# THE IMPACT OF DIGITAL LEADERSHIP ON MANAGEMENT INNOVATION: THE MEDIATING ROLE OF ORGANIZATIONAL LEARNING

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**Abstract:** This quantitative study investigates the relationship between digital leadership, organizational learning, and management innovation in organizations. The primary objective is to examine how digital leadership influences management innovation, with a focus on the mediating role of organizational learning. Data was collected through surveys distributed to employees within various organizations across different industries. Statistical techniques such as regression analysis and structural equation modeling were employed to analyze the data and test the hypothesized relationships. Preliminary results indicate a significant positive relationship between digital leadership and management innovation. Additionally, organizational learning was found to mediate the relationship between digital leadership and management innovation, suggesting that organizations with stronger digital leadership capabilities tend to foster a culture of continuous learning, which in turn facilitates innovation in management practices. These findings contribute to the existing literature by providing empirical evidence of the mechanisms through which digital leadership influences management innovation. They also have practical implications for organizations seeking to enhance their digital leadership capabilities and drive innovation. Future research could explore additional factors that may influence the relationship between digital leadership, organizational learning, and management innovation, as well as investigate the long-term effects of digital leadership initiatives on organizational performance. Overall, this study adds to our understanding of how organizations can leverage digital leadership to foster innovation and stay competitive in the digital age.

**Keywords:** Digital Leadership, Management Innovation, Organizational Learning

## Introduction

In today's rapidly evolving business landscape, characterized by digital transformation and unprecedented technological advancements, organizations face increasing pressure to innovate and adapt to changing market dynamics. Central to navigating this complex environment is the role of leadership in driving innovation and fostering organizational agility. With the rise of digital

technologies permeating every aspect of organizational operations, the concept of digital leadership has emerged as a critical factor in shaping the future success of businesses.

Digital Leadership: Digital leadership encompasses the ability of leaders to leverage digital technologies strategically to drive organizational change, foster innovation, and enhance performance in the digital era. It encompasses a diverse set of competencies, including digital literacy, visionary thinking, adaptability, and the ability to inspire and mobilize teams towards common digital transformation goals (Avolio & Kahai, 2003).Leadership in the digital age demands a departure from traditional hierarchical models towards more collaborative, networked approaches that enable agility and responsiveness to market shifts. Digital leaders are tasked with navigating the complexities of digital disruption, fostering a culture of innovation, and harnessing the potential of emerging technologies to create value for stakeholders.

Management Innovation: In parallel, the concept of management innovation has gained prominence as organizations seek new ways to enhance their competitive advantage and sustain long-term growth. Management innovation refers to the implementation of novel management practices, processes, or structures that fundamentally alter the way organizations operate and create value (Birkinshaw et al., 2008). In today's dynamic and disruptive environment, characterized by rapid technological advancements and shifting consumer preferences, management innovation is increasingly recognized as a key driver of organizational agility, competitiveness, and sustainability. Management innovation spans a wide range of areas, including strategic planning, decision-making processes, organizational structure, talent management, and customer engagement. It involves challenging conventional wisdom, experimenting with new approaches, and continuously adapting to changing market conditions to stay ahead of the competition.

Organizational Learning: At the heart of innovation lies organizational learning, the process through which organizations acquire, interpret, and integrate new knowledge and insights to improve performance and adapt to change (Argote, 2011). Organizational learning encompasses both individual and collective learning processes, including experimentation, reflection, knowledge sharing, and feedback mechanisms. Organizations that prioritize learning cultivate a culture of curiosity, openness, and collaboration, enabling them to rapidly respond to market shifts, identify new opportunities, and drive continuous improvement. By leveraging the collective intelligence of their employees and fostering a growth mindset, organizations can build resilience and adaptability into their DNA, enabling them to thrive in turbulent environments.

Interplay Between Digital Leadership, Organizational Learning, and Management Innovation: Despite the growing importance of digital leadership, organizational learning, and management innovation, the interplay between these constructs and the underlying mechanisms driving their relationship remain relatively under explored in the scholarly literature. Moreover, the role of

organizational learning in mediating the relationship between digital leadership and management innovation has received limited attention.

Research Gap: Given the interconnected nature of digital leadership, organizational learning, and management innovation, there is a compelling need to examine the mechanisms through which digital leadership influences management innovation, with organizational learning acting as a key mediator. By elucidating these relationships, organizations can gain valuable insights into how to effectively leverage digital leadership and foster a culture of organizational learning to drive innovation and remain competitive in the digital age. While existing studies have highlighted the importance of digital leadership and management innovation in organizational success, few have examined the underlying processes and dynamics that link these constructs. Moreover, the role of organizational learning as a mediator in this relationship has received limited attention in the literature.

Therefore, the primary research question guiding this study is as follows: How does digital leadership influence management innovation, and what is the mediating role of organizational learning in this relationship?

This research aims to address this gap by providing empirical insights into the mechanisms through which digital leadership drives management innovation, with organizational learning serving as a key mediator. By examining these relationships, the study seeks to enhance our understanding of how organizations can effectively leverage digital leadership and foster a culture of continuous learning to promote innovation and adaptability in the digital era.

**Research Objective (s)**

Objective 1. To examine the relationship between digital leadership and management innovation

The primary objective of this study is to investigate the impact of digital leadership on management innovation within organizations. By analyzing the extent to which digital leadership behaviors, strategies, and practices influence the adoption and implementation of innovative management practices, this research aims to provide empirical evidence of the relationship between digital leadership and management innovation.

Objective 2. To explore the mediating role of organizational learning

Another key objective of this study is to explore the mediating role of organizational learning in the relationship between digital leadership and management innovation. By examining how organizational learning processes, such as knowledge acquisition, interpretation, and integration, mediate the relationship between digital leadership and management innovation, this research seeks to elucidate the underlying mechanisms driving this relationship.

Objective 3. To identify the mechanisms through which digital leadership influences

organizational learning

This study also aims to identify the mechanisms through which digital leadership influences organizational learning. By investigating how digital leadership behaviors and practices shape organizational learning processes, such as information sharing, experimentation, and reflection, this research seeks to provide insights into the pathways through which digital leadership impacts organizational learning and, subsequently, management innovation.

Objective 4. To provide practical implications for organizational leaders and practitioners

This study aims to provide practical implications for organizational leaders and practitioners seeking to enhance management innovation in their organizations. By synthesizing the findings of the study, this research will offer actionable recommendations and strategies for leveraging digital leadership and fostering a culture of organizational learning to drive innovation and enhance organizational performance in the digital age.

## Literature Review

The literature reviewed the extensive literature on the impact of digital leadership on managerial innovation, it is evident that digital leadership stands as a linchpin for organizational transformation and innovation. Digital leadership, comprising a repertoire of competencies, behaviors, and strategies, serves as a catalyst for leveraging digital technologies to drive organizational change and enhance performance (Avolio & Kahai, 2003).

Digital leaders, imbued with digital fluency and strategic foresight, play a pivotal role in navigating the intricate landscape of digitalization and driving organizational innovation (George et al., 2014). By articulating a compelling vision for digital transformation and providing the requisite resources and support, these leaders inspire organizational members to embrace disruptive technologies and pioneer innovative solutions (Avolio & Kahai, 2003).

Moreover, digital leadership operates synergistically with organizational learning, forming a dynamic nexus that propels managerial innovation forward. Organizational learning, deeply embedded within the fabric of digital leadership, serves as a cornerstone for knowledge creation, dissemination, and application within organizations (Argote, 2013). Through fostering a culture of continuous learning, experimentation, and knowledge sharing, digital leaders cultivate an environment where innovation thrives and flourishes (Birkinshaw & Mol, 2006).

Leadership's role in fostering organizational learning cannot be overstated, as leaders wield significant influence in shaping the learning culture and practices within organizations (Edmondson, 2002). By championing a growth mindset, encouraging curiosity, and modeling learning behaviors, digital leaders inspire employees to challenge conventional thinking and explore novel approaches to problem-solving (Argote & Kahai, 2003).

Furthermore, organizational learning serves as a mediating mechanism through which digital leadership influences managerial innovation. Organizational learning, spanning individual, group, and organizational levels, facilitates the acquisition, interpretation, and application of knowledge to drive performance improvement and innovation (Argote, 2013). Digital leaders, by fostering a culture of knowledge sharing and collaboration, enable organizational members to leverage digital technologies to innovate, adapt, and thrive in today's fast-paced business landscape.

In essence, digital leadership represents a transformative force that drives managerial innovation by nurturing a culture of continuous learning and innovation within organizations. By embracing digital leadership principles and investing in organizational learning initiatives, organizations can enhance their capacity for innovation, adaptability, and long-term success in an increasingly digitalized world.

**Methodology**

In this study, all the employees of 36 companies in District H, totaling 7,532 individuals, were sampled as a total population. Sample survey is the most common mode of survey application, which is a non-comprehensive survey in which a portion of units is taken as a sample from the total population of the research object, and based on the survey of the sampled units, the knowledge about the target number in the total population is obtained. This is the broad concept of sampling.

Probability-based sampling methods where the sample size can be determined through the population collection process. For example. suitable for calculation. the sample size used in the study was determined using Taro Yamane's sample size formula (1973). the sample size was determined using a 95% confidence level and a permissible value. The sampling error was 5% or 0.05. The overall sample size was 7532. When n = number of samples used in the study. N = total number of people, e = random sampling error set at 0.05.

The sample size and formula are as follows

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{7532}{1 + 7532 \text{ X } 0.05^2}$$

$$n = 379.83$$

In order to improve the accuracy of the findings and generalizability of the conclusions, questionnaires were administered to all employees of 36 companies in District H. A total of 390 valid questionnaires were distributed and returned. A total of 390 valid questionnaires were distributed and returned.

In this thesis, a questionnaire will be designed and distributed to all employees of 36 companies in District H. The questionnaire will be administered to all employees of 36 companies in District H.

Due to different working hours, it is difficult to travel to District H to conduct the actual paper-based questionnaire. The questionnaire can only be studied in spare time through the internet, therefore this questionnaire is distributed through the online platform "Questionnaire Star" (www.wjx.cn), and the respondents also fill in the questionnaire and submit the questionnaire through the "Questionnaire Star" platform (www.wjx.cn). Respondents also filled out and submitted their questionnaires through the "Questionnaire Star" platform. A total of 500 questionnaires were distributed and after 38 days of collection and validity assessment, excluding invalid questionnaires, a total of 390 valid questionnaires were obtained and used for the analysis of this study with a validity rate of 78%.

**Results**

The results show that there is a significant positive correlation between Digital Leadership and Organizational Learning (r = 0.700, p < 0.01). This indicates that the increase in the level of Digital Leadership shows a consistent trend with the increase in the level of Organizational Learning in the study sample. This finding supports previous research on the close association between Digital Leadership and Organizational Learning (Birkinshaw & Mol, 2006; Avolio & Kahai, 2003). Enhanced Digital Leadership may promote a learning climate within Organizational Learning and encourage employees to actively participate in learning activities, thereby accelerating the process of knowledge acquisition, sharing and application. It is also worth noting that the correlation coefficient of 0.700 indicates that the relationship between Digital Leadership and Organizational Learning shows a strong positive correlation. This implies that Digital Leadership has a high degree of influence on Organizational Learning, emphasizing the important role of Digital Leadership in driving the process of Organizational Learning. This finding provides guidance for Organizational managers, suggesting that by strengthening the cultivation and development of Digital Leadership, it can effectively contribute to the development of Organizational Learning, thereby promoting continuous innovation and progress of the organisation.

The results show that there is a significant positive correlation between Digital Leadership and Management Innovation (r = 0.898, p < 0.01). This indicates that the increase in the level of Digital Leadership shows a consistent trend with the increase in the level of Management Innovation in the study sample. This finding supports previous research on the close association between Digital Leadership and Management Innovation (Birkinshaw et al., 2008; George et al., 2014). Enhanced Digital Leadership may facilitate the occurrence and promotion of Management Innovation, thereby driving organisations in the direction of greater innovation and competitiveness. It is also worth noting that the correlation coefficient of 0.898 indicates that the relationship between Digital Leadership and Management Innovation shows a very strong positive correlation. This means that Digital Leadership has a high degree of influence on Management Innovation, emphasizing the important role of Digital

Leadership in driving Management Innovation. This finding provides guidance to Organizational managers, suggesting that by strengthening the cultivation and development of Digital Leadership, it can effectively contribute to the development of Management Innovation, thereby promoting the continued progress and success of the organisation.

The results show that there is a significant positive correlation between Management Innovation and Organizational Learning ($r = 0.879$, $p < 0.01$). This indicates that the increase in the level of Management Innovation shows a consistent trend with the increase in the level of Organizational Learning in the study sample. This finding supports previous research on the close association between Management Innovation and Organizational Learning (Birkinshaw et al., 2008; Argote, 2013). The reinforcement of Management Innovation may facilitate the occurrence and promotion of Organizational Learning, thereby driving organisations towards being more flexible, innovative and adaptive. It is also worth noting that the correlation coefficient of 0.879 indicates that the relationship between Management Innovation and Organizational Learning shows a very strong positive correlation. This implies that Management Innovation has a high degree of influence on Organizational Learning, emphasizing the important role of Management Innovation in promoting Organizational Learning. This finding provides guidance to Organizational managers, suggesting that by strengthening the promotion of Management Innovation and creating an atmosphere of a learning organisation, the development of Organizational Learning can be effectively promoted, thereby contributing to the continued progress and success of the organisation.

Summary of the model shows that the R-squared of the model is 0.490, indicating that the change in Digital Leadership on Organizational Learning explains about 49% of the variance. The adjusted R-squared is 0.489, which is still a fairly good fit for the model considering the number of independent variables. The standard error of estimate for the model is 4.86982, which indicates that the model has relatively high predictive accuracy. Table 4-16 ANOVA analysis: the significance test of the regression analysis shows $F(1, 388) = 372.887$, $p < 0.001$, which indicates that Digital Leadership has a significant effect on the change in Organizational Learning. Table 4-17 Coefficient analysis: the standardized coefficient of Digital Leadership is 0.700 and the t-value is 19.310, $p < 0.001$, which indicates that Digital Leadership has a significant positive effect on Organizational Learning. In summary, based on the results of the analysis of the model, we can conclude that Digital Leadership has a significant positive impact on Organizational Learning.

Model Summary: The R-squared of the model is 0.772, indicating that Organizational Learning explains about 77.2% of the variance in Management Innovation. The adjusted R-squared is 0.771, which is still a fairly good fit for the model considering the number of independent variables. The standard error of estimation of the model is 3.17943, which indicates that the model has relatively high predictive accuracy. ANOVA ANALYSIS: The significance test of the regression analysis shows F(1,

388) = 1312.092, p < 0.001, which indicates that Organizational Learning has a significant effect on the change in Management Innovation. Coefficient analysis: the standardized coefficient of Organizational Learning is 0.879 and the t-value is 36.223, p < 0.001, which indicates that Organizational Learning has a significant positive effect on Management Innovation. In summary, based on the results of the analysis of the model, it can be concluded that Organizational Learning has a significant positive impact on Management Innovation.

Model Summary: The R-squared of the model is 0.807, indicating that Digital Leadership explains about 80.7% of the variance in Management Innovation. The adjusted R-squared is 0.806, which is still a fairly good fit for the model considering the number of independent variables. The standard error of estimation of the model is 2.92461, which indicates that the model has relatively high predictive accuracy. ANOVA ANALYSIS: The significance test of the regression analysis shows F(1, 388) = 1621.257, p < 0.001, which indicates that Digital Leadership has a significant effect on the change in Management Innovation. Coefficient analysis: the standardized coefficient of Digital Leadership is 0.898 with a t-value of 40.265, p < 0.001, which indicates that Digital Leadership has a significant positive effect on Management Innovation. In summary, based on the results of the analysis of the model, it can be concluded that Digital Leadership has a significant positive impact on Management Innovation.

Digital Leadership has a significant positive direct effect (direct effect) and total effect (total effect) on Management Innovation. The direct effect is 0.5084 and the total effect is 0.8222, indicating that Digital Leadership has a significant positive effect on Management Innovation. In addition, we observe an indirect effect (INDIRECT effect) of Digital Leadership on Management Innovation through Organizational Learning of 0.3137, which suggests that the impact of Digital Leadership on Management Innovation is partly through Organizational Learning. In the standardized coefficient, we see that the fully standardized total effect of Digital Leadership on Management Innovation is 0.8983, which further emphasises the importance of Digital Leadership on Management Innovation. Overall, Digital Leadership plays a key role in driving Management Innovation, both directly and indirectly through facilitating Organizational Learning. These results highlight the importance of Digital Leadership in today's organisations, particularly in driving innovation and change.

**Discussion**

*1. Implications of the Research Findings:*

Strategic Importance of Digital Leadership: Digital leadership emerges as a cornerstone for organizational success in the digital age. The study's findings illuminate how effective digital leadership can serve as a catalyst for organizational learning and innovation. Visionary leaders who possess a deep understanding of digital technologies and their strategic implications are essential for guiding

organizations through digital transformation. These leaders not only navigate the complexities of the digital landscape but also inspire a culture of innovation among employees. By championing digital initiatives and fostering collaboration across departments, digital leaders create an environment where innovative ideas can thrive. Additionally, digital leaders play a crucial role in aligning technology investments with organizational goals, ensuring that digital resources are utilized effectively to drive business growth and competitiveness.

Enhancing Organizational Learning: Organizational learning emerges as a key driver of managerial innovation, with implications for both individual and organizational performance. The study underscores the importance of investing in learning initiatives that empower employees to acquire new skills, adapt to change, and contribute to innovation efforts. Organizations that prioritize learning create a culture where continuous improvement is not only encouraged but also rewarded. By providing employees with access to training programs, mentorship opportunities, and knowledge-sharing platforms, organizations can cultivate a workforce that is agile, resilient, and capable of driving innovation. Moreover, fostering a learning culture enables organizations to leverage the collective intelligence of their employees, leading to enhanced problem-solving capabilities and a more innovative mindset across the organization.

Driving Managerial Innovation: Digital leadership and organizational learning collectively contribute to managerial innovation, shaping the way organizations respond to emerging opportunities and challenges in the digital landscape. The study highlights how effective leadership, coupled with a culture of learning, can fuel innovation efforts and drive sustainable growth. Digital leaders play a pivotal role in setting the tone for innovation, encouraging experimentation, and providing the necessary resources and support for innovation initiatives. Organizational learning acts as a catalyst for innovation by empowering employees to explore new ideas, take calculated risks, and challenge the status quo. By fostering a collaborative environment where diverse perspectives are valued and creativity is encouraged, organizations can unlock new opportunities for growth and differentiation in the marketplace.

*2. Practical Implications:*

Leadership Development Programs: Organizations should prioritize leadership development programs that focus on nurturing digital leadership capabilities among existing and emerging leaders. These programs should go beyond technical training to encompass broader skills such as strategic thinking, change management, and emotional intelligence. By investing in the development of digital leaders, organizations can ensure that they have the necessary leadership talent to drive digital transformation and innovation initiatives effectively.

Learning Culture: Creating a culture of continuous learning is essential for fostering innovation and adaptability in today's fast-paced business environment. Leaders play a crucial role in shaping the

organizational culture by modeling learning behaviors, recognizing and rewarding innovation, and providing opportunities for skill development and career advancement. Organizations should invest in learning initiatives that empower employees to acquire new skills, share knowledge, and collaborate across teams and departments. By fostering a culture of learning, organizations can create a dynamic and agile workforce capable of driving innovation and achieving sustainable growth.

Integration of Digital Technologies: The integration of digital technologies into organizational processes and operations is essential for driving innovation and maintaining competitiveness in the digital age. Organizations should leverage digital tools and platforms to streamline workflows, enhance decision-making, and improve customer experiences. From implementing data analytics and artificial intelligence solutions to adopting cloud-based technologies and digital collaboration tools, organizations have a myriad of opportunities to harness the power of digital technologies for innovation and growth. However, it's essential to approach technology adoption strategically, ensuring alignment with organizational goals and a focus on delivering tangible business value.

*3. Future Research Directions:*

Longitudinal Studies: Future research could benefit from longitudinal studies that track the impact of digital leadership and organizational learning on managerial innovation over time. By examining how these constructs evolve and interact over extended periods, researchers can gain deeper insights into the long-term effects of leadership and learning interventions on organizational performance and innovation outcomes.

Cross-Cultural Studies: Investigating the impact of digital leadership and organizational learning in different cultural contexts can provide valuable insights into the universality and applicability of these constructs across diverse settings. Cross-cultural studies can shed light on how cultural factors influence leadership behaviors, learning processes, and innovation dynamics, informing the development of culturally sensitive management practices and strategies.

Emerging Technologies: With the rapid advancement of technology, future research could explore the role of emerging technologies such as artificial intelligence, blockchain, and the Internet of Things in driving organizational learning and innovation. By studying the adoption and impact of these technologies on organizational processes and practices, researchers can identify new opportunities for innovation and competitive advantage in the digital landscape.

**Conclusions**

The findings of this study affirm the crucial role of digital leadership in shaping organizational learning and driving managerial innovation. Through empirical analysis, it is evident that digital leadership significantly influences organizational learning, emphasizing the importance of effective leadership in navigating digital transformations and fostering a culture of continuous learning within

organizations. This underscores the need for organizations to invest in developing digital leadership capabilities to harness the full potential of digital technologies for organizational advancement.

Furthermore, the research highlights the significant impact of organizational learning on managerial innovation. By fostering a culture of knowledge acquisition, sharing, and application, organizations can enhance their ability to innovate and adapt to changing market dynamics. This underscores the importance of prioritizing learning initiatives and creating an environment that encourages experimentation and collaboration across all levels of the organization.

Moreover, the study validates the relationship between digital leadership and managerial innovation, affirming that digital leadership plays a pivotal role in driving innovative practices and facilitating organizational change. By embracing innovative management approaches and leveraging digital technologies, organizations can enhance their competitiveness and adaptability in today's rapidly evolving business landscape.

Crucially, the research also confirms the mediating role of organizational learning in the relationship between digital leadership and managerial innovation. Organizational learning serves as a catalyst for translating digital leadership into tangible outcomes, facilitating the assimilation and implementation of innovative practices throughout the organization. This underscores the inter connected of digital leadership, organizational learning, and managerial innovation, highlighting the importance of adopting a holistic approach to organizational change and development.

In conclusion, this study provides valuable insights into the dynamics between digital leadership, organizational learning, and managerial innovation. By recognizing the interconnected nature of these constructs and their implications for organizational success, organizations can develop effective strategies for driving innovation and fostering a culture of continuous improvement. Moving forward, further research in this area can explore additional factors that may influence the relationship between digital leadership, organizational learning, and managerial innovation, providing deeper insights into the mechanisms of organizational change and adaptation in the digital age.

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