Unveiling Digital Leadership: Exploring Models and Theories

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ABSTRACT

Digital leadership has emerged as an essential strategy in addressing the demands of the digital era. This study reviews academic research on digital leadership models and theories, drawing from published articles in the field. This study has synthesized existing research to create a robust framework that integrates transformational and distributed leadership principles. The framework clarifies the essential components of effective digital leadership and provides practical guidance for organizations navigating the digital landscape. By combining insights from various leadership theories with current digital practices, this research improves our understanding of leveraging technology for organizational success. Moving ahead, it is crucial to empirically validate and apply this framework to verify its effectiveness and adaptability in diverse contexts. The research findings lay the foundation for further exploration of digital leadership strategies, enabling sustainable digital transformation in organizations. The proposed model presents opportunities for future research to explore the broader impact of digital leadership on digital transformation.

Keywords: Digital leadership, digital leaders, digital transformation

INTRODUCTION

Digital leadership has become a contemporary leadership in response to the challenges of the digital era. This leadership focuses on using digital technology effectively to drive innovation and change within organizations. It is a multifaceted concept, driven by the need for organizations, whether in education, business, or the public sector, to effectively navigate the challenges and opportunities presented by rapid technological advancements (Ming et al., 2023). Digital leadership is not limited to a specific sector; it has relevance across various domains, from education to business and the public sector, reflecting the ubiquity of digital technologies. Digital leadership has been defined by Sow and Aborbie (2018) as the exercise of influence to embrace methods for proven digital transformation processes. In line with that, Mihardjo and Sasmoko (2019) explained that digital leadership is a blend of digital competence and digital culture. Its value lies in its ability to adapt to the rapidly changing digital landscape, where traditional leadership approaches may not be as effective. However, while digital leadership has gained popularity, questions have been raised about its effectiveness and the challenges it poses in implementation. School leaders should therefore possess a deep understanding of both the educational landscape and technological advancements to effectively guide their organizations toward successful digital transformation (Ming & Mansor, 2023). To understand the depth of this leadership, it is crucial to explore the existing models and frameworks that can guide school leaders in practicing digital leadership.

DIGITAL LEADERSHIP MODELS AND FRAMEWORKS

Digital Transformation Leadership Framework (Weber, Krehl, & Büttgen, 2022)

Digital Transformation Leadership Framework offers insights into appropriate leadership behaviors in the context of digital transformation (Weber, Krehl, & Büttgen, 2022). This framework underscores the importance of adapting leadership styles to align with the demands of digitalization, emphasizing the need for leaders to be agile, innovative, and capable of leveraging digital tools effectively. This framework was developed in the Competing Values Framework (Quinn, 1988; Quinn & Rohrbaugh, 1981) and highlights the trade-offs, paradoxes, and contradictions within organizations and their leaders (Belasen & Frank, 2008). Weber et al. (2022) found seven different leadership roles and each is characterized by specific leadership behaviors: the digital pioneer, the innovator, the enabler, the mentor, the mentee, the networker, and the manager.

i. A digital pioneer is a leader who understands the drivers of digital transformation and identifies both business opportunities and risks arising from digital transformation. Such leaders can detect early digital trends that will impact their department. Hence, they continually question the status quo of digital transformation to identify where change might be necessary. Further, they conceptualize a clear digital vision and strategy.

ii. Second, the innovator is a leader who drives and implements change processes based on innovative and creative ideas. These leaders show enthusiasm and inspire their employees by inventing the new. They take innovative initiatives and engage in creative problem-solving approaches to increase innovation.

iii. A third role that emerged from the data is the enabler. These leaders create agile, flexible, and empowering work settings for their team members. Besides, such leaders produce working environments that encourage team members to try out new ideas and enable a culture of learning by supporting trial and error. Further, they enable working in collaborative, non-hierarchical, interdisciplinary, and intercultural teams, seeing themselves as active team members and fostering participative decision-making.

iv. Fourth is the mentor role. As a mentor, the leader acts as a relationship manager who strives to establish strong and trusting relationships with employees, while providing individual support, mentoring, and feedback to encourage and motivate them to achieve their individual goals. Leaders who excel in the mentor role put effort into identifying and understanding the individual strengths and weaknesses of their employees.

v. Fifth, a leader as a networker develops, scans, and maintains interdisciplinary networks within and outside the organization. Such leaders aim to create an information network that enables consultation of many different sources to solve emerging issues, allowing the networker to collect and share necessary information quickly.

vi. Sixth, a leader as a manager "does things right." The manager is strongly oriented to task and goal achievement. In this context, the manager attends closely to relevant key performance indicators. Further, such leaders effectively structure, coordinate, and control work and outcomes according to business criteria with a primary objective of getting the work done efficiently.

vii. Seventh, a leader as a digital mentee seeks advice from their employees on digital issues and refine their digital skills through the employees' input. The digital mentee role is characterized by actively exchanging information with employees to benefit from their digital know-how. As a result, such leaders learn from their employees how to use digital tools that they do not know yet.

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In summary, Weber et al. (2022) discussed that all leadership roles involve appropriate leadership behaviors in the light of digital transformation, suggesting that they can be embedded in the digital transformation leadership framework, and can be labeled as digital transformation leadership roles (see Figure 1).
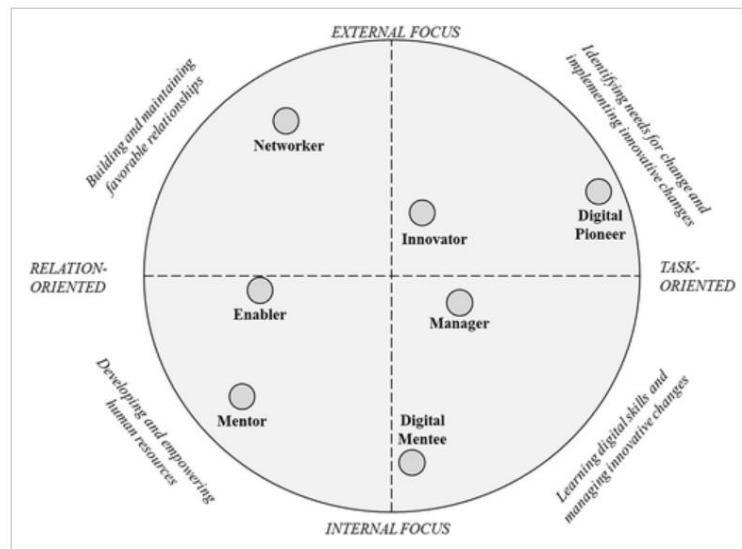

Figure 1: The digital transformation leadership roles.

Source: Weber et al. (2022)

Ten Characteristics of a Digital Leader for the New Normal Age (Budianto et al., 2022)

The "Ten Characteristics of a Digital Leader for the New Normal Age" identified by Budianto et al. (2022) represents a framework for leadership in the context of the rapidly changing digital landscape. These characteristics provide insights into the qualities required for effective digital leadership in the new normal (Figure 2).
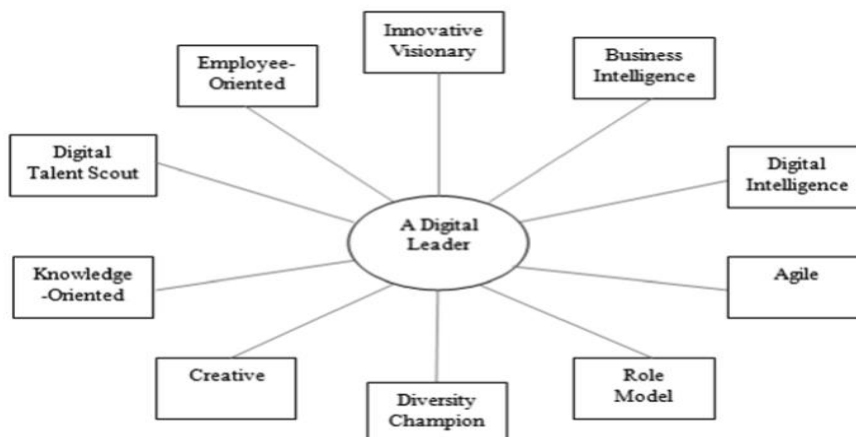
Figure 2: Ten characteristics of a digital leader.

i.   Innovative Visionary: Digital leaders must be visionary thinkers, capable of innovative and forward-looking strategies. The researcher emphasizes the importance of leaders who can envision the future and drive innovation.

ii. Digital Intelligence: The notion of digital intelligence highlights the need for leaders to possess a deep understanding of digital technologies. The researcher underscores the significance of leaders' competence in navigating the digital landscape.

iii. Adaptive Resilience: The characteristic of adaptive resilience indicates that digital leaders should be adaptable and resilient in the face of constant change. The researcher emphasizes the necessity of leaders who can navigate uncertainty and challenges effectively.

iv. Data-Driven Decision-Making: Digital leaders are encouraged to base their decisions on data and analytics, reflecting the researcher's emphasis on leveraging data for informed choices.

v.   Technological Savvy: This characteristic underscores the importance of leaders who are proficient in using and adopting technology. The researcher highlights the role of technology in enhancing leadership capabilities.

vi. Change Management Expertise: Effective leadership in the digital era necessitates expertise in guiding organizations through digital transformation and change initiatives. The researcher recognizes the critical role of leaders in managing change.

vii. Collaboration and Network Building: The researcher emphasizes the significance of collaboration and fostering networks to achieve shared goals, reflecting the importance of collective efforts in the digital age.

viii. Agile Leadership: Agility in leadership is highlighted as leaders need to respond quickly to market shifts and opportunities. The researcher underscores the need for leaders who can act swiftly.

ix. Customer-Centric Approach: Digital leaders are encouraged to prioritize the customer experience. The researcher recognizes the centrality of customers and the design of strategies with their needs in mind.

x.   Continuous Learning: The characteristic of continuous learning underscores the value of lifelong learning for leaders to stay updated on emerging digital trends and practices. The researcher acknowledges the ever-evolving nature of the digital landscape.

In essence, the study of Budianto et al. (2022) highlights the evolving role of leaders in the digital age and the specific characteristics they should embody to lead effectively in the new

normal. Their voice emphasizes the importance of visionary, adaptable, and tech-savvy leaders who can navigate change and prioritize customer-centric approaches in the digital era.

Digital Leadership Taxonomy Model (Zulu & Khosrowshahi, 2021)

The Digital Leadership Taxonomy Model developed by Zulu and Khosrowshahi (2021) offers a comprehensive framework for understanding the different types of digital leadership within the context of the construction industry. This taxonomy is instrumental in categorizing and characterizing various digital leadership styles based on six distinct themes (see Figure 3).

i.   Proactive and Forward-Thinking: Leaders in this category are visionaries who embrace digital innovation and are quick to adapt to emerging technologies.

ii.   Supportive: These leaders are known for their encouragement and guidance, fostering a supportive environment for digital initiatives within their organizations.

iii. Uncoordinated: This category represents leaders who lack a systematic approach to digital transformation and may struggle with disjointed efforts.

iv. Cautious: These leaders approach digital adoption with care and thorough planning, ensuring that risks are mitigated and potential challenges are addressed.

v.   Visionary and Customer-Centred: According to a related source, digital leaders must be visionary and customer-centered to achieve successful digitalization.

vi. Embracing Change: Effective digital leaders are open to change, recognizing its value in driving digital transformation.


Figure 3: A taxonomy of digital leadership

Although the Digital Leadership Taxonomy Model (Zulu & Khosrowshahi, 2021) provides a nuanced understanding of digital leadership in the construction industry, this model could enable school organizations to identify their leadership styles and make informed decisions regarding digital strategies and transformation initiatives. It serves as a valuable tool for assessing and improving digital leadership capabilities, ultimately contributing to the successful integration of digital technologies within the educational field.

Digital Leadership Scale (DLS) (Büyükbeşe et al., 2022)

The Digital Leadership Scale (DLS), developed by Büyükbeşe et al. (2022), offers a groundbreaking framework for assessing digital leadership within the context of educational management. In today's dynamic educational landscape, where technology plays a pivotal role, the DLS becomes a valuable tool for educational institutions seeking to identify and nurture effective digital leaders. This DLS consists of two dimensions that are Innovative and Supportive to capture aspects of digital leadership, such as innovative thinking, networking, digital knowledge, agility in digital transformation, and the ability to attract digital talent (See Figure 4).
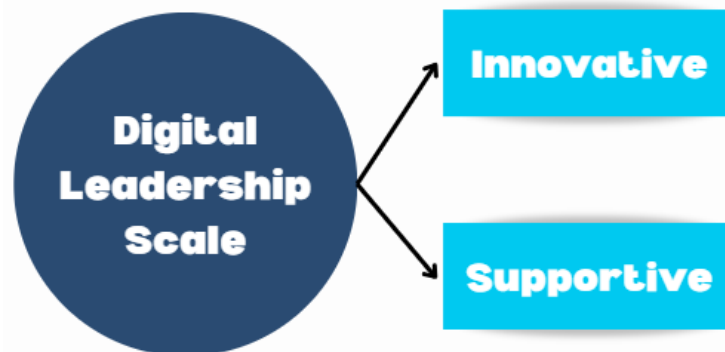
Figure 4: Digital Leadership Scale (DLS)

Within the realm of educational management, technology-driven innovation is paramount. The DLS addresses this need by providing a structured approach to evaluate digital leadership characteristics specifically tailored for educational contexts. While specific questionnaire items are not explicitly detailed in the search results, it is evident that the DLS is designed to capture the essence of digital leadership in education. In summary, the DLS underscores the pivotal role of digital leadership in educational management, empowering institutions to leverage digital technologies for strategic educational objectives, process enhancement, and sustainable success. It not only aids in identifying digital leaders within the

educational sphere but also offers a road map for cultivating and nurturing these essential skills in the modern educational landscape. The digital leadership model is not confined to a specific leadership role or hierarchy. It can be exhibited at various levels within an organization. In summary, digital leadership is an evolving and multidimensional concept that has profound implications in the digital age. Leaders, whether in education, business, or the public sector, must embrace digital leadership to remain agile and innovative in the face of continuous technological change.

DIGITAL LEADERSHIP THEORIES

Leadership theories have played a pivotal role in shaping the practice of leadership across various domains. In the context of digital leadership, these theories provide a foundational framework for understanding and enacting leadership in the digital age. This literature review critically examines key leadership theories that underpin the concept of digital leadership, shedding light on their relevance and implications for effective leadership in the rapidly evolving technological landscape.

Transformational Leadership

Transformational leadership theory posits that effective leaders inspire and motivate their followers to achieve extraordinary outcomes. This theory has direct relevance to digital leadership as it underscores the need for leaders to inspire digital innovation and transformation within organizations. In the digital age, where disruptive technologies continually reshape industries, transformational leaders can catalyze change by instilling a shared vision of digital progress and empowering teams to adapt and innovate. In this study, the transformational leadership model (Bass & Avolio, 1994) is used to conceptualize digital leadership. The transformational leadership model (Bass & Avolio, 1994) is a widely recognized leadership theory that emphasizes inspiring and motivating followers to achieve extraordinary outcomes. The theory includes four key components (see Figure 5):

i.   Idealized Influence (II): Transformational leaders act as role models and gain the trust and admiration of their followers. They set high ethical and performance standards, inspiring others to emulate their behavior.

ii. Inspirational Motivation (IM): These leaders have a clear and compelling vision for the future. They motivate and inspire their followers by articulating this vision, making it exciting and attainable.

iii. Intellectual Stimulation (IS): Transformational leaders encourage creative thinking and problem-solving. They foster an environment where followers are encouraged to question the status quo and develop new ideas.

iv. Individualized Consideration (IC): Leaders who practice transformational leadership pay attention to the individual needs and development of their followers. They provide coaching, mentoring, and support to help each person reach their full potential.

Figure 5: Transformational leadership model

Source: Bass & Avolio (1994)

Transformational Leadership, as proposed by Bass and Avolio (1994), can be applied to conceptualize Digital Leadership by emphasizing several key aspects:
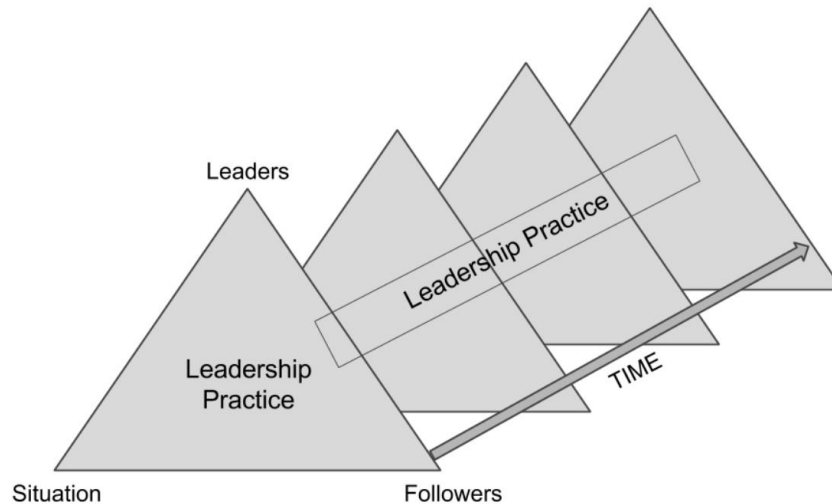
i. Visionary Leadership: Transformational leaders inspire and motivate their teams through a compelling vision of the future. In the context of Digital Leadership, this involves creating a vision for digital transformation and guiding the organization toward a digitally empowered future.

ii. Intellectual Stimulation: Transformational leaders encourage innovative thinking and problem-solving. In the digital realm, this translates to fostering a culture of digital innovation and continuous learning, where team members are encouraged to explore new digital technologies and solutions.

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iii. Individualized Consideration: Transformational leadership recognizes the unique needs and strengths of each team member. Digital leaders can apply this by tailoring digital roles and initiatives to the skills and interests of their teams, thereby optimizing performance and engagement.

iv. Change Management: Transformational leadership is associated with effective change management. In the digital age, change is constant due to evolving technologies. Digital leaders play a critical role in guiding their organizations through digital transformations, ensuring successful adaptation, and mitigating resistance.

v. Adaptability: Both transformational and digital leadership require adaptability. Transformational leaders adjust their leadership style to the situation, and digital leaders must be agile in responding to emerging digital trends and technologies.

By leveraging these transformational leadership principles, Digital Leadership can be conceptualized as a leadership style that inspires digital innovation, fosters a culture of continuous learning, recognizes individual strengths, and adapts to the evolving digital landscape. This approach is critical in navigating the challenges and opportunities of the digital age.

Distributed Leadership

Distributed leadership theory challenges the traditional hierarchical model of leadership. In the digital realm, where information flows rapidly, distributed leadership is particularly relevant. It acknowledges that leadership is not confined to a single individual but can emerge from various team members who possess digital expertise. Digital leaders who embrace distributed leadership leverage the collective intelligence of their organizations to drive digital innovation. Spillane (2006) advocates that distributed leadership is the leadership practice that involves significant interactions with three vital elements, specifically leaders, followers, and their situations. As shown in Figure 6, the leadership practice is seen as a triangle in which each side exhibits one of the three aspects (leaders, followers, and situation). At the same time, their interactions are established over a specific time.

Figure 6: Distributive leadership (Spillane, 2006)

Distributed leadership can be used to complement transformational leadership in conceptualizing digital leadership by emphasizing the collaborative and decentralized aspects of leadership in the digital age. Here's how distributed leadership can be applied:

i.   Collaborative Decision-Making: In digital leadership, decisions are often made collectively, with team members actively contributing their expertise. Distributed leadership aligns with this approach, as it involves sharing decision-making responsibilities among various team members, ensuring that diverse perspectives are considered.

ii. Empowering Teams: Digital leadership relies on empowering teams to take ownership of digital initiatives. Distributed leadership promotes autonomy and empowers educators or team members in their roles. This aligns with the need for individual and team empowerment in the digital landscape.

iii. Adaptive and Responsive: Distributed leadership is adaptable and responsive to changing circumstances. In digital leadership, where technology and markets evolve rapidly, an adaptable approach is crucial. Distributed leadership can provide the flexibility needed to address evolving digital challenges effectively.

iv. Enhancing Leadership Emergence: Distributed leadership fosters leadership emergence among team members by stimulating individual empowerment and boosting their role identity. This is particularly relevant in the context of digital leadership, where leaders can emerge at various levels based on their digital competencies.

v.   Knowledge and Skill Development: Digital leadership often requires leaders to continuously develop their knowledge and skills in digital technologies. Distributed leadership, as a knowledge-sharing model, promotes the development of skills and knowledge among those in leadership roles.

In summary, leadership theories provide a rich tapestry of concepts and frameworks that inform the practice of digital leadership. They underscore the need for leaders to be transformational, adaptive, authentic, and inclusive, while also embracing digital competencies. The digital age demands leaders who can inspire, adapt, and empower their teams to leverage technology for innovation and growth. By drawing from these leadership theories and integrating digital competencies, leaders can navigate the complex and ever-changing landscape of digital leadership successfully.

Digital Leaders Model (DLM)

In this study, the Digital Leaders Model (DLM) is proposed to evaluate the digital leadership of school leaders from the perspective of ICT teachers towards their leaders. This DLM is based on the literature review that was discussed above (See Figure 7). Digital leaders should have the characteristics of combining transformational and distributive leadership. Five main characteristics collectively define a well-rounded digital leader who can navigate the complexities of the digital era, inspire their teams, and drive the organization towards digital transformation and success.

i.   Digital Intelligence: Digital leaders possess a deep understanding of digital technologies, trends, and their potential impact on the organization. They are proficient in navigating the digital landscape, and making informed decisions about technology adoption and implementation. Their digital intelligence enables them to harness the power of technology for the organization's benefit.

ii.   Strategic Thinker: Digital leaders are strategic thinkers who can formulate long-term plans and goals. They can align digital initiatives with the organization's overall strategic objectives. Their strategic thinking ensures that digital efforts contribute to the organization's growth and competitiveness.

iii.   Inspirational: Inspirational digital leaders motivate and engage their teams. They have the charisma and communication skills to convey a compelling vision of the digital future. By inspiring their teams, they drive enthusiasm for digital transformation, making it a shared mission for the entire organization.

iv.   Global Perspective: Digital leaders consider the global landscape in their decision-making. They recognize the interconnectedness of the digital world and understand how global trends, markets, and competitors can impact their organization. This global perspective helps them make decisions that position the organization for success in a globalized digital economy.

v.   Risk-Taker: Digital leaders are willing to take calculated risks. They understand that innovation often involves some degree of uncertainty and are comfortable with exploring new approaches. Their willingness to take risks can lead to breakthrough digital innovations and a competitive edge in the digital domain.

Figure 7: The Digital Leaders Model (DLM)

CONCLUSION

In conclusion, this study reviews academic literature related to the models and theories of digital leadership. The synthesis of academic literature on digital leadership models and theories has led to the development of a comprehensive framework based on transformational and distributed leadership principles. This proposed model not only clarifies the essential elements of effective digital leadership but also offers guidance to organizations navigating the complexities of the digital age. By combining insights from different leadership theories with

current digital practices, this study enhances our understanding of how leaders can utilize technology to achieve organizational success. Going forward, it is crucial to empirically validate and practically implement this framework to confirm its effectiveness and adaptability in various contexts. Therefore, this research provides a basis for further exploration of digital leadership strategies, helping organizations achieve sustainable digital transformation in future studies.

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