

# Mobile Payment Fintech Service Adoption and Security Concerns

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## Abstract

*In India, the adoption of financial technology (Fintech) or financial technology innovation (FTI) has expanded due to the development of mobile devices and their use. The need for mobile Fintech payment systems that facilitate online and offline transactions has increased, especially during and after COVID times. However, mobile payment services are still used in limited areas due to concerns over the security of mobile applications for customers and Fintech companies alike. Drawing on the Technology Acceptance Model (TAM), the findings of this paper support the notion that usefulness, ease, user design, information security, and trust impact of mobile payment concerns and adoption factors in the Fintech environment are important variables.*

**Keywords:** *Fintech, security, customer behaviour, mobile payment*

## Introduction

Information Technology is advancing so quickly that it has an impact on every part of business. One of them is the creative use of the Internet to assist businesses in enhancing their operational performance (McAuley, 2014). Information and financial technology have been incorporated into Financial Technology (Fintech) as a result of technological advancement in the finance industry (Khan & Allil, 2010) (Kolodinsky et al., 2004), leading to several digital finance and Fintech initiatives (Agrawal, Jespersen & Pendyal, 2023)

Compared to changes in financial services, Fintech is more dynamic. It offers new perspectives on financial services that improve the effectiveness of payment plans during a transaction (Lee & Teo, 2015). Fintech transforms conventional financial services into cutting-edge ones in the financial services sector. As a result, it offers a wider range of financial services, starting with products. To expand the number of Fintech service customers, the business must pay attention and comprehend behaviour and perceptions. Users must be trusted, and companies must disclose perceived risk indicators (Ratnasingam, 2003). In this paper we examine how these aspects relate to the decision to use the company's Fintech services (Singh & Sirdeshmukh, 2000). Using the Theory of Technology Acceptance Model (TAM) (Haris & Mardiaty, 2019) as the primary theoretical framework, we investigate the connection between usefulness, trust, ease, design and security to users' behaviour (Davis, 1989) as the basic theory of this research (Venkatesh & Davis, 2000).

## Review of Literature

A thorough review was conducted using the terms "Fintech" and "human psychology." In a quantitative web survey that used a method to gather first-hand information, 104 graduates and undergraduates from the city of Delhi took part (Tang et al., 2020). The extent of the general public's behavioural response to adoption and security concerns of mobile Fintech payment services was further investigated using factor analysis in SPSS. Based on a previous study, the variables used in the study were selected. This study also aims to test any hypotheses that have already been formed. It looks to connect the dots between five different factors.

Customers can participate in various mobile environment services with the help of Fintech, which is defined in this study as the innovation and technological disruption of financial services by non-financial enterprises. This support system helps in adoption of innovative practices and is useful in creating customer values. These innovative practices also help in accepting new technology for payments (Kumar & Gupta, 2021) (Bahl & Kumar, 2021) (Kumar & Gupta, 2019). For example, online payment, fund transfer, loan application, insurance policy purchase, asset management and management, stock investment, mobile payment, InsureTech, P2P lending, crowd funding, crypto currency and so on (Ryu, 2018). The enormous advantages of Fintech for consumers include transparency, no middlemen and increased access to financial information (Abramova & Böhme, 2016; Zavolokina et al., 2016). However, Fintech institutions must simultaneously overcome any uncertainties or potential harm to consumers while taking advantage of Fintech's potential benefits (Chan, 2015).

A Word Cloud in "R" was created during the literature review and used as a first step in the analysis process to confirm earlier results. In this 35 words from the 30 highly indexed journal articles were represented.

**Fig.1 Word Cloud Analysis in "R" Software**



(Source: Authors' own)

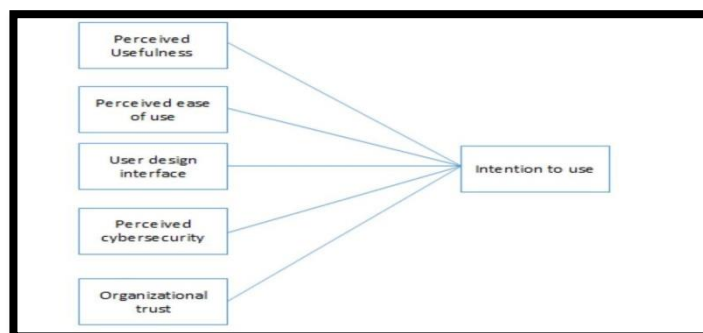
### Theory and Hypothesis

For the first time, TAM model to Theory of Reasoned Action (TRA) (Davis et al., 1989) , which defined how people perceive behaviour or actions, was used to better understand how people behave toward technology. Considering the changes, the TAM model might examine and recognize the factors that affect human the way a person uses technology (Ajzen & Fishbein, 1977) (Al-Mamary et al., 2016). There are two key factors to comprehend in this model, namely, the behaviour of users, specifically perceived usefulness and perceived ease of use (Arner et al., 2015) (Cruz et al., 2010).

We have opted to further develop research model (Stewart & Jürjens, 2018) after examining and highlighting the flaws in the many theories addressing technology acceptance.

Data Security (DS), Customer Trust (CT), Perceived Usefulness (U) and Perceived Ease of Use (E), and User Design Interface are the five aspects that make up their original concept (UI).

Under, the Fintech acceptance model (Stewart & Jürjens, 2018), there is a proposal of a new conceptualization of "Data Security" as "Perceived Cybersecurity" (i.e., service security, platform security, network security, and device security) and "Customer Trust" as "Trust in the Technology," which converges to "Perceived Security" and trust in the organisation (i.e., Organizational Trust) (Davis et al., 1989).



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**Fig.2: Proposed Model**

### Research Methodology

Intensive review was carried out using the keyword FINTECH, and human psychology .104 graduates and undergrads from the city of Delhi participated in a quantitative web survey that used a technique to gather primary data (Tang et al., 2020) (Krishanan et al., 2016). Between the months of April and June 2022, the study was conducted. Factor

analysis in SPSS was used to further investigate the degree of behavioural response of general public towards adoption and Security Concerns of Mobile Fintech payment services. Variables used in the study were chosen based on a review of the literature. Additionally, this study aims to test any previously formed hypotheses. It seeks to establish the connections between five factors. This study's main goal is to explain why users continue to utilize Fintech services. In this research, the researcher uses the snowball sampling method to find the respondents (Dowling & Staelin, 1994) (Folkinshteyn & Lennon, 2016). The determination parameter used is users who have used or always use Fintech services. There is online collection of data using Google Form. Data of 104 respondents were collected, IBM SPSS Statistics 21 software with the addition of factor analysis was used to correlate and investigate the factors (Tang et al., 2020). The measures in the study are adapted from previously administered research work, which demonstrates adequate internal reliability and convergent validity (Gitau & Nzuki, 2014) (Hosseini et al., 2015).

**Table 1. Scales Adopted**

Dimensions	Origins	Recent literature using the dimensions
Perceived Usefulness	Davis (1989)	Stewart and Jürjens (2018)
Perceived Ease of Use	Davis (1989)	Stewart and Jürjens (2018)
User Design Interface	Clark (2002) Landford (2006)	Stewart and Jürjens (2018)
Perceived cybersecurity defined as: service, platform, network and device securities	Hur and Lim (2017)	Hur and Lim (2017)
Organizational trust defined as integrity, ability and benevolence	Mayer et al. (1995)	Shankar et al. (2002); Lankton et al. (2015).

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## Research Instrument

Variables are measured using the instruments that were created for this study. Using the indicators for each variable, the model's (Islam & Grönlund, 2012) (Karahanna et al., 1999) variables were measured. Table I contains a list of the study's variables. The indicators used under this study were adapted from those used in other studies. They are all constructed using studies that account for the variables. The scale is Linkert has five points, with 1 depicting strongly agree and 5 depicting strongly disagree. Demographic information of 104 usability questionnaires were collected, including 42 (40.4%) for females and 62 (59.6%) for women. 95 (91.3%) people aged 18-24, 4 (3.8%) people aged 25-31, 1 (1.0%) 42 (13.9%) and 51 (16.9%). The respondents' education level consists of four level which composed of undergraduates, 34(32.7), post-graduation, 9(8.7), graduation, 55(52.9%) and others 6 (5.8%). students and 50

(16.6%) graduate students. The internal consistency, or reliability, of a group of survey items are measured by Cronbach's alpha coefficient, which is also a gauge of scale reliability. Most social science research scenarios consider a reliability coefficient of .70 or higher to be "acceptable.

**Table 2: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Adequacy.	Measure of Sampling	.834
	Approx. Chi-Square	2119.424
Bartlett's Test of Sphericity	Df	351
	Sig.	.000

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KMO value is .834 sufficiently good as is more than .6 and Bartlett's test of sphericity tests sig is less than .05 that indicates that there is sufficient correlation. Reliability is checked with communalities i.e. >0.5. Factor 1 "Organizational trust" was comprised of 8 items, factor 2 "user design interface" was comprised of 4 items, factor 3 "perceived cyber security" comprised with 8 items, factor 4 "perceived ease of use" comprised of 5 items and factor 5 "intention to use" consist only one item and factor 6 "Perceived usefulness" consist of 5 items, these were reported on a 5-point Likert scale that explained 69% of the variance with factor loadings from .486 to .871." The analysis provides the effective information for readers to identify the strength or weakness of factor structure.

**Table 3: Summary Table**

<b>Factor</b>	<b>Item Description</b>	<b>Factor loading</b>
Organizational trust	Mobile payment providers are trustful.	0.853
	Online payments get processed properly	0.847
	Mobile payment providers keep their commitments.	0.811
	In the event of a payment failure, I receive my refund.	0.783
User design interface	Navigation on mobile payment screens is simple.	0.554
	Menus for mobile payments are clear	0.461
	time-saving mobile payment system	0.617
	You can access a dashboard using your mobile payment method.	0.554
Perceived cyber security	The procedures for user authentication are safe.	0.845
	The OS is secure while mobile payment apps are in use	0.832
	In the event of a network failure, prompt assistance is provided.	0.671
	Payment methods are safe.	0.63
	User data is protected from prying eyes.	0.803
	Verification of user access control, such as Bank ID	0.775
	Your preferred mobile payment app makes sure you regularly change your PIN.	0.673
	The platform is routinely maintained and repaired using mobile payment apps.	0.454
Perceived ease of use	Apps for mobile payments offer detailed instructions	0.825
	Learning about Fintech services can be done quickly.	0.793
	I'm guided by mobile payment apps.	0.786
	Apps for mobile payments are simple to use.	0.626
	Fintech service tools are simple.	0.409
Intention to use	I will try to use the Fintech services in my	0.764

	daily life.	
Perceived usefulness	Mobile payment systems' efficiency can be increased by Fintech services.	0.702
	There are mobile payment apps available as a form of payment.	0.823
	Mobile payment apps are fast	0.803
	Mobile payment apps are convenient	0.801
	Mobile payment apps are reliable	0.54

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## Conclusion

Our analysis indicates that Fintech is highly supported in Delhi/NCR. However, the factors pertaining to perceived ease of use remain unclear. In order to reduce the variables into groups with factor loading of 0.5 and above, the data are analyzed using varimax rotation. Significant factors were defined as those with an eigen value larger than one. The factors that affect consumers' intentions to use Fintech services are as follows: Factor 1 stands for "organizational trust," Factor 2 for "user design interface," Factor 3 for "perceived cyber security", Factor 4 for “perceived ease of use”, and Factor 5 for “perceived usefulness”. Research on perceived ease of use is lacking, especially in light of the growing use of Fintech. Research on perceived ease of use is lacking, especially in light of the growing use of Fintech. Customers' positive attitudes on using Fintech services will rise if they can extract information in real-time, regardless of time or location constraints.

Fintech applications have the potential to impact customers' views towards using Fintech services if they are simple to use, intuitive, and easy to download application programs. Perceived cybersecurity is the cornerstone of mobile payment applications and user intent. Furthermore, the aforementioned discourse leads to the conclusion that Fintech innovation poses significant security issues in the financial system's implementation. The perceived cybersecurity and associated threats, such as phishing, hacking, data breaches, etc., has increased dramatically among users and developers of mobile banking applications (Alkhalil, Hewage, Nawaf, & Khan, 2021). The threats to cybersecurity falls into two categories: technology, and external attack. Phishing attacks are brought on by ransomware (Hossain Faruk et al., 2021), misuse issues (Griffiths, 2010), complexity (Korunka, C., 2022), and vulnerability (E. Dubois, et al., 2022). Thus, the IT infrastructure needs to be simple and secure. In other words, staff workers must be able to use the IS and it must be less vulnerable to intrusion.

Given that there is no significant association between the lack of skills and adoption of IS, it is probable that adoption is not at risk from cyberattacks due to skilled personnel shortages. This is largely because it has been demonstrated that perceived cybersecurity affect the uptake of mobile banking. As a result, when developing and utilizing mobile apps, security is now crucial. To further understand the influence of situational events and social norms, more research is needed.

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