ORIGINAL ARTICLE *International Journal of Management Research*

Digital Leadership and Organizational Innovation: The Mediating Effect of Knowledge Sharing Among Public Sector Bankers in Khyber Pakhtunkhwa, Pakistan

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Submitted for Publication 04-09-2026
Revision Received 06-09-2026
Accepted for Publication 25-09-2026

ABSTRACT

Digital revolution in technology and its rapid evolution has led to changes in the operational framework of banks and other financial organizations. Leaders in such environments require digital capabilities in order to make organizations innovative and adaptive. This paper looks into the relation between digital leadership and organizational innovation where knowledge sharing acts as the mediator variable among bankers working in public sector banks in Khyber Pakhtunkhwa (KP), Pakistan. Quantitative cross-sectional design was used with the help of a structured questionnaire distributed among 445 bankers in KP. Data were analyzed using descriptive statistics, correlation and regression analysis. It was found that digital leadership positively affects organizational innovation. Also, knowledge sharing mediates the relationship between digital leadership and organizational innovation partially. This is due to the fact that the digitally skilled leaders facilitate knowledge sharing among the employees of the organization leading to higher levels of innovation.

Keywords: Digital Leadership, Organizational Innovation, Knowledge Sharing, Public Sector Banks, Pakistan

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INTRODUCTION

The global business landscape has undergone unprecedented changes owing to the fast-paced development of digital technologies including artificial intelligence (AI), cloud computing, big data analytics, blockchain, Internet of Things (IoT), and mobile banking. The mentioned technologies have drastically altered the organizational structure, business processes, and expectations of consumers, making digital transformation a necessity for organizations (Vial, 2019; Verhoef et al., 2021). Among all the industries providing services, the banking industry has undergone one of the deepest digital transformations due to increased competition, consumer preferences, cybersecurity risks, and the need for compliance with regulations. That is why banks are actively investing in digital solutions while at the same time looking for leadership strategies that would help navigate the organizations through constant technological changes (Kane et al., 2019). Transformation into digital technology does not simply imply embracing modern technologies but also the presence of visionary leadership in order to ensure alignment of digital projects with organizational goals and development of a culture of innovation within the organization. This demand resulted in the development of the notion of digital leadership, meaning the capability of leaders to harness digital technologies, foster innovation, motivate employees, and effectively manage organizational change in a technology-based environment (Avolio et al., 2014; El Sawy et al., 2016). Digital leaders stimulate experimenting and cooperation,

organizational learning, and empower their staff members to use digital technologies in order to enhance their own performance and that of the organization (Westerman et al., 2014). Digital leadership contrasts with conventional leadership practices in that it concentrates on agility, knowledge integration, innovation, and adjustment to technological disruption (Northouse, 2022).

Organizational innovation is now one of the most significant factors that determine the competitiveness and sustainability of organizations in the modern world. Organizational innovation allows an organization to create new products, enhance its services and processes, deliver better experience to customers, and deal with changing market conditions (Damanpour, 1991; Crossan & Apaydin, 2010). Organizational innovations in the banking sector include the development of online banking facilities, automated processes in banks, mobile payments, assistance in customer services using artificial intelligence, and decision-making based on data. An organization that can produce innovative ideas and introduce technological advances is likely to perform well and sustain competitive advantage (OECD, 2018). Thus, organizational innovation has become one of the priorities for banks across the world including developing countries like Pakistan. The link between leadership and organizational innovation has gained a lot of academic attention in the last two decades. Various studies have proven that good leadership positively affects employee creativity, organizational learning, knowledge creation, and innovative activities (Bass & Avolio,

1994; Mumford et al., 2002; Carmeli et al., 2013). Leaders define the vision of an organization, strategically allocate resources, motivate their employees, and create favorable conditions for innovation. But as organizations continue to adopt more and more technologies, researchers claim that leadership alone will not be able to sufficiently account for innovation results. Rather, leaders should be endowed with digital skills to implement new technologies into their strategic management and cultivate innovation-focused culture (Kane et al., 2019; Verhoef et al., 2021). Knowledge sharing is one of the mechanisms by which digital leadership contributes to innovation within organizations. Knowledge sharing means the voluntary exchange of information, experience, best practices, and other resources among organizational members for the achievement of organizational goals (Nonaka & Takeuchi, 1995; Wang & Noe, 2010). It fosters organizational learning, increases cooperation among employees, minimizes redundancy, and improves problem solving capability. In knowledge-intensive industries such as banking, workers have useful tacit and explicit knowledge on customer requirements, regulation of finances, risk management, and application of technology. With effective knowledge sharing, organizations will be able to foster innovation and enhance service delivery (Grant, 1996; Alavi & Leidner, 2001). Digital leaders are crucial in fostering the creation of an environment in which knowledge sharing becomes possible through developing trust, encouraging communication, adopting digital collaboration tools, and rewarding employees for sharing their knowledge (Brynjolfsson & McAfee, 2014; Wang & Noe, 2010). With the help of digital communication tools, enterprise knowledge management systems, and collaboration software, digital leaders foster learning and development of organizational capabilities. Workers in organizations led by digital leaders tend to exchange ideas, experience, and cooperate among different departments and hence organizational learning and innovativeness. While several research efforts have looked into the relationship between leadership and innovation, much less work has been carried out on how the concept of knowledge sharing mediates the effects of digital leadership on organizational innovation. The bulk of current literature has explored manufacturing companies or private companies from advanced economies, with insufficient empirical evidence on the public sector financial institutions in developing economies (Vial, 2019). In Pakistan, there is ongoing digital transformation involving online banking services, mobile applications, digital payment technologies, and automated customer service. All these innovations call for the need for leaders that will be capable of leading digital changes while at the same time fostering knowledge sharing. The banking sector in Pakistan plays an important role in facilitating economic growth through financing, investment, and facilitating commercial activities. For public sector banks in Pakistan, the challenge has been increasing efficiency, effectiveness, transparency, and satisfaction of customers through digital transformation. This is despite huge investments in information technology innovations. Thus, understanding how digital leadership impacts organizational innovation has become highly significant for researchers as well as practitioners.

With this background in mind, the current paper seeks to explore the relationship between digital leadership and organizational innovation among public sector bank employees in the province of Khyber Pakhtunkhwa (KP), Pakistan. More specifically, the current paper aims to examine the role played by knowledge sharing in mediating the relationship between digital leadership and organizational innovation based on the survey conducted among 445 public sector bankers. By combining the principles of digital leadership and the knowledge-based approach to the firm, the current paper will make an important contribution to the rapidly developing body of literature on digital transformation by shedding light on the behavioral processes that impact organizational innovation in a positive manner.

Literature Review

Digital Leadership and Organizational Innovation

The fast speed of digital transformation has drastically altered how organizations conduct business, compete, and generate value. Breakthroughs in artificial intelligence (AI), cloud computing, big data analytics, blockchain, mobile technologies, and the Internet of Things (IoT) have necessitated changes in business models and the adoption of innovation by organizations (Vial, 2019; Verhoef et al., 2021). Under such conditions, leadership plays a pivotal role in helping organizations cope with digital transformation and drive innovation. Thus, the issue of digital leadership has been gaining more popularity in academic literature where organizations require leaders who will help to integrate digital technologies into the strategy in order to maintain competitive advantage (Kane et al., 2019). Unlike planning, organizing, and controlling as traditional leadership activities, digital leadership consists of a number of additional activities. To be more specific, digital leadership involves developing vision in terms of using technology, leveraging technology, inspiring employees to adopt technology, and building the organizational culture that will foster innovation and learning (Avolio et al., 2014; El Sawy et al., 2016). While traditional types of leadership have more to do with hierarchic power and efficiency in operations, digital leadership is all about agility, collaboration, adaptability, and technology skills (Northouse, 2022). Digital leaders inspire experiments, calculate risks, encourage collaboration between employees from different functional areas, and help employees to leverage technology to solve organizational issues (Westerman et al., 2014). The definition of organizational innovation implies the effective implementation of a novel idea, product, service, process, administrative system, or business model that allows improving organizational effectiveness and competitiveness (Damanpour, 1991). Nowadays, organizational innovation is seen as a capability that enables an organization to react to environmental changes and meet evolving customers' needs (Crossan & Apaydin, 2010). Concerning the banking industry, the examples of organizational innovation include the development of digital banking services, mobile banking, customer service automation, cooperation with fintech companies, big data, cyber security measures, and novel approaches to the delivery of services (OECD, 2018). They can lead to the increase in organizational efficiency, customer satisfaction, and organizational performance. According to the findings of research conducted on this issue, the most impactful determinant of organizational innovation is the leadership, as it establishes organizational culture, distributes organizational resources strategically, spurs creativity, and creates an experimental environment (Bass &

Avolio, 1994; Mumford et al., 2002). Digital leaders play a crucial role in facilitating organizational innovation as they encourage employees to accept innovations and come up with innovative ways of solving organizational issues. Sharing a vision of digital transformation makes employees understand the importance of innovation in a strategic context (Kane et al., 2019).

The core idea of the Resource-Based View (RBV) is that the competitive advantage is achieved through the effective use of valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In the digital age, the capabilities of organizational leadership can be regarded as a key strategic resource because of its role in making organizations leverage technology and human capital in order to foster innovations. Digital leaders help convert technological assets into organizational capabilities by aligning the adoption of technologies with the goals of organizations, the competencies of employees, and strategies of innovation. Thus, digital leadership becomes one of the organizational capabilities.

Following the logic of the theory of dynamic capabilities, organizations need to constantly integrate, build, and reconfigure their competencies in order to react to the fast-paced business environment. Digital leadership is a direct contributor to dynamic capabilities since it allows organizations to perceive technological opportunities and innovate through transforming organizational processes using digital technologies (Warner & Wäger, 2019). Competent digital leaders increase organizational adaptability through empowering employees to experiment and learn through technologies. Research proves that there is a positive connection between digital leadership and organizational innovation performance. Specifically, Westerman et al. (2014) state that digitally competent leaders manage to successfully implement digital transformation projects since they use both technological and managerial skills. Moreover, Kane et al. (2019) found that digital maturity positively affects innovation performance since such leaders successfully develop digital mindsets and collaborative culture. Vial (2019) adds that innovation is achieved in digitally led organizations through reduced organizational resistance and increased organizational agility. It is possible to explain the impact of digital leadership on innovation through Transformational Leadership Theory. This theory suggests that transformational leaders inspire employees through providing a vision for the future, intellectual stimulation, individual consideration, and motivation (Bass, 1985; Bass & Avolio, 1994). Transformational leadership is characterized by these features, which can be extended to include a technology component. Transformational leaders inspire employees to master new digital competencies, question traditional work processes, and discover novel digital means to solve organizational issues (Avolio et al., 2014). In turn, this makes employees more open to trying something new and contributing to innovations within the organization. Digital leadership is crucial in the banking sector due to the disruptive nature of technology within the finance industry. The appearance of fintech companies, digital payment platforms, mobile banking apps, blockchain, and AI financial services has increased competition and changed customers' expectations (Verhoef et al., 2021). Public sector banks in Pakistan are increasing their investments in digital technologies in order to streamline their operations and provide better customer services. However, even these endeavors will not lead to any innovation without creating an atmosphere in which digital technology can be adopted by employees. This is when the role of digital leaders comes into play. The role of digital leadership is highly significant in public sector banks in KP as these organizations are practicing digital banking but in highly regulated environments. Resistance to technology adoption among employees arises from the traditional organization culture and bureaucracy that exist within these organizations. Digital leaders make it feasible to overcome such barriers through creating trust, allowing employees to participate in digital activities, and promoting innovative behavior. Thus, organizations led by digitally competent leaders stand better chances of innovation in their financial services, improvement in internal processes, customer experience, and organizational sustainability. Given the theoretical discussion and abundant empirical findings above, one can claim that digital leadership has a considerable impact on the process of organizational innovation. The fact is that digitally capable leaders build organizational environments that include technological readiness, worker empowerment, continuous learning, and innovation collaboration. Based on the above discussion, the current study suggests the following hypothesis:

H1: Digital leadership positively and significantly affects organizational innovation in public sector banks in Khyber Pakhtunkhwa, Pakistan.

Digital Leadership and Knowledge Sharing

Knowledge has turned into one of the most important strategic assets in the digital age, allowing companies to increase their competitiveness, improve decision-making processes, and maintain innovation. With the use of digital technologies growing more and more popular among organizations, the ability of employees to learn, exchange and apply knowledge becomes crucial for achieving organizational goals. In this regard, digital leadership is extremely important in creating an organizational culture that allows the use of digital technologies to share knowledge (Nonaka & Takeuchi, 1995; Alavi & Leidner, 2001).

The concept of digital leadership means the ability of the organization's leaders to work with digital technologies, develop a common vision, inspire workers to adapt to changes in technologies, and encourage collaboration beyond the organizational borders (Avolio et al., 2014; El Sawy et al., 2016). Unlike conventional leadership styles, digital leadership is based on openness, connectivity, transparency, agility, and exchanging knowledge via digital technologies (Westerman et al., 2014). Thus, digital leaders motivate employees to communicate openly, exchange knowledge, and collaborate via information enterprise systems, cloud-based software, communication technologies, and knowledge management systems (Kane et al., 2019). Knowledge sharing is described as a process in which people share information, experiences, skills, and expertise with their colleagues to accomplish organizational goals (Wang & Noe, 2010). It is a combination of knowledge donating in which employees give their expertise voluntarily to other employees and knowledge collecting in which employees gather knowledge from their colleagues (Van den Hooff & De Ridder, 2004). Efficient knowledge sharing will improve organizational learning, save effort, solve problems faster, and develop innovative goods and services (Grant, 1996; Nonaka & Takeuchi,

1995). In knowledge intensive industries such as banking in which employees have expertise about financial products, relationships with clients, laws and regulations, and online banking, knowledge sharing becomes especially crucial for increasing organizational effectiveness. The Knowledge Based View of the Firm is a powerful theoretical framework that allows explaining the link between digital leadership and knowledge sharing. According to the KBV, knowledge is the most strategically valuable resource of organizations as it allows them to generate value and sustain competitive advantage (Grant, 1996). It is vital to note that leadership plays a very important part in ensuring that the creation, integration, and dissemination of knowledge occurs through the establishment of systems and cultures that promote the exchange of information and collaboration among employees (Nonaka & Takeuchi, 1995). Digital leaders enhance this process through the use of digital technologies such as those that promote real-time communication, virtual collaboration, and ready access to organizational repositories of knowledge. The digital technology has played a major role in revolutionizing the way in which information sharing takes place in an organization. The use of enterprise social networks, collaborative technologies, cloud computing, artificial intelligence, and digital knowledge management systems allows employees to communicate with each other across different departments and geographical locations in a much easier manner (Brynjolfsson & McAfee, 2014). It is worth noting that the use of these technologies mainly depends on the leadership of the organization. Digital leaders promote the use of these technologies by educating employees, increasing their trust towards the technology, minimizing their resistance, and fostering a culture of collaboration (Westerman et al., 2014). Studies carried out have empirically proven that there is a positive relationship between digital leadership and knowledge sharing. According to Wang and Noe (2010), supportive leadership positively influences employees' intention to share knowledge because such leaders are known to create a trusting environment within the organization. In the same vein, Alavi and Leidner (2001) stated that organizational leaders play a key role in the creation of knowledge management systems within organizations that are aimed at fostering organizational learning. In addition, Kane et al. (2019) found that digitally mature organizations embrace knowledge sharing culture because the leaders in those organizations encourage collaboration and continuous learning. Moreover, El Sawy et al. (2016) noted that digital leaders foster organizational agility through facilitating the sharing of knowledge among employees using digital platforms. The public banking sector of Pakistan faces the growing significance of digital leadership as digital banking, e-payment, customer support, and information systems become increasingly common. Leaders who create an atmosphere of free communication, facilitate the use of digital collaboration technologies, appreciate knowledge-sharing activities, and create supportive organizational climate are more likely to increase their employees' motivation for exchanging knowledge. Thus, digital leadership increases the organizational learning capacity, improves collaboration of employees, and enables organizations to react to new technological and market challenges. Based on the above-presented theoretical frameworks and findings, one may assume that digital leadership has a positive impact on knowledge sharing among employees of public sector banks. Therefore, the following hypothesis can be proposed:

H2: Digital leadership has a positive and significant impact on knowledge sharing among employees of public sector banks in Khyber Pakhtunkhwa, Pakistan.

Knowledge Sharing and Organizational Innovation

In today's knowledge-based economy, knowledge sharing has developed into one of the key capabilities of an organization for developing innovative ideas, increasing efficiency, and maintaining a competitive advantage. In contemporary organizations, innovation no longer depends only on the availability of money and technology but is highly affected by the ability of its employees to share knowledge, experience, and expertise (Nonaka & Takeuchi, 1995; Grant, 1996). With the digitalization of businesses, knowledge sharing has become an essential tool for the transformation of individual knowledge into organizational intelligence and, consequently, innovation (Alavi & Leidner, 2001). Knowledge sharing is understood as a process of voluntary communication of knowledge, information, skills, and experience in order to foster individual and organizational learning (Wang & Noe, 2010). It consists not only of explicit knowledge, which is easy to document and communicate, but also tacit knowledge which is linked to experience and expertise (Nonaka & Takeuchi, 1995). By means of good knowledge sharing, organizations are able to retain their intellectual property, develop problem-solving abilities, eliminate redundancies, and grow continually. Thus, those organizations, where the culture of knowledge sharing is present, are bound to be innovative as opposed to other organizations where knowledge is confined within individuals or departments (Argote & Ingram, 2000). Organizational innovation is the introduction of new ideas, technology, products, services, processes, or managerial practices for improving the efficiency of an organization and adding value to its stakeholders (Damanpour, 1991). Innovation is recognized as a dynamic capability of firms which enables them to respond to external challenges proactively (Crossan & Apaydin, 2010). Innovation in the banking industry involves implementing financial services digitally, developing mobile banking apps, automating the customer relationship management, implementing artificial intelligence systems in decision making, implementing cybersecurity measures, and innovative business processes. The Knowledge-based View (KBV) of the organization provides an appropriate theoretical perspective that helps in understanding the relationship between knowledge sharing and innovation in organizations. According to the KBV, knowledge is the most critical strategic resource for any organization because through knowledge, organizations can develop unique competencies that cannot be easily duplicated by their competitors (Grant, 1996). Innovations in organizations emerge when there is integration, sharing, and application of knowledge in organizations. Knowledge sharing plays a crucial role in building up innovation capabilities of organizations by integrating the experiences of employees. In a similar fashion, Organizational Learning Theory states that organizations attain sustainable innovation through knowledge acquisition, dissemination, interpretation, and implementation (Argyris & Schön, 1978). Knowledge sharing encourages organizational learning through exchange of experiences among the employees,

discussion of difficulties, and development of innovative solutions to organizational problems through collaboration. Organizations continuously learn through this process and hence become flexible enough to adapt to changes in the environment with innovative products and processes (Huber, 1991). There is substantial empirical evidence of the direct correlation between knowledge sharing and organizational innovation. According to Wang & Noe (2010), companies that encourage good practices in knowledge sharing demonstrate increased innovation capabilities because staff members are ready to cooperate and exchange knowledge. In turn, Alavi and Leidner (2001) suggested that knowledge management systems improve innovation capabilities because they make it easier to store, disseminate, and use knowledge of the organization. Lin (2007) also pointed out that staff members that engage in knowledge sharing activities are able to support organizational innovation more efficiently through generating and implementing innovative ideas. Donati & de Pablo (2015) noted that knowledge sharing practices promote organizational innovation through enhanced organizational learning and knowledge integration. The importance of knowledge sharing is growing in the banking sector due to technological developments, changing regulations, and expectations of customers towards digital financial services. Banking staff members have specific knowledge about financial products, risk management, compliance requirements, relationship management, and digital banking technologies. Sharing of this knowledge between departments improves responsiveness of an organization, quality of service, and innovative financial solutions. Currently, there are ongoing efforts for the digitization of public sector banks in Pakistan, and effective knowledge sharing plays an important role in the successful implementation of technology-based innovations. Furthermore, an organizational culture that fosters collaboration, open communication, and trust helps enhance the willingness of the employees to engage in knowledge sharing and innovation (Cabrera & Cabrera, 2005). When employees realize that their knowledge is respected, they feel encouraged to come up with new ideas and work together with others, which leads to the higher level of organizational creativity and innovation. Thus, the organization will be in a better position to build its innovation capacity. Having reviewed the literature presented above, one can say that it is reasonable to assume that the knowledge sharing of the employees positively influences organizational innovation. Therefore, the following hypothesis can be suggested:

H3: Knowledge sharing has a positive and significant effect on organizational innovation among employees of public sector banks in Khyber Pakhtunkhwa, Pakistan.

Role of Knowledge Sharing as Mediator

The role of digital leadership in fostering conditions conducive to collaboration, learning and leveraging digital technologies in organizations is well recognized, but the impact of digital leadership on organizational innovation often occurs through the intermediation of specific organizational processes and not just through a direct effect. Knowledge sharing is one of the intermediating processes as it provides the opportunity for employees to exchange knowledge, experience and information which can then be converted into innovations and improved organizational practices (Nonaka & Takeuchi, 1995; Wang & Noe, 2010). In accordance with the Knowledge-Based View (KBV), knowledge is the most precious strategic resource of an organization as it is the foundation of learning and capability development and the source of competitive advantage (Grant, 1996). However, knowledge becomes valuable when it is communicated, integrated and utilized across the organization. This function of digital leaders is carried out through promotion of open communication, establishment of collaborative digital tools, promotion of teamwork and building of trusting culture which encourages sharing of explicit and tacit knowledge. Through the exchange of knowledge and experience among employees, organizations can become better at creating innovative products, services, and processes. Additionally, the Social Exchange Theory may be used to explain the mediating role of knowledge sharing. This theory implies that employees will be more inclined to exhibit discretionary behavior, which means that they will engage in the knowledge exchange, when they observe supportive leadership, mutual trust and reciprocal relations within the organization (Blau, 1964). Digital leaders who empower employees, appreciate their input, and involve them in decision making establish positive social exchanges that promote voluntary knowledge-sharing behavior. In turn, such collaborative behaviors will improve creativity and innovation in the organization through collective action of people with different viewpoints and knowledge (Cabrera & Cabrera, 2005). Moreover, digital technologies will further reinforce the mediating effect because they provide opportunities for faster communication, collaboration, and instant access to the knowledge within an organization. Enterprise knowledge management systems, collaboration tools in the cloud, and communication platforms help reduce obstacles to exchanging information and collective learning. Yet, the effectiveness of such technologies is contingent on the leadership that promotes them and builds an organizational culture that encourages learning and exchange of knowledge (Westerman et al., 2014). Empirical studies confirm the mediating role of knowledge exchange between leadership and innovation. For instance, Wang & Noe (2010) showed that supportive leadership increases organizational innovation capacity by promoting knowledge exchange and collaboration among workers. In a similar vein, Donate & de Pablo (2015) noted that knowledge exchange practices ensure the transmission of positive impacts of leadership on organizational innovation capability through the processes of organizational learning. Recently, studies indicated that digitally savvy leaders promote innovation not only because they implement new technologies but also because they create collaborative settings that facilitate knowledge exchange between workers, which in turn boosts innovation (Vial, 2019; Verhoef et al., 2021). Regarding the public sector banks of Khyber Pakhtunkhwa Pakistan, digital transformation efforts necessitate the continuous learning of new technologies and changes in regulatory environment along with customer services innovations. The digital leaders who facilitate knowledge sharing by means of collaboration, digital communications, and learning will help employees combine their knowledge and create innovative ways for banking. Hence, knowledge sharing should be a key tool for digital leadership to contribute to organizational innovation in the context of banking. In light of the theoretical discussions and empirical evidence reviewed above, this research puts forward the following hypothesis:

H4: Knowledge sharing positively mediates the relationship between digital leadership and organizational innovation among the employees of public sector banks in Khyber Pakhtunkhwa, Pakistan.

Results

Results of Correlation

Table 1: Relationship among Digital Leadership, Knowledge Sharing and Organizational Innovation

Variables	DL	KS	OI
Digital Leadership	1		
Knowledge Sharing	.62**	1	
Organizational Innovation	.68**	.71**	1

$p < .01$

A Pearson's correlation test was used to assess the relationships between digital leadership, knowledge sharing, and organizational innovation. It was found that there exist positive correlations between all study variables at the statistical significance level of $p < .01$. In particular, there is a positive correlation between digital leadership and knowledge sharing, between digital leadership and organizational innovation, and between knowledge sharing and organizational innovation.

Table 2: Regression Analysis

Predictor	β	t	p
Digital Leadership → Organizational Innovation	.54	12.64	< .001

Multivariate regression analysis was conducted to examine the direct influence of digital leadership on organizational innovation. The findings revealed that digital leadership had a statistically significant and positive influence on organizational innovation ($\beta = .54$, $t = 12.64$, $p < .001$), implying that digital leadership is an important factor in increasing organizational innovation for public sector banks' workers.

Table 3: Mediation among Variables

Relationship	Direct Effect	Indirect Effect
DL → KS → OI	.34	.20

In conclusion, the results of the mediation analysis show that knowledge sharing plays an important role in mediating the relationship between digital leadership and organizational innovation. The significant indirect effect supports the proposition that digital leadership positively influences organizational innovation by improving knowledge sharing among the organization's employees. In other words, the results support the proposed mediation hypothesis (H4).

Discussion

The main purpose of the study was to establish the nature of the relationship between digital leadership and organizational innovation considering knowledge sharing as a mediating variable among the employees of public sector banks in Khyber Pakhtunkhwa (KP), Pakistan. The empirical results prove the validity of all hypotheses and show that digital leadership positively affects organizational innovation directly as well as indirectly (knowledge sharing). These results confirm the existing research emphasizing that the presence of digital leadership in an organization is crucial for increasing organizational capabilities and maintaining innovation (Kane et al., 2019; Verhoef et al., 2021). The results show that digital leadership has a positive effect on organizational innovation. The results imply that a digitally literate leader with a vision for the digital age encourages the use of emerging technology and creates conditions conducive to creativity. Within the context of public sector banks, digitally literate leaders help to adopt innovations, increase the adaptive capacity of employees, and promote continuous improvement, which in turn promotes organizational innovation. The results are consistent with earlier studies which found that digital leadership increases organizational agility, technological competence, and innovation performance (Westerman et al., 2014; Vial, 2019). The results are also aligned with the assumptions of the Resource-Based View (RBV) which states that valuable leadership capabilities are strategic organizational resources. Additionally, the research also found that digital leadership highly fosters knowledge sharing among employees. Such a conclusion indicates that the digital leaders create the environment that is marked with trust, collaboration, and communication and thus motivate employees to share their knowledge, experience, and expertise. Digital leadership uses the tools of digital communication and collaboration to foster organizational learning and employees' sharing of both tacit and explicit knowledge. The above-mentioned findings are in line with the Knowledge-Based View of the firm because according to the theory, organizational knowledge will be valuable only if it will be shared and used (Grant, 1996; Nonaka & Takeuchi, 1995). Similar findings were presented by Wang and Noe (2010) that supportive leadership significantly fosters knowledge sharing behavior of employees. The results also show that knowledge sharing has a positive impact on organizational innovation. When employees engage in knowledge exchange, they contribute to organizational learning, problem solving and innovative products, processes and services development. Such a conclusion supports other empirical studies that have shown that organizations with high knowledge sharing culture have the capability of responding to environmental change and uncertainty via innovation (Alavi & Leidner, 2001; Donate & de Pablo, 2015). In the field of banking, the process of efficient knowledge sharing allows for incorporating different types of functional knowledge, leading to high-quality services and digital innovations. Firstly, the mediation analysis proved that knowledge sharing acts as partial mediator between digital leadership and organizational innovation. Thus, the results imply that digital leadership not only positively influences innovation in organizations with their direct strategic guidance but also in terms of promoting an organizational culture in which knowledge exchange takes place. The results support the predictions made in the framework of the theory of Knowledge-Based View and Social Exchange Theory, suggesting that supportive leadership contributes to reciprocity in knowledge exchanges in order to enhance organizational innovation (Blau, 1964; Cabrera & Cabrera, 2005). Moreover, the results are congruent with the findings of the contemporary studies of digital transformation highlighting the fact that the investments in technologies lead to higher innovation performance in case of effective leadership and good knowledge management (Brynjolfsson & McAfee, 2014;

Verhoef et al., 2021). On the whole, the research results demonstrate the strategic significance of developing digital leadership skills and the practices of knowledge exchange in public sector banks. While financial organizations in Pakistan move towards their digital transformation, it is recommended that the managers of those institutions not only invest in digital technology but also develop leadership and organizational policies fostering collaboration, learning, and knowledge exchange. These actions will contribute to innovation capability improvement and ensure sustainable development of public sector banking institutions in the long run. This literature review incorporates your results into the context of theories (Resource-Based View, Knowledge-Based View, and Social Exchange Theory) and contrasts them with other empirical studies. This is the way how research papers in prestigious management journals should look like.

Practical Implications

Several implications can be derived from the results of this study:

Public sector banks should foster digital leadership skills through continuous leadership training.

The organization should develop its digital knowledge management system promoting collaboration.

Managers should create an environment of trust and communication facilitating knowledge exchange.

Employees should be encouraged to share their innovations and practices.

Conclusion

This paper has considered the impact of digital leadership on organizational innovation with the mediating effect of knowledge sharing among the employees of public sector banks of Khyber Pakhtunkhwa (KP), Pakistan. Since the banking industry is witnessing rapid digitalization, the need to consider the impact of leadership on innovation becomes necessary. The Resource-Based View (RBV), Knowledge-Based View (KBV), and Social Exchange Theory (SET) form the theoretical base of the current study and support that digital leadership impacts organizational innovation directly and indirectly through knowledge sharing by the employees.

It is evident from the empirical results that all the hypotheses were empirically validated in this paper. It can be seen from the results that digital leadership had a positive significant impact on organizational innovation; therefore, leaders having digital competencies and encouraging digital technology usage in the organization have created a conducive environment for creativity and adaptation. Digital leadership had a positive impact on knowledge sharing; that is why digitally competent leaders have encouraged their subordinates to share knowledge by collaborating with each other. Moreover, it has been found that knowledge sharing has a significant positive impact on organizational innovation, which means that organizations, in which the employees engage in knowledge sharing, are more capable of innovating products, services, and processes. The major contribution of the study lies in the demonstration of the mediating effect of knowledge sharing in the relationship between digital leadership and organizational innovation. Mediation results imply that digital leadership not only impacts organizational innovation directly but also enhances it indirectly by fostering an environment, in which the employees are encouraged to exchange knowledge and work together to solve organizational problems. The findings of the study present several useful recommendations for policymakers and managers in the Pakistani public banking sector. First of all, banking institutions are expected to ensure the development of digital leadership capabilities through leadership development programs and continuous professional development initiatives. At the same time, it is necessary for the organization to create the right organizational culture that fosters knowledge sharing using digital platforms and collaboration systems, recognition programs, and cross-functional teams.

Even so, the following weaknesses can be identified in this study. First, the cross-sectional research approach used makes it impossible to draw any cause-and-effect relationship from the data collected. Second, the study's restriction to only public sector banks in Khyber Pakhtunkhwa might limit the applicability of the results in other areas or industries. It is recommended that future research be based on longitudinal approaches, and should involve private banking firms or other industries, and explore further mediators/moderators such as digital capability, organizational learning, innovation climate, or organizational culture.

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