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Keywords: Digital Transformation, Digital Capability, Marketing Services, Innovation Investment, Firm Performance

Authors:

Khurram Ashfaq: Assistant Professor, College of Commerce Government College University Faisalabad, Punjab, Pakistan.

Aisha Imtiaz: Assistant Professor, Government College Women University, Faisalabad, Punjab, Pakistan.

Nasir Abbas: (Corresponding Author)
Lecturer, College of Commerce, Government College University, Faisalabad, Punjab, Pakistan.
ORCID: https://orcid.org/0009-0000-1711-2963
Email: (nasirabbas@gcuf.edu.pk)

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Lecturer, College of Commerce, Government College University, Faisalabad, Punjab, Pakistan.
ORCID: https://orcid.org/0009-0000-1711-2963
Email: (nasirabbas@gcuf.edu.pk)

Contents

Introduction

Digital transformation has transformed the business landscape by enabling organizations to increase efficiency, drive innovation, and enhance customer satisfaction. It is not a matter of integrating digital tools into the organization, but an end-to-end strategic procedure that requires organizational change (Bhatti et al., 2022). Digital transformation knowledge aids banks in streamlining processes (Lokuge et al., 2019), enhances decision-making through data analysis, and fosters a culture of continued innovation (DeLone et al., 2018). Digital transformation knowledge has been effectively utilized in larger companies to expand their operations, and the banking industry has faced challenges with digital adoption. Although associated with the ideas of speed and experimentation, in most cases banks struggle with financial limitations,

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technical proficiency gaps, and an inability to provide good access to electronic resources (Hamzah, 2024).

Studies have also indicated that digital competencies are important in dictating how far the knowledge of digital transformation runs within banks as a means of enhancing service delivery, customer relationships, and maintaining competitive benefits (Annarelli et al., 2021). Evidence confirms that banks adopting big data, AI, and IOT solutions can make seamless Omni-channel experiences and predictive analytics-based strategies (Jain et al., 2022). As a result, digital transformation knowledge has affected banks' marketing services, including the use of automated outreach tools and digital channels that enable personalized customer engagement. These technologies allow banks to tailor financial services to broader customer segments and to make data-driven decisions that enhance customer experience and service delivery (Huang & Rust, 2021). Nonetheless, even though digital uptake can boost banking performance, how much of it is captured by banks is substantially different, since there are banks with long-term deployment issues before seeing quantifiable outcomes (Heredia et al., 2022).

Despite previous research, which has intensively covered the technical underpinnings of digital transformation, understanding its strategic implementation within commercial banks, particularly how digital adoption is guided and executed at the organizational level (Goldman et al., 2021; Troise et al., 2022), its direct impact on digital uptake and strategy implementation has received limited attention. Moreover, the function of digital strategy as a cornerstone of effective transformation has not been well explored, especially in banks with unstructured methods linking digital investments to long-term business objectives (Proksch et al., 2024).

The important research gap concerns the link between digital transformation knowledge and firm performance in the banking sector. Although studies have shown that digital transformation knowledge enhances firm performance by improving operations and promoting innovation (Rupeika-Apoga et al., 2022), other studies have stated that the positive effects of digital transformation are not necessarily direct and might be influenced by factors such as market readiness and organizational competencies (Heredia et al., 2022). Moreover, banks in highly turbulent markets tend to find it difficult to establish dynamic capabilities and the capacity to sense, seize, and reconfigure resources to respond to digital transformation (Schilke et al., 2018). Since banks face different degrees of digital maturity and customer expectations, more research is required to investigate how digital transformation knowledge interacts with digital capabilities to improve marketing services and, ultimately, enhance firm performance (Said et al., 2023).

From these gaps identified, this research will seek to answer the following questions:

1. Do digital capabilities affect marketing service and marketing services impact firm performance?
2. Do marketing services mediate between digital capabilities and firm performance?
3. Do digital transformation knowledge moderate the relationship between digital capabilities and marketing services, and digital innovation investment moderate the relationship between marketing services and firm performance?

Despite a growing body of literature on digital transformation, a sizeable knowledge gap still exists concerning the impact of digital capabilities on bank firm performance, especially when using marketing services as the point of observation. Even though banks increasingly implement digital tools, most scholarly research focuses on operational or financial technologies while leaving aside the role of translating digital capabilities into customer-facing operations such as marketing and service provision. Moreover, the present study has an overall nature of coming up with cross-industry conclusions; therefore, there is limited understanding of the dynamics of the industry, such as the controlled and services-based aspects of banking. Lastly, the moderation of digital transformation expertise and spending on innovation within banks has not been described. While the existing literature indicates that digital technologies have the potential to increase customer interaction and operational effectiveness (Rahi et al., 2020; Heredia et al., 2022), the literature tends to overlook how internal knowledge and innovation readiness conditions whether digital projects result in enhanced firm performance. In light of Pakistan's developing digital banking environment, empirical data are particularly limited on how banks utilize digital marketing services to compete and expand. This study fills these gaps by investigating the mediating role of marketing services and the conditional effects of digital transformation knowledge and innovation investment, thereby proposing a contextualized model for digital performance improvement in commercial banks. (Jin-Kwon et al., 2024).

Literature Review and Hypotheses Development:

Digital Capabilities and Marketing Services

Jonathan et al. (2021) state that digital capabilities allow banks to adopt technologies such as platforms on the Web and analytic programs to engage in marketing. These technologies help banks understand customer behavior, communicate with them, and enhance the delivery of services. The digital capabilities in the Yousaf et al. (2018) firm help it along the way of developing marketing services, where more effective implementation of digital tools takes place in the process of approaching customers on an individualized level. Such services only make marketing efforts increasingly more effective, as they enable a direct connection via digital media, including social media, websites, and mobile apps (Maycotte et al., 2025). These make them more innovative, better able to run operations, and make decisions in the field of marketing and communication with customers (Heredia et al., 2022; Kim & Jin, 2024). These areas are necessary to promote responsiveness and to create robust digital historical marketing functionalities. Thuda et al. (2023) disclosed that digital ability has been found to strengthen the performance of banks substantively due to its ability to enhance digital accreditments. On the same note, Joensuu-Salo and Matalamäki (2023) reported that digital capability facilitates the growth of SMEs through adaptation and innovation and is a central dynamic resource in digital marketing and strategic responsiveness.

H1: Digital Capabilities have a positive influence on Marketing Services.

Marketing Services and Firm Performance

Digital-based marketing of services also has significant potential to enhance firm performance by drawing customers and enhancing client loyalty (Giordino & Crocco, 2025). Banks that employ digital marketing tools such as analytics and automation achieve improved engagement, market development, and revenue. Growth hacking has been urging businesses (mostly small businesses) to embrace the use of technology and information to stay creative and flexible in the dynamic marketplace. As Vesterinen et al. (2025) put it, companies can use smarter applications of data to go faster to market changes. This is one of the best ways to ensure that they beat slower competitors. Bag et al. (2021) found that AI-driven B2B marketing services improve decision making, customer retention, faster product launches, and overall firm performance. It is also an aspect of digital marketing that improves customer relationships and service innovation, and improves financial results, which are some of the factors that aid banks in attracting and retaining customers by the banks (Mohamad, 2024). Equally, entailing the use of modern tools such as benchmarking and SWOT analysis, Azimov (2025) demonstrated that it enhances the performance of institutions in terms of quality of service delivery. Technical efficiency is closely associated with firm performance, which enhances the survival of companies in dynamic markets. More efficient firms have a high chance of entering, expanding, and remaining in a market over time (Afin et al., 2025).

H2: Marketing Services have a positive influence on Firm Performance.

The Mediating Role of Marketing Services

Digital capabilities alone do not guarantee better performance; they must be applied through practical processes such as marketing services (Jonathan et al., 2021). Marketing services act as a bridge between digital tools and business results, making digital efforts more effective (Yousaf et al., 2018). E-trust also plays a role in linking marketing services to improving firm performance. Marketing services play a key role in helping firms attract and retain customers by offering tailored, high-quality experiences. Personalization in marketing, supported by customer data, improves satisfaction and decision making across different platforms (Chandra et al., 2022). A strong marketing mix that combines product, promotion, people, and service quality makes it easier for firms to meet customer needs effectively (Febriansah, 2024). With technological advancements, marketing services are becoming increasingly integrated and customer-focused, enhancing the creation and distribution of value (Kowalkowski et al., 2024). Customer relationship management (CRM) tools also enhance customer communication and facilitate the delivery of services tailored to specific individuals, which helps long-term loyalty and business expansion (Guerola-Navarro et al., 2024). In addition, the use of artificial intelligence in marketing enables companies to gain more knowledge about customer activity, enhance targeting, and provide more efficient customized services (Labib, 2024). All of these factors increase the effectiveness of marketing techniques and enable companies to establish more effective and sustainable relationships with customers.

H3: Marketing Services mediate the relationship between Digital Capabilities and Firm Performance.

Moderating Role of Digital Transformation Knowledge

Knowledge of digital transformation increases the capability of firms to understand and realize the use of digital tools in their marketing, which usually makes their digital role more effective. Banks and companies that have good digital knowledge can use resources efficiently and connect with customers in a better

way, but companies that have no good digital knowledge can face some difficulties (Majhi et al., 2022). This knowledge enhances the relationship between digital capabilities and firm performance, demonstrating a greater mediating effect than digital innovation investment. Digital transformation also promotes more investment in innovation through enhanced performance and reduced economic barriers; however, its advantages could be compromised by internal competition for available capital and labor owing to increased productivity (Yu et al., 2024). Sagala & Ori (2025) highlighted that SMEs require digital knowledge and learning plans to implement transformation and stay competitive.

Their research indicated that leadership, knowledge sharing, and digital capability are key to developing adaptable and robust businesses. Similarly, Wei et al. (2025) discovered that digital transformation facilitates firms to close the funding gap and enhance innovation, especially in high-tech sectors. They cite that digital technology assists R&D success and improves a firm's capacity to expand and compete in the market. Digital transformation enables companies to enhance their business by using technologies such as AI, automation, and data analytics and facilitates their innovations and better performance (Haq, 2023), improving customer experience and giving organizations an opportunity to deal with market fluctuations in a short time. Digital transformation is necessary to remain competitive in the world of digitalization, although barriers must be overcome with the presence of cybersecurity issues and the development of specific skills.

H4: Digital transformation Knowledge moderates between Digital Capability and Marketing Services.

Moderating Role of Digital Innovation Investment

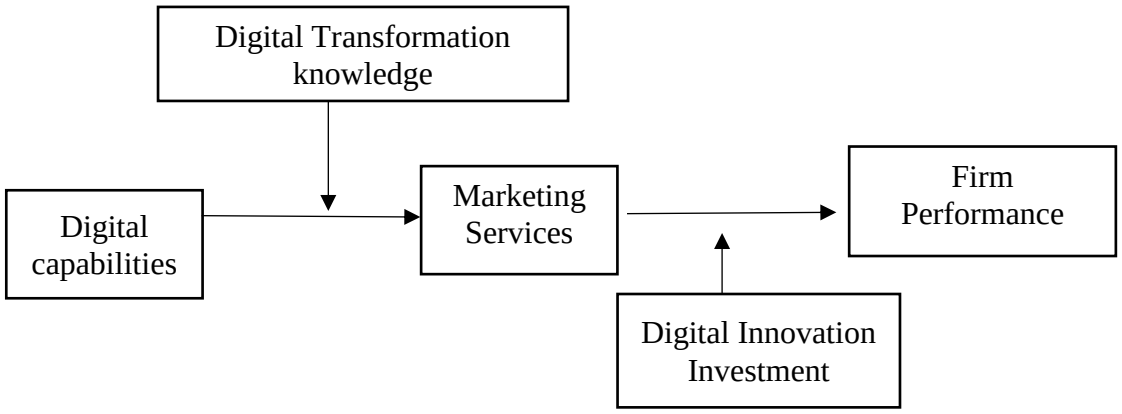
An example of investment in technological innovation is artificial intelligence, automation, and new platforms, which are strategic processes behind the performance impact of marketing services. Banks and companies that undertake such investments would experience an increase in their customer engagement, improvement in the quality of services, and customer satisfaction (Giordino & Crocco, 2025). Although it can transform markets and produce resilience, there are certain instances when the maximum results of digital innovation are not achievable because of ineffective financing and infrastructure, especially in developing nations. The challenges are to be met with greater combined efforts of the state and the business environment to guarantee the expanded reach and sustainability of the organizations dealing with the issue (Tabe-Ojong et al., 2024). In small and medium-sized businesses (SMEs), investment in digital innovation is essential to attain sustainable development, enhance operational efficiency, and develop distinctive competitive products. Efficient networking and knowledge exchange also complement these results by fostering collaboration between stakeholders (Tariq et al., 2024). Digital technology investment also facilitates green transition and regional development by enabling companies to adopt sustainable practices and improve their innovation capabilities (Faggian et al., 2025). For family businesses, digital investment also enhances competitiveness through the implementation of advanced technologies and services, particularly when decision making is combined with non-family professionals. Bornhausen and Wulf (2024). Furthermore, these investments allow companies to implement sophisticated IT systems, serving as a link between IT functionality and enhanced innovation performance (Nwankpa & Merhout, 2020).

H5: Digital Innovation Investment moderates the effect of Marketing Services on Firm Performance.

Dynamic Capability theory

Figure 1

Conceptual framework model



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Dynamic Capability Theory

Dynamic Capability Theory offers a solid basis for understanding digital transformation in banks, where sensing, seizing, and reconfiguring capabilities are essential in changing environments (Teece et al., 1997; Warner & Wäger, 2019). Transformation is successful based on whether banks are able to sense trends, innovate, and align their internal processes (Teece, 2014). However, the advantages of digital transformation differ among banks because of issues such as low preparedness and change resistance (Nguyen et al., 2020; Merín-Rodrigáñez et al., 2024). Digital competence enhances performance only when used efficiently through transformation strategies (Nuryadin et al., 2023). Internal motivation in digital marketing makes this possible by expediting marketing services (Yousaf et al., 2018), and strategic usage of technology can boost financial and non-financial performance (Giordino & Crocco, 2025). As digital abilities tend to affect performance indirectly, marketing services are a vital conduit (Jonathan et al., 2021; Yousaf et al., 2018), especially when firms are aware of digital tools (Majhi et al., 2022) and invest in innovation (Giordino et al., 2025).

Methodology

This study adopts a cross-sectional and quantitative approach to understand the relationships among the various dimensions of digital capability, digital transformation knowledge, marketing services, digital innovation investment, and firm performance.

Measuring Instruments

Research constructs were quantified using the five-point Likert scale method with the researchers rating between 1-strongly disagree to 5-strongly agree. This is, in fact, the currently widely used five-point Likert scale by several researchers and academics (Egala et al., 2024). Further, the research employed Smart-PLS software to assess the structural and measurement model. This has time and cost benefits and increased dependability of findings by drawing from established measurement psychology in the field. These were assessed using a 7-item scale obtained from Afrianty et al. (2022) for Digital Capabilities. Assessment of Digital Transformation Knowledge was performed using a 5-item scale modified from (Fachridian et al., 2024). Marketing Services used a 4-item scale modified from (Shaltoni & West, 2010). Digital Innovation Investment used a 3-item scale modified from (Ericson et al. (2016) and Bankuoru Egala and Afful-Dadzie (2022). Finally, Organizational performance was assessed using an adapted 4-item scale by (Huang et al. (2016) and El-Kassar and Singh (2019).

Population and Sampling

The targeted population was the managers and operations staff of commercial banks operating in Lahore, Pakistan, as part of the digital operation and marketing activities, since they are stakeholders actively engaged in the process of digital transformation. It took three months to collect data using a pre-tested structured questionnaire among academics and industry professionals so that it was easy to administer and valid. Convenience sampling was employed, appropriate for organizational settings where random access is not readily obtainable and is extensively used in comparable banking research (Etikan et al., 2016; Hafeez et al., 2023). A total of 500 questionnaires were distributed, and 308 remained after removing incomplete responses, which was sufficient for structural equation modeling. Non-probability sampling restricts generalizability, but the high sample size, expert-tested instrument, and respondent applicability provide valid results.

Table 1

Respondents info N=308

Demographics	Frequency	Percentage
Gender		
Male	221	71.8
Female	87	28.2
Hierarchy level		
Senior Managers	263	85.4
Junior Managers	45	14.6
Education Level		
Bachelor	128	41.6
Masters	180	58.4

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Results:

Model Estimation

Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied in this study, and it is a widely used technique to empirically test the research model, particularly a complex one, when there are certain problems with the data, including a small sample size or missing values (Hair et al., 2021). This method works well even if the data are not normally distributed. PLS-SEM includes two parts: the measurement model (which checks how well the survey items measure the variables) and the structural model (which tests the relationships between variables), (Friedlingstein et al., 2022).

Five reflective constructs were used to build the model. The measurement model is shown in Fig. 2. The level of the item loadings was greater than 0.50, indicating that the items were reliable (Friedlingstein et al., 2022), Composite Reliability (CR) was also confirmed, and it was more than 0.70, indicating that the items were consistent with one another. This is considered better than Cronbach's alpha in some cases (Hair et al., 2021), and convergent validity was measured using Average Variance Extracted (AVE). All values were above 0.50, which confirms that the items measured the intended concepts well (Hair et al., 2019), as shown in Table 2.

Table 2

Convergent Validity

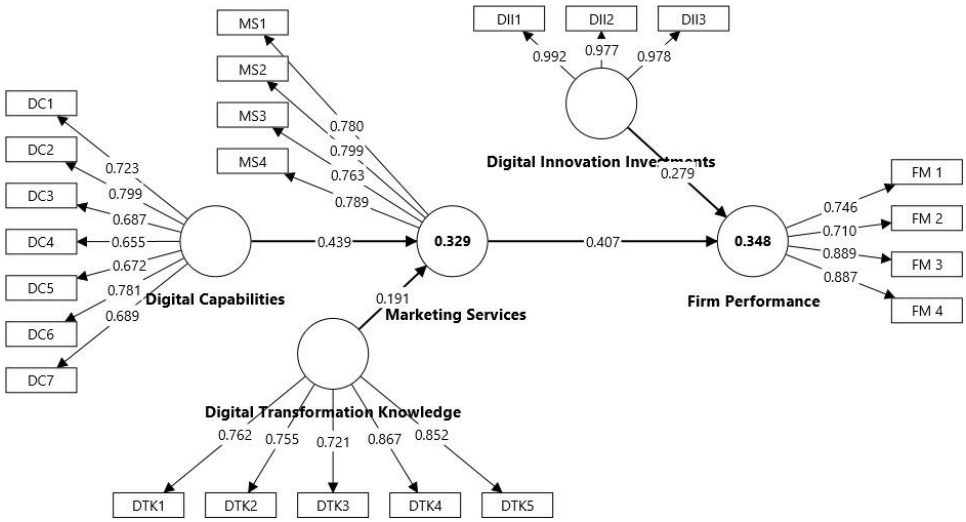
Item	Outer loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Digital Capabilities				
DC1	0.723	0.842	0.880	0.514
DC2	0.799			
DC3	0.687			
DC4	0.655			
DC5	0.672			
DC6	0.781			
DC7	0.689			
Digital Innovation Investments				
DII1	0.992	0.982	0.988	0.965
DII2	0.977			
DII3	0.978			
Digital Transformation Knowledge				
DTK1	0.762	0.851	0.894	0.629
DTK2	0.755			
DTK3	0.721			
DTK4	0.867			
DTK5	0.852			
Firm Performance				
FM 1	0.746	0.823	0.885	0.660
FM 2	0.710			
FM 3	0.763			
FM 4	0.887			
Marketing Services				
MS1	0.780	0.789	0.864	0.613
MS2	0.799			
MS3	0.763			
MS4	0.789			

Source(s) Author's own creation

Moreover, the presence of multicollinearity among the items was also verified by calculating the values of their Variance Inflation Factor (VIF), which did not exceed 3.3, the limit of which may be considered acceptable to imply that there are no significant multicollinearity problems (Kock, 2015).

Figure 2

Measurement Model



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Discriminant validity

To determine whether the variables truly differed among themselves, the concept of discriminant validity was tested using the Fornell-Larcker approach (Fornell et al., 1981). Nevertheless, in the last several years, researchers have proposed a more stable method, referred to as the heterotrait monotrait (HTMT) ratio (Henseler et al., 2015). In related constructs, HTMT is expected to be below 0.90, and unrelated or distinct constructs are expected to be off-cut at 0.85. (Henseler et al., 2015).

Table 3

Hetero-trait mono-trait ratio (HTMT) for first-order

	DC	DII	DTK	FP	MS
DC					
DII	0.530				
DTK	0.700	0.414			
FP	0.771	0.517	0.623		
MS	0.665	0.52	0.552	0.666	

Note(s) Digital Capability, Digital Innovation Investment, Digital Transformation Knowledge, Firm Performance, Marketing Services.

Source(s) Author's own creation

HTMT is regarded as more efficient when the difference in item loading is minimal (Dijkstra & Henseler, 2015). The findings presented in Table 3 indicate that all HTMT values are within the acceptable range, which proves that discriminant validity was effectively confirmed in this study.

Predictive Relevance

Before testing the hypotheses, we analyzed the effect size (f^2), coefficient of determination (R^2), and predictive relevance. As noted by Götz et al. (2009), effect size helps to understand the influence of independent variables on dependent variables. According to the recommendations of (Cohen, 2013), small effect sizes are those that qualify between 0.02 and 0.15, a medium effect is that that falls between 0.15 and 0.35 and large effect is above 0.35. In the present study, the effect sizes of all the variables were equal to or greater than these criteria. In addition, the R^2 values of every construct revealed that the model possessed proper predictive strength. Table 4 presents the detailed results for R^2.

Table 4

Coefficient of determination and predictive relevance

Constructs	R^2
FP	0.348
MS	0.329

Source(s) Author's own creation

R^2 values were adopted as the major measure to evaluate the explanatory power of the model. As presented in Table 3, the R^2 coefficient for Marketing Services (MS) is 0.329 and Firm Performance (FP) is 0.348, surpassing the lowest cut-off of 0.10, as suggested by Falk and Miller (1992). These values signify that the model possesses great explanatory power in assessing the extent to which digital capabilities, transformation knowledge, and innovation investment affect marketing performance and firm performance in the banking industry.

Table 5

Hypothesis testing

Hypotheses	Paths	*B-Value*	*t-values*	*p-values*	Remarks
H1	DC→MS	0.437	7.960	0.000	YES
H2	MS→FP	0.321	5.367	0.000	YES
H3	MS→DC→FP	0.141	3.878	0.000	YES
H4	DTK→DC→MS	0.419	0.765	0.000	YES
H5	DII→MS→FP	0.167	4.197	0.000	YES

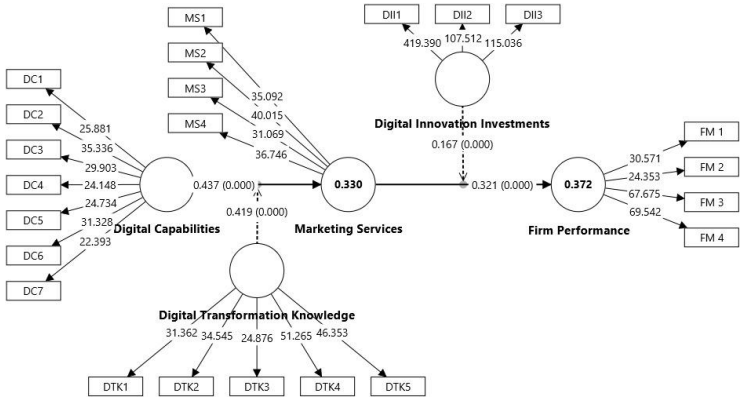
Source(s) Author's own creation

Structural Model Assessment

Figure 3 depicts the structural model that tested several direct and moderated mediation paths. Digital Capabilities significantly influenced Marketing Services (β = 0.437, t = 7.960), supporting H1. Furthermore, Marketing Services significantly impact Firm Performance (β = 0.321, t = 5.367), supporting H2. It is also statistically significant that the mediating position of Marketing Services exists between Digital Capabilities and Firm Performance, with a significant effect value (β = 0.141, t = 3.878), supporting H3. The moderating effect of digital transformation knowledge on the relationship between digital capabilities and marketing services is positive and significant, supporting H4. Moreover, Digital Innovation Investment has a significant moderating effect on the marketing service-firm performance relationship (β = 0.167, t = 4.197), supporting H5.

Figure 3

Structural Model



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Conclusion and Implications:

Conclusion

This study, which is based on the dynamic capability theory (Teece et al., 1997), considers the influence of digital capabilities on the performance of banks and the way marketing services are the mediating effect, and knowledge of digital transformation and investment in digital innovation as the moderator effects. The findings present new evidence on how banks enhance performance in the digital age through the intentional application of digital capabilities and organizational knowledge. This study confirmed a positive and significant relationship between digital capabilities and marketing services, supporting H1. This aligns with the literature that advanced digital abilities of companies have greater chances of customizing customer experience and optimizing marketing performance (Annarelli et al., 2021); (Jonathan et al., 2021); (Yousaf et al., 2018), Such digital marketing engagements trigger responses amongst customers, which yield better market positioning of banks. H2 is also supported, as the results show that marketing services have a significant impact on firm performance. This according to the research works of (Giordino & Crocco, 2025), which identified that effective utilization of digital marketing directly influenced the financial and operational performance of banking bodies. Technologies, such as automation and online interaction tools, allow companies to gain visibility and attain customer acquisition at a reasonable cost (Huang & Rust, 2021).

The study also validated H3, establishing the mediating role of digital marketing services in digital capabilities-firm performance. This means that digital capabilities only play a role in performance if utilized by significant business processes such as marketing. This is aligned with the arguments of Kindermann et al. (2021; Heredia et al., 2022), who argued that companies with robust digital infrastructure can still perform poorly if unable to translate capabilities into value-creating activities. In H4, digital transformation knowledge was found to moderate the relationship between digital capability and marketing services. This means that organizations with excellent in-house knowledge of digital systems are in a better position to use their capabilities to drive marketing implementation and innovation. This finding is consistent with (Majhi et al., 2022), who noted that digital literacy in employees and leaders enhances strategic interpretation and digital tool implementation.

In addition, H5 was also confirmed; that is, digital innovation spending enhances the marketing service–firm performance relationship. Banks that invest money in cutting-edge technologies such as AI, predictive analytics, and omni-channel platforms have higher returns on their marketing efforts. These results validate previous evidence shown by (Giordino & Crocco, 2025), that investment in cutting-edge digital solutions has a major contribution to utilizing marketing functions to drive performance improvement. The order effects witnessed throughout the hypotheses under test imply a sequence of strategies: digital capabilities first build marketing services; this buildup is aided by digital knowledge; and investment in innovation guarantees that these marketing advantages translate into measurable performance benefits. Therefore, banks gain the most when all three dimensions–capability, knowledge, and innovation–are in unison. This study contributes to and deepens the existing literature by defining the interdependence between technological infrastructure, marketing usage, and firm-level performance in the banking environment. In this context, the real contribution of digital transformation in banks is not technology adoption but how the same technologies are strategically embedded in core business processes.

Theoretical and Societal Implications

This study theoretically contributes to the understanding of digital transformation in banking by using the dynamic capability theory to investigate how digital capabilities influence firm performance through the mediating effect. The model also showed that digital transformation knowledge and digital innovation investment are moderating variables that make these relationships conditional. Emphasizing marketing services as a key factor in the chain between investment in digital technologies and its results, this study points out that digital technologies become valuable only when these functions are deliberately integrated into basic business processes (including customer communication, service differentiation, and market interaction). The model expands current knowledge by empirically validating the sequential relationship between capabilities, knowledge, innovation, and outcomes within an institutional financial context. It focuses on the role of internal learning and innovation readiness in enabling banks to gain maximum benefit from digital means. Regarding social principles, the greater the digital capacity of the banking system, the better the incorporation in the financial world, namely, better access to the underbank population via mobile banking, self-service, and facilities applicable to remote transactions. This also aligns with the national and global ambitions of digital parity among nations and emerging economies in particular. Further, banks

that go digital with marketing and service processes reduce their reliance on physical infrastructure and paper transactions, which aids in sustainability and operational resilience.

Managerial Implications

The study underscores that digital capabilities cannot be considered as easily as IT infrastructure, yet as strategic assets that must be embedded in marketing and service operations to drive firm performance in the banking sector. Managers should prioritize integrating digital resources such as data-based communication solutions, automated contact systems, and mobile-delivered service applications, which enable increased customer targeting and engagement across different channels. By developing marketing services, banks can translate their investment in digital technology into actual performance increases in terms of increased customer acquisition, retention, and satisfaction. To achieve this, internal teams must possess sufficient digital transformation awareness, technical competence, strategic alignment, and market understanding to effectively deploy digital solutions. Banks with a digitally educated employee base are better suited to address regulatory changes, customer demands, and competitive intensity.

Moreover, focused investments in digital innovation, such as AI-driven personalization, machine learning for customer behavior analysis, and omni-channel experience platforms can leverage the return on marketing services. These innovations enable banks to differentiate and remain nimble in a rapidly changing digital financial environment. Therefore, bank managers should embrace an end-to-end perspective on digital transformation encompassing not only technology acquisition, but also employee training, cross-functional alignment, and long-term innovation preparedness to maintain growth and performance.

Limitations and Future Recommendations

First, it applied a cross-sectional design, which has the limitation of not enabling causality. Future researchers should conduct longitudinal studies to examine how the dynamics between digital capability, marketing services, and firm performance evolve over time in the banking sector. Second, while this study focuses on the mediating role of marketing services and the moderating effect of digital transformation knowledge and innovation investment, other strategic and environmental variables may be included in subsequent models in the future. For instance, organizational agility or customer data analytics ability may be employed as potential moderators to provide a better understanding of banks' performance outcomes during digital transformation. In addition, it only used commercial banks in the Lahore region as data sources. This is as interesting as the topic of digital transformation of banks; however, the results can be generalized less. In the future, researchers will be able to gather information on more diverse banks, such as Islamic banks, microfinance, and fintech banks in other metropolitan cities in Pakistan, such as Karachi, Islamabad, and Faisalabad, and can also obtain information from other developing countries to make more comparisons. Finally, the study utilized self-reported data that are prone to response bias. Triangulation-based methods, such as interviews or secondary data, can be used in the future to confirm the predictions. This would increase the reliability of the data.

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