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Digital, Adaptive, and Leadership: Keys to Sustainable Business

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Abstract

The rise of digital technologies has reshaped the business landscape, pushing organizations to adapt to remain competitive. This study explores how Digital Technology, Organisational Culture, and Leadership Skills relate to Organisational Sustainability, with a particular focus on the industrial sector in West Java. Data were collected from employees and leaders at various levels using a questionnaire, with 162 respondents. The analysis involved testing construct validity and reliability (through Cronbach's alpha and Composite Reliability), as well as conducting path analysis to evaluate direct and indirect effects among independent, mediating, and dependent variables. The results show that adopting digital technologies, an improved organisational culture, and strong leadership competencies all contribute to greater organisational resilience and sustainability. However, the study also highlights a gap: many organisations still lack an adaptive culture and the essential leadership skills to navigate ongoing technological change. These findings offer valuable insights for practitioners and organizational leaders is to develop an inclusive and innovative organizational culture alongside adaptable leadership systems, while also embracing digital transformation in a way that responsibly addresses its social and ethical implications—such as privacy, data security, and environmental sustainability—to ensure long-term resilience, relevance, and positive impact on all stakeholders.

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1. Introduction

In the midst of the ongoing digital revolution, many organizations are finding it difficult to manage the sweeping changes it brings, from technological innovations to shifts in culture and business operations (Alawady, 2018). A central challenge lies in leading and managing change effectively during the digital transformation process (Awaah, 2023). Despite the rapidly evolving landscape, many leaders continue to rely on outdated management approaches that no longer align with the fast pace of technological advancement (Negi & Dangwal, 2019). These advancements have reshaped nearly every aspect of modern life, including the internal workings of organizations (Serfontein & Govender, 2021).

Digital transformation (DT) has dramatically changed how organizations operate, engage with customers, and interact with stakeholders (Munandar et al., 2024; Nguyen et al., 2023). As they adopt more digital processes, organizations must confront challenges that go beyond technology, including shifts in organisational culture (OC), leadership style (LS), and how they respond to changes in the external environment (EE) (Kusuma et al., 2021; Nwanzu & Babalola, 2019). In this context, leadership takes on a pivotal role, often determining whether an organization successfully adapts or falls behind (Gazali & Zainurrafiqi, 2023; Nkereuwem & Alfred, 2016). Effective leaders today must not only understand the technical aspects of digital change but also guide their organizations through the accompanying cultural transitions (Wiyono et al., 2025; Salju et al., 2023).

Given these challenges, an organization's sustainability increasingly depends on its ability to evolve both technologically and culturally. Organizational development, therefore, becomes essential, emphasizing the strategic use of resources and capabilities to support long-term success (Alawady, 2018). A sustainable organization typically exhibits strong vision, leadership, resource management, and a resilient culture (Ekowati et al., 2024; Alawady, 2018). Tworek (2023) also underscores the importance of robust IT support, especially during crises such as the COVID-19 pandemic, as a critical factor in organizational survival. This study echoes the work of Negi & Dangwal (2019), who advocate for strengthening organizational culture to enhance both performance and sustainability, particularly in the Indian context. Likewise, Nwanzu & Babalola (2019) found that sustainable practices significantly boost organizational effectiveness in Nigeria. Research by Serfontein & Govender (2021) and Sapeciay et al. (2019) further supports the idea that strategic resilience and strong control systems are essential across industries, reinforcing the value of organizational resilience (OR) in times of major transition. The importance of leadership in facilitating successful adaptation is also emphasized by Nguyen et al. (2023), whose findings in Vietnam show that transformational leadership, when paired with a supportive organizational culture, can significantly boost organizational performance.

This research is particularly relevant today as the pace of global digital transformation continues to accelerate. Organizations that fail to adapt risk being left behind, while those that thrive demonstrate greater resilience and success. However, successful digital transformation is not just about adopting new technologies—it also requires leadership that is able to manage complex and often disruptive change. The novelty of this research lies in

its approach that integrates the role of transformational leadership in facilitating successful digital transformation (DT) by considering its impact on organizational culture and long-term sustainability. While many previous studies have highlighted the challenges of DT and the importance of leadership, this research offers a new perspective by exploring the direct linkages between transformational leadership styles, DT strategies, and organizational sustainability in the context of rapidly changing and dynamic external environments. The research also highlights the importance of cultural transformation as a crucial element in DT success, as well as how leaders can be catalysts in building organizational resilience. Finally, this study seeks to contribute to leadership theory in the context of digitalization and provide valuable insights for practitioners driving transformation in their organizations.

2. Literature Review

Digital Transformation, External Environment, Organizational Culture, Leadership Style, Organizational Resilience

Digital transformation (DT) is a strategic process that integrates digital technology into all aspects of an organization to increase efficiency, create new value, and strengthen competitiveness in the digital era. This process is related to technology adoption and involves changes in organizational culture, structure, and business models. Through fostering innovation and encouraging tech adaptation, DT strengthens OR by enabling organizations to manage uncertainty better (Nguyen et al., 2023). Alshammari et al. (2024) emphasize that the success of DT is greatly influenced by an organizational culture that encourages innovation and adaptability to change. In the context of the external environment, organizations face high levels of uncertainty due to technological advances, market dynamics, and changes in consumer preferences. Milliken (1987) identified three forms of environmental uncertainty—namely, uncertainty of state, effect, and response—all of which require adaptive strategies from organizations to survive and thrive. Including shifting market conditions and social changes serves as a driving force for resilience by prompting organizations to evolve (Ghimire et al., 2023).

Organizational culture plays an important role in supporting DT, especially a culture that encourages collaboration, continuous learning, and the courage to take risks (Nwanzu & Babalola, 2019). Wiese et al. (2024) show that companies with a culture open to technological development are faster in adopting Industry 4.0-based systems. In this case, leadership style becomes a determining factor, especially transformational leadership style, which is able to inspire, motivate, and facilitate change in the organization. According to Bass (1985), transformational leaders play a key role in building a shared vision, driving innovation, and increasing employee commitment to the organization's strategic goals. This is very relevant in digitalization, where adaptive and visionary leadership is needed to face complex challenges and rapid change (Monje-Amor et al., 2020). Organizational resilience refers to the ability of an entity to survive, adapt, and recover from a crisis or disruption (Nguyen et al., 2023). Digital transformation is believed to strengthen organizational resilience by creating a more flexible and innovative work system. Zhang et al (2021) found that DT contributes to organizational resilience through the development of ambidextrous innovation, namely a balanced combination of exploration and exploitation. Thus, the

integration between DT, organizational culture, leadership style, and the ability to face external pressures (Serfontein & Govender, 2021) is an important foundation for organizations to achieve long-term sustainability in the era of digital disruption (Sapeciay et al., 2019; Serfontein & Govender, 2021).

H1: Digital Transformation affects Organizational Resilience
H2: External Environment affects Organizational Resilience
H3: Organizational Culture affects Organizational Resilience
H4: Leadership Style affects Organizational Resilience

Organizational Sustainability

Organizational sustainability (OS) extends beyond an organization's survival—it encompasses the ability to sustain performance, remain adaptable, and maintain a competitive edge in an ever-evolving environment (Alawady, 2018). OS is closely linked with the successful integration of digital transformation (DT), organizational culture (OC), and leadership style (LS), as these elements collectively shape an organization's capacity to innovate, adjust, and thrive amid change (Nwanzu & Babalola, 2019).

Each of these factors—DT, EE, OC, LS, and OR—also significantly impacts OS. DT drives innovation and efficiency, helping organizations remain competitive in a fast-changing environment (Nguyen et al., 2023). EE shapes OS by pushing organizations to adapt to external pressures and adopt strategies for continued relevance (Ghimire et al., 2023). A strong OC—centered on collaboration, learning, and adaptability—provides a solid foundation for long-term sustainability (Nwanzu & Babalola, 2019). LS, especially transformational leadership, plays a pivotal role in steering teams through change and aligning them with sustainable goals (Monje-Amor et al., 2020).

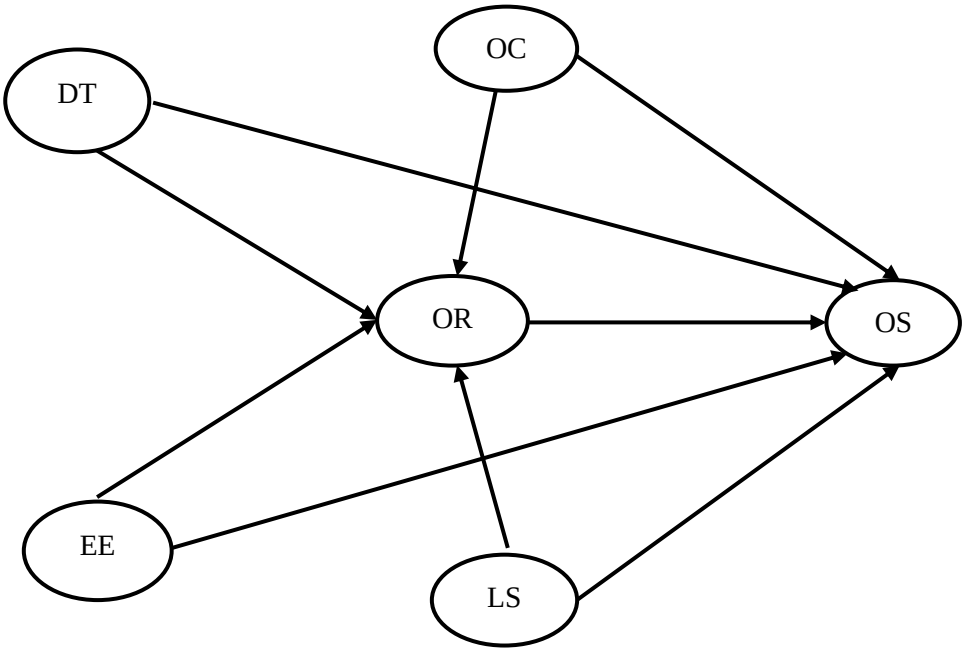
H5: Digital Transformation affects Oragnizational Sustainability
H6: External Environment affects Oragnizational Sustainability
H7: Organizational Culture affects Oragnizational Sustainability
H8: Leadership Style affects Oragnizational Sustainability
H9: Organizational Resilience affects Oragnizational Sustainability

Organizational Resilience as Mediator to Organizational Sustainability

The interplay between DT, EE, OC, LS, and OS is complex, with OR functioning as a crucial mediating factor. DT contributes to OS by introducing innovations and improving efficiency, enhancing adaptability (Nguyen et al., 2023). EE pressures organizations to devise long-term strategies in response to external shifts (Ghimire et al., 2023). OC built on flexibility and learning boosts the organization's capacity to sustain success (Nwanzu & Babalola, 2019). Transformational LS encourages change-embracing behaviors that promote sustainability (Monje-Amor et al., 2020). OR strengthens these effects, enhancing an organization's ability to integrate DT, adapt to environmental changes, nurture a strong culture, and implement effective leadership—all critical during times of upheaval (Serfontein & Govender, 2021). In this context, OR acts as the bridge linking these factors to sustainable outcomes.

H10: DT influences OS through OR as a mediating variable
H11: EE influences OS through OR as a mediating variable
H12: OC influences OS through OR as a mediating variable
H13: LS influences OS through OR as a mediating variable

The conceptual framework for this study is illustrated as follows:



Source: Data Processed

Figure 1. Research Framework

3. Research Methods

This study adopts an explanatory quantitative research design using a cross-sectional survey method to explore how Digital Transformation (DT), Organizational Culture (OC), Leadership Style (LS), and External Environment (EE) influence Organizational Resilience (OR) and Organizational Sustainability (OS). A purposive sampling technique was applied to select 162 respondents; This number has met the rule of thumb required by previous research (Hair et al., 2017). Comprising employees and leaders at various levels within manufacturing firms located in West Java, Indonesia. These firms were specifically chosen due to their active engagement with digital technologies.

Data were gathered using a structured questionnaire featuring a 5-point Likert scale, designed to capture participants' perceptions regarding digital competencies, innovation support within the organization, leadership communication, prevailing external industry trends, and the sustainability practices they observe in their workplace. The indicators used to measure each variable are digital technology, digital system integration, and digital technology investment (DT). Regulatory changes, market competition, technology, and consumer trends

(EE). Collaboration and innovation, organizational values, and learning culture (OC). Leader vision and inspiration, openness to input, and role model in change (LS). Crisis management strategy, operations in unstable conditions, and employee adaptation to change (OR). Sustainability strategy, environmental impact, and social responsibility (OS).

The collected data were analyzed using Smart Partial Least Squares (PLS), which is well-suited for assessing complex structural models. The analysis involved testing for construct validity, reliability (via Cronbach's alpha and Composite Reliability), and conducting path analysis to evaluate both direct and indirect effects among independent, mediating, and dependent variables. Bootstrapping was employed to determine the significance of path coefficients, and the model's overall fitness was confirmed through the Goodness of Fit (GoF) measure.

Throughout the research process, ethical standards were rigorously upheld, ensuring the confidentiality of respondents and securing informed consent from all participants.

4. Results

Demographic Profile of Respondents

The respondents in this study had a fairly balanced gender distribution, with slightly more men (50.8%) than women. Most participants held either a bachelor's or master's degree and were between the ages of 25 and 54. This age range covers a diverse mix of career stages: early-career professionals (25–34 years), who are likely familiar with digital technologies and open to digital transformation; mid-career professionals (35–44 years), who may have experience with more traditional leadership styles but also recognize the importance of adapting in the digital era; and senior professionals (45–54 years), who likely have well-established leadership practices but still show a willingness to learn and evolve. Additionally, around 80% of respondents reported having more than two years of experience dealing with digital transformation.

Instrument Validity and Reliability

To ensure data reliability, validity testing was conducted using factor loading analysis to assess the questionnaire's accuracy. Based on responses from 162 participants, Table 1 summarizes the validity and reliability results for the six variables—DT, OC, EE, LS, OR, and OS—each measured using three indicators.

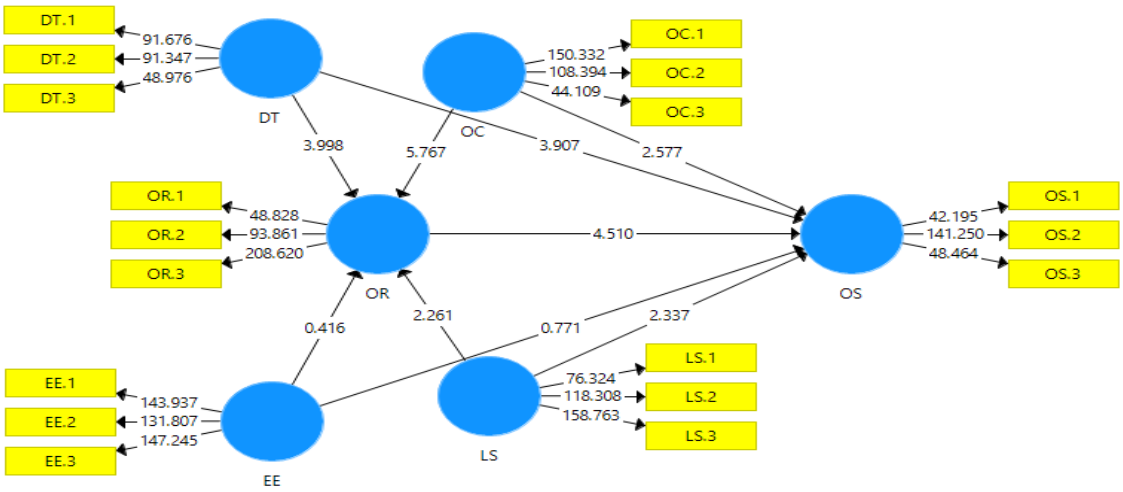
Table 1. Results of Validity and Reliability Tests

Variable	Item	Validity Test		Reliability Test	
		Factor Loading	Decision	Cronbach Alpha	Decision
Digital Technology	DT.1	0.945	Valid		
	DT.2	0.945	Valid	0.940	Reliable
	DT.3	0.946	Valid		
Organisational Culture	OC.1	0.973	Valid		
	OC.2	0.970	Valid	0.960	Reliable
	OC.3	0.944	Valid		

External Environment	EE.1	0.972	Valid		
	EE.2	0.972	Valid	0.973	Reliable
	EE.3	0.978	Valid		
Leadership Skills	LS.1	0.939	Valid		
	LS.2	0.961	Valid	0.951	Reliable
	LS.3	0.963	Valid		
Organisational Resilience	OR.1	0.938	Valid		
	OR.2	0.959	Valid	0.955	Reliable
	OR.3	0.976	Valid		
Organisational Sustainability	OS.1	0.955	Valid		
	OS.2	0.983	Valid	0.967	Reliable
	OS.3	0.967	Valid		

Source: Data Processed

The results of the validity and reliability tests, as presented in Table 1, demonstrate that all measurement items used in this study are both statistically valid and reliable. Each item across the six key variables—Digital Technology (DT), Organisational Culture (OC), External Environment (EE), Leadership Skills (LS), Organisational Resilience (OR), and Organisational Sustainability (OS)—achieved factor loading values ranging from 0.938 to 0.983, exceeding the recommended threshold of 0.70. This confirms a strong level of convergent validity, indicating that the items accurately represent the constructs they are intended to measure. Furthermore, all variables recorded Cronbach's Alpha values above 0.90, reflecting a high level of internal consistency and confirming the reliability of the instruments. These findings suggest that the questionnaire used in this study effectively captures the intended dimensions and can be confidently used for further structural analysis.



Source: Data Processed

Figure 2. Path Diagram of SEM Results

The diagram shows the results of a PLS-SEM analysis, mapping how different factors influence organisational sustainability (OS). Each big blue circle represents a variable, like Digital Technology (DT), Organisational Culture (OC), External Environment (EE), Leadership Skills (LS), and Organisational Resilience (OR), while the yellow boxes are their

indicators—all of which show strong loadings, meaning the questions used in the survey were valid and reliable.

The arrows and numbers between the variables show how strongly one factor affects another. The biggest impact on OS comes from Organizational Resilience (OR), with a coefficient of 4.510, making it the most important driver. OR itself is strongly influenced by Organizational Culture (5.767) and Digital Technology (3.998), while Leadership Skills and the External Environment also contribute, but with smaller effects (2.261 and 0.416).

In short, resilience plays a central role in achieving sustainability, and it's built mainly through strong culture and the use of digital tech.

Table 2. Path Coefficients

Path	Original Sample	T Statistics	P Value	Decision
DT -> OR	0.372	3.998	0	Accepted
DT -> OS	0.235	3.907	0	Accepted
OC -> OR	0.467	5.767	0	Accepted
OC -> OS	0.3	2.577	0.01	Accepted
EE -> OR	-0.053	0.416	0.678	Rejected
EE -> OS	-0.07	0.771	0.441	Rejected
LS -> OR	0.205	2.261	0.024	Accepted
LS -> OS	0.148	2.337	0.02	Accepted
OR -> OS	0.383	4.51	0	Accepted
DT -> OR -> OS	0.142	2.64	0.009	Accepted
OC -> OR -> OS	0.179	4.391	0	Accepted
EE -> OR -> OS	-0.02	0.48	0.631	Rejected
LS -> OR -> OS	0.078	2.011	0.045	Accepted

Source: Data Processed

The relationships among the variables reveal interesting dynamics that shape organizational outcomes. Digital technology (DT) affects organizational resilience (OR), indicating that technological advancements play a crucial role in enhancing an organization's ability to adapt and recover from challenges. Similarly, organizational culture (OC) strongly influences resilience. A culture fostering support and adaptability will likely improve an organization's capacity to thrive during disruptions. Additionally, organizational resilience directly contributes to organizational sustainability (OS), emphasizing that organizations capable of bouncing back from setbacks are more likely to achieve long-term stability.

There are also indirect effects worth noting. Digital technology indirectly supports sustainability through its influence on resilience. When organizations leverage technology to enhance their resilience, they are better positioned to sustain themselves over time. Similarly,

organizational culture fosters sustainability by strengthening resilience. A culture that prioritizes adaptability and shared values helps organizations maintain long-term success.

However, certain relationships are not influenced. The external environment (EE) does not appear to affect organizational resilience or influence sustainability directly. This suggests that internal factors, such as technology and culture, play a more critical role than external forces in shaping organizational outcomes.

At the heart of these relationships lies organizational resilience, which acts as a mediating variable. It connects inputs like digital technology and organizational culture with outputs such as sustainability, highlighting its central role in achieving long-term organizational success.

Discussion

The results identified a positive correlation between digital technology (DT) and organizational sustainability (OS), highlighting that the impact of DT can benefit both organizational resilience (OR) and OS. This finding underscores the importance for organizations to embrace digital technologies to stay relevant and sustainable in an increasingly digital world, as emphasized by Gonzalez-Tamayo et al. (2023). If implemented effectively, organizations will be better equipped to manage change, address challenges, and seize opportunities in today's dynamic business environment. Moreover, the findings suggest that organizations that successfully combine digital technologies with strong leadership systems are more likely to build greater organizational resilience and sustainability (Santoso et al., 2019). The practical implication of this is clear: organizations should invest in digital technologies, ensuring that such investments are accompanied by enhancements in organizational culture (OC) and the establishment of the right leadership systems (LS). Ultimately, this demonstrates DT's contribution to OS, which in turn can provide organizations with a sustainable competitive advantage in the ever-changing digital landscape. It also suggests that strategic transformation is crucial for organizational success (Santoso et al., 2019).

The influence of organizational culture (OC), organizational resilience (OR), and organizational sustainability (OS) further emphasizes the importance of understanding OC in the postmodern context of sustainability. A strong, diverse OC fosters an environment conducive to innovation, collaboration, and adaptability to change, thereby enhancing an organization's ability to handle the complex challenges it faces (Serfontein & Govender, 2021). In an organization with a healthy OC, organizational learning is fostered, leading to greater stability even during periods of disruption. The findings suggest that organizational leaders and managers must understand the importance of cultivating and maintaining an OC that aligns with organizational values and contributes to sustainability (Nguyen et al., 2023). Additionally, organizations should commit to creating an open culture that encourages every member to participate fully in organizational renewal, as this helps sustain growth in the face of emerging digital opportunities and risks.

However, the study also found that the external environment (EE) does not influence OR or OS. This suggests that while external factors may impact sustainability, their effect is more limited than internal factors like DT, OC, and LS (Hsu et al., 2019). Organizations must still adapt to changes in the external environment, but the capacity to manage or respond to external pressures largely depends on their internal capabilities. This finding calls for a more cautious approach to understanding the factors that influence OS, emphasizing the importance of recognizing how these factors interact to optimize success in the evolving digital environment.

The analysis also confirmed that leadership systems (LS) are positively related to organizational resilience (OR) and organizational sustainability (OS), validating the hypothesis that leadership plays a decisive role in determining both OR and OS in the context of digitalization. Effective leadership systems, including the ability to communicate, manage change, and lead transformation, are essential for helping organizations navigate the complexities of today's business environment (Hussain et al., 2018). Organizations with flexible and skilled leaders are better positioned to foster an innovative, collaborative, and growth-oriented culture (Arifin & Takrim, 2021). Therefore, organizations should prioritize developing leadership systems that support organizational objectives, ensuring that leadership standards are firmly established (Monje-Amor et al., 2020). One key aspect of this is leadership development, particularly selecting leaders capable of addressing the challenges of the changing digital era. These findings highlight the critical role leadership plays in the OS process, given the diverse and emerging nature of the modern business world.

The results also carry significant social and ethical implications for the use of digital technology (DT) and organizational change (Surahman et al., 2023). Given the interrelationships between DT, OC, LS, and OS, organizations must consider these implications when making strategic decisions (Ziółkowska, 2021). From an ethical standpoint, the application of digital technologies should not only enhance organizational performance but also positively impact employees and society. This includes ensuring that technology is used in ways that promote equitable and effective working conditions, while also supporting work accessibility. Organizations must also address the long-term ethical implications of DT, such as privacy, data security, and environmental concerns (Yoga et al., 2019). These ethical considerations contribute to sustainable digital transformation, emphasizing the responsible management of data and information. By applying these insights, organizations can better balance the benefits of digital transformation across stakeholders and contribute to creating a more inclusive and ethical world.

This study contributes to the body of knowledge on leadership and management in the context of the rapidly evolving digital environment. It enhances the existing understanding of what influences organizational sustainability (OS) and emphasizes the importance of adopting an integrated approach to managing organizational change. By exploring the interconnections between four key concepts, this research provides fresh insights into leadership literature, particularly concerning organizational culture (OC), leadership systems (LS), and OS. It also highlights various strategies for achieving long-term success in the digital landscape. The practical implications of these findings are significant for practitioners

and organizational leaders, as they offer guidance on how organizational transformation can be more effectively approached (Ziółkowska, 2021). Based on these insights, organizations can make necessary adjustments to improve their sustainability, promote a positive organizational culture, foster creativity, and prioritize leadership development (Chen et al., 2005). Consequently, this research not only advances academic knowledge but also offers crucial practical implications for contemporary organizational management, especially in a continuously evolving digital environment. These results lay the groundwork for future studies and for revising organizational strategies in response to emerging challenges and opportunities.

However, this study has some limitations that must be acknowledged. The sample is geographically restricted to the industrial sector in West Java, which may limit the generalizability of the findings to other organizations outside this region. Additionally, the analysis uses only the Structural Model assessed with the Smart PLS method, which may limit the researcher's ability to fully address the complexity of the model. Despite these limitations, the study has taken them into account when interpreting the results and has contextualized the findings within the broader framework of existing research. Future research should consider expanding the sample to include more regions and utilize diverse analytical methods to comprehensively explore multivariate relationships between the examined variables. Such an approach would enable future studies to assess the impact of leadership transformation in addressing the challenges and opportunities presented by the ever-changing digital landscape.

5. Conclusion and Suggestion

This research emphasizes the critical need for leadership transformation in order to effectively navigate the challenges and opportunities emerging in the fast-paced digital era. The findings reveal that digital transformation (DT), organizational innovation (I/O), leadership systems (LS), and organizational resilience are all key factors for ensuring the sustainability and future success of organizations. Organizations must embrace DT while fostering a robust corporate culture and adaptable leadership to stay relevant in a world of constant change and innovation.

In terms of future research and practice, there are several important areas to consider. First, expanding the geographic scope of the research would provide a broader understanding of how these factors play out in different contexts, using more detailed analytical methods to uncover the relationships between variables. Additionally, practitioners and organizational leaders should focus on developing an inclusive, innovative organizational culture and creating leadership systems that promote flexibility and adaptability in the face of change. Lastly, organizations need to address the social and ethical implications of DT, particularly with respect to privacy, data security, and environmental concerns, ensuring that digital transformation benefits not just business performance but also employees, customers, and society at large. By incorporating these considerations, organizations can position themselves to effectively harness digital transformation as a tool for long-term success and positive societal impact.

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