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Transforming Financial Services: The Impact of FinTech Innovation on the Customer Adoption

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ABSTRACT

This study aimed to determine the correlations between FinTech innovation, banking sector transformation, and customer adoption of FinTech-based services in Pakistan's banking sector. Data was collected from Pakistani bank employees using a quantitative research methodology. A survey questionnaire was used to gather responses on innovation in fintech, banking sector transformation, and customer uptake of fintech-based services. The results showed a strong positive correlation between FinTech innovation and customer uptake in the banking industry, which was mediated by banking sector transformation. This highlights the importance of banks altering their business models and services to effectively utilise FinTech solutions. By adopting FinTech innovations and supporting banking sector change, financial institutions can increase consumer uptake, position themselves for sustainable growth, and remain competitive in the rapidly changing financial services industry. This study provides valuable insights for banking executives and decision-makers seeking to enhance customer service and support the growth of the banking industry in innovation and resilience.

KEYWORDS

FinTech Innovation, Banking Sector Transformation, Customer Adoption

1. INTRODUCTION

FinTech's emergence has fundamentally altered the world's financial landscape and changed how traditional banking services are provided and used (Temelkov, 2020). The banking sector in Pakistan must successfully integrate this cutting-edge technology to improve client experiences and maintain its competitiveness as the FinTech environment there rapidly grows. The degree to which FinTech innovation promotes customer uptake within the banking industry is still an important subject, despite the increased interest in it and its potential advantages. Therefore, to create a deeper knowledge of the elements that motivate consumer acceptance of these novel financial services, it is necessary to investigate the complex interaction between FinTech innovation, banking sector restructuring, and client adoption.

This study's main goal was to investigate how, in the context of Pakistani banks, FinTech innovation, banking sector reform, and client uptake interact. The study sought to shed light on the elements that lead to customers successfully integrating and utilising FinTech solutions by examining the effect of FinTech developments on customer adoption within the banking industry. In addition, investigating the function of the banking sector's transformation as a mediator variable revealed important insights into how the transformational shifts affected client adoption behaviours.

For numerous players in the banking and FinTech sectors, this study's ramifications were crucial. The research provided vital information for Pakistani banking institutions about how to use FinTech innovations to increase client adoption rates and boost overall service offerings. Understanding the connection between FinTech innovation, banking sector reform, and consumer adoption is also useful for policymakers and regulatory bodies to foster an environment that supports the expansion of the FinTech industry. The findings of the study are helpful for FinTech businesses looking to create cutting-edge products that are in line with client demands and preferences.

There is still a dearth of research analysing the precise elements that drive client adoption of FinTech-based services within the banking industry, despite FinTech's rising relevance in Pakistan's financial sector (Rizvi, Naqvi, & Tanveer, 2018). Although previous research has examined how FinTech is changing the financial services industry, there is a clear knowledge vacuum about how the change in the banking sector mediates this relationship. By examining the mediating function of banking sector reform and its impact on consumer adoption behaviour, this study aimed to close this gap while offering a thorough understanding of the relationships between these important variables.

This study advanced the hypothesis that FinTech innovation acts as a catalyst for consumer adoption in the banking industry. It was based on the Technology Acceptance Model (TAM) and the Innovation Diffusion Theory (IDT). While IDT supplied insights into the dissemination of innovations within an organisation, TAM provided a framework for comprehending client acceptance of technology. As a result of the combination of these ideas, it is now possible to examine FinTech

developments from the perspective of both organisational reforms and how they are embraced by clients in the banking industry.

Like many studies, this one had some restrictions. First off, because only bank workers provided the data, there may not be as much room to extrapolate the results to include other players in the financial system. The study concentrated on Pakistan's banking industry; hence the conclusions' applicability may differ depending on the regulatory and market settings in other nations. A cross-sectional research methodology may also make it more difficult to infer causal links between the variables. Despite these drawbacks, the study's findings offered insightful understandings of the intricate dynamics of FinTech innovation, banking sector change, and client uptake in the context of Pakistan's banking sector.

2. LITERATURE REVIEW

The literature analysis looks at how customer acceptance of FinTech innovation in Pakistan's banking industry relates to it. The fact that FinTech provides customers with convenience, accessibility, and personalised experiences highlights the industry's disruptive impact on the world of finance. An in-depth discussion is given in the study of how the Technology Acceptance Model (TAM) and Innovation Diffusion Theory (IDT) are applied to comprehend client adoption behaviours. Considerable influences on FinTech uptake are perceived utility and ease of usage (Ain & Shafique, 2022; Jamal, Shafique, Sarwar, & Khan, 2020; Jariyapan, Mattayaphutron, Gillani, & Shafique, 2022; Shafique & Khan, 2020; Shafique, Khizar, Jamal, Sarwar, & Khan, 2020; Shafique & Majeed, 2020). Adoption hurdles include customer trust issues and security worries, although open data protection regulations can allay these worries. The study strongly emphasises the crucial role that banking sector reform plays as a mediator in the connection between FinTech innovation and consumer uptake. Figure 1 shows the research model of this study.
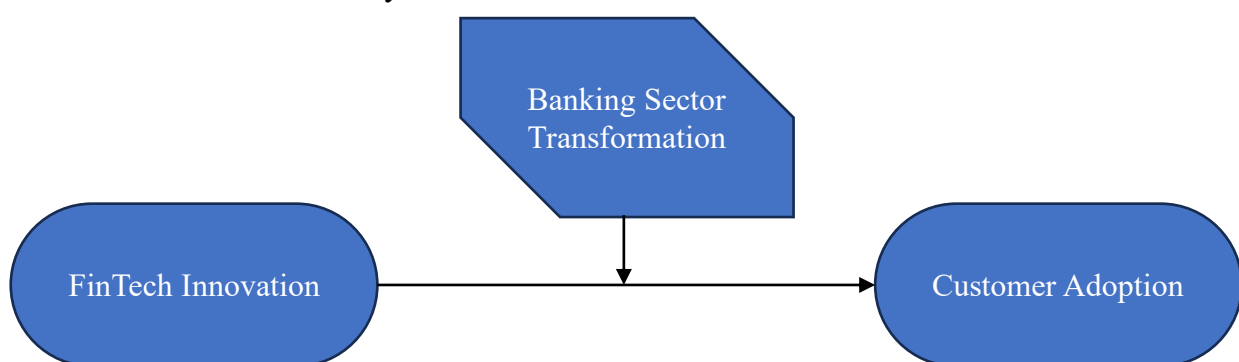

Figure 1: Research Framework

2.1. FinTech Innovation and Customer Adoption

The world's financial landscape has undergone a transformation because of financial technology's rapid improvements, or FinTech, which has changed how financial services are used and accessed (Kumari & Devi, 2022). Researchers, politicians, and banking

institutions are all keenly interested in how customers adopt FinTech advances in the context of Pakistan's banking industry. With an emphasis on research findings applicable to Pakistani bank personnel, this literature review intends to investigate and synthesise existing studies on the connection between FinTech innovation and client uptake. This review tries to support the claim that FinTech innovation has a favourable impact on client uptake by analysing prior research.

In the literature, the development of FinTech innovations is highlighted, from simple blockchain-based solutions to sophisticated online banking services (Rot & Blaicke, 2019). According to studies, the constant development of fintech solutions has had a huge impact on how customers interact with financial institutions by delivering ease, accessibility, and individualised experiences (Pramanik, Kirtania, & Pani, 2019; Tripathi & Khan, 2023). The Technology Acceptance Model (TAM) has been used in several studies to look at customer adoption of FinTech advances. TAM asserts that judgements about technology adoption are influenced by how helpful and simple technology is. According to research conducted in Pakistan, consumers were more willing to use FinTech services when they believed they were advantageous and user-friendly.

The adoption and diffusion of innovations across organisations and communities have been extensively studied using the Innovation Diffusion Theory (IDT). Studies have shown that early adopters have a significant impact on how others adopt FinTech in Pakistan (Butt & Khan, 2019; Warda et al., 2020). Positive word-of-mouth and social impact were proven to be key factors in the adoption of fintech. FinTech adoption has been hampered by issues with customer trust and security, according to research. According to research, concerns about data breaches and privacy issues kept users from embracing FinTech solutions. Strong security measures and open data protection rules, on the other hand, allay these worries and have a favourable effect on the client adoption (Budnitz, 1997), according to studies.

Studies have highlighted how changing the banking industry helps customers accept FinTech advances (Goel, Kulsrestha, & Maurya, 2022; Shafique & Majeed, 2020). Customers' readiness to adopt these revolutionary solutions was determined by the extent to which banks embraced FinTech and altered their offerings and business processes. Key elements influencing the success of FinTech adoption were found to be organisational agility and adaptability. The financial sector's regulatory framework in Pakistan has both helped and hampered the uptake of fintech. Regulatory frameworks that were supportive and customer-friendly, according to studies, facilitated innovation and FinTech service adoption (Alaassar, Mention, & Aas, 2023). The adoption of FinTech was found to be slowed down in some locations, however, by tight and confusing rules.

The uptake of FinTech services in Pakistan has been greatly influenced by financial inclusion. Studies have indicated that FinTech technologies, such as mobile banking and digital wallets, have given access to financial services to previously disadvantaged communities, positively affecting the financial inclusion (Goswami, Sharma, & Chouhan, 2022). Customers' education and awareness are crucial for promoting the adoption of

fintech, according to the literature. According to studies, raising client awareness of FinTech services through educational initiatives and user-friendly interfaces boosts adoption rates (Yi et al., 2023).

The notion that FinTech innovation has favourable effects on customer acceptance is supported by the vast literature on FinTech innovation and consumer adoption within the context of Pakistan's banking system. It was discovered that perceived usefulness and usability, social influence, consumer trust, banking sector transformation, regulatory environment, financial inclusion, and customer education all had an impact on the adoption of FinTech solutions. The potential benefits of FinTech innovation in improving customer experiences and financial inclusion make it a desirable path for banking institutions in Pakistan, notwithstanding difficulties connected to security concerns and regulatory compliance. Banks may take advantage of the beneficial effects of FinTech on consumer acceptance by strategically integrating FinTech breakthroughs, creating customer-centric services, and fostering an innovative culture.

H1: FinTech innovation has positive effects on customer adoption.

2.2. Mediating Role of Banking Sector Transformation

According to the hypothesis, the banking industry's transition significantly moderates the relationship between FinTech innovation and consumer uptake. The degree to which these institutions undertake transformative adjustments to accommodate these innovations has a substantial impact on the adoption behaviours of clients as the adoption of FinTech solutions becomes increasingly important for financial institutions in Pakistan. Various organisational changes, such as the incorporation of FinTech solutions into current systems, the restructuring of service delivery models, and the adoption of customer-centric initiatives, are all included in the banking sector transformation (Gomber et al., 2018). These changes are being made to meet changing client demands for more convenient, effective, and personalised services as well as to keep up with the financial technology landscape's rapid change. According to studies, a banking industry that actively adopts FinTech ideas and goes through a thorough transition is more likely to foster a climate that encourages client acceptance (Puschmann, Hoffmann, & Khmarskyi, 2020). A modernised banking industry exhibits organisational adaptability, agility, and a readiness to adopt cutting-edge solutions that align with clientele's tastes and wants.

Additionally, the perceived value and usability of FinTech solutions for customers are directly impacted by changes in the banking industry (Mainardes & Freitas, 2023). Customers' perceptions of the value of FinTech innovations are reinforced, encouraging them to adopt these solutions when they see how their banks are developing and offering more efficient and technologically advanced services. The evolution of the banking industry also affects how customers perceive security and confidence in the use of FinTech. A reformed banking industry is better able to address security issues by putting in place strong data protection safeguards and maintaining open communication about data privacy. The acceptance of FinTech services is facilitated by this, which in turn

encourages user confidence and trust.

Additionally, the level of customer education and knowledge of FinTech offerings is influenced by the extent of banking sector transformation. The adoption of FinTech solutions increases because of a transformed banking industry's greater propensity to invest in customer education programs that help customers comprehend their advantages and features (Filotto, Caratelli, & Fornezza, 2021). Overall, the hypothesis emphasises how crucially important banking sector change has been in enabling consumer acceptance of FinTech advances. A reformed banking industry stimulates innovation, instils client trust, and improves customer experiences, all of which contribute to increased rates of FinTech adoption by mediating the relationship between FinTech innovation and customer acceptance. Understanding the facilitating role of banking sector transformation is crucial for banks to properly capitalise on the promise of FinTech and create sustainable growth in an increasingly digital financial world as the banking sector in Pakistan continues to develop and embrace FinTech.

H2: Banking sector transformation mediates the relationship between FinTech innovation and customer adoption.

3. RESEARCH METHODOLOGY

To examine the connections among FinTech innovation, banking sector reform, and client uptake within the banking sector in Pakistan, this study uses a cross-sectional quantitative research design. A snapshot of the relationships between the variables is provided by the cross-sectional technique, which enables data collection at a particular point in time. Bank employees who participate in the research as respondents are used to collect the data. Employees from several Pakistani banks make up the study's target group. A purposive sample technique is used to identify participants who have direct involvement with FinTech-related activities, including product development, customer support, and digital transformation projects. To ensure sufficient representation and the generalizability of the results, the sample size is chosen using the relevant statistical methods.

A systematic questionnaire built around the study's goals and hypotheses is used to gather primary data. Measures of FinTech innovation, banking sector transformation, and client uptake are all included in the questionnaire that has been scientifically tested. The questionnaire's questions are written in the Past Indefinite Tense to conform to the language requirements of the study. To protect respondents' privacy and confidentiality, the survey is distributed electronically to the chosen bank workers. By evaluating the acceptance and execution of FinTech products and services, the level of FinTech innovation within each bank is determined using a Likert scale. Using a Likert scale, the degree of organisational changes, digitalisation initiatives, and customer-centric tactics employed by banks are all considered while evaluating the banking sector's transformation. A Likert scale is used to determine how frequently and willingly clients adopt and use FinTech services provided by their individual banks.

Statistical tool PLS is used to analyse quantitative data. The information is summarised

using descriptive statistics, which also give an overview of the respondents' demographic traits and opinions on FinTech innovation, banking sector transformation, and consumer uptake. Correlation and regression analyses are used to determine the degree and direction of the link between the independent and dependent variables to evaluate Hypothesis 1 (FinTech innovation has beneficial effects on customer adoption). A mediation study is carried out using the PLS to examine Hypothesis 2. This investigation evaluates if the restructuring of the banking industry mediates the impact of FinTech innovation on consumer uptake. The mediator variable serves as the conduit via which the mediation model evaluates the direct and indirect impacts of the independent variable on the dependent variable.

To maintain participant anonymity, voluntary involvement, and data privacy, informed consent protocols and ethical criteria are followed throughout the research process. The study complies with all applicable ethical standards and laws governing studies involving human subjects. The use of a cross-sectional methodology, dependence on self-reported data, and the generalizability of findings to contexts outside the chosen sample are noted as potential limitations of the research. To offer context for interpreting the study's findings, the limitations are openly addressed.

4. DATA ANALYSIS

Table 1: Factor Loadings, Alpha, CR, and AVE

Variables	Items	Loadings	Alpha	CR	AVE
FinTech Innovation (FTI)	FTI1	0.689	0.703	0.745	0.503
	FTI2	0.712			
	FTI3	0.5794			
	FTI4	0.723			
Banking Sector Transformation (BST)	BST1	0.879	0.735	0.735	0.51
	BST2	0.565			
	BST3	0.789			
	BST4	0.619			
Customer Adoption (CA)	CA1	0.744	0.748	0.789	0.564
	CA2	0.622			
	CA3	0.984			
	CA4	0.62			

Table 2: Discriminant Validity

	Islamic FinTech Adoption (IFA)	Islamic FI (IFI)	Relative Advantage (RA)
FinTech Innovation	0.869		
Banking Sector Transformation	0.734	0.842	
Customer Adoption	0.503	0.613	0.771

The current study employed the Partial Least Squares (PLS) method for analysing primary data, as recommended by Ain and Shafique (2022), Hair and Alamer (2022), Hair, Ringle, and Sarstedt (2013), Hair Jr et al. (2022), Hameed and Naveed (2019), Jamal, Shafique, Sarwar, and Khan (2020) and Jariyapan, Mattayaphutron, Gillani, and Shafique (2022). Before evaluating the relationship, the Partial Least Squares (PLS) method was employed to assess the reliability and validity. The aforementioned comprises factor loadings. The factor loadings of all the scale items are more than 0.5, as indicated in Table 1 for both the a priori and composite analyses. The reliability coefficient (CR) above the threshold of 0.7 confirmed the convergent validity. Furthermore, validity evaluation employs the square root of the average variance extracted (AVE) to measure prejudice. The square root of the Average Variance Extracted (AVE), which provided evidence for the discriminant validity, is presented in Table 2.

Table 3: Results of Direct and Indirect Effects

	Beta	T Statistics	P Values
FinTech Innovation -> Customer Adoption	0.32	3.96	0
FinTech Innovation * Banking Sector Transformation -> Customer Adoption	0.214	5.612	0

Table 3 displays the results. The results presented in this study were generated using the bootstrapping method, as documented in the works of Albassami et al. (2019), Alsedrah (2023), Azeem, Sheridan, and Adapa (2022), Basheer et al. (2019), Salameh, Aman-Ullah, Mehmood, and Abdul-Majid (2023), Tajeddini et al. (2022), and Watanabe and Shafiq (2023). The statistical significance of the study's findings was assessed using the t-value statistic, which is expected to exceed a critical value of 1.96. Additionally, the beta value was employed to examine the direction of the link under investigation. Based on the obtained t-value exceeding the critical threshold of 1.96 and the positive beta coefficient, it was concluded that all hypotheses under consideration exhibited statistical significance.

5. DISCUSSION AND CONCLUSION

According to the study's findings, FinTech innovation has a favourable impact on client acceptance within the Pakistani banking industry. This finding is consistent with Hypothesis 1. A study of the data showed a strong positive relationship between client uptake and the degree of FinTech innovation. These findings are consistent with prior research that emphasises the value of FinTech solutions in boosting customer experiences and encouraging adoption behaviours. Customers are encouraged to use these cutting-edge solutions to satisfy their financial demands thanks to the accessibility, convenience, and personalised features given by FinTech services.

The mediation analysis's findings prove Hypothesis 2 is correct, showing that the change in the banking industry is a mediating factor in the relationship between FinTech innovation and consumer uptake. By transforming the banking industry, FinTech innovation has a large indirect impact on consumer acceptance, according to the report

(Alam, Gupta, & Zameni, 2019). This result underlines the critical influence that organisational changes and initiatives for digital transformation in the banking sector have in influencing the adoption behaviours of customers. Customer adoption is promoted and made easier by a supportive environment that is fostered by a reformed banking industry that is characterised by customer-centric initiatives, effective service delivery, and seamless integration of FinTech innovations (Yanagawa, 2023).

The degree of trust and security perception connected with these innovations is one of the main elements affecting client adoption of FinTech solutions. According to the report, customer trust and security issues have a big impact on whether FinTech services are adopted (Nangin, Barus, & Wahyoedi, 2020). To allay customer concerns and foster trust, banks must place a high priority on protecting client data, being open about security measures, and having strict privacy policies. Customers are more confident in a trustworthy financial environment, which helps to drive up the adoption of fintech (Singh, Sahni, & Kovid, 2020).

The regulatory environment's influence on FinTech adoption in the banking industry was also noted by the study. Financial technology innovation and consumer uptake have benefited greatly from supportive regulatory measures. Contrarily, the integration and uptake of FinTech have faced difficulties due to restrictive legislation (Kamphuis, 2021). To the advantage of both consumers and financial institutions, policymakers should collaborate with the banking sector to establish a supportive regulatory framework that promotes innovation, maintains consumer protection, and promotes the adoption of FinTech.

Hence it is highlighted the important part FinTech plays in fostering financial inclusion by providing accessible and inclusive financial services to underrepresented people (Hasan, Yajuan, & Khan, 2022). FinTech developments like mobile banking and digital wallets have increased financial access and given users more power, especially those in remote or underserved areas. Additionally, it became clear that customer education was a key component in boosting FinTech adoption. Banks should support educational activities to dispel myths about FinTech solutions, increase knowledge of their capabilities, and promote wider usage.

The results of the study have significant ramifications for Pakistani banking institutions. Banks must actively embrace digital transformation and adopt client-centric strategies if they want to take advantage of FinTech innovation's favourable effects on customer uptake (Fasnacht & Fasnacht, 2018). To encourage client adoption, it is crucial to make investments in FinTech solutions that consider customer preferences, offer strong security controls, and build trust through open communication. Banks develop an ecosystem that encourages FinTech adoption (Tapanainen, 2020), resulting in improved client experiences and long-term competitiveness by prioritising customer education and guaranteeing regulatory compliance.

This study does have several limitations, even though it offers insightful information about

the connection between client uptake of new FinTech products. The cross-sectional design limits the determination of causation, and self-reported data induce response bias. The findings would also be more broadly applicable if the study's purview were widened to cover a wider spectrum of individuals and financial organisations. To give the banking industry more in-depth insights, additional studies might also focus on types of FinTech breakthroughs and their effect on consumer acceptance.

This study's findings support the beneficial benefits of FinTech innovation on consumer acceptance in Pakistan's banking industry. The importance of organisational modifications and digitisation initiatives was highlighted by the banking sector's transformation, which emerged as a key mediator in this interaction. Banks use the potential of FinTech innovations to foster better customer experiences, promote financial inclusion, and secure their position in the dynamic financial services landscape by understanding the factors that influence customer adoption and addressing issues like trust, security, and regulatory compliance. The study's conclusions provide useful advice for banking institutions and policymakers that want to navigate the changing FinTech landscape and promote sustainable growth and customer-centricity within the banking industry.

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