

Smart Banking Era: Evaluating the Impact of Fintech Innovations on Customer E-Banking Behavior

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Abstract

The rapid advancement of Financial Technology (FinTech) has significantly transformed the traditional banking system, giving rise to a more efficient and customer-centric “Smart Banking Era.” This study aims to evaluate the impact of FinTech innovations on customer e-banking behavior, with a focus on perception, satisfaction, usage patterns, and challenges faced by users. The research is based on a descriptive design and utilizes both primary and secondary data. Primary data were collected from 140 respondents through a structured questionnaire, while secondary data were gathered from journals, articles, and online sources. The study employs statistical tools such as percentage analysis, ANOVA, independent sample t-test, and Chi-square test to analyze the data and test the hypotheses. The findings reveal that FinTech services such as mobile banking, UPI, and digital payments have enhanced convenience, speed, and accessibility, leading to increased adoption of e-banking services. Most respondents show a positive perception and satisfaction towards FinTech innovations. However, issues such as technical difficulties, security concerns, and lack of awareness still persist. The results further indicate that demographic variables have varying levels of influence on customer behavior. Age and gender show significant relationships in certain aspects of perception and satisfaction, whereas occupation and monthly income do not significantly affect problems faced or the purpose of using FinTech services. The study concludes that while FinTech innovations have a strong positive impact on e-banking behavior, improving customer awareness, trust, and digital infrastructure is essential for enhancing overall adoption and satisfaction.

Keywords - FinTech, E-Banking, Digital Banking, Mobile Banking, UPI, Financial Technology, Customer Behavior, Smart Banking

Introduction

The banking sector has undergone a significant transformation in recent years due to rapid advancements in financial technology (FinTech). The emergence of digital platforms, mobile applications, and innovative payment systems has reshaped the way financial services are delivered and accessed. Traditional banking methods are increasingly being replaced by electronic banking (e-banking), offering customers greater convenience, speed, and accessibility. FinTech innovations such as mobile banking, internet banking, digital wallets, and online payment systems have played a crucial role in enhancing customer experience and improving the efficiency of banking operations. These technologies have enabled customers to perform financial transactions anytime and

anywhere, reducing their dependence on physical bank branches. As a result, customer behavior has shifted significantly towards digital adoption, leading to increased usage of e-banking services. The "Smart Banking Era" reflects this transition from conventional banking to a more technology-driven and customer-centric approach. In this context, understanding how FinTech innovations influence customer behavior becomes essential for banks to remain competitive and responsive to evolving customer needs. Factors such as ease of use, security, trust, awareness, and accessibility play a vital role in determining the adoption and usage of e-banking services.

This study aims to evaluate the impact of FinTech innovations on customer e-banking behavior. It seeks to analyze the level of awareness, adoption, and usage patterns among customers, as well as identify the key factors influencing their preferences. The study also highlights the challenges faced by customers while using e-banking services and provides insights into improving digital banking experiences.

Review Of Literature

G. Sudha and M. Thangajesu Sathish (2020) article is revealed that after demonetization retailers will adopt the digital payment methods. The researcher analysed to find out the payment methods between the pre and post period of demonetization. Most of the retailers used their payments through using various applications.

G. Sudha and V. Sornaganesh, M Thangajesu Sathish, AV. Chellama (2020), article is revealed that the Reserve Bank of India last year said it aimed to increase digital transactions to about 15% of gross domestic product by 2021, from nearly 10% at the time. The government has asked banks to encourage their customers to use digital payment methods as a precautionary measure against the Corona virus outbreak.

Kaur and Sharma (2024) examined customer experience in FinTech-based banking services with a focus on Millennials and Gen Z users. The study found that younger customers show a higher level of acceptance and satisfaction due to the convenience, speed, and accessibility offered by digital banking platforms. The research also highlighted that user-friendly interfaces and mobile banking applications play a crucial role in enhancing customer engagement. However, concerns regarding security and data privacy were identified as key challenges affecting overall trust in FinTech services.

Gupta, Verma, and Singh (2024) analyzed the determinants of customer satisfaction in open banking applications. The study revealed that factors such as ease of use, service quality, responsiveness, and digital support significantly influence customer satisfaction levels. It also emphasized that effective communication and reliable system performance are essential for retaining customers in a competitive FinTech environment. The findings suggest that banks must continuously improve their digital services to meet evolving customer expectations.

Statement Of The Problem

The emergence of Financial Technology (FinTech) has transformed the banking sector, introducing solutions like mobile and internet banking, digital wallets, and online payments. These innovations have enhanced the efficiency, speed, and accessibility of banking services, allowing customers to conduct transactions anywhere. This shift has led to the "Smart Banking Era," prioritizing technology and customer-centric models. However, the uptake of e-banking services remains inconsistent among customers. While some embrace digital banking for its convenience, many still favor traditional methods due to factors such as lack of awareness, security concerns, fear of cyber fraud, and limited digital literacy. Rural and semi-urban areas face additional challenges, including poor internet access and fewer digital devices.

Customer perception is crucial for the acceptance of FinTech. Elements like ease of use, trust, perceived usefulness, and service quality heavily influence adoption behaviors. Demographics also play a role, with younger and more educated individuals leaning towards digital banking, while older users may resist due to unfamiliarity. Moreover, there's a notable gap between rapid FinTech innovations and customers' adaptation capabilities. Banks

prioritize technology over customer education, leading to underutilization and dissatisfaction. Hence, assessing how FinTech impacts customer e-banking behavior is essential for improving service delivery and encouraging wider digital banking adoption, aiming to bridge the divide between technological advancements and customer acceptance in the dynamic banking landscape.

Objectives

- ✓ To analyze the demographic profile of customers using FinTech and e-banking services.
- ✓ To examine the level of adoption and usage of FinTech services among customers.
- ✓ To evaluate customer perception towards FinTech innovations in e-banking services
- ✓ To assess the level of customer satisfaction and identify challenges faced while using FinTech-based e-banking services.

Hypothesis – H₀

- There is no significant relationship between age and Customer Perception on usage of Fintech technology in E-Banking Services
- There is no significant relationship between gender and Satisfaction of Fintech technology in E- Banking Services
- There is no significant relationship between occupation and problem faced while using FinTech-based e-banking services
- There is no significant relationship between monthly income and purpose of using FinTech services

Methodology

The present study on customer perception, satisfaction, and problems faced while using FinTech technology in e-banking services is based on a descriptive research design. This design was adopted to clearly describe and analyze the behavior and opinions of customers regarding FinTech usage. The study primarily relies on both primary and secondary data. Primary data were collected through a structured questionnaire administered to respondents, consisting of multiple-choice and Likert scale questions related to usage, satisfaction, and challenges of FinTech services. Secondary data were gathered from journals, books, research articles, and relevant online sources to support the theoretical framework of the study. A sample size of 140 respondents was selected using the convenience sampling method, as it allowed easy access to participants. The collected data were analyzed using various statistical tools such as percentage analysis, ANOVA, independent sample t-test, and Chi-square test to test the hypotheses and draw meaningful conclusions. The study was conducted during the academic year 2025–2026. However, it is subject to certain limitations, including a limited sample size, the use of convenience sampling, and the possibility of response bias, as the data are based on personal opinions of the respondents.

Analysis And Interpretation

There is no significant relationship between age and Customer Perception on usage of Fintech technology in E- Banking Services

ANOVA						
Factors		Sum of Squares	df	Mean Square	F	Sig.
Mobile banking apps make banking more convenient	Between Groups	1.253	4	.313	.259	.904
	Within Groups	163.169	135	1.209		
	Total	164.421	139			
UPI has increased the speed of banking transactions	Between Groups	3.973	4	.993	1.014	.402
	Within Groups	132.199	135	.979		
	Total	136.171	139			
FinTech services save time compared to branch banking	Between Groups	3.579	4	.895	.888	.473
	Within Groups	135.964	135	1.007		
	Total	139.543	139			
Digital payment options have increased my usage of e- banking services	Between Groups	7.608	4	1.902	2.070	.088
	Within Groups	124.077	135	.919		
	Total	131.686	139			
FinTech innovations have reduced the need to visit bank branches	Between Groups	13.395	4	3.349	3.221	.015
	Within Groups	140.348	135	1.040		
	Total	153.743	139			
Most of my routine banking activities can be completed digitally	Between Groups	2.097	4	.524	.540	.707
	Within Groups	131.125	135	.971		
	Total	133.221	139			
Technical issues discourage me from using e-banking services	Between Groups	1.549	4	.387	.416	.797
	Within Groups	125.594	135	.930		
	Total	127.143	139			
I am comfortable transferring large amounts using FinTech service	Between Groups	11.587	4	2.897	2.700	.033
	Within Groups	144.813	135	1.073		
	Total	156.400	139			

Source: Primary Data

Interpretation

The ANOVA analysis was conducted to examine the relationship between age and customer perception regarding the usage of FinTech technology in e-banking services. The results indicate that for most of the variables, the significance (p) values are greater than 0.05, which implies that there is no statistically significant relationship between age and customer perception. Factors such as the convenience of mobile banking apps (p =

0.904), increased transaction speed through UPI (p = 0.402), time-saving nature of FinTech services (p = 0.473), increased usage of e-banking due to digital payments (p = 0.088), ability to complete routine banking activities digitally (p = 0.707), and the impact of technical issues (p = 0.797) show that perceptions are similar across different age groups. However, two variables namely, “FinTech innovations have reduced the need to visit bank branches” (p = 0.015) and “comfort in transferring large amounts using FinTech services” (p = 0.033) have p-values less than 0.05, indicating a significant relationship with age. This means that perceptions regarding these aspects differ among age groups. Overall, the findings suggest that age does not significantly influence most aspects of customer perception towards FinTech usage, except in specific areas related to branch dependency and confidence in large transactions.

There is no significant relationship between gender and Satisfaction of Fintech technology in E- Banking Services

Factors		F	Sig.
FinTech innovations have reduced my visits to bank branches.	Equal variances assumed	10.657	.001
	Equal variances not assumed		
UPI and mobile payment apps influence my e-banking usage	Equal variances assumed	7.830	.006
	Equal variances not assumed		
The Information provided by banks on FinTech services.	Equal variances assumed	5.368	.022
	Equal variances not assumed		
Biometric authentication enhances my e-banking experience.	Equal variances assumed	.055	.816
	Equal variances not assumed		
Customer support and guidance during transaction failures while using Fintech services.	Equal variances assumed	.812	.369
	Equal variances not assumed		
The Usage of AI-based chatbots and digital customer support	Equal variances assumed	2.206	.140
	Equal variances not assumed		
System reliability and technical performance in usage of Fintech services.	Equal variances assumed	2.729	.101
	Equal variances not assumed		
The security and fraud prevention measures while using Fintech services.	Equal variances assumed	.223	.638
	Equal variances not assumed		

Source: Primary Data

Interpretation

The analysis was conducted to examine whether there is a significant relationship between gender and satisfaction with FinTech technology in e-banking services. The results reveal that some factors show a significant relationship, while others do not. Variables such as “FinTech innovations have reduced my visits to bank branches” (p = 0.001), “UPI and mobile payment apps influence my e-banking usage” (p = 0.006), and “the information provided by banks on FinTech services” (p = 0.022) have significance values less than 0.05, indicating that satisfaction levels for these aspects differ significantly between male and female respondents. On the other hand, factors like biometric authentication (p = 0.816), customer support during transaction failures (p = 0.369), usage of AI-based chatbots (p = 0.140), system reliability (p = 0.101), and security measures (p = 0.638) have p-values

greater than 0.05, showing no significant relationship with gender. This implies that both male and female respondents share similar levels of satisfaction in these areas. Overall, the findings suggest that gender does not influence satisfaction across most FinTech services, except in certain aspects related to usage behavior and information provided by banks.

There is no significant relationship between occupation and problem faced while using FinTech-based e-banking services

Chi-Square Tests			
Factors	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.861 ^a	16	.395
Likelihood Ratio	15.276	16	.505
Linear-by-Linear Association	.435	1	.510
N of Valid Cases	140		

Source: Primary Data

Interpretation

The Chi-square test was conducted to examine the relationship between occupation and the problems faced while using FinTech-based e-banking services. The results show that the Pearson Chi-square value is 16.861 with a significance value ($p = 0.395$), which is greater than the 0.05 level of significance. Similarly, the Likelihood Ratio ($p = 0.505$) and Linear-by-Linear Association ($p = 0.510$) are also greater than 0.05. This indicates that there is no statistically significant relationship between occupation and the problems encountered while using FinTech services. Therefore, the null hypothesis is accepted, meaning that individuals across different occupations face similar types of issues in using FinTech-based e-banking services. Overall, occupation does not significantly influence the problems experienced by users in digital banking.

There is no significant relationship between monthly income and purpose of using FinTech services

Chi-Square Tests			
Factors	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.727 ^a	20	.143
Likelihood Ratio	26.500	20	.150
Linear-by-Linear Association	5.241	1	.022
N of Valid Cases	140		

Source: Primary Data

Interpretation

The Chi-square test was conducted to examine the relationship between monthly income and the purpose of using FinTech services. The results indicate that the Pearson Chi-square value has a significance level of $p = 0.143$, which is greater than the 0.05 level of significance, and the Likelihood Ratio also shows a similar result ($p = 0.150$). This suggests that there is no statistically significant relationship between monthly income and the purpose of using FinTech services. However, the Linear-by-Linear Association shows a significance value of $p = 0.022$, which is less than 0.05, indicating the presence of a slight linear relationship between income levels and usage purpose. Despite this, the overall conclusion is that the null hypothesis is accepted, meaning that monthly income does not significantly influence the purpose for which FinTech services are used.

Conclusion

The present study titled “Smart Banking Era: Evaluating the Impact of FinTech Innovations on Customer E-Banking Behavior” clearly highlights the transformative role of FinTech in reshaping modern banking practices. The findings reveal that FinTech innovations such as mobile banking, UPI, digital payments, and AI-based services have significantly improved the convenience, speed, and accessibility of banking services, leading to increased adoption of e-banking among customers.

The analysis shows that most customers have a positive perception of FinTech services, particularly in terms of time-saving, ease of use, and the ability to perform banking activities digitally. However, certain challenges such as technical issues, security concerns, and lack of awareness still influence customer experience and limit full adoption. The study also indicates that demographic factors have a mixed impact on customer behavior. While age influences specific aspects like reduced branch visits and confidence in large transactions, gender affects satisfaction in areas such as usage behavior and information provided by banks. On the other hand, occupation and monthly income do not show a significant relationship with problems faced and purpose of usage, indicating that FinTech services are widely accepted across different socio-economic groups.

Overall, the study concludes that FinTech innovations have a strong and positive impact on customer e-banking behavior, but there remains a gap in awareness, trust, and digital literacy among certain groups. To enhance adoption, banks should focus on improving security measures, providing better customer education, and ensuring reliable digital infrastructure. By addressing these challenges, financial institutions can strengthen customer trust and fully realize the potential of the smart banking era.

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