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Exploring the Challenges of Digital Leadership in Pakistan: A Review of Core Competencies

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ARTICLE DETAILS ABSTRACT

History

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In order to explore the role of digital leadership in boosting competencies of leaders working in different industries, this literature review summarizes the results of peer-reviewed literature. The review singles out three key competencies namely, technical, strategic, and interpersonal. Technical competency includes digital literacy, data analytics competency, artificial intelligence, and cybersecurity awareness. Strategic competency entails coherence of the vision, innovation anticipation and reacting with dexterity. Change management, emotional intelligence, and collaborative resilience are the components of interpersonal competency. These spheres of digital leadership are motivated by the demands of Industry 4.0 and the post-COVID-19 organizational issues. The results of this study indicates that digital leadership strengthens the ability of leaders to empower innovation, improve operations, and support digital transformation programs. Adaptive learning tools backed by AI powered simulation and customized training plans are very compatible for fostering these digital leadership skills. This analytic study also highlights the increasing need of ethical governance in long term digital transformations. However, gaps still exist in comprehensive frameworks due to absence of such aspects because existing frameworks often overlook the adaptive and interpersonal skill. A few research studies have been done upon sector specific applications in education, healthcare and SMEs. The regional differences point to need for context specific approaches has also been ignored. The review craves further research studies mix methods validations of competencies framework and equity focused digital transformation. It also promotes the ongoing and customized leadership development in line with technological advancements and organizational objectives. In quickly changing digital environments, strengthening digital leadership skills is essential for organizational resilience.



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1. Introduction

1.1 History

The digitalization for public administration, industry and society as a whole became crucially important after the use of information technology with computer systems in 1970s (Kupiek, 2021). Digital technology is indeed the start of the swift changes we are experiencing in today's social world industrial. Fast internet access, smart devices, virtual reality, artificial intelligence, and numerous other technology-based applications have taken place in modern-day life (Karakose et al, 2022). In this context, both the industry 4.0 revolution and the continuous developments in internet technologies made necessary for leaders to get equipped with certain digital competencies, which has surfaced the way for the beginning of digital leadership. Resultantly in this context, the leaders who can effectively manage the digital world can also make a meaningful contribution to the digital transformation of their organizations (Brett, 2020).

According to Asbari et al. (2020) that new leadership models are needed as traditional ones are insufficient to meet organizational goals. Furthermore, according to Purwanto (2020), leadership is an interactive process in which leaders inspire and guide their team members to focus their efforts on achieving organizational goals. It is possible for digital leaders to create an innovative culture by encouraging moral behavior and departmental cooperation (Zhai et al., 2022). An organization can successfully manage the complex path of digital transformation with effective digital leadership, and eventually reach a consistent level of performance (Anwar et al., 2023). A company's business operations and culture can be developed, modified, and updated through the use of digital technology; this process is called "digital transformation". Few businesses are able to make the transition to digital and get the full rewards of the process.

The industrial and service sectors are also seriously hit by Industry 4.0 and that's why Pakistan's SMEs are also going through massive digitalization. A McKinsey digital finance report projects that by 2025 \$36 billion could be added to Pakistan's GDP and 4 million new jobs could be created in the country's SMEs from the digitization of payments and processes. The concept of "digital leadership" is directly connected with digitization, and is a term often applied to leaders who have had exposure to digital technologies themselves. Project/team leaders, CIOs, CEOs, and other organizational levels all exhibit digital leadership. One of the fundamental questions in this field is how to use these digital leaders in charge of digital initiatives to enhance organizational performance. This is predicated on the upper echelons theory's premise that leaders with more digital expertise are more likely to base their choices on their background and understanding of the industry. effectiveness, and guaranteeing sustainability in the business and organizational sectors.

This is why Hayat et al. (2025) analyzed the correlation between leadership styles and the performance of the organization and discovered that servant leadership and digital leadership affected the performance positively and green leadership did not demonstrate this correlation. As

a result, in changing settings, leadership, specifically digital leadership, has turned out to be critical in guiding the firms to success (Bachtiar et al., 2023).

Digital leadership does not simply exist in the correlation with the new technology, but rather it is a multifaceted phenomenon (Magesa and Jonathan, 2020). It implies a collection of competencies that allow leaders to successfully lead the digital transformation through the combination of technical knowledge, strategic vision, and interpersonal skills. The use and implementation of new high-technology infrastructure like cloud computing, data analytics, artificial intelligence are also major technical competencies (Hamzah et al., 2025). The resilience, trust, and cooperation development under the conditions of digital disruption require interpersonal skills to be effective, such as communication, emotional intelligence, and change management (Ertio et al., 2024). These skills form the foundation of successful digital leadership because they help leaders to take their teams and organizations through the digital age. Educational leaders should come up with a way of improving the digital literacy of teachers and students and in the process, this will result to an environment where technology has been easily integrated in the everyday teaching and learning practices. This type of strategies can thereby contribute to greater operational efficiency, better learning, and the better correspondence between the academic goals and the needs of the digitally oriented society (Haleem et al., 2022). Digital leadership also plays a critical role in promoting innovation, increasing operational

Various academics inquired about the essential skills that you need have in order to successfully adapt your digital style and help your firm succeed. According to Imran et al. (2020), industrial organizations are being disrupted by digital transformation (DT), which necessitates major property changes in order to stay competitive. The authors outlined five crucial abilities in leadership that industrial firms ought to invest in their leaders: managing diverse teams, failing quickly, empowerment, digital vision, and digital expertise. According to Talentsprint (2025), modern leaders are supposed to envision how the developments in digital technology can create competitive advantage and economic value, even though they are supposed to be aware of the technical aspects. This competency will require the ability to access emerging technologies and consider them in long-term strategic planning to make them flexible to change. Digital leaders need digital literacy, or technical skills in current and newly developed technologies, digital security skills, and digital tools skills, which are crucial in the field. The technology literacy as defined by Chen et al. (2024) can hence be termed as being core since it enables leaders to learn and use new digital skills in a continuous fashion as time goes by. The widespread digitization of industries has made the issue of digital leadership training the key to providing leaders with necessary competencies to operate in a multifaceted and technologically-driven environment. In contrast to traditional training modalities, artificial intelligence technologies, such as those, can evaluate the competencies of learners and provide them with micro-lessons, practice simulations, and real-time feedback, which will allow developing competencies in an ongoing fashion (MentorcliQ, 2025).

According to the results of Siregar and Akhtar (2024), it is important that enterprises should fund leadership development programs that meet the industry 4.0 needs to make sure that the competencies of the leaders are up to date in a fast-changing technological environment. Espina-Romero et al. (2023) believe that digital leadership is a key to organizational success in the constantly changing technologically dynamic environment where flexibility is the most important aspect. As a result, companies are being urged to invest in their regular training that is in line with digital advances to ensure the continued efficiency of leaders. Giovanni et al. (2024) held that the evaluation of digital leadership competencies and the value of digital change must comprise the main goal of the emerging leaders. The avenues under which this competency growth can become a reality include training, talent development, expert assistance and digital leadership evaluations.

Although the role of digital leadership has obtained a significant share of the current literature, the studies often focus on particular facets of the topic like technology adoption or strategic alignment without exploring the depth of the skillset needed by leaders in digital environments (Lin, 2024). Furthermore, the past research has not fully covered how digital leadership enhances the overall competence of the leaders. The key qualities that seem to be crucial in terms of effective leadership in the digital era are such aspects as adaptability, digital literacy, strategic vision, and ethical governance. Such skills can help leaders to not only use digital tools effectively, but also build future-ready teams that can respond to constant change (Mashinini and Sethibe, 2025; Hamzah et al., 2025). This gap is filled in this manuscript through the inclusion of a detailed literature review of the advantages of digital leadership to increasing the competencies of the leaders. In that, the major objective of this review is to summarize and analyse the existing studies on how digital leadership enhances the ability of leaders and to also explore how digital leadership training and development can enhance the ability of leaders thus providing some practical implications on the core digital competencies required by leaders in digitally changed businesses. By nurturing and practicing both technical, strategic and interpersonal competencies, digital leaders are able to successfully connect educational development with organizational success. Further studies must thus focus on the real-world uses of digital leadership skills in various fields of endeavor such as business, medical care, and education. Also, the contribution of digital leadership to enhancing inclusivity and equity in digital transformation projects should be examined further. The results of this study will be invaluable in handling the new challenges and harnessing the potential of digital leadership in bringing about the long-term and profound organizational change.

1.2 Necessity of Digital Leadership in Pakistan

The digitalization is necessary by developing a strategic approach to harnessing the paybacks of ICT for sustainable social and economic development. This emphasizes on reaching development goals, and will propose an analytical framework that how developing countries like Pakistan be able to use as a guide for formulating and implementing a more strategic approach to the use of digitalization for development (Mujahid, 2002). These all prospects are actionable by leaders which are capable to lead the team with the digital competencies i.e. tactical, strategic and interpersonal. Qader, Rehman & Shamsi (2025) also explained that Pakistani industries must adopt

Industry 4.0 technologies (IoT, AI, and automation) to remain competitive in global market of challenging environment. Digital leadership helps firms develop dynamic capabilities for sustainable performance in the industry. Hussain, Parveen & Abbas (2025) found that transformational digital leadership at universities fosters digital innovation in academia, improving teacher competence as well as engagement of student in academic activities. Waseem, Amsaal & Shaikh (2025) explored that how associating traditional and digital practices empowers leaders to optimize workforce management in Pakistan's services sectors, which emphasize the importance of competencies of digital leaders towards ultimate goal of organizational objectives. Shaikh & Ali (2025) argued that digital leadership are very necessary to drive business sustainability by integrating data analytics and AI into organizational governance in Pakistan. In such cases, digital competencies are very crucial on the part of leaders.

2. Digital Leadership Competencies in Pakistan

The evolution of competencies in terms of digital leadership in Pakistan reflects a multidimensional conversion i.e. technical, strategic, and interpersonal domains. Over the past decade, digital leadership in Pakistan has developed from simple adoption of internet, communication and technology to well integrated, management practices, and innovation-driven governance across industries as well as in government.

2.1 Technical Competencies

Early leadership in Pakistan emphasized only on basic IT literacy components (i.e. email systems, ERP adoption), however, results from recent studies show a shift towards digital fluency, focusing on data-driven decision-making, cyber securities, and AI integration. Eshra et al. (2025) highlighted how digital leaders now leverage cyber threat intelligence systems to counter rising financial cybercrimes in Pakistan's fintech and telecom sectors. Qader, Rehman & Shamsi (2025) revealed how Industry 4.0 tools (IoT, cloud analytics, robotics) are being adopted in manufacturing firms of Pakistan. These tools has been enabled by leaders who are equipped with digital competencies and proficient in digital systems design and onward integration. Universities and government agencies are engaged increasingly to train leaders in AI ethics and data governance to ensure a shift from operational traditional to strategic technological foresight.

2.2 Strategic Competencies

Strategic competency also is very essential for digital leadership to manage the technological and sustainable advancements. Hayat, Aziz & Iqbal (2025) found that digital leadership strengthens innovation in textile and export industries of Pakistan. Rahim, Jan & Khan (2025) reported that after the COVID-19, the strategic digital leadership became effective for sustainability of online learning, hybrid work models, and telemedicine. Shaikh & Ali (2025) acknowledged that AI-driven strategic planning considered as a digital competency enabled predictive analytics for resource allocation and supply chain optimization within the industry.

2.3 Interpersonal Competencies

The most thoughtful change in Pakistan's digital leadership lies in social and interpersonal intelligence. The leaders are shifting from authority-based control to participatory and collaborative leadership styles. Behind this scenario, the interpersonal competency is highly required for digital leadership. Imran, Ghani & Kazimi (2025) disclosed that digital leadership nurtures intrinsic motivation among teachers and organizational trust, crucial for digitalization of education sector. Hussain, Parveen & Abbas (2025) found that leaders with transformational digital attributes encourage digital innovation, emotional engagement, and enhancing creativity. Digital leaders now emphasize virtual communication, empathy, and digital team management to manage remote and hybrid teams effectively.

3. Conclusion

3.1 Feasibility of These Competencies in Pakistan

In Pakistan, the feasibility of technical, strategic, and interpersonal competencies under the framework of digital leadership demonstrates a difficult yet encouraging landscape. In this context, countries like Pakistan showed remarkable progress in developing these capabilities in spite of multiple challenges and limitations. Studies like Eshra et al. (2025) and Qader et al. (2025) reveal that, in Pakistan the technical digital competencies such as cybersecurity, data analytics, and AI implementation are evolving strongly in large urban corporations (e.g., banking, telecom, IT exports). Industries are strengthening the national-level public-private partnerships and digital competency frameworks to integrate technical competencies training at leadership levels. According to Hayat, Aziz & Iqbal (2025), and Shaikh & Ali (2025), leaders are learning in terms of developing strategic digital competencies to align digital tools with organizational objectives and national programs like Digital Pakistan Vision 2030. For the establishment of Digital Leadership Strategy within the departments and organizations to institutionalize digital transformation the strategic competencies for digital leadership are very crucial. Imran, Ghani & Kazimi (2025) and Hussain, Parveen & Abbas (2025) highlighted that Pakistani leaders especially in education and tech, are adopting cross cultural communication and digital emotional intelligence trainings to enhance the collaboration, trust and adaptability in the work environments of hybrid settings.

It is evident from the systematic literature review that digital leadership, which combines technical proficiency, strategic vision, and people skills, is essential to enhancing leaders' competencies. Successful digital transformations in a variety of industries can be led by leaders who cultivate digital literacy, adaptability, and ethical governance. The research articles also examined. highlight the importance of continuous custom training programs particularly those using Technologies to enhance leaders' capacity to promote innovation and managing change. However, it is necessary to have more elaborate frameworks which include these competencies, and the research in many domains like small business, healthcare, education etc. Firms must enhance their digital leadership

abilities to have hope of sustaining expansion. Staying competitive in fast changing the digital landscape today.

3.2 Future Directions

The future of enhancing digital-leadership in Pakistan is changing at a very rapid rate due to the socio-economic and technological environment in the nation. Within the framework of the transformation of Pakistan into the digital economy, within the umbrella of the Vision 2030 and Digital Pakistan Initiative programs, leaders are expected to develop complex competencies that help build the efficiency in the sphere of governance, encourage innovation, and inclusive growth. In order to improve these competencies, leadership development programmes should focus on AI ethics and data-driven decision-making, which will increase the transparency of governance. Eshra et al. (2025) found AI literacy to be a sufficient digital competency that facilitated successful leadership in digital governance. Shaikh and Ali (2025) believed that adaptive organization should be nurtured by leaders through digitalization. According to Hayat, Aziz and Iqbal (2025), digital strategies can be a source of long-term competitiveness. To provide an example, a goal set by the Pakistan Software Export Board (PSEB, 2025), which intends to reach 30 percent female representation in digital leadership posts by 2030, demonstrates the need to organize Digital Leadership Communities forums in Pakistan, where leaders can exchange best practices, facilitate peer learning, and innovate. There is also an urgent need to create AI-based cooperation tools and virtual reality (VR) applications to improve trust, cohesion, and the work of hybrid teams in the digital workplace. The road to successful digital leadership in Pakistan is based on integrative holism in which technical, strategic, and interpersonal skills work in harmony.

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