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## Research Article

# Riding the Wave: Exploring Technological Disruptions, Customer Preferences, and Security Challenges in Fintech-Infused Banking

**AUTHOR(S):** Bijin Philip and Prathvi Shetty

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## ABSTRACT

The rapid evolution of Financial Technology (FinTech) has brought about significant disruptions in the traditional banking sector, altering customer behavior, perceptions of risk, and security concerns. This study aims to assess the multifaceted impacts of FinTech innovations on traditional banking, focusing on technological disruptions, customer behavior, and security considerations. A survey of 385 respondents was conducted to gauge the extent of technological disruptions caused by FinTech innovations in banking services. The findings indicate a widespread acceptance and adoption of FinTech solutions, with respondents acknowledging the transformative impact on their banking experiences. Moreover, a notable preference for online banking services over traditional methods was observed, signifying a shift in consumer behavior toward digital solutions. The convenience provided by FinTech solutions and individualized financial services are strongly preferred, according to an analysis of consumer behavior. But worries about how digital payment systems can affect spending patterns surface, underscoring the necessity for a well-rounded approach to money management. Although there are legitimate concerns regarding the security of financial data in FinTech-enabled banking services, they are outweighed by the perceived advantages, suggesting a fine line between convenience and security. In conclusion, this study provides valuable insights into the impact of FinTech innovations on traditional banking, highlighting the need for continuous adaptation to meet evolving customer demands while ensuring robust security measures. Future research should focus on addressing specific concerns and disparities to foster greater inclusivity and trust in FinTech solutions.

**KEYWORDS:** Fintech, Technological Disruptions, Traditional Banking Systems, Customer Behaviour, Security Challenges and Risk Factors

## 1. INTRODUCTION

The banking industry is a critical component of the country's financial system, playing a pivotal role in facilitating economic growth and development. The Indian banking sector has evolved over the years and has attained a lot of technological advancements. The banking sector helps in keeping a check on the finances of the country's population. Over the years many changes have been made in Indian Banking System when it comes to policies and regulations. Enhanced banking institutions predominantly drive economic growth by expediting productivity advancements. Consequently, global financial integration holds the potential to foster economic development by incentivizing enhancements within the local

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## Authors Details

### Bijin Philip

Assistant Professor, Department of Management, Kristu Jayanti College Autonomous, Bengaluru, Karnataka, India

### Prathvi Shetty

3<sup>rd</sup> Year BBA Student, Department of Management, Kristu Jayanti College Autonomous, Bengaluru, Karnataka, India

## Corresponding Author

### Bijin Philip

Assistant Professor, Department of Management, Kristu Jayanti College Autonomous, Bengaluru, Karnataka, India

financial infrastructure (Levine, 2001) <sup>[1]</sup>. The Indian banking system has witnessed a drastic shift towards digitalization. Mobile banking, online banking, digital wallets, and other technological innovations have transformed the way customers access and manage their financial services. Examples of technology applied to financial transactions include peer-to-peer lending platforms, peer-to-peer payment technology like Venmo or PayPal, digital wallets such as Apple Pay or Google Pay, blockchain technology for secure and transparent transactions, and mobile banking apps provided by traditional banks or digital-only banks (Priya & Anusha, 2019) <sup>[2]</sup>. Technology innovation is widely acknowledged as the primary catalyst for economic growth and industrial evolution. In the realm of technology, one undeniable truth prevails: the rate of technological change is constantly accelerating, unstoppable in its progress, and increasingly transformative in its impacts (Gomber *et al.*, 2018) <sup>[3]</sup>. Fintech, or financial technology, refers to companies that provide revolutionary innovations to the financial service sector. The majority of fintech startups are micro, small, and medium-sized enterprises (MSMEs) with little equity and an acute awareness of how to improve or grow upon current financial services industry offerings. These are mostly fintech start-ups, which are becoming more and more ubiquitous. The financial landscape has undergone shifts dramatically in recent years, with the rise of Financial Technology, or FinTech, companies being an important manifestation of this change. These creative organizations stand at the nexus of technology and finance, utilizing cutting-edge digital technologies to transform conventional financial services. Fintech companies are instrumental in promoting greater financial inclusion, enhancing the quality of life for individuals, facilitating better decision-making processes, and offering numerous other benefits (Kukreja *et al.*, 2021) <sup>[4]</sup>. Over the years many companies have built a system that integrates finance with technology to provide a smooth banking experience. The rapid rise of financial technology presents banks with both challenges and opportunities. Banks are innovating by incorporating smart automation into operations, such as tokenization and phone banking, to streamline processes and shape the future of banking and payment transactions through artificial intelligence and smart workflow systems AlMamani *et al.*, (2021) <sup>[5]</sup>. Modern technological advances, especially in the field of financial technology, or FinTech, have made a significant impact on the financial environment in recent years. Conventional banking procedures have been transformed by the confluence of technology and finance, leading to a reassessment of accepted conventions and procedures. This study explores the complex world of FinTech innovations with the goal of shedding light on the profound effects it has on the traditional banking industry, comprehending changing consumer expectations and behaviors, examining related risks and security issues, and assessing its contribution to financial inclusion. An influx of disruptive innovations that go beyond the traditional financial services sector's modus operandi has been brought about by the emergence of FinTech. FinTech technologies, encompassing everything from automated trading platforms to more effective payment methods, have completely changed how financial services are obtained,

provided, and used. FinTech companies have reshaped the competitive landscape and forced incumbents to adapt or face obsolescence by introducing agile and user-centered alternatives to traditional financial services by employing cutting-edge technology like blockchain, artificial intelligence, and big data analytics.

The analysis of the technology disruptions brought about by FinTech advances in the conventional banking industry is at the heart of this investigation. Traditional banks need to reconsider their infrastructures and tactics as tech-savvy consumers and digital natives prefer FinTech products more and more to stay relevant. This dynamic interaction between disruptors and incumbents underlines how important it is for banks to foster innovation and establish a responsive culture in order to remain competitive in a time of swift technological advancement.

Furthermore, this study aims to clarify how customers' expectations and behaviors are changing in response to FinTech advancements. Consumer demands and standards for banking services are evolving over time as they get used to the smooth digital experiences provided by FinTech platforms. Three key factors—Conducive environment, Adaptability, and Security—that impact the usage of Fintech (Lal *et al.*, 2020) <sup>[6]</sup>. Customers today value real-time knowledge, tailored interactions, and more transparency in their financial interactions over and above ease. It is of the utmost importance for both incumbents and FinTech firms to have an understanding of these changing dynamics to customize their products and provide better value propositions that appeal to modern consumers. In recent decades, significant attention has been directed towards examining the connection between financial development and economic growth. As financial services transition online, the widespread availability of information poses a significant challenge for the finance sector, particularly in terms of ensuring data safety and security (Patil *et al.*, 2023) <sup>[7]</sup>. Nonetheless, divergent perspectives persist regarding the extent of the financial system's influence on economic growth (Hassan *et al.*, 2011) <sup>[8]</sup>. The present research aims to address the dangers and security issues that come with embracing FinTech in addition to examining its disruptive potential. Digital payment transactions are influenced by multiple factors. App developers must prioritize building trust among users and implementing robust security measures, including novel technological interventions, to safeguard data privacy (Saxena & Tripathi, 2021) <sup>[9]</sup>. FinTech technologies deliver new risks and vulnerabilities to cyber threats, data breaches, and regulatory compliance complications, even while they have enormous potential to improve efficiency, accessibility, and inclusivity. Financial apps are emerging as lucrative targets for cybercriminals seeking to exploit valuable personal and monetary information (Pachare & Bangal, 2023) <sup>[10]</sup>. Ensuring the integrity and secrecy of financial transactions in a digital ecosystem that continues to grow more interconnected demands strong risk management frameworks, strict regulatory monitoring, and aggressive industry stakeholder participation. Lastly, the goal of this study is to evaluate how FinTech is advancing financial inclusion by giving underprivileged people more access. The advantage of fintech lies in its capacity to offer affordable and

convenient financial services, including mobile banking and digital payments. These services can effectively alleviate the financial hurdles encountered by low-income households (Kulshrestha, 2023)<sup>[11]</sup>. FinTech solutions can democratize access to financial services, empowering underrepresented people and promoting economic empowerment by getting around conventional entrance hurdles including physical infrastructure and creditworthiness evaluations. Payment organizations have showcased the benefits of mobile-centric solutions, prompting traditional banking institutions to venture into rural India with innovative mobile-based banking solutions (Kandpal & Mehrotra, 2019)<sup>[12]</sup>. To fully achieve the benefits of FinTech-driven financial inclusion, however, coordinated initiatives are needed to close the digital literacy gap, advance regulatory inclusivity, and lessen algorithmic decision-making biases. In summary, this study aims to clarify the complex interactions that exist between FinTech developments, conventional banking processes, individual characteristics, risk assessment, and the necessity of financial inclusion. By examining these aspects, the investigation aims to provide valuable comprehension for strategic choices, legislative actions, and technological investments that concentrate on governing the rapidly evolving features of the financial services industry in the digital era.

## 2. REVIEW OF LITERATURE

(Chen, 2020)<sup>[13]</sup> The research highlights the exploration features accompanying key regions which learn about the general bank proficiency that has improved since Web just banking entered the monetary market. Second, in the time of low-premium spreads, banks are expanding functional pay while further developing execution and proficiency. Besides, with the advancement of FinTech and serious strain, banks ought to cut back to fortify their intensity and work on their inside surroundings. At long last, working pay created by representatives has expanded, however, benefits have diminished, it is profoundly talented and effective to infer that worker. Subsequently, banks might be expected to offer higher salaries, which decreases benefits. (Siek & Sutanto, 2019)<sup>[14]</sup> The effects of fintech on Indonesia's traditional banking sector are discussed in this study. Several significant and practical factors, including customer happiness, net promotion score, promotion, simplicity of use, etc., were taken into account in this study to identify a range of value propositions that significantly impact the uptake of fintech or banking products. The findings demonstrate how the fintech payment industry has challenged banks since its inception in or around 2015, mostly as a result of its superior value propositions, such as promotion with a standardized beta value of 0.349 and a broad range of merchants with a value of 0.153, respectively. (Nair & Menon, 2017)<sup>[15]</sup> This research paper studies the development of FinTech companies and the difficulties that traditional banks are facing as a result of their rise. There are various challenges faced by traditional banks which include conservative and hierarchical approaches by banks which are hindering the growth of traditional banks. (Murinde & Zachariadis, 2022)<sup>[16]</sup> The objective of this research paper is to understand in the Indian context the roles of key players and the influence of Fintech companies on the ecosystem. This study

notes that the scope of regulation will expand and that multifaceted relationships between ecosystem players will arise. This work notes that FinTech plays a key role in helping to fulfill Sustainable Development Goals and that regulatory hurdles in addressing this wider goal will differ depending on the level of risk associated with different business models and product offerings. (da Silva, 2022)<sup>[17]</sup> The objective of this study is to understand and analyse the impact of Fintech firms on traditional banks, this research paper studies the impact on stock prices of traditional banks due to the rise of fintech firms. (Guild, 2017)<sup>[18]</sup> This research will look at how technology innovation has affected the fintech, or financial technology, sector. The paper's main focus is on how Fintech has increased millions of people's access to financing in developing economies, with a focus on how regulatory structures help to facilitate that process. The study employs a qualitative approach to examine three case studies that have employed technology to advance inclusive finance: Peer-to-peer financing in China and cashless payment methods in Kenya and India. (Haddad & Hornuf, 2021)<sup>[19]</sup> This study looks at how traditional financial institutions' performance and default risk are affected by fintech start-ups. This study uses a large sample of financial institutions from 87 countries to look for a positive association between the performance of incumbent institutions and the establishment of fintech start-ups between 2005 and 2018. It also examines the relationship between traditional financial institutions' default risk and the emergence of fintech start-ups. (Anifa *et al.*, 2022)<sup>[20]</sup> This research paper discusses the role of Artificial Intelligence, Augmented Reality, and Blockchain in Digital Banking. It studies how Artificial Intelligence has impacted the finance industry and how the blockchain industry is playing a vital role in the finance industry and having an impact on banking industries. (Barbu *et al.*, 2021)<sup>[21]</sup> The paper plans to break down customer experience (CX) inside the fintech area, utilizing its dynamic and creative nature driven by progressions in data and correspondence innovation. Understanding CX in fintech requires a multi-faceted methodology, taking into account different viewpoints and industry-explicit subtleties. Key discoveries uncover that apparent worth, client service, confirmation, speed, and firm imaginativeness decidedly impact CX in fintech. Also, CX is found to connect with client devotion aims emphatically. In general, the review contributes by recognizing aspects, determinants, and results of CX inside the fintech area. From an administrative point of view, the exploration highlights the significance of coordinating CX into fintech plans of action to upgrade consumer loyalty and dependability. (Jarvis & Han, 2021)<sup>[22]</sup> This research paper looks at the new hypothetical and experimental writing on FinTech developments in the monetary area. It intends to comprehend how FinTech developments are reshaping the scene of monetary administrations, testing customary plans of action, and foundation. The review frames the open doors and difficulties introduced by FinTech advancements, featuring their capability to offer creative monetary items and administrations, advance monetary incorporation, smooth out processes, and diminish costs for clients. The survey examines how FinTech can present more noteworthy rivalry and variety in monetary administrations,

especially in regions, for example, banking, security exchange, and protection. It likewise thinks about the ramifications of FinTech developments according to the point of view of institutional hypothesis, meaning to propel the hypothetical comprehension of social changes worked with by FinTech. Administrative worries are tended to, underscoring the requirement for a coordinated effort among partners to foster straightforward guidelines that help development and monetary consideration. The survey finishes by distinguishing future examination regions to improve information and make a more productive and versatile monetary environment, at last upgrading monetary security in the computerized time.

### 3. OBJECTIVES

1. To assess the technological disruptions caused by FinTech innovations in the traditional banking sector.
2. To study the customer behavior and expectations towards FinTech advancement.
3. To analyse the risk and security concerns associated with FinTech innovations.
4. To analyse how FinTech is contributing to financial inclusion by reaching underserved populations.

### 4. METHODOLOGY

#### Research Design

This study employs a quantitative research design to gather empirical data on the impacts of FinTech innovations on the traditional banking sector. A survey instrument was developed to collect responses from a diverse sample of participants.

#### Sampling Technique

The sampling frame includes individuals aged 18 and above, representing various demographic backgrounds, including age, gender, income level, and geographic location (urban and rural areas). A convenience sampling technique was utilized to ensure adequate representation from each stratum. Collected data from 385 respondents for data analysis and interpretation.

#### Data Collection

Data was collected through circulating Google forms through various online platforms. The survey questionnaire comprised structured items designed to capture respondents' perceptions, attitudes, and behaviours related to FinTech innovations in the banking sector. Likert scale items, and multiple-choice questions were included to gather comprehensive insights.

#### Survey Instrument

The survey instrument was developed based on the research objectives and literature review findings. It underwent rigorous pilot testing and refinement to ensure clarity, relevance, and validity. The questionnaire consisted of five sections:

- a. Demographic Information: Collecting data on respondents' age, gender, income, education level, and geographic location.

- b. Technological Disruptions: Assessing the extent to which respondents perceive FinTech innovations to have changed their interaction with banking services.
- c. Customer Behavior: Investigating preferences, attitudes, and behaviors towards FinTech solutions, including personalized financial services and digital payment methods.
- d. Risk and Security: Exploring concerns and perceptions regarding the security of financial information within FinTech-infused banking services.
- e. Reach to underserved population: Investigating whether Fintech has reached underserved populations, and is it benefiting them or not.

#### Data Analysis

- Quantitative data collected through the survey were analyzed using descriptive and inferential statistical techniques. Descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated to summarize the characteristics of the sample and key variables.
- Inferential statistical analyses, including ONEWAY ANOVA and t-tests, were conducted to examine relationships, differences, and associations between variables, such as urban-rural disparities and gender-specific attitudes. Factor analysis and regression analysis were carried out to check the impact of Fintech-influenced banking on the customers.
- Statistical software such as SPSS was utilized to perform data analyses, ensuring accuracy and reliability in the interpretation of results.

#### Ethical Considerations

- Ethical guidelines and principles, including informed consent, confidentiality, and voluntary participation, were strictly adhered to throughout the research process.
- Participants were provided with clear information regarding the purpose of the study, their rights as participants, and the handling of their data. Confidentiality measures were implemented to safeguard participant anonymity and privacy.

#### Limitations

- Despite efforts to ensure a diverse and representative sample, the study's findings may be subject to sampling bias.
- The reliance on self-reported data may introduce response biases, such as social desirability bias or recall bias.
- The cross-sectional nature of the study limits the ability to establish causal relationships between variables.

#### Implications

The findings of this study are expected to provide valuable insights for policymakers, financial institutions, and FinTech companies seeking to understand and address the impacts of technological disruptions in the banking sector.

**5. RESULTS and DISCUSSION**

**DEMOGRAPHIC PROFILE**

The demographic profile of the 385 respondents is given in Table 1. Results show that most respondents being to the age 18-25 years, with 70.9% followed by 12.7% of the respondents belonging to the age group of 35-44 years. 56.4% of the respondents were male, and 43.6 % earned less than 1 lakh annually. 80% of the respondents are from the urban region. 58.2% are undergraduates, 58.2% are students, and 20 % are private employees followed by 12.7% are self-employed/entrepreneur/professional employees. Most respondents use digital wallets less than 3 times followed by 3-5 times in a day.

**Table I:** Demographic Profile of Respondents

Variable	Categories	Percentage
Age Group	18-24	70.9
	25-34	7.3
	35-44	12.7
	45-54	7.3
	55 and above	1.8
Gender	Male	56.4
	Female	43.6
Annual Income	Below 1 Lakh	43.6
	1-3 Lakhs	18.2
	3-5 Lakhs	18.2
	Above 5 Lakhs	20
Location	Urban	80
	Rural	20
Level of education	Secondary	5.5
	Higher Secondary	23.6
	Graduate	58.2
	Post Graduate	12.7
Employment status	Student	58.2
	Private Employee	20
	Self-employed / Entrepreneur/Professional Employee	12.7
	Others	9.1

Source: Compiled by authors

**Impact of technology on traditional banking systems and adoption rates**

In a conducted study, researchers polled a sample of 385 respondents to investigate the extent to which people have embraced technological innovations and the impact of these innovations on the traditional banking system. The study utilized a 5-point Likert Scale, ranging from "Strongly Agree" to "Strongly Disagree," with corresponding values of 1 to 5.

The analysis of Table II reveals that a significant number of respondents strongly agreed that technological innovations have profoundly transformed how they engage with financial services. Moreover, there was a prevalent comfort level among respondents in utilizing new features introduced by these innovations. The average scores ranging between 4 and 4.3 indicate a strong consensus among participants regarding the positive impact of fintech innovations, such as digital wallets and online banking, on their daily lives. Furthermore, the results underscore a notable preference for online banking services over traditional counterparts, signaling a significant shift in consumer behavior toward the technological solutions offered by fintech companies.

These findings suggest a growing trend of adoption and integration of technological innovations within the banking sector, reflecting a broader societal movement towards digitalization and reliance on innovative financial services.

**Table II:** Impact of technology on traditional banking system and adoption rates

	N	Min.	Max.	Mean	Std. Deviation
I think FinTech (like net banking, online payments, and digital wallets) innovations have changed the way I interact with banking services to a very extent.	385	2.0	5.0	4.327	.8967
I am very comfortable using new technological features introduced by FinTech in banking.	385	2.0	5.0	4.309	.8295
I find it easy when the banking services are offered online like (creating a new bank account and changing card details)	385	1.0	5.0	4.273	.9821
Do you believe that technological disruptions in banking have positively impacted your overall banking experience?	385	1.0	5.0	4.055	.9435

Source: Compiled by authors

**Customer behavior analysis**

The researchers collected data from a sample of 385 respondents to investigate consumer behavior regarding fintech advancements. Analysis of Table 3 reveals a predominant preference for responses falling between "strongly agree" and "agree," with average scores ranging from 3.8 to 4.3. The findings suggest that a significant portion of respondents consider personalized financial services, such as managing vehicle bills and receiving tailored money management and insurance advice, to be indispensable. Additionally, participants agreed that the convenience offered by fintech solutions aligns with their banking preferences. Furthermore, a majority of respondents indicated a preference for digital payment systems, such as Google Pay, Paytm, and PhonePe, over traditional cash transactions, particularly for bill payments. However, one notable drawback highlighted in the study is the potential impact of digital banking services on consumers' spending habits. Many participants acknowledged that the widespread availability of digital payment methods hindered their ability to save, leading to increased expenditures. In conclusion, the study underscores the significance of personalized financial services and the practicality of fintech solutions tailored to consumers' banking preferences. Nevertheless, it also raises awareness of a potential downside: the

digitization of banking services may alter spending behaviors, posing challenges to saving efforts and potentially driving up costs.

**Table III:** Analysis of customer behavior and expectations toward FinTech advancement

	N	Min.	Max.	Mean	Std. Deviation
I feel personalized financial services like auto bill payments, personalised recommendations on insurance and money management, etc are important to me.	385	2.0	5.0	3.836	1.0591
The convenience offered by FinTech Solutions aligns with my banking preferences.	385	2.0	5.0	3.982	.9254
I find it convenient to pay my bills through (Google Pay, Paytm, PhonePe) rather than paying it through cash.	385	1.0	5.0	4.382	.7986
I feel that the convenience of having digital payment services is hindering my savings and causing more expenses.	385	1.0	5.0	3.945	1.0531

Source: Compiled by authors

### Security and Risk

The researchers conducted a study involving a sample of 385 respondents to investigate their perceptions regarding risk and security concerns associated with fintech innovations in banking services. Analysis of Table IV reveals several key findings. Firstly, respondents expressed a moderate level of concern (mean of 3.745) regarding the security of their financial information when utilizing fintech-infused banking services. This indicates a notable apprehension among respondents regarding the safety of their financial data within these platforms. Secondly, respondents indicated that they somewhat perceive the benefits of fintech-infused banking services to outweigh the potential security risks (mean of 3.600). This suggests that while there are acknowledged security concerns, the perceived benefits provided by these services tend to outweigh them to some extent, making respondents more inclined to utilize them despite lingering apprehensions. Overall, the data underscores a nuanced perspective among respondents regarding the security concerns associated with fintech innovations in banking services. While there exists a moderate level of concern regarding the security of financial information, respondents also recognize the benefits that these innovations offer. Additionally, there is a notable level of confidence in the security measures implemented by fintech companies to safeguard financial data. This implies that while

security remains a consideration for users of fintech services, it does not necessarily deter them from utilizing such services. However, it emphasizes the importance for fintech companies to prioritize and enhance their security measures to address user concerns and maintain trust. Moreover, efforts to educate users about the security features and protocols in place may serve to alleviate concerns and foster greater adoption of fintech solutions in the future.

**Table IV:** Aanalysis of the risk and security concerns associated with FinTech innovations

	N	Min.	Max.	Mean	Std. Deviation
I am concerned about the security of my financial information when using FinTech-infused banking services like (google pay, paytm etc)	385	1.0	5.0	3.745	1.0496
I feel the benefits of FinTech-infused banking outweigh the potential security risks.	385	2.0	5.0	3.600	.9276
I am confident in the security measures implemented by FinTech companies to safeguard my financial data	385	1.0	5.0	3.618	.9254

Source: Compiled by authors

### Analysis of technological innovations in banking services across urban and rural populations

Table V displays the ANOVA analysis conducted aimed to explore the impact of technological innovations in banking services on urban and rural populations, particularly focusing on their perceptions of FinTech innovations, comfort level with new technological features, ease of using online banking services, and belief in the positive impact of technological disruptions on overall banking experience. Results revealed significant differences between urban and rural populations in several key areas. Firstly, urban and rural respondents showed varying perceptions regarding how FinTech innovations have changed their interaction with banking services. Additionally, significant differences were observed in their comfort level with new technological features and ease of using online banking services. However, no significant difference was found in their belief in the positive impact of technological disruptions on the overall banking experience. These findings highlight the importance of considering urban-rural disparities in the adoption and perception of FinTech innovations within the banking sector. Understanding these differences can inform tailored strategies to address specific concerns and preferences of urban and rural populations, ultimately contributing to the broader goal of enhancing the accessibility and usability of banking services for all demographics.

**Table V:** Analysis of Technological Innovations in Banking Services Across Urban and Rural Populations

		Sum of Squares	df	Mean Square	F	Sig.
I think FinTech (like net banking, online payments, and digital wallets) innovations have changed the way I interact with banking services to a very extent.	Between Groups	24.945	1	24.945	33.663	.000
	Within Groups	283.818	383			
	Total	308.764	384	.741		
I am very comfortable using new technological features introduced by FinTech in banking.	Between Groups	4.582	1	4.582	6.759	.010
	Within Groups	259.636	383			
	Total	264.218	384	.678		
I find it easy when banking services are offered online like (creating a new bank account and changing card details)	Between Groups	28.636	1	28.636	32.095	.000
	Within Groups	341.727	383			
	Total	370.364	384	.892		
Do you believe that technological disruptions in banking have positively impacted your overall banking experience?	Between Groups	2.036	1	2.036	2.295	.131
	Within Groups	339.818	383			
	Total	341.855	384	.887		

Source: Compiled by authors

**Analysis of customer behaviour regarding financial services across urban and rural backgrounds**

Table VI displays the ANOVA analysis which investigated the relationship between customer behaviour regarding financial services and their urban or rural backgrounds. Across the examined factors, significant differences were observed between urban and rural populations. Firstly, regarding the importance of personalized financial services such as auto bill payments and personalized recommendations, urban and rural populations showed no significant difference in their perceptions. However, when considering the convenience offered by FinTech solutions aligning with banking preferences, urban respondents demonstrated a significantly higher alignment compared to their rural counterparts. Similarly, urban respondents found it more convenient to pay bills through digital payment platforms like Google Pay, Paytm, and PhonePe, compared to rural respondents. Moreover, concerning the perceived impact of digital payment services on savings and expenses, no significant difference was found between urban and rural populations.

In summary, while urban and rural populations held similar views on the importance of personalized financial services, significant

differences emerged in their perceptions of the alignment of FinTech solutions with banking preferences and the convenience of digital payment methods. These findings underscore the importance of considering urban-rural disparities in the design and implementation of financial technology solutions to effectively meet the diverse needs and preferences of different population segments.

**Table VI:** Analysis of Customer Behaviour Regarding Financial Services Across Urban and Rural Backgrounds

		Sum of Squares	df	Mean Square	F	Sig.
I feel personalized financial services like auto bill payments, personalised recommendations on insurance and money management, etc are important to me.	Between Groups	.509	1	.509	.453	.501
	Within Groups	430.182	383			
	Total	430.691	384	1.123		
The convenience offered by FinTech Solutions aligns with my banking preferences.	Between Groups	11.486	1	11.486	13.861	.000
	Within Groups	317.386	383			
	Total	328.873	384	.829		
I find it convenient to pay my bills through (Google Pay, Paytm, PhonePe) rather than paying it through cash.	Between Groups	14.032	1	14.032	23.281	.000
	Within Groups	230.841	383			
	Total	244.873	384	.603		
I feel that the convenience of having digital payment services is hindering my savings and causing more expenses.	Between Groups	.127	1	.127	.114	.735
	Within Groups	425.727	383			
	Total	425.855	384	1.112		

Source: Compiled by authors

**Analysis of security and risk concerns in fintech-infused banking services across gender differences**

Table vii shows the ANOVA analysis which investigated the relationship between security and risk concerns associated with FinTech-infused banking services and gender differences among respondents. Across the examined factors, significant differences were observed between male and female populations.

Firstly, regarding concerns about the security of financial information when using FinTech-infused banking services, both male and female respondents demonstrated significant differences in their levels of concern. Females indicated a slightly higher level of concern compared to males. Secondly, in terms of perceptions regarding the benefits of FinTech-infused banking outweighing potential security risks, significant differences were observed between male and female respondents. Females tended to

perceive the benefits of FinTech-infused banking as outweighing the potential security risks to a slightly greater extent than males. Lastly, concerning confidence in the security measures implemented by FinTech companies to safeguard financial data, significant differences were found between male and female respondents. Females demonstrated a slightly higher level of confidence in these security measures compared to males. In summary, the ANOVA results underscore gender differences in security and risk perceptions related to FinTech-infused banking services. While both male and female populations share concerns and perceptions about security and risk, there are nuanced differences in the intensity of these concerns and perceptions between genders. These findings highlight the importance of considering gender-specific attitudes and concerns when designing and implementing security measures in FinTech services to ensure inclusivity and address the diverse needs of male and female users.

**Table VII:** Analysis of Security and Risk Concerns in FinTech-infused Banking Services Across Gender Differences

		Sum of Squares	df	Mean Square	F	Sig.
I am concerned about the security of my financial information when using FinTech-infused banking services like (google pay, Paytm, etc)	Between Groups	13.508	1	13.508	12.632	.000
	Within Groups	409.547	383			
	Total	423.055	384	1.069		
I feel the benefits of FinTech-infused banking outweigh the potential security risks.	Between Groups	10.018	1	10.018	11.976	.001
	Within Groups	320.382	383			
	Total	330.400	384	.837		
I am confident in the security measures implemented by FinTech companies to safeguard my financial data	Between Groups	7.616	1	7.616	9.080	.003
	Within Groups	321.257	383			
	Total	328.873	384	.839		

Source: Compiled by authors

**Factors influencing customer behavior on fintech banking**

The investigation continues to investigate the factors that favorably or unfavorably impact consumer behavior on traditional banking systems due to the impact of technology. Seventeen items related to fintech and online banking were identified. Respondents were asked to assess the degree of importance they attribute to items provided regarding their level of influence. The responses were on a five-point Likert scale ranging from Highly important to Least important. Adequacy tests (KMO = 0.747, Bartlett’s test of sphericity, Chi-square = 2516.260 with significance value < 0.01) supported the EFA’s conduct. All 17 elements extracted communalities greater than 0.4, suggesting that each item

contributes significantly to the overall variability of the data. With an Eigenvalue larger than one, five factors were found. Table VIII presents the results of the EFA. Thus, these six variables are used in additional research.

**Table VIII:** Factors of Fintech Banking Extracted with Exploratory Factor Analysis

Factors	Statement	Factor loading
Technological Disruptions	I am excited about the new technological advancements in fintech-infused banking.	0.923
	I am confident in my ability to utilize new banking technologies effectively.	0.821
	I am eager to explore how technological disruptions can improve my banking experience.	0.764
Convenience and Accessibility	I am attracted to banking services that offer convenience and accessibility	0.846
	I am satisfied when my bank offers a variety of convenient banking options	0.821
	I am open to adopting new banking technologies that enhance convenience and accessibility.	0.789
Security Challenges	I am cautious about the security risks associated with digital banking.	0.941
	I am vigilant about monitoring my accounts for any signs of security breaches.	0.834
	I am proactive in implementing security measures recommended by my bank.	0.821
	I am concerned about the safety of my personal and financial data when using online banking services.	0.745
Innovation Adoption	I am open to adopting new banking technologies to improve my financial management.	0.835
	I am cautious about adopting new technologies until they are proven to be reliable and secure.	0.762
	I am supportive of banks that prioritize innovation to enhance customer experiences.	0.712
Regulatory Environment	I am aware of the regulations governing fintech and traditional banking	0.932
	I am concerned about potential regulatory barriers to innovation in banking	0.864
	I am supportive of regulations that protect consumer interests in fintech-infused banking.	0.816

Source: Compiled by authors

KMO and Bartlett's Test*		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.747	
Bartlett's Test of Sphericity	Approx. Chi-Square	2516.260
	df	91
	Sig.	.000



Logistic regression is used to determine how these characteristics affect customer behaviour. The predictor variable is binary, meaning that it is either influenced by the current scenario (Y=1) or not (Y=0).

**Table IX:** Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863	.791	.675	.41591

Source: Compiled by authors

The R-value denotes the correlation between the dependent and independent variables. A value exceeding 0.4 is deemed suitable for further analysis. Here, the value stands at .863, indicating a strong correlation. R-square represents the proportion of variance in the dependent variable that can be explained by the independent variables. A value surpassing 0.5 suggests the model's effectiveness in establishing relationships. In this instance, the value is .791, indicating a significant explanatory power. Adjusted R-square reflects the generalizability of the results, accounting for sample variation from the population in multiple regression. The difference between the R-square and the Adjusted R-square needs to be minimal. Here, the value remains .791, close to .675, thus indicating a satisfactory level of generalization.

**Table X:** Model Summary

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.501	4	4.125	23.854	.000 <sup>b</sup>
	Residual	65.717	380	.173		
	Total	82.218	384			

Source: Compiled by authors

Table X indicates that the regression model predicts the dependent variable significantly well. Here,  $p < 0.000$ , which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data). The hypothesis model is  $Y = \log = \beta_0 + \beta_1$  Technological Disruptions +  $\beta_2$  Convenience and Accessibility +  $\beta_3$  Security Challenges +  $\beta_4$  Innovation Adoption +  $\beta_5$  Regulatory Environment. The estimates of the regression coefficients are presented in Table XI.

**Table XI:** The estimates of the regression coefficients

Factors identified for customer behaviour due to the inclusion of technology in the banking sector	B	S.E.	Wald Sig.	Odds Ratio
Technological Disruptions	3.234	0.191	.000	14.908
Convenience and Accessibility	0.546	0.181	.005	0.567
Security Challenges	2.456	0.154	.001	7.986
Innovation Adoption	1.677	0.132	.006	2.212
Regulatory Environment	-0.230	0.121	.000	0.431
Constant	-0.457	0.111	.000	0.634

Source: Compiled by authors

The model can be written as the odds:  $\log = - .457 + 3.234 * \text{Technological Disruptions} + 0.546 * \text{Convenience and}$

$\text{Accessibility} + 2.456 * \text{Security Challenges} + 1.677 * \text{Innovation Adoption} + 0.230 * \text{Regulatory Environment}$ . The accuracy of the model's predictions is 87.6 %. The Hosmer Lemshow test (Chi-square = 2516.260 with significance value  $< 0.05$ ) also points to the model with all five factors as significant, and the Nagelker pseudo-R square value is 0.791. This regression analysis examines the impact of various factors on customer behavior resulting from the integration of technology in the banking sector. Technological Disruptions: The coefficient of 3.234 with a significant p-value of .000 indicates a strong positive relationship between technological disruptions and customer behaviour. The odds ratio of 14.908 suggests that as technological disruptions increase, there is nearly a 15 times greater likelihood of a change in customer behaviour. Convenience and Accessibility: With a coefficient of 0.546 and a significant p-value of .005, convenience and accessibility also play a significant role in influencing customer behaviour. The odds ratio of 0.567 implies that for every unit increase in convenience and accessibility, the odds of a change in behaviour decrease by approximately 43%. Security Challenges: The coefficient of 2.456 and a significant p-value of .001 indicate a strong positive relationship between security challenges and customer behaviour. The odds ratio of 7.986 suggests that as security challenges increase, there is nearly an 8 times greater likelihood of a change in customer behaviour. Innovation Adoption: The coefficient of 1.677 and a significant p-value of .006 indicate a positive relationship between innovation adoption and customer behaviour. The odds ratio of 2.212 suggests that as innovation adoption increases, there is approximately a 2.2 times greater likelihood of a change in customer behaviour. Regulatory Environment: The coefficient of -0.230 with a significant p-value of .000 indicates a negative relationship between the regulatory environment and customer behaviour. The odds ratio of 0.431 suggests that as regulatory constraints increase, there is a decreased likelihood of a change in customer behaviour. In summary, this analysis underscores the significant impact of technological disruptions, convenience and accessibility, security challenges, innovation adoption, and the regulatory environment on shaping customer behaviour in the banking sector. Understanding and managing these factors effectively is critical for banks to adapt to changing customer needs and market dynamics driven by technological advancements.

## 6. CONCLUSION

The study examined the impact of technological innovations in banking services, particularly focusing on consumer perceptions of FinTech innovations, security concerns, and urban-rural disparities, as well as gender differences in risk perceptions. Various fields were examined and a detailed study was done on technological disruptions caused by FinTech innovations in the traditional banking sector, customer behavior and expectations towards FinTech advancement, risk, and security concerns associated with FinTech innovations, and how it is contributing to financial inclusion by reaching underserved population.

Overall, the findings suggest a widespread acceptance and adoption of FinTech innovations among respondents, with a

strong consensus on the transformative effect of technology on banking services. Participants expressed comfort and preference for new features introduced by these innovations, particularly favoring online banking services and digital payment platforms over traditional methods. However, concerns about the security of financial information persist, albeit to varying degrees among different demographic groups. Significant disparities were observed between urban and rural populations, particularly regarding perceptions of the alignment of FinTech solutions with banking preferences and the convenience of digital payment methods. While both groups valued personalized financial services similarly, urban respondents showed greater alignment with FinTech solutions and preferred digital payment methods more than their rural counterparts. Also, it can be observed that the majority of the respondents agreed that the technological developments are reaching underserved populations bringing a lot of changes and having a positive impact. Furthermore, gender differences were evident in security and risk perceptions associated with FinTech-infused banking services. While both male and female respondents shared concerns about security, females tended to express slightly higher levels of concern and confidence in security measures compared to males. In conclusion, the study underscores the importance of understanding and addressing urban-rural disparities and gender-specific attitudes in the design and implementation of FinTech solutions. Efforts to enhance security measures, educate users, and tailor services to diverse demographic needs are crucial for fostering greater inclusivity and trust in the evolving landscape of digital banking services.

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