Minimax Theory and its Applications
Volume 11 (2026), No. 5s, 26 to 38

Impact of Time-Saving and Security Factors on Digital Payment System Adoption: A Minimax Decision-Making Approach

Archana Vijayvargiya[1], Dr. Rashmi Sharma[2]

[1] Assistant Professor, Swarrnim Startup and Innovation University; Research Scholar, JECRC University, Jaipur. Email: Vijayvargiya.archana@gmail.com
[2] Associate Professor, JECRC University, Jaipur. Email: Rashmi.sharma@jecrcu.edu.in

Abstract:
Digital payment ecosystems have undergone a revolution thanks to the quick development of Artificial Intelligence (AI) and Financial Technology (FinTech), which have made it possible to conduct intelligent, safe, and effective financial transactions. Understanding the critical elements driving user adoption has become crucial for creating AI-enabled payment solutions as digital payment systems continue to grow. This study highlights the potential of AI techniques for anticipating user behavior and educating digital payment services while examining the impact of time-saving and security considerations on consumers' adoption and acceptance of digital payment systems.
A designed Google form was hand-me-down to gather primary data from 453 respondents utilizing a quantitative research approach. Regression analysis, the Mann-Whitney U test, the Friedman test, and the One-Sample Kolmogorov-Smirnov test were among the statistical methods used to examine the facts now direction to determine the important reasons prompting the recognition of digital outflows. Conferring to the first-hand results, consumers strongly favor platforms that provide quick, easy, and smooth transaction experiences, and time-saving is a substantial interpreter of digital payment acceptance. These behavioral insights offer useful input variables for creating AI-based analytical patterns that can expect user adoption trends and customize digital payment systems.
Conferring towards survey, users' trust and continuous habit of digitalization of payments platforms are knowingly subjective by security and privacy. The utmost substantial factor influencing the taking on of digitalization of payments, according to respondents, is the safeguard of personal data, privacy assurance, and fraud prevention measures. In order to progress the confidence plus dependability of digitalization of payment ecosystems, these findings highlight the result of including AI-driven fraud detection, anomaly detection, and intelligent risk assessment algorithms.
The study comes to the conclusion that user approval and the adoption of digital payments are significantly influenced by time-saving and security. By offering behavioral insights that can support the development for forecasting customer adoption, enhancing decision-making within FinTech applications, strengthening fraud prevention mechanisms, and improving personalized financial services, the findings add to the expanding corpus of research on digital financial services. In order to promote wider acceptance and long-term digital financial inclusion, the study proposes user-centric payment solutions.

Keywords: Artificial Intelligence, Digitalization of Payment, FinTech, Digital Payment Adoption, Predictive Analytics, User Behavior, Security, Privacy, Digital Banking.

Introduction

The banking industry has experienced an important revolution over the past epoch, focussed by quick advancements in information & communication technologies. Digital banking refers toward the provision of finance check area from end to end digital platforms, containing banking via internet, banking via mobiles, electronic wallets, and other online finance related services. The development of digitalization of banking has revolutionized traditional finance processes through proposing clienteles greater nearness, approachability, speediness, and cost adeptness.
The growing dispersion of smartphones, internet connectivity, and payment digitalization infrastructure has quicker the acceptance of application based banking services worldwide. In developing economies, particularly India, government initiatives such as Digital India, Unified Payments Interface (UPI), Aadhaar-enabled services, and financial inclusion programs have significantly contributed to the growth of digital banking. As consumers increasingly prefer contactless and real-time financial communications, finance institutes are capitalizing cripplingly in technologies to enhance customer experience and operational efficiency.
Digitalization of banking make available several assistances, containing 24/7 right to use to financial services, reduced operation expenses, more rapidly dealing out, upgraded customer engagement, and enhanced financial inclusion. However, regardless of these benefits, concerns related to cybersecurity, privacy, trust, and technological complexity continue to influence customer receiving and habit of digital banking platforms. Security concerns, in particular, remain one of the utmost critical obstacles to acceptance of internet banking, as customers

are increasingly showing to threats such for example phishing attacks, identity theft, data breaches, and online fraud.
Recent studies indicate that customer perceptions regarding security, trust, effortlessness of usecase, in addition time-saving benefits performance a substantial part in defining the adoption and continued use of digitalization of banking services. Besides, the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Diffusion of Innovation Theory have been widely employed to explain users' behavioral intentions toward digital banking adoption.
Given the increasing status of online of financial services and the evolving nature of customer expectations, it is important towards examine the dynamics persuading the reception and usage of digital banking. Therefore, this reading emphases on analyzing the bearing of security and time-saving attributes on the reception in addition practice of digitalization of banking products and other value added services among users.

Literature Review

Daniel (1999): measured the current state of electronic banking and determined the variables influencing its growth. Organizational and market levels of analysis were suggested by the researcher. After that, the variables were separated into five groups: innovation culture, market share or strength, constraints, customer acceptance prediction and limitation, and future vision. Customers are more inclined to convert to electronic banking services because of their ease, according to the study's findings. Because of this, banks need to be proactive, creative, and create new goods and services to satisfy the demands of their clients (easy accessibility, functionality, security, speed, and affordable service) while also making sure they survive in the cutthroat banking industry.
Wenninger (2000): Because invoices are paid and received online, banks are crucial to the electronic market. Conventional banking services can be accessed electronically with a mouse click. According to researchers, banks face operational and strategic risks. In order to compete, endure, and conduct business in the electronic market, banks must constantly monitor change, create new information systems, and offer services at a reasonable cost.
Howcroft et al. (2002) investigated consumer perceptions of novel financial service delivery methods and the elements that promote and hinder the use of home-based banking. This study indicates that people are willing to buy financial services via a "armed length channel," meaning that in the UK, telephone banking is prioritized above online banking. The researchers believe that the emergence of ideal services that offer value for money, ease of use, and expediency will encourage consumers' views and raise the number of purchases for the adoption and more use cases of digitization of financial services.
Liao & Tow (2002) investigated the opinions of customers regarding online banking. The empirical investigation indicates that methods such as user friendliness, customer involvement, convenience, accuracy, fastest transaction, and security measure are motivators for customers' 51 perceived usefulness. Regression study indicates that these characteristics significantly influence end users' propensity to use fintech banking services. The researchers offered suggestions and consequences to users and bankers based on the findings of their investigation into consumers' assertiveness toward the digitalization of banking.
Yousafzai et al. (2003) tried to investigate the aspects of risk and trust in online banking. The study found that seeming safety and perceived privacy are the most significant elements influencing consumers' trust since customers remained hesitant to accept electronic commerce owing to near risk and trust issues. The following traits of trust were also found in the study: competence, compassion, and integrity. The conclusion is that trust is anticipated to lower risk, which has a favorable effect on the digitalization of banking persuasion.
Vijay Kelkar (2008) recommended that all subsidies be combined and sent to the intended audience using information technology; this will cut expenses and minimize leaks. Additionally, Kelkar recommended that banks view this as a business opportunity and treat urban poor and other urban consumers differently in order to increase their participation. Additionally, he said that increased financial inclusion will encourage farmers to adopt new technology more quickly and reduce their debt.
Thyagarajan and Venkatesan (2008) carried out a study to examine the project's aftermath carried out by the State Level Bankers Committee (SLBC). As of November 2008, SLBC had successfully opened No Frill accounts in 155 districts. 25% of the homes in a Tamil Nadu area were still excluded from the drive-in despite the SLBC's best efforts. Additionally, it was discovered that just 15% of the accounts opened under the scheme were active and had a balance of INR 100 or higher, while roughly 85% of the accounts were determined to be dormant. Lack of financial awareness and the distance between the bank offices and the homes could be the cause of the non-operational account. The bank's perspective was another noteworthy factor.
Yeremenko & Rudskaya (2016) examined developments in the banking sector in Russia. They created the concept of digital banking based on the theoretical framework. The survey covered popular investment innovations and payment methods, including identity cards, internet banking, and phone banking. According to researchers, banks need 49 implement front-line expertise, offer safe facilities at reasonable prices, boost client loyalty to online services, and eventually compel clients to use the newest financial technology.
.**Robbins (2010)** examined customer perceptions of e-banking uptake and new payment products in a creative paper. The results show that consumers have a very favorable opinion of online banking. Convenience, familiarity, privacy, and security are some of the variables that affect users. The researcher claims that in order to increase the number of people using e-banking products and services, banks need change customer attitudes regarding security concerns and develop their e-banking strategies.

Keivani et al., (2012) In this work, a theoretical examination of the present and potential developments in electronic banking was carried out. The researchers claim that instead of going to a bank, clients can complete their financial tasks online. According to this study, using electronic banking lowers potential costs for banks, but it also shows that a lack of technical expertise and trust limits the number of users of electronic banking. The researchers advise banks and the government to enhance the security system and run educational efforts to boost consumer confidence in online banking.

Yeremenko & Rudskaya (2016) examined developments in the banking sector in Russia. They created the idea of digital banking based on the theoretical foundation. In summary, this study covered banking innovation and payment methods such as cards, online banking, and mobile banking. According to researchers, banks should implement state-of-the-art technology, offer safe services at affordable prices, boost client loyalty to online services, and eventually compel clients to use the newest banking technology.

Dr. Vijith Raghavendra, (2023) The academic high spot India's taking on of automatic payment systems, together with UPI, which takes flowed in fame. Using a altered Lotka-Volterra model, Study emphasise that UPI resolve beat orthodox approaches in market share and capacity, telling a situation wherever together exist but UPI converts the favourite choice.

Dr. Sanjeet Singh and Anjna Devi, (2023), The investigator highlights the position of a digital frugality in contesting dishonesty, shadowy cash, and counterfeit currency. Through analysing previous statistics since RBI update, the reading forecasts exponential evolution in digitalization of payment methods in our country. The results disclose an regular twelve-monthly development of 38% in size and 9% in rate, with UPI important the box at a amazing 234% growth rate.

Kim et al. (2024) explore the effect of apparent safekeeping plus privacy concerns on digitalization of payment acceptance in South Korea and the United States. Their comparative study reveals that enhancing security measures and addressing privacy concerns are essential for fostering consumer trust and promoting digital payment adoption. Underline the implication of robust safety actions in implanting assurance among consumers regarding the safety of their financial transactions directed through digital boards. In an era marked by an escalating number of cyber threats and data breaches, individuals are increasingly thoughtful around the security of their personal and financial information when engaging in online transactions. Therefore, initiatives aimed at enhancing the security infrastructure of digital payment systems are imperative for assuaging consumer apprehensions and driving widespread adoption.

Wang et al. (2024) extend this research by examining factors influencing consumers' adoption of contactless payment in China. They find that convenience, coupled with factors such as ease of use and accessibility plays a pivotal role in driving the adoption of contactless payment solutions. By elucidating the interplay between convenience, ease of use, accessibility, and contextual factors.

Dr. Mona Agarwal, (2024), This research focuses on analyse the agreement leanings of digital industries, plus UPI, transportable folders, net finance, and extra identification card, in country from past many years. Using facts since management causes, measurable study via SPSS 23.0 discloses a important upsurge in equally size and rate of numeral trades, indicative of a change headed for a digital budget. Though, confines such as temporary facts handiness are recognized, prominence the essential for running observing to internment budding matter patterns. Total, the education provides cherished practical statistics to apprehend our countries fast digitalization of transaction.

Research Methodology

Research Design

The study adopts a descriptive and analytical research design. It is descriptive as it describes user perceptions and behaviours, and analytical as it examines r2e2lationships between variables using statistical techniques. The study is empirical in nature, a1s1 it is based on primary data collected from respondents.

Research Objective

2. To analyse the impact of security on the use and acceptance of Digital Payment Systems.
3. To evaluate the impact of time-saving benefits on the use and acceptance of Digital Payment Systems.

Hypothesis 1

H0: Security does not significantly impact the uses and acceptance of Digital Payment System

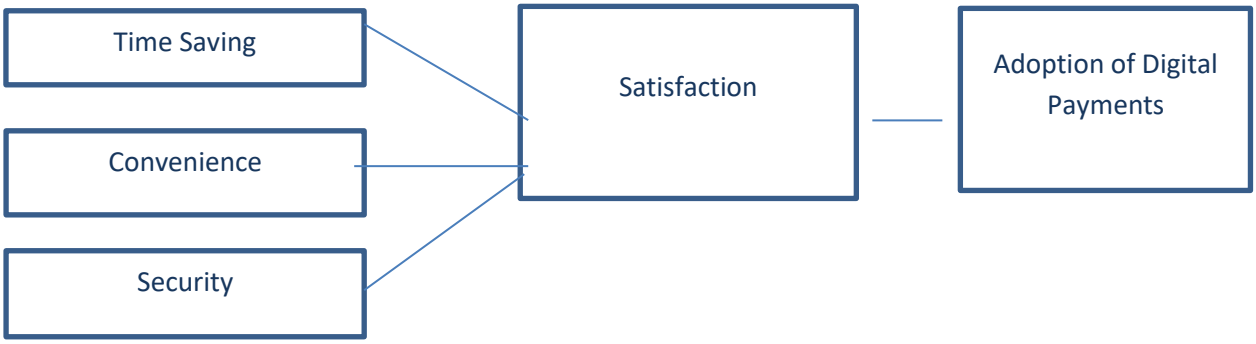
H1: Security does significantly impact the uses and acceptance of Digital Payment System

Hypothesis 2

H0: Time saving does not significantly impact the uses and acceptance of Digital Payment System

H1: Time saving does significantly impact the uses and acceptance of Digital Payment System

Model for the research paper



Data Collection Methods

Primary Data

Primary data has been designed through structured questionnaire respondents' opinions about digital payment systems. The questionnaire includes multiple items unrushed on a Likert scale.

Secondary Data

Secondary statistics has been composed from periodicals, study papers, reports, government publications, and online databases to support the theoretical framework.

Sampling and Users

The sampling framework of the study focuses on personalities who aggressively habit digitalization of payment systems in Rajasthan. The respondents include users of various fintech-based platforms such as UPI, mobile wallets, internet banking, and card payment systems. Efforts were made to include participants from varied demographic credentials, together with diverse age crowds, occupations, income levels, and educational qualifications, to ensure a comprehensive understanding of user behavior and perceptions toward digital payments.

The users selected for the study represent both urban and semi-urban areas, reflecting varying levels of digital exposure and financially literate. This diversity helps in capturing a realistic picture of digital payment adoption across different segments of society. The sampling approach aims to gather relevant and reliable data from actual users of digital payment systems, thereby enhancing the validity and applicability of the research findings.

Sampling Method

A convenience method of non probability sampling method takings existed adopted due to accessibility and time constraints.

Data Analysis:

After gathering primary data, the researcher used SPSS 22.0 for Windows to analyze, interpret, and present the findings. After organizing, analyzing, and evaluating the collected primary data, the results were displayed in tabular and graphical representations.

Statistics Frequencies of Demographic Questions

		Age	Gender	Occupation	Annual Income
N	Valid	453	453	453	453
	Missing	0	0	0	0
Mean		2.161	1.382	3.170	1.907
Median		2.000	1.000	4.000	1.000
Mode		2.0	1.0	4.0	1.0
Std. Deviation		.7426	.4864	1.1268	1.1732
Variance		.551	.237	1.270	1.376
Skewness		1.002	.488	-.758	1.304
Std. Error of Skewness		.115	.115	.115	.115
Kurtosis		1.189	-1.770	-1.064	.854
Std. Error of Kurtosis		.229	.229	.229	.229
Range		3.0	1.0	4.0	4.0

Table presents the descriptive statistics for the demographic variables Age, Gender, Occupation, and Annual Income based on responses from 453 participants. No data were missing for any of these variables, confirming the reliability of the statistical summaries.

Mean of the age score (2.161) with a median and final mode of 2.0 designates that the bulk of defendants belong to the second age category (as coded in the questionnaire). The positive skewness value (1.002) and kurtosis of

1.189 suggest a slightly right-skewed distribution, meaning more participants are concentrated in younger age categories.

For Gender, the mean value of 1.382 and mode of 1.0 imply that males (coded as 1) make up a larger portion of the sample. The distribution shows moderate positive skewness (0.488) and negative kurtosis (-1.770), indicating a slight imbalance toward one gender but with a relatively flat distribution shape.

In the case of Occupation, the mean score (3.170) and mode (4.0) reveal that a substantial quantity of respondents are employed in the occupation category coded as 4. The negative skewness (-0.758) suggests a left-skewed pattern, meaning that higher occupation categories have more representation. The kurtosis value (-1.064) indicates a flatter distribution compared to the normal curve, reflecting diverse occupational backgrounds among respondents.

Regarding Annual Income, the mean (1.907) and mode (1.0) show that most respondents fall into the lesser salary cluster. The positive skewness (1.304) indicates that income distribution is heavily right-skewed, with smaller amount of applicants trendy advanced salary sets. The kurtosis value (0.854) suggests a slightly peaked distribution.

Largely, the demographic data demonstrate that the sample is dominated by younger, male respondents with a concentration in certain occupational and lower-income categories. The skewness and kurtosis statistics further reveal moderate deviations from normality across the variables, typical in social science research involving categorical demographic data.

Hypothesis 1:

H0: Time Saving Does Not Significantly Impact the Uses and Acceptance of Digital Payment System

H1: Time Saving Does Significantly Impact the Uses and Acceptance of Digital Payment System

Payment Systems and Ease of Use

Regression Model Summary of Payment Systems and Ease of Use

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.455[a]	.207	.196	.23655

a. Predictors: (Constant), Improve the quality of financial transactions., Time Saving, User-friendly and easy to navigate., Easy to learn and use, Quick transaction, Easy to operate

The model explains about 20 percent of the variation in ease of use through factors like quick transactions, time saving, and user-friendly features. The moderate R value (.455) shows a fair positive relationship between payment system ease of use and these predictors.

ANOVA of Payment Systems and Ease of Use

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.514	6	1.086	19.402	.000[b]
	Residual	24.956	446	.056		
	Total	31.470	452			

a. Dependent Variable: PaymentSystem

b. Predictors: (Constant), Improve the quality of financial transactions., Time Saving, User-friendly and easy to navigate., Easy to learn and use, Quick transaction, Easy to operate

The model is statistically significant, showing that ease-of-use factors strongly influence the payment system. A high F-value and a p-value of .000 indicate that variables like quick transactions, user-friendliness and time saving meaningfully predict payment system usage.

Coefficients of Payment Systems and Ease of Use

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.386	.027		50.421	.000
	Time Saving	.093	.025	.307	3.752	.000
	Easy to learn and use	.062	.023	.226	2.697	.007
	Quick transaction	-.066	.027	-.222	-2.460	.014
	User-friendly and easy to navigate.	-.080	.025	-.268	-3.236	.001
	Easy to operate	.048	.029	.162	1.691	.092
	Improve the quality of financial transactions.	.063	.022	.218	2.783	.006

a. Dependent Variable: Payment System

Based on the regression results presented in the Coefficients table, the hypothesis that Time Saving significantly impacts the uses and acceptance of the digital payment system is supported. This is because the independent variable Time Saving has a statistically significant positive effect on the dependent variable Payment System (Uses and Acceptance of Digital Payment System), as indicated by its small p-value (Sig. = .000) which is less than the conventional significance level of \alpha = .05. Specifically, the positive Unstandardized Coefficient (B = .093) and the large t-statistic (t = 3.752) mean that for every one-unit increase in perceived time saving, the acceptance of the payment system increases by .093 units, all else being equal. Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted.

Digital Payment Systems are Convenient and Payment Systems
Mann-Whitney Test

Ranks of Digital Payment Systems are Convenient and Payment Systems

	Do you think digital payment systems are convenient?	N	Mean Rank	Sum of Ranks
Which digital payment platform you are using or not using [Google Pay]	Yes	389	215.02	83642.00
	No	64	299.83	19189.00
	Total	453		
Which digital payment platform you are using or not using [Phone Pay]	Yes	389	218.04	84816.00
	No	64	281.48	18015.00
	Total	453		
Which digital payment platform you are using or not using [Paytm]	Yes	389	215.57	83855.50
	No	64	296.49	18975.50
	Total	453		
Which digital payment platform you are using or not using [Bharat Pay]	Yes	389	225.72	87806.00
	No	64	234.77	15025.00
	Total	453		
Which digital payment platform you are using or not using [Amazon Pay]	Yes	389	224.82	87456.50
	No	64	240.23	15374.50
	Total	453		
Which digital payment platform you are using or not using [BHIM]	Yes	389	222.52	86560.50
	No	64	254.23	16270.50
	Total	453		

The ranking results show that respondents who believe digital payment systems are convenient tend to use major platforms like Google Pay, PhonePe and Paytm more frequently, as their mean ranks are notably lower than those who do not find them convenient. Users who do not perceive digital payments as convenient show higher ranks, indicating lesser usage or acceptance of these platforms.

Test Statistics of Digital Payment Systems are Convenient and Payment Systems

Payment Systems	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Google Pay	7787.000	83642.000	-6.811	.000
Phone Pay	8961.000	84816.000	-4.340	.000
Paytm	8000.500	83855.500	-5.293	.000
Bharat Pay	11951.000	87806.000	-.885	.376
Amazon Pay	11601.500	87456.500	-1.348	.178
BHIM	10705.500	86560.500	-2.465	.014

The Mann-Whitney U results show that convenience significantly influences the use of most digital payment platforms. Google Pay, PhonePe, and Paytm have p-values of .000, indicating a strong and statistically significant difference between users who find these systems convenient and those who do not. BHIM also shows a significant result with a p-value of .014, suggesting convenience affects its usage as well, though to a lesser extent. In contrast,

Bharat Pay and Amazon Pay have p-values of .376 and .178, which are not statistically significant, meaning convenience does not strongly impact their adoption.

Hypothesis No 2

H0: Security Does Not Significantly Impact the Uses and Acceptance of Digital Payment System

H1: Security Does Significantly Impact the Uses and Acceptance of Digital Payment System

Security and Privacy Related Factors of Digital Payment System

Friedman Test

Descriptive Statistics of Security and Privacy Related Factors of Digital Payment System

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Do not allow others to access my accounts	453	1.892	.9238	1.0	5.0	1.000	2.000	2.000
Provide high protection for transactions	453	1.996	.8998	1.0	5.0	1.000	2.000	2.000
Secure and safe from any fraud or hacking	453	2.091	1.0058	1.0	5.0	1.000	2.000	3.000
Offer secure personal privacy	453	2.166	.9760	1.0	5.0	1.000	2.000	3.000
I feel secure while making transactions	453	2.055	.8668	1.0	5.0	1.000	2.000	3.000
Digital payment app does not share my personal information	453	2.163	.9798	1.0	5.0	1.000	2.000	3.000

The descriptive results show that users generally have a positive perception of security and privacy in digital payment systems. The mean values for all statements fall around 2 on a five-point scale, indicating agreement toward security features such as protection of transactions, safe handling of personal information, and restricted account access. Median scores for most statements are 2, and the 25th percentile is mostly at 1, suggesting that a considerable number of users strongly agree with the security measures offered by digital payment apps. Slightly higher mean values for statements like fraud protection and privacy indicate that a few users are more cautious about these aspects, as reflected in the wider range and standard deviations.

Ranks of Security and Privacy Related Factors of Digital Payment System

	Mean Rank
Do not allow others to access my accounts	3.14
Provide high protection for transactions	3.40
Secure and safe from any fraud or hacking	3.55
Offer secure personal privacy	3.81
I feel secure while making transactions	3.41
Digital payment app does not share my personal information	3.69

The mean rank values indicate how users prioritize different security and privacy aspects of digital payment systems. The highest priority is given to personal privacy, as reflected in the highest mean rank for "Offer secure personal privacy" (3.81), followed by "Digital payment app does not share my personal information" (3.69). Users also place significant importance on being protected from fraud and hacking (3.55). In contrast, the ability to restrict others from accessing their accounts (3.14) and protection during transactions (3.40) are ranked slightly lower, suggesting that users assume basic security features are already expected and focus more on personal data and privacy-related concerns.

Test Statistics of Security and Privacy Related Factors of Digital Payment System

N	453
Chi-Square	97.540
df	5
Asymp. Sig.	.000

a. Friedman Test

The Friedman test result shows that there is a statistically significant difference among the security and privacy factors of digital payment systems (Chi-Square = 97.540, df = 5, $p < 0.001$). Since the significance value is less than 0.05, it indicates that users do not rate all security and privacy attributes equally. This confirms that certain

factors, such as personal privacy and non-sharing of information, are prioritized more than others like account access control.

Impact of Use of Security and Privacy Related Concern in Digital Payment System
One-Sample Kolmogorov-Smirnov Test

Table 4.46 Descriptive Statistics of Impact of Use of Security and Privacy Related Concern in Digital Payment System

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Do not allow others to access my accounts	453	1.892	.9238	1.0	5.0	1.000	2.000	2.000
Provide high protection for transactions	453	1.996	.8998	1.0	5.0	1.000	2.000	2.000
Secure and safe from any fraud or hacking	453	2.091	1.0058	1.0	5.0	1.000	2.000	3.000
Offer secure personal privacy	453	2.166	.9760	1.0	5.0	1.000	2.000	3.000
I feel secure while making transactions	453	2.055	.8668	1.0	5.0	1.000	2.000	3.000
Digital payment app does not share my personal information	453	2.163	.9798	1.0	5.0	1.000	2.000	3.000

The descriptive statistics indicate that respondents generally perceive the security and privacy measures of digital payment systems positively. The mean values for all variables are approximately 2, reflecting overall agreement that digital payment applications effectively secure user accounts, ensure transaction safety, and protect personal privacy. The median score of 2 across all items, along with the 25th percentile value of 1, suggests that a substantial proportion of respondents expressed strong agreement with these statements. Comparatively, the slightly higher mean scores observed for fraud prevention, protection of personal privacy, and the non-disclosure of personal information indicate that respondents exhibit relatively greater caution regarding these aspects. This interpretation is further supported by the comparatively higher standard deviation values for these variables, which reflect greater variation in respondents' opinions.

One-Sample Kolmogorov-Smirnov Test of Impact of Use of Security and Privacy Related Concern in Digital Payment System

		Do not allow others to access my accounts	Provide high protection for transactions	Secure and safe from any fraud or hacking	Offer secure personal privacy	I feel secure while making transactions	Digital payment app does not share my personal information
N		453	453	453	453	453	453
Normal Parameters[a,b]	Mean	1.892	1.996	2.091	2.166	2.055	2.163
	Std. Deviation	.9238	.8998	1.0058	.9760	.8668	.9798
Most Extreme Differences	Absolute	.237	.255	.220	.227	.234	.237
	Positive	.237	.255	.220	.227	.234	.237
	Negative	-.167	-.177	-.139	-.157	-.183	-.149
Test Statistic		.237	.255	.220	.227	.234	.237
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.000[c]	.000[c]	.000[c]	.000[c]

a. Test distribution is Normal.
b. Calculated from data.

The results of the One-Sample Kolmogorov-Smirnov test show that all security and privacy related variables significantly deviate from a normal distribution. For each factor, the test statistic ranges between 0.220 and 0.255, and the p-value is .000, which is below the 0.05 level. This indicates that user answers exist that not distributed normally and are instead clustered toward the lower end of the scale. This is consistent with the mean values close

to 2 and a large number of responses at 1 and 2, suggesting strong agreement toward security and privacy measures in digital payment usage.

Conclusion

The study examined the influence of **Time Saving** and **Security** on the uses and acceptance of digital payment systems. The findings show that both factors significantly contribute to users' taking on and continuous habit of platforms of digitalization of payment.

This study comes to the conclusion that user approval and the taking on of digitalization payments are knowingly inclined via time-saving and security. By offering behavioral insights that can support the development for forecasting customer adoption, enhancing decision-making within FinTech applications, strengthening fraud prevention mechanisms, and improving personalized financial services, the findings enlarge to the expanding corpus of research on digital financial services. In order to promote wider acceptance and long-term digitalization of financial inclusion, the study proposes user-centric payment solutions.

Users' trust and assurance in platforms of digitalization of payments digital payment platforms are greatly influenced by security. According to the analysis, respondents place a high value on security and privacy-related aspects, especially measures against fraud and hacking, privacy guarantee, and the protection of personal information. According to the major Friedman test results, people value security features that safeguard the users of financial and their own information. These outcomes demonstration that operators remain extra liable in the direction of agree and switch with digitalization of payment systems the minute they have higher security perceptions. By way of a outcome, the alternative hypothesis (H1) was supported and the null hypothesis (H0) was rejected, demonstrating that security has a major influence taking place the agreement and usage of digitalization of payment systems.

These elements work together to improve handler happiness and promote increased agreement of digitalization of tech payment. Thus, now order to boost consumer assurance besides encourage broader agreement of digitalization of payment tech system, digital payment service providers should constantly concentrate on enhancing transaction speed, usability, privacy protection, and security methods. The acceptance of both theories shows that maintaining the expansion and prosperity of digital payment ecosystems requires developing a safe, effective, and user-friendly digital payment environment.

References

1. Achutamba, V., et al. (2022). *Effect of COVID-19 on digital payments in India*. Journal of Emerging Technologies and Innovative Research, 9(5), 112–120.
2. Agarwal, M. (2024). Adoption trends of digital transactions in India: An empirical analysis. *International Journal of Research in Finance and Management, 7*(1), 45–58.
3. Cai, Y., et al. (2008). Consumer adoption of electronic banking: An empirical investigation in the United States. *International Journal of Bank Marketing, 26*(7), 476–493.
4. Chen, X., Zhang, Y., & Liu, J. (2023). Factors influencing consumers' adoption of digital payments: A meta-analysis. *Electronic Commerce Research and Applications, 58*, 101234.
5. Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing, 17*(2), 72–82
6. Howcroft, B., Hamilton, R., & Hewer, P. (2002). Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. *International Journal of Bank Marketing, 20*(3), 111–121.
7. Jeerath, B. (2022). Digital payment in India: An analysis. *International Journal of Research in Commerce and Management Studies, 4*(5), 75–88.
8. Keivani, F. S., Jouzbarkand, M., Khodadadi, M., & Sourkouhi, H. A. (2012). A general view on the e-banking. *International Proceedings of Economics Development and Research, 43*, 31–36.
9. Kelkar, V. (2008). *Financial inclusion for inclusive growth*. Government of India Working Paper.
10. Kim, H., Park, S., & Lee, J. (2024). Perceived security, privacy concerns and digital payment adoption: A comparative study of South Korea and the United States. *Journal of Financial Innovation, 10*(2), 125–144.
11. Liao, Z., & Cheung, M. T. (2002). Internet-based e-banking and consumer attitudes: An empirical study. *Information & Management, 39*(4), 283–295.
12. Raghavendra, V. (2023). UPI adoption and future market dynamics in India: A modified Lotka-Volterra approach. *Journal of Digital Economy Studies, 5*(2), 65–78.
13. Rajan, R. G. (2009). *A hundred small steps: Report of the Committee on Financial Sector Reforms*. Government of India, Planning Commission.
14. Robbins, S. S. (2010). Consumer attitudes toward e-banking and emerging payment technologies. *Journal of Electronic Banking Systems, 2010*, 1–12.
15. Singh, S., & Devi, A. (2023). Growth and prospects of digital payments in India: An analytical study. *International Journal of Finance and Economics Research, 8*(3), 102–115.
16. Thyagarajan, S., & Venkatesan, R. (2008). Financial inclusion through no-frills accounts: An assessment of the SLBC initiative in Tamil Nadu. *Indian Journal of Finance, 2*(7), 15–22.
17. Wang, L., Chen, Y., & Zhao, X. (2024). Factors influencing consumer adoption of contactless payment systems in China. *International Journal of Electronic Commerce, 28*(1), 89–108.

18. Wenninger, J. (2000). The emerging role of banks in e-commerce. *Current Issues in Economics and Finance, 6*(3), 1–6. Federal Reserve Bank of New York
19. Yeremenko, G., & Rudskaya, I. (2016). Banking innovations and digital banking development in Russia. *Mediterranean Journal of Social Sciences, 7*(3), 45–53.
20. Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation, 23*(11), 847–860.