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Innovation in Banking Sector of Pakistan and its Impact on Financial Performance: A Case Study of Banks in Khyber Pakhtunkhwa

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Abstract

This study aims to examine the impact of various innovation factors on the financial performance of banking sector. The key innovation factors considered include process innovation, product innovation, digital financial innovation, marketing innovation, and organizational innovation. Data for the research were collected from 220 managerial-level employees working in banks, Khyber Pakhtunkhwa, Pakistan. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The findings of the current study reveal that Process innovation, product innovation, digital financial innovation, marketing innovation and organization innovation play a crucial role in enhancing the financial performance of banks. Additionally, these all variables are significant contributors to improving a bank's financial outcomes/performance. The research offers several policy implications for commercial banks in Pakistan, emphasizing the importance of the mentioned innovations to improve financial performance.

Keywords: Process innovation, product innovation, marketing innovation, financial performance, Digital financial innovation, and organizational innovation.

Introduction

The global market is facing significant challenges due to rapid technological advancements and intensified global competition. Companies are struggling to implement the necessary changes to gain a competitive advantage, making innovation a key factor for success. Innovation is widely recognized as a driving force for sustaining a firm's competitive edge (Lookman, Pujawan, &

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Nadlifatin, 2023). To address hyper-competition and improve business performance, companies are increasingly adopting innovation in their business strategies. By implementing innovative strategies, businesses can mitigate global challenges and enhance their overall performance. Research indicates that innovation is not only essential for achieving a competitive edge but also plays a central role in economic growth (Wadho & Chaudhry, 2018). In today's globalized world, innovation is a crucial tool for survival in competitive markets, with creative capabilities significantly boosting a company's competitiveness and performance (Bockova & Zizlavsky, 2016).

Innovation encompasses the application of new ideas or concepts related to products, processes, services, marketing, and organizational structures. The Galindo-Rueda (2013) mentioned four primary categories of innovation: process innovation, product innovation, organizational innovation, and marketing innovation. Process innovation refers to the introduction of new methods and business practices, which can enhance production efficiency (Stojcic, Hashi, & Orlic, 2018). Product innovation focuses on developing improved goods that better meet customer needs, thereby broadening product offerings and attracting consumers (Sinaga, Lumban Gaol, & Ichsan, 2021). Marketing innovation involves implementing new strategies to enhance product promotion and attract new customers, which ultimately boosts corporate performance (Szłapka, Stachowiak, Batz, & Fertsch, 2017). Finally, organizational innovation refers to creating new and improved organizational structures that enhance profitability by improving management practices, which positively influence the working environment and productivity (Gault, 2018).

Several studies have examined the impact of innovation on corporate performance across both developed and developing economies, yielding mixed results. While some studies highlight a positive correlation, others suggest an inverse relationship between innovation and firm performance (Hu & Chen, 2023; Huang, Chiu, Lin, & Chen, 2018; Valdez-Juárez, Ramos-Escobar, & Borboa-Álvarez, 2023). However, previous research has often overlooked the role of digital financial innovation, which plays a pivotal role in transforming financial systems within organizations. Digital financial innovation offers various advantages that can significantly improve a company's profitability, yet its importance has been largely neglected in past studies.

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To address this gap, the present research explores the influence of different innovation factors including process, product, marketing, organizational, and digital financial innovation on the financial performance of the banking sector in Pakistan. Given the banking sector's critical role in the country's economy, it is essential to assess whether innovation contributes to enhancing the performance of both conventional and Islamic banks. This study aims to provide a comparative analysis of the impact of innovation on financial performance within the Pakistani banking sector.

Literature Review:

Innovation is a multi-dimensional concept that plays a critical role in improving firm performance, particularly in the banking sector. According to the Galindo-Rueda (2013) innovation encompasses the introduction of new products, services, processes, marketing strategies, and organizational structures that collectively enhance an organization's competitiveness (Szłapka et al., 2017). Urban and Verachia (2019), highlight innovation as a key factor in organizational management, with several dimensions influencing performance. Specifically, five significant types of innovation relevant to the banking sector have been identified: digital financial innovation, product innovation, process innovation, marketing innovation, and organizational innovation.

Types of Innovation

Process Innovation: It refers to the introduction of new methods or processes that enhance the firm's operational efficiency, leading to improved productivity (Stojcic et al., 2018). In banking, process innovations often involve streamlining back-office operations, automating transactions, or optimizing workflows to deliver services more efficiently. Studies have consistently shown that process innovation contributes to overall performance by reducing costs and increasing customer satisfaction (Tuan, Nhan, Giang, & Ngoc, 2016).

Product Innovation: It is the development of new or enhanced products that better meet the needs of customers (Sinaga et al., 2021). While this form of innovation can spur revenue growth and profitability (Eggert, Thiesbrummel, & Deutscher, 2014), some studies, such as those by

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Tuan et al. (2016) and Karabulut (2015), suggest that product innovation does not always have a direct positive impact on firm performance, particularly in sectors like banking, where regulatory constraints and customer preferences may limit its effectiveness.

Digital Financial Innovation: It involves integrating technology into a firm's financial systems, including the development of new processes, services, and products that leverage technological advancements (Klapper, El-Zoghbi, & Hess, 2016). It has been noted as a critical factor in shaping financial operations such as risk and asset management, ultimately contributing to improved productivity (Rajapathirana & Hui, 2018). This type of innovation has become particularly important in the banking sector, where financial technology is transforming traditional banking models (Agufa, 2016). Research by Ruan and Li (2009) and Abir and Chokri (2010) further emphasized that digital financial innovation can positively affect firm performance by increasing efficiency and profitability.

Marketing Innovation: It entails the adoption of new strategies to promote products and services (Szłapka et al., 2017). In the banking sector, innovative marketing strategies such as personalized customer engagement through digital channels have been shown to enhance brand loyalty and market reach. However, research by Karabulut (2015) indicated no significant relationship between marketing innovation and firm performance, highlighting that the effectiveness of marketing innovation may vary depending on the context.

Organizational Innovation: It involves changes in the structure or processes within an organization aimed at improving its effectiveness and overall performance (Gault, 2018). Makanyeza and Dzvuke (2015) and Tuan et al. (2016) stressed the importance of organizational innovation, particularly in restructuring and re-engineering operations to enhance efficiency. Organizational changes often lead to a more agile and responsive banking system, improving service delivery and financial outcomes.

Impact of Innovation on Firm Performance

Extensive research has demonstrated the significant role of innovation in enhancing firm performance. Studies have shown that innovations in digital finance, product, marketing,

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processes, and organizational structures significantly contribute to financial success by improving operational efficiency and customer satisfaction (Ha, Nguyen, Luan, & Tam, 2024; Klapper et al., 2016; Muharam, Andria, & Tosida, 2020; Urban & Verachia, 2019; Wu & Huang, 2022). Key financial indicators, such as return on assets (ROA), return on equity (ROE), and net profit margins, are commonly used to assess the impact of innovation on performance. For example, Tuan et al. (2016) and Kalkan, Bozkurt, and Arman (2014) found that marketing, process, and organizational innovations positively impact financial performance, while product innovation showed mixed results. In contrast, research by Stojcic et al. (2018) highlighted that some innovations can negatively influence firm performance, depending on how they are implemented and managed.

In the context of Pakistan's banking sector, these innovations are particularly crucial in driving financial performance. The sector faces challenges related to customer service efficiency, regulatory compliance, and technological adoption, making innovation an essential tool for maintaining competitiveness and profitability. Digital financial innovation, in particular, is transforming traditional banking practices, enabling institutions to offer more flexible and accessible financial products and services. Furthermore, process and organizational innovations are enhancing the internal capabilities of banks, allowing them to respond more effectively to market demands and regulatory pressures.

In summary, innovation, whether in digital finance, products, processes, marketing, or organizational structures, plays a vital role in enhancing the financial performance of banks in Pakistan. By adopting innovative practices, banks can improve both their operational efficiency and their ability to meet customer needs, leading to sustainable growth and improved profitability.

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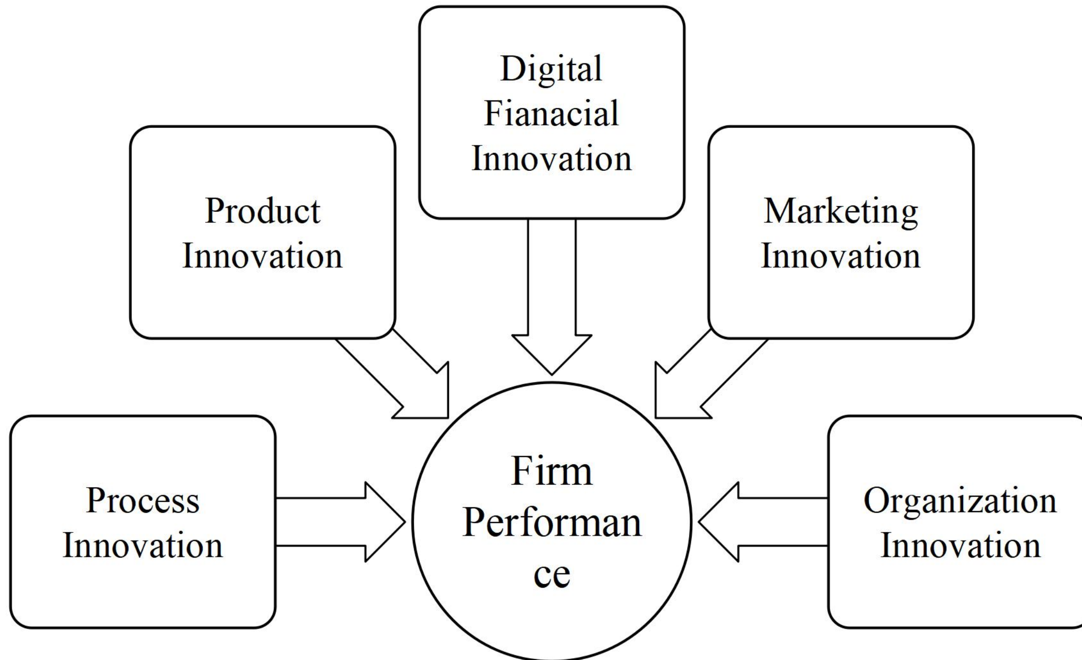
Conceptual Framework



Author's own Elaboration

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Hypotheses of the Study

In light of the above discussion the following hypotheses have been drawn:

H1: There is a significant impact of process innovation on the firm performance.

H2: There is a significant impact of product innovation on the firm performance.

H3: There is a significant impact of digital financial innovation on the firm performance.

H4: There is a significant impact of marketing innovation on the firm performance.

H5: There is a significant impact of organization innovation on the firm performance.

Research Methodology

The primary objective of this research is to assess the impact of innovation on the performance of firms in the banking sector. A deductive approach was employed to achieve this objective. Data were collected from employees holding managerial positions within the banking sector, ensuring that respondents had a comprehensive understanding of the financial performance of their respective institutions. Both conventional and Islamic banks in Khyber Pakhtunkhwa, Pakistan, were selected for the study. A non-probability purposive sampling technique was used to draw the sample from the target population. Out of the 312 distributed questionnaires, 220 valid responses were received and utilized for analysis.

The study focused on five key innovation factors: process innovation, product innovation, digital financial innovation, marketing innovation, and organizational innovation. Financial performance was used as the dependent variable to measure the firm performance in the banking industry. All the latent variables were assessed using an adapted questionnaire, drawing from previous research (Al-Dmour, Al-Dmour, & Rababeh, 2021; Mabenge, Ngorora-Madzimure, & Makanyeza, 2022).

Results and Analysis

The collected data were first examined for accuracy, with outliers and missing data removed. Following this, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the research framework.

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Demographics

The demographic analysis revealed that, out of the 220 respondents, 170 were male and 50 were female. The majorities of respondents, totaling 144, were aged 45 and above, followed by 52 participants aged between 35 and 45, while the remaining 24 respondents fall in 25 to 35.

Measurement model testing

Before testing the proposed hypotheses, the outer measurement model was assessed. This involved, evaluating the reliability of the research instrument and the validity of the variables. Table 1 presents the results for construct reliability and convergent validity. Construct reliability and validity were measured using Cronbach's alpha (α), composite reliability (CR), and Average Variance extracted (AVE). The threshold values for both α and CR is 0.7, while 0.5 for AVE. As shown in Table 1, the values of α, CR and AVE for all variables are in acceptable range, thus it validates that the instrument is reliable and validate.

Table.1. Construct Reliability and Validity

Variables	α	CR	AVE
Process innovation (PI)	0.731	0.734	0.532
Product innovation (PRI)	0.879	0.884	0.745
Digital financial innovation (DFI)	0.810	0.816	0.522
Marketing innovation (MI)	0.826	0.835	0.662
Organization innovation (OI)	0.771	0.783	0.593

CR= Composite Reliability, AVE= Average Variance Extracted

Once convergent validity was confirmed in the measurement model, discriminant validity was evaluated. Discriminant validity refers to the distinctiveness of each construct. It can be assessed using three criteria: Fornell & Larcker, Cross Loadings, and HTMT ratios. Table 2 presents the Fornell & Larcker results, which indicate that all diagonal values exceed the off-diagonal values. This confirms that discriminant validity has been established in the study.

Table.2. Discriminant Validity (Fornell-Larcker criterion)

Variables	PI	PRI	DFI	MI	OI	FP
Process innovation	**0.711**					
Product innovation	0.585	**0.812**				
Digital financial innovation	0.566	0.741	**0.789**			
Marketing innovation	0.425	0.679	0.687	**0.755**		
Organization innovation	0.389	0.744	0.544	0.572	**0.879**	
Firm Performance	0.399	0.539	0.422	0.456	0.752	**0.758**

PI= Process Innovation, PRI= Product Innovation, DFI= Digital Financial Innovation, MI= Marketing Innovation, OI= Organization Innovation and FP= Firm Performance

Another criterion for evaluating discriminant validity is the HTMT ratio. For the present study the researcher has taken 0.9 threshold value for HTMT. Table 3 presents the HTMT results, showing that all ratios are below the threshold, confirming discriminant validity.

Table.3. Hetrotrait-Monotrait Ratio HTMT (0.9)

Variables	PI	PRI	DFI	MI	OI	FP
Process innovation						
Product innovation	0.801					
Digital financial innovation	0.758	0.677				
Marketing innovation	0.833	0.784	0.834			
Organization innovation	0.489	0.485	0.457	0.723		
Firm Performance	0.523	0.812	0.658	0.423	0.653	

PI= Process Innovation, PRI= Product Innovation, DFI= Digital Financial Innovation, MI= Marketing Innovation, OI= Organization Innovation and FP= Firm Performance

The current model demonstrates an R^2 value of 0.79, indicating that 79% of the variation in the dependent variable is explained by the independent factors (Table 4). Additionally, the Q^2 value of 0.501 confirms the model's predictive relevance. The model's overall fit was further

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validated by the satisfactory values of SRMR (0.061) and NFI (0.921), which meet the established criteria-SRMR being less than 0.08 and NFI exceeding 0.90-indicating that the model is well-suited for the analysis.

Table.4. Predictive Relevancy and Accuracy

	R^2	Adj. R^2	Q^2	SRMR	NFI
Firm Performance	0.790	0.798	0.501	0.061	0.921

Source: Author's own Elaboration

Following the validation of the measurement model, the proposed hypotheses were tested using the PLS-SEM technique. Table 5 presents the hypothesis testing results, indicating that all proposed hypotheses i.e. H1, H2, H3, H4, and H5 were accepted. This confirms that process innovation, product innovation, digital financial innovation, marketing innovation, and organizational innovation play a crucial role in enhancing the firm performance of banks operating in Khyber Pakhtunkhwa, Pakistan. These findings highlight the significant impact of innovation on the financial performance of the banking sector in the region.

Table.5. Path Coefficient

Variables	T-Statistic	P-Value	Decision
Process innovation → Firm Performance	6.124	0.000	Accepted
Product innovation → Firm Performance	5.875	0.000	Accepted
Digital financial innovation → Firm Performance	3.899	0.001	Accepted
Marketing innovation → Firm Performance	8.214	0.000	Accepted
Organization innovation → Firm Performance	7.352	0.000	Accepted

Source: Author's own Elaboration

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Conclusion and Discussion

The study aimed to investigate the impact of innovation on the financial performance of banks operating in Khyber Pakhtunkhwa. As a key component of Pakistan's economy, the financial sector, particularly the banking industry, holds significant importance. However, despite its critical role, there has been limited research in this area. Given the rapid global changes driven by emerging industries, understanding the influence of innovation on sectoral performance has become increasingly essential.

This research focused on five innovation factors; process innovation, product innovation, digital financial innovation, marketing innovation, and organizational innovation and examined their impact on the financial performance of banks in Khyber Pakhtunkhwa. The results indicated that all these factors are instrumental in improving bank performance. Additionally this result communicates significance of the innovation factors on financial performance of banks. Furthermore, these result is supported by various previous research studies e.g. (Ha et al., 2024; Kalkan et al., 2014; Klapper et al., 2016; Muharam et al., 2020; Tuan et al., 2016; Urban & Verachia, 2019; Wu & Huang, 2022). In light of the results of the current study and previous research study results, it is recommended that bank managers prioritize these innovation factors. Additionally, stakeholders should concentrate on fostering these innovations within the banking sector to drive better financial outcomes.

Limitation and Future Direction

This research is not without its limitations. It focuses solely on the banking sector in Pakistan, particularly in Khyber Pakhtunkhwa. Future research could expand to other industries such as Shipping industry, pharmaceuticals and textiles etc. Additionally, the role of innovation could be compared between Islamic and conventional banks, as Islamic banking is an emerging subsector in Pakistan. Furthermore, this study examined only five innovation factors, while previous research has identified several other factors that could be explored in future studies to gain a more comprehensive understanding of innovation's impact on financial performance.

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