training and development opportunities for employees. They must also create a work culture that supports innovation, experimentation, and continuous learning. In a digitally led organization, employees are encouraged to think creatively, work collaboratively, and adapt quickly to changes that occur. As explained by El Sawy et al. In (Dewi, 2024), digital leaders have an important role in creating "an organizational culture that fosters collaboration, innovation, and continuous learning." Adaptability is another element that is part of the definition of digital leadership. Digital leaders must be able to adjust to rapid changes in the business and technology environment. The digital era is characterized by high uncertainty, where leaders need to have the flexibility to change strategies, make decisions in ambiguous situations, and stay focused on the long-term vision. Bennis and Nanus mentioned that adaptability is one of the main characteristics of successful leaders in the face of dynamic change (Eka Rachmawati et al., 2023). Digital leaders must have a strategic vision, skills in data-driven decision-making, the ability to manage change, and the ability to build and empower innovative and collaborative teams.

**Digital Leadership Key Competencies**

Digital leadership is a modern leadership approach that demands a set of key competencies to support organizations in facing the challenges of the digital age. These competencies include a variety of technical, strategic, and interpersonal abilities needed to make the most of digital technology opportunities while managing change in the organization (Rachmad et al., 2024). Without these competencies, a leader will have difficulty navigating the organization through a complex and uncertain digital transformation.

The first competency that a digital leader should have is a deep understanding of digital technologies and how they can be strategically applied in organizations. Digital leaders do not need to be technical experts, but they should be able to understand technologies such as artificial intelligence (AI), big data, blockchain, and the Internet of Things (IoT). The ability to identify relevant technologies, evaluate their benefits, and integrate them into business strategy is crucial. As stated by Westerman et al. (Cahyarini, 2021) that digital leaders must be able to "see technology as a tool to support strategic innovation and drive change, not just for operational efficiency." Digital leaders must have a clear strategic vision of how technology can be leveraged to achieve the organization's long-term goals. This competency involves the ability to design and direct digital transformation strategies that focus not only on technology adoption but also on changing business models, operational processes, and customer experiences. Kane et al. state that "a strong digital vision enables leaders to guide organizations through the challenges of digital transformation, by integrating technology into all aspects of business strategy" (Wulandari et al., 2023). This vision must also be accompanied by effective communication so that all stakeholders, including employees, understand the direction of the transformation.

Digital transformation often presents challenges in the form of resistance to change, both from individuals and the organization as a whole. Therefore, the ability to manage change is a critical competency that digital leaders must possess. They must be able to recognize resistance, overcome it with effective strategies, and create an organizational culture that supports innovation and flexibility. Digital leaders must also be able to build trust and motivate teams to support ongoing transformation. As explained by Kotter in his theory of change management, success in organizational transformation depends heavily on the leader's ability to create urgency, build a clear vision, and empower the team to achieve common goals (Shalahuddin, 2020). The digital era is characterized by an abundance of data that can be used to support strategic decision-making. Digital leaders must have competence in understanding data, analyzing the information obtained, and using the results of the analysis to make faster and more precise decisions. This data-driven decision-making helps organizations identify new opportunities, optimize processes, and mitigate risks. According to McAfee and Brynjolfsson, organizations led by a data-driven approach have a greater chance of excelling than competitors who still rely on intuition or experience alone (Junita, 2021).

Digital leaders must be able to create an organizational culture that supports innovation, experimentation, and collaboration. This competency includes the ability to build a work environment that allows team members to share ideas, try new approaches, and learn from failure. In the context of digital leadership, innovation is not just the responsibility of certain individuals but is part of the entire organization. El Sawy et al. state that "digital leaders must create a collaborative work ecosystem, where new ideas can emerge, be tested, and implemented effectively." (Dewi, 2024). Another key competency in digital leadership is the ability to empower teams with relevant skills in the digital era. Digital leaders must be able to identify employee development needs and provide training that supports the mastery of new technologies (Melliasari et al., 2024). They must also create opportunities for employees to contribute to the organization's innovation and transformation process. By empowering teams, leaders not only ensure the success of digital transformation but also create a workforce that is more adaptive and ready to face future challenges.

The digital age is characterized by rapid change and high complexity. Digital leaders must have the adaptability to adapt their strategies and approach to the changes taking place, as well as the resilience to deal with uncertainty. They must be able to lead the organization through challenging situations while staying focused on long-term goals. According to Bennis and Nanus, adaptability is one of the main characteristics of successful leaders, especially in a constantly changing environment (Agustin et al., 2023). Key digital leadership competencies include understanding technology, strategic vision, ability to manage change, data-driven decision-making, creating a culture of innovation, empowering teams, and adaptability. These competencies not only support leaders in leveraging technology effectively but also help organizations to survive and thrive in the digital age.

**Challenges in Digital Leadership**

Digital leadership is recognized as an essential leadership approach in the digital age, but its implementation is not free from complex challenges. These challenges arise as a consequence of accelerated technological development, changing consumer expectations, organizational cultural dynamics, and the need to manage innovation. Digital leaders face not only technical challenges but also strategic and interpersonal challenges that require high adaptation skills and resilience (Rohmaniah & Sri Pudjiarti, 2024). One of the biggest challenges in digital leadership is managing organizational changes that result from digital transformation. These changes include restructuring business processes, adopting new technologies, and adjusting work culture. Many organizations experience resistance from employees who feel uncomfortable with change or fear losing their roles due to automation. As explained by Kotter in (Dewi, 2024) resistance to change often arises from uncertainty and lack of understanding of the benefits of transformation. Therefore, digital leaders must be able to create effective communication to educate, motivate, and engage employees in the transformation process.

Digital leaders often face challenges in selecting, implementing, and integrating digital technologies into organizational processes. While technologies such as artificial intelligence (AI), big data, and the Internet of Things (IoT) offer great potential, their implementation is often complex and requires a significant investment in time, resources, and employee training. Leaders must also be able to assess whether a particular technology is relevant to the organization's needs or just a trend. According to Westerman et al., "digital leaders need to ensure that the technologies adopted not only meet current needs but also support the organization's long-term strategic goals" (Rachmad et al., 2024). The digital skills gap among employees is one of the main obstacles to the implementation of digital transformation. Many employees, especially those who have been working for a long time, may not feel confident with new technologies or may not have sufficient skills to use them. This creates a challenge for digital leaders to empower their teams through training and skills development. As stated by Kane et al. in (Wulandari et al., 2023) "Digital transformation requires not only new technologies but also new skills that support those technologies." Therefore, leaders must be proactive in identifying training needs and creating relevant development programs.

In the digital age, organizations are often inundated with large amounts of data that can be used for strategic decision-making. However, challenges arise when the data is not managed properly or cannot be processed into meaningful information. Digital leaders must be able to understand how data can be effectively utilized to support faster and more accurate decision-making. However, this skill is not always easy to master, especially if the organization does not have an adequate technology infrastructure or a competent team in data analysis. McAfee and Brynjolfsson (Junita, 2021) stated that "leaders who are unable to manage data well will find it difficult to utilize its potential to create competitive advantage." Another challenge in digital leadership is creating an organizational culture that supports innovation and collaboration. Digital transformation requires a culture that is open to new ideas, tolerant of failure, and flexible in trying different approaches. However, a hierarchical or rigid organizational culture is often a barrier to innovation. Digital leaders must be able to change the mindset of employees and encourage them to experiment without fear of negative consequences. El Sawy et al. (Dewi, 2024) emphasize that "successful digital leaders are those who can create a work environment where creativity and innovation can flourish to the fullest."

Rapid and unpredictable change in the digital age presents uncertainties and risks that digital leaders must manage. Constantly evolving technological changes can make strategies or investments obsolete in a short period. In addition, risks such as cybersecurity, data privacy, and technology implementation failure are major concerns. Digital leaders must have the ability to proactively manage these risks by adopting a flexible and data-driven approach. According to Bennis and Nanus, in (Juhro, 2021) "Effective leadership amid uncertainty requires the ability to remain calm, think strategically, and make the right decisions in stressful situations." In the digital era, consumer expectations continue to evolve along with increased access to technology and information. Consumers demand faster service, better personalization, and integrated experiences. This puts added pressure on digital leaders to ensure that their organizations can meet or even exceed consumer expectations. Leaders must be able to use technologies such as big data and AI to deeply understand consumer needs and create relevant solutions. However, challenges arise when organizations do not have enough infrastructure or skills to meet these demands.

With so much change and disruption taking place in the digital age, digital leaders often face challenges in maintaining focus on the organization's strategic goals. Digital transformation can be a complex and lengthy process, so there is a risk that organizations lose their way or focus too much on the technical aspects without considering the impact on long-term goals. As stated by Davenport and Westerman, "digital leaders must be able to maintain a balance between the exploration of new technologies and the achievement of tangible strategic outcomes" (Cahyarini, 2021). Digital leadership presents a variety of challenges that require a combination of technical, strategic, and interpersonal skills. Managing change, choosing the right technology, empowering employees, managing data, creating a culture of innovation, and dealing with uncertainty are some of them. Digital leaders who can address these challenges wisely will not only successfully lead organizational transformation but also ensure organizational sustainability and competitiveness amidst an ever-evolving digital ecosystem.

**The Role of Digital Leadership in Digital Transformation**

Digital transformation is a strategic process in which organizations adopt digital technologies to create added value, improve efficiency, and strengthen competitiveness (Alawiah & Tukiran, 2024). This process is not just about technology implementation but also involves deep changes in the way organizations operate, think, and interact with stakeholders. In this context, digital leadership plays a key role as the driver, director, and manager of complex digital transformation. Digital leaders must have the ability to integrate technology with the organization's vision, build a culture of innovation, and ensure the sustainability of transformation amid the dynamics of a changing business environment. The main role of digital leadership in digital transformation is to create a clear and inspiring strategic vision. Digital transformation requires a firm direction to guide the organization in adopting technology and harnessing its potential. Digital leaders must be able to formulate a vision that not only describes the benefits of technology but also how the technology will support the achievement of the organization's long-term goals. Kane et al. (Wulandari et al., 2023) stated that "without a strong digital vision, organizations can lose direction or stagnate in the transformation process." Digital leaders must also ensure that this vision is effectively communicated to all stakeholders to gain full support for the implementation of the transformation strategy.

Digital transformation brings not only technical changes, but also cultural, structural, and process changes in organizations. Digital leadership acts as a change agent responsible for effectively managing this transition. Digital leaders must understand that resistance to change is natural and must be managed with the right communication, training, and motivation strategies. Kotter, in his theory of change management, emphasizes the importance of creating urgency, building leadership coalitions, and empowering individuals in the organization to support transformation (Wulandari et al., 2023). In the context of digital transformation, digital leaders must also ensure that all members of the organization have the same understanding of the benefits and goals of the change. Digital transformation cannot be separated from innovation (Winanti, 2021). Digital leadership plays an important role in creating an environment that supports the emergence of new ideas and cross-functional collaboration within the organization. Digital leaders must facilitate innovation by providing resources, building a culture that accepts experimentation, and creating space for employees to learn from failure. As stated by El Sawy et al. "Innovation is at the core of digital transformation, and digital leaders must create an ecosystem where ideas can flourish" (Dewi, 2024) In addition, collaboration between different teams is also crucial to solving complex problems and creating diverse solutions.

Digital leaders play a critical role in integrating technology into all operational and strategic aspects of the organization. Digital transformation requires leaders who can evaluate new technologies, determine their relevance to organizational goals, and ensure their implementation is appropriate. Westerman et al. emphasize that "digital leaders must see technology as a catalyst that can transform the way the organization operates, not just a tool to increase efficiency" (Sofiyanto et al., 2024). Digital leaders must also be able to direct the organization to utilize data and technology in making faster and more precise decisions. Digital transformation requires significant cultural changes in the organization. Digital leaders play a role in creating an adaptive, innovative, and data-driven digital culture. This involves developing a digital mindset at all levels of the organization, from top management to front-line employees. Leaders must promote openness to change, employee empowerment, and collaboration in a dynamic environment. Kane et al in(Dewi, 2024) mentioned that "digital culture is the foundation of digital transformation, and leaders must be role models in supporting these values."

Digital transformation cannot succeed without a workforce that is ready for change. Digital leadership plays an important role in empowering employees through training, developing digital skills, and providing opportunities to engage in the transformation process. Digital leaders must ensure that teams have access to the tools, knowledge, and training needed to support transformation. In addition, they should encourage employees to adopt new technologies and understand how they can improve their performance. According to McKinsey & Company, in (Norliani et al., 2024) Organizations that succeed in digital transformation are those that prioritize the development of their employees' digital skills. The business environment in the digital era is very dynamic, characterized by rapid change and uncertainty. Digital leaders must have high adaptability to respond to these changes, whether they come from new technologies, market changes, or competitive pressures (Mikuskova, 2023). Resilience in the face of challenges is also a key competency, as the digital transformation process often involves significant risks of failure and obstacles. Digital leaders must be able to maintain team focus and morale, even in the face of high uncertainty.

Digital leadership plays a crucial role in ensuring the success of digital transformation. By shaping strategic vision, managing change, driving innovation, integrating technology, building a digital culture, empowering employees, and leading with adaptability, digital leaders can lead organizations to success in this disruptive era. In carrying out this role, digital leaders not only act as technology adopters but also as change agents who can change the way organizations think, work, and develop (Anggoro et al., 2024). Digital transformation is not just about technology, but about creating a future-ready organization, and digital leadership is at the core of that process.

**Conclusion**

**Summary**

The digital era has brought fundamental changes in various aspects of life, including the world of business, organizations, and leadership. In the face of this complexity, traditional leadership approaches that are hierarchical and procedure-based are no longer adequate. Digital leadership emerges as a modern leadership approach that can accommodate the needs of organizations to adapt, innovate, and survive amid the dynamics of the digital era. Digital leaders are not only responsible for integrating technology into organizational strategy but also for creating a collaborative, innovative, and flexible work culture in the face of rapid change. Digital leadership involves key competencies, such as technological understanding, strategic vision, ability to manage change, data-driven decision-making, and digital culture building. These competencies enable leaders to steer the organization in the digital transformation process, from adopting new technologies to changing the way the organization works and thinks. As stated by Kane et al. in (Dewi, 2024) digital transformation is not just about technology, but about how organizations change the way they think, innovate, and work to create new value.

In addition, digital leadership also plays a role in overcoming key challenges of digital transformation, such as resistance to change, lack of digital skills among employees, and high uncertainty in the business environment. By leading cultural change and empowering teams, digital leaders can ensure that organizations not only adapt to technology but also leverage it for sustainable competitive advantage. Successful digital transformation requires not only the right technology but also leaders who can drive change with adaptability, resilience, and a strong vision. Digital leadership is a key element in ensuring the success of digital transformation in this complex and dynamic era. By building relevant competencies, creating a supportive organizational culture, and leveraging technology strategically, digital leaders can steer organizations toward long-term sustainability and success. The above recommendations are expected to be a guide for organizations to prepare and implement digital leadership effectively so that they can survive and thrive amid the challenges and opportunities of the digital era.

**Advice**

Organizations need to actively develop digital leadership competencies among their leaders. Training and development focused on technology understanding, change management, and data-driven decision-making should be a priority. In addition, leaders also need to be encouraged to develop interpersonal skills, such as communication, empathy, and trust-building abilities, which are critical in managing organizational change. Digital transformation can only succeed if it is supported by an adaptive and innovative organizational culture. Digital leaders should focus on creating a collaborative work environment where employees feel supported to share ideas, try new approaches, and learn from failures. Organizations also need to build a mindset that values experimentation, flexibility, and continuous learning. To support digital transformation, organizations must ensure that all employees have adequate digital literacy. Digital skills training and development programs need to be implemented thoroughly, not only for the management level but also for operational employees. Strong digital literacy will help organizations to adopt new technologies more quickly and effectively.

Organizations need to adopt a data-driven decision-making approach across business functions. Digital leaders should encourage the use of data to support analysis, prediction, and evaluation so that decisions are more accurate and in line with organizational needs. To achieve this, investment in data infrastructure, such as big data analytics and data visualization tools, should be a priority. Digital transformation often involves high uncertainty and risk. Therefore, digital leaders must prepare the organization to face change with flexibility and resilience. This can be achieved by building adaptive strategies, diversifying risks, and creating a work culture that is open to change. Digital leaders also need to look beyond their organization and build collaborations with various stakeholders in the digital ecosystem, such as business partners, tech startups, and digital communities. These collaborations can help organizations gain new insights, accelerate technology adoption, and create innovations that are more relevant to market needs. Digital transformation is not a one-time process, but a journey that requires continuous evaluation and improvement. Digital leaders should regularly review the strategy, process, and results of their digital transformation and make adjustments as needed. With this approach, organizations can ensure that they remain relevant and competitive in the ever-evolving digital era.

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