MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 36 Issue 1, Jan-June 2026, Pages: 1417-1427

Intention of Bank Customers on the usage of Fintech payment apps with moderating effect on Brand Image of Banks

Dr. B. Senthil Arasu – Professor, National Institute of Technology, Trichy
Mr. S. Mathew Divakar – Research Scholar, National Institute of technology, Trichy
Dr. ADJ Rajesh – Gnanam School of Business, Thanjavur

Abstract
Financial technology's (Fintech) explosive expansion has drastically changed banking practices and consumer relations, particularly in emerging markets like India. In particular, brand image is examined as a moderating factor in this study's investigation of the factors influencing bank customers' inclination to use Fintech payment services. This study integrates constructs like Performance Expectancy, Effort Expectancy, Social Influence, Relative Advantage, and Green Technology to investigate their effects on user intention, drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT) and Diffusion of Innovation (DOI) models. Using structural equation modeling (SEM) to examine survey responses from Indian bank clients, the study finds that all constructs—aside from green technology—have a substantial impact on usage intention. Brand image also acts as a partial mediator in the interaction between user intention and a number of constructs. The findings provide useful information for banks and governments to improve customer engagement, digital service uptake, and sustainability integration. They also emphasize the significance of perceived value, social impact, and technological ease in the use of Fintech services by customers. This study offers a fundamental framework for comprehending the acceptance of Fintech and guides the strategic development of digital banking ecosystems.
Key words: Fintech Adoption, Brand Image, UTAUT, DOI, Performance Expectancy, Social Influence, SEM, Digital Banking Ecosystem

1. Introduction

Customers are empowered by this digital transition since it gives them direct access to financial services. According to Ernst & Young (2019), fintech provides a more economical, efficient, and convenient experience. Consumer control is further improved by more openness, information access, and the removal of middlemen (Ryu, 2018). From loan applications to investments and payments, mobile fintech services enable customers to complete tasks while on the go (Chang et al., 2016). Peer-to-peer lending, cryptocurrencies, e-wallets, and crowdfunding are examples of common Fintech products (Jin et al., 2019).

A new generation of financial technology (Fintech) businesses has arisen in reaction to this digital age (Gomber, Koch, & Siering, 2017). These businesses use technology to provide cutting-edge financial services, frequently more conveniently and affordably than traditional banks. Peer-to-peer (P2P) financing, which avoids traditional financial middlemen by connecting lenders and borrowers directly through internet platforms, is one example (Lee, 2017). By giving customers more options and possibly lowering borrowing rates, this upends the established banking business.

People may now access financial services more easily than ever before because to the growth of Fintech and the growing popularity of smartphones. Indonesia offers a favorable environment for Fintech adoption because to its quickly expanding internet user base. Growing mobile phone affordability and increased internet availability across the country are driving this development (Statista, 2020; Das et al., 2016). Additionally, the ease and innovation provided by Fintech services particularly appeal to Indonesia's youthful, tech-savvy populace (Tapanainen, 2020). With Islamic Fintech, which follows Sharia law, emerging as a distinct growth field, this combination of circumstances places Indonesia as a major role in the future of Fintech (Otoritas Jasa Keuangan, 2021; Oseni & Ali, 2019).

Driven by Industry 4.0 and the digital revolution, Fintech is drastically changing the US financial scene. Americans are among the top users of digital financial services due to their widespread access to the internet and mobile devices. From monitoring account operations to checking bank balances and making payments, these services cover a wide range of tasks (Tiwari & Kartika, 2019). With a reported 71% increase in the use of finance apps in 2019, consumer demand for Fintech solutions is on the rise (Salz, 2020). With a rise in Fintech firms, the US Fintech business has expanded rapidly in recent years, reaching a valuation of $18 billion in 2018 (Kauflin, 2020).

The financial services sector has seen a significant transformation due to open banking policies and technological improvements. This has made it possible for creative Fintech companies to take on established banking behemoths. With customer-centric solutions, these new companies upend the market because they are not constrained by traditional systems (PWC Global, 2019; Innopay, 2015). They frequently provide quicker, less expensive, and more effective services than traditional banks, and they are excellent at particular parts of the financial value chain.

India is an interesting case study for the effects of fintech because of its high internet and smartphone penetration rates as well as its early adoption of digital services (Hernaes, 2018). This expansion has been further stimulated by the recent adoption of open banking legislation, which have made it simpler for Fintech companies to compete. There is a knowledge gap regarding consumer behavior and the reasons for the adoption of Fintech solutions, despite the fact that current research examines the impact of Fintech on banks and their collaboration. By analyzing consumer intentions toward Fintech services in the Indian market with an emphasis on brand image, this study seeks to close this gap.

1.1 Fintech Applications and Banking

Fintech's key technologies—such as blockchain, big data, and intelligent investment consulting—have completely changed the financial environment. Accenture reports that while the number of Fintech companies grew from about 800 to over 2000 during the same period, global Fintech investment increased from $12.2 billion in 2010 to $153.1 billion in 2016. In contrast to traditional banks' more extensive deposit, payment, and lending options, this expansion highlights Fintech's contribution to improving user experiences through specialized services. As demonstrated by Banco Bilbao Vizcaya Argentaria's acquisition of

MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 36 Issue 1, Jan-June 2026, Pages: 1417-1427

Simple, a well-known online banking service with a stellar customer satisfaction rating, banks have begun incorporating Fintech innovations to increase their competitiveness after realizing the value of user-centric initiatives.

From the first physical media applications in the 15th century to the digital revolution of the 20th century, the banking sector has historically been at the forefront of important financial developments. Despite significant expenditures in digital information and communication technology, banks have had difficulty integrating these innovations properly due to inefficiencies. This disparity has sped up the rise of Fintech, which uses digital technologies to improve client interactions and expedite procedures, signaling a significant change in the way financial services are provided and received around the world.Technology's quick advancement is radically altering human existence, and the financial industry is no exception. Financial technology, or fintech, is becoming a significant player in this change. Compared to traditional banks, fintech offers more flexibility and a bigger range of services, such as funding, insurance, investments, payments, and supporting infrastructure (Zavolokina et al., 2016). Banking institutions in a number of industries and company operations are being impacted by this.

Innovation and technology are changing the banking industry. Fintech, which combines technology and finance, is revolutionizing the way we handle our finances. Fintech provides greater flexibility and a greater selection of financial services, such as payments, investments, and insurance, in comparison to traditional banks [Zavolokina et al., 2016].

The influence of fintech is not limited to individuals. It affects business procedures in a variety of industries and upends conventional banking models [Leong and Sung, 2018]. Examples include the emergence of robo-advisors, peer-to-peer financing, and internet marketplaces. Because they are quick and easy, cashless payments are becoming more and more common. In order to satisfy consumer preferences, businesses are actively developing in this field.
Fintech has the ability to enhance financial inclusion and literacy on a social level. While inclusion guarantees access to necessary financial services, financial literacy enables people to make well-informed financial decisions. Fintech can facilitate access to financial instruments and make financial information easily accessible, which will ultimately improve financial health. According to studies, the banking sector's digitalization initiatives have significantly increased financial inclusion in developing nations [Tam le et al., 2019]. Benefits of this digital revolution include faster transactions, increased reach, and less dependence on physical bank offices [Beck, 2020].
Fintech is not without its difficulties, though. User trust has been damaged by instances of fraud committed by certain Fintech organizations. According to research by Ryu (2018), user experience and adoption of Fintech can be greatly impacted by how the risks and rewards are perceived. Protecting customers and maintaining service continuity are critical for Fintech to grow sustainably. In the end, users will make their decision based on possible dangers, brand reputation, and perceived rewards.

2. Review of literature:

2.1 Theoretical Background

In order to assess the market and provide guidance for investments in developing new goods, Fred D. Davis developed the technology acceptance model (TAM) in 1989 (Muoz-Leiva et al., 2017). One of the best models in the literature on information systems for predicting user acceptance and usage behavior is the technology adoption model (TAM) (Davis & Venkatesh, 1996). The unified theory of acceptance and use of technology (UTAUT), which was developed to understand user intentions and behaviors toward technology, is a modification of the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975). TRA was designed to better understand the relationship between external factors and the acceptance and use of technology (Davis, 1989) within an organization. It includes factors like performance expectancy, social influence, effort expectancy, and facilitating conditions (Venkatesh et al., 2003). As fintech bridges the gap in financial inclusion, fintech companies anticipate increased usage. Fintech adoption intention and use were found to be described by the task-technology fit (TTF) and UTAUT models, despite adoption being patchy and limited. The action outweighed the desire to use in terms of task-technology fit. Users downloaded and used Fintech apps without any reason (Ojiaku et al., 2024).
Numerous theories have been developed and applied due to research in various fields, including banking and fintech payment systems. One such theory is the diffusion of innovation theory (DOI), developed by Everett Rogers, a professor of rural sociology at Ohio State University. Rogers wrote Diffusion of Innovations, which first appeared in 1962. Rogers combined data from more than 508 diffusion studies from the rural sociology, education, and industrial sociology sectors, which were the primary influences on the theory at the time it was developed. When selecting whether to accept a new technology, Rogers lists five qualities that decision-makers should consider: relative advantages, compatibility, complexity, trialability, and observability.
A previous study on IT innovation's Intention to ―use‖ and "adopt" completely represented how IT innovations spread in general (Chauhan et al., 2022). Because IT is rapidly changing, people in developed countries tend to be more open to new ideas (Chauhan et al., 2022). Following Joa and Magsamen-Conrad (2021), the expanded social influence relates to technology adoption and choices that depend on cultural norms. The factors examined in this study are taken from the previous research models of fintech payments, which are detailed in Table I. Among all existing research models, few have used UTAUT and TAM theories to examine the adoption of mobile banking (Jerene and Sharma, 2019) by different users. For instance, research conducted by Thakur & Srivastava (2014), Bailey et al. (2017), Teo et al. (2012), and Senali et al. (2022) has referred to UTAUT and TAM. Most of these studies were done on mobile banking apps related to fintech companies, but commercial banks did not design mobile banking apps.

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Green finance and green investment are the main ways financial innovation helps green economic growth. So, fintech innovation can help economic growth by boosting the development of green finance, which is a very important benchmark for most countries (Zhou et al., 2022). Implementing green financial policies that help everyone greatly impacts green technology creation in the area (Li, 2023). Commercial banks that specialize in financial technology have the potential to play a significant role in expanding access to environmentally friendly finance and encouraging consumers to purchase green bonds (Bedendo et al., 2023) with a lower impact on the planet (Muganyi et al., 2021). Policymakers should encourage fintech firms to participate in environmental protection programs that support green spending while minimizing Fintech's systemic risk (Muganyi et al., 2021). But in contrast, Fintech hurts the construction of smart cities because it takes more time and money to study and sell financial technology and costs more (He et al., 2020). Previous research has demonstrated that the use of financial technology (Fintech) can enhance green total factor productivity (GTFP) (He et al., 2020; Hu & Li, 2023; Song et al., 2022). Consequently, policymakers must exert concerted efforts to facilitate the development of fintech and green industries while fostering a robust ecosystem of fintech applications. This would effectively improve GTFP (Hu & Li, 2023). Therefore, the government should continue to support the growth of digital finance, improve environmental laws by raising funding for environmental protection, build an atmosphere for green innovation, and encourage people to develop new green technologies (Hu et al., 2022). Fintech growth had a bigger effect on GTFP in places with less strict rules about money and the environment. Similar studies by Bryson et al. (2016) present the major elements gleaned from respondents in the sample that account for sixty percent variation (R square = 0.6) in the respondents' intentions to use green banking services. Environmental concern is favorably associated with views towards green banking in India, and environmental concern is positively connected to intentions to use green banking in India. "Green credit," "green bond," "green operation," and "carbon finance" all have a value of 0.153. This number shows that a 1% rise in fintech growth causes SO2 pollution in China's 290 towns to drop by 15%. This is a new result that shows the role fintech can play in helping China switch to a green banking system(Hu et al., 2022; Muganyi et al., 2021; Yu et al., 2022; Zhou et al., 2022). Fintech companies can play a big part in making green financing available and getting people to buy better things for the earth. Policies that have to do with green funding are good for the earth, and these policies have led to a 38% drop in SO2 pollution. (Muganyi et al., 2021). Commercial banks are expected to help the real economy shift to a greener economy (Cui, 2020) in a big way. Green bonds are one tool that can be used to reach this goal (Bedendo et al., 2022). Only banks that issue green bonds more often reduce their emissions and stop lending to polluting industries. This helps to decarbonize the financial sector. Fintech's growth greatly impacted the improvement of GTFP, and the effect was stable over time. In particular, when Fintech was more developed, it had a bigger and more important effect on GTFP (Hu & Li, 2023).

3. Hypothesis Development

UTAUT and DOI-Aligned Hypotheses

3.1 Direct Effects

H1a: Green Technology perception has a significant effect on customers' Intention to Use Fintech Payment Apps.

This hypothesis suggests that customers who perceive fintech payment apps as environmentally friendly or supportive of green technology are more likely to develop a positive intention to use them. Users are more likely to choose digital solutions that decrease travel, cut down on paper use, and lessen carbon footprints as knowledge of sustainability and environmental effect increases. Fintech apps can boost user acceptance and promote uptake when they are perceived as supporting environmentally friendly activities, such encouraging digital receipts or eliminating the need for in-person bank visits.

H1b: The intention of consumers to use fintech payment apps is significantly positively impacted by social influence.

When consumers believe that significant others in their lives, including friends, family, or coworkers, support or actively utilize fintech payment apps, they are more inclined to do so themselves. Users' views and decisions are greatly influenced by social influence, which is defined as the impact of other people's beliefs and actions. Fintech apps establish credibility and trust when they become well-known and receive social media endorsements, which persuades reluctant consumers to utilize them. Customers' inclination to utilize fintech payment apps is therefore positively impacted by social influence.

H1c: Customers' intention to use fintech payment apps is significantly positively impacted by relative advantage.

Customers are more likely to form a strong intention to utilize fintech payment applications if they believe that they provide definite advantages over conventional approaches, such as being quicker, more convenient, simpler to use, or more effective. To put it another way, users are more likely to want to embrace and use a fintech app for their financial transactions if they believe it to be better or more useful than other possibilities.

H2a: Customers' intention to use fintech payment apps is significantly positively impacted by performance expectations.

Customers who think fintech payment applications will improve their financial transactions by saving time, enhancing efficiency, and providing convenience are more likely to adopt and stick with them. Performance expectancy—the term for this perceived utility—has a significant impact on their behavioral intention to use these digital platforms. People become more trusting and willing to utilize fintech services as they encounter dependable and valuable features, underscoring the crucial role that performance expectancy plays in promoting adoption.

H2b: Customers' intention to use fintech payment apps is significantly positively impacted by effort expectancy.

Customers are more likely to embrace fintech payment apps when they are seen as user-friendly and requiring little learning and operation. An important factor in determining user intention is effort expectancy, which measures how simple a technology is to use. Users' confidence and willingness to interact with the app are increased when it has an easy-to-use interface, simple navigation, and uncomplicated procedures. Therefore, customers' inclination to utilize fintech payment systems is positively influenced by higher effort anticipation.

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ISSN: 1053-7899
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H2c: Customers' intention to use fintech payment apps is negatively impacted by brand image.

Customers are more inclined to embrace and utilize fintech payment applications when an app has a strong, good brand image since it increases their perceived legitimacy and trustworthiness. Consumers may feel more safe about data privacy, service quality, and general dependability when they link a fintech app to a respectable and trustworthy brand. Because of this perception, they are more confident when using the app and perceive fewer dangers, which greatly improves their inclination to utilize fintech payment apps.

3.2 Moderating/Mediated Role of Brand Image

H3a: The association between Green Technology and Usage Intention is considerably moderated by Brand Image.

This hypothesis suggests that the service provider's brand image influences how consumers view green technology and their propensity to adopt fintech payment apps. Customers are more inclined to believe that the fintech app actually promotes sustainable practices when the company is trustworthy and viewed as environmentally conscious, which increases their desire to use it. The effect of green technology perception on usage intention, however, can be less pronounced if the brand is not well-known or credible. Therefore, the degree to which the intention to use fintech payment apps and the perception of green technology are related is moderated by brand image.

H3b: The connection between Social Influence and Usage Intention is considerably moderated by Brand Image.

According to this theory, a customer's intention to use fintech payment apps is influenced by social influence, such as suggestions or viewpoints from friends, family, or colleagues, and is influenced by the app's brand image. Social influence has a greater effect when the brand is seen as respectable, trustworthy, and well-established since consumers are more inclined to heed recommendations from others and confidently download the app. On the other hand, social influence might not have a significant impact on the user's choice if the brand image is poor or ambiguous. Therefore, the way that social pressures or endorsements are translated into actual usage intentions is moderated by brand image.

H3c: The connection between Usage Intention and Performance Expectancy is considerably moderated by Brand Image.

This hypothesis suggests that a customer's desire to use a fintech app is influenced by the service provider's brand image, which in turn affects the strength of the relationship between performance expectancy (i.e., the belief that using the app will increase task performance). Users are more likely to believe in the performance benefits that a fintech app promises when it is linked to a powerful, reliable, and respectable brand. This increases the likelihood that they will utilize the app. On the other hand, strong usage intention may not result from high performance expectations if the brand image is poor or unfavorable. The impact of performance expectancy on the intention to use fintech payment apps is therefore moderated by brand image, which can either strengthen or lessen it.

H3d: The connection between Effort Expectancy and Usage Intention is considerably moderated by Brand Image.

This hypothesis posits that the brand image of the service provider influences the impact of effort expectancy, or customers' view of how simple the fintech payment app is to use, on their desire to use the app. When a business has a strong, positive reputation, consumers are more likely to believe that the app will be easy to use and take little work, which strengthens their desire to use it. Customers might be reluctant to use the app, however, if the brand image is unreliable or unfamiliar, even if it looks user-friendly. Consequently, brand image has a moderating effect by either enhancing or diminishing the influence of effort anticipation on usage intention.

3.3 Theories Adopted by Various Studies

In 2014 (Thakur & Srivastava, 2014), it was coined and drawn from extended TAM and UTAUT to understand fintech payments as the base for empirical revenue. Teo, 2012 TAM Model adopted in their studies.

Banks must begin offering mobile banking services and push their clients to utilize them (Singh, S., and R. K. Srivastava 2018). The simplicity of use and credibility perceptions about the system can improve behavioral usage intentions for mobile banking services (Astuti, 2023; Chukwuma, 2023; Khayer et al., 2023; Linge et al., 2023; Luarn & Lin, 2005). Relative advantage is a factor in the adoption and usage of any technology (Rogers, 1995), as well as the perceived value of the app and the social influence associated with its use (Venkatesh and Davis, 2000).

GreenTech (GRT)

Fintech firms and banks should utilize their innovative financial services to take advantage of new business opportunities in the financial system by capitalizing on widespread concerns about environmental issues. Fintech providers should, therefore, prioritize enhancing the fintech system and sustainable development to attract users, thereby promoting fintech innovation as long-term beneficial. Hence, fintech innovation may enhance green economic growth, which has significant implications for most nations (Zhou et al., 2022). The most important factors influencing user satisfaction are service quality in fintech systems and ecological strategies in the planning agenda. Thus, the study discovered that trust and green image significantly impact usage intention. Therefore, financial service providers must design their solutions with e-loyalty and confidence toward customers (Campanella, F., Serino, L., & Crisci, A., 2022). The q-squared (Q2) coefficient is used for assessing predictive validity in connection with an endogenous latent variable, which is suggested by a Q-squared coefficient above zero (Geisser, 1974). The R-squared (R2) coefficient measures endogenous latent variables and reflects the percentage of explained variance for each latent variable; thus, the suggested Model can explain 74% of the variation in usage intentions of bank-fintech services through the brand image of the banks in India.In structural equation modeling (SEM) (Bollen, 2014), the HTMT ratio (Heterotrait-Monotrait Ratio of correlations) is a measure of discriminant validity. The extent to which two latent variables are distinct is the discriminant validity. The HTMT ratio below the threshold value of 0.9 indicates that two latent variables are distinct, and few studies have shown that an HTMT ratio below 1.00 is an acceptable value for discriminant validity (Henseler et al., 2014). All the values for the constructs are in the range of

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0.597 to 0.876, except for one value and the discrimination between UI and RAD, which is 0.919, which is below 1.00 and, therefore, not a problem for discriminant validity.

4. Empirical Results and Discussions

Table No. I - Demographic information of the respondents

Categories	Subcategories	Size	Percentage
Gender	Male	266	68.38
	Female	123	31.62
Age	18-25 years	214	55.01
	26-35 years	156	40.11
	36-45 years	18	4.63
	46 onward	1	0.25
Qualification	Bachelor	173	44.47
	Master	178	45.76
	PhD	14	3.60
	Others	24	6.17
	Supervisor	89	22.88
	Officers/workers	252	64.78
Experience	Less than 1 year	161	41.39
	1-5 years	190	48.84
	5-10 years	32	8.23
	11 years onward	6	1.54

MS Excel was used for the analysis. Table I above shows the demographics of the respondents, out of which 68.38% were male and 31.62% were female. The age of respondents between 18 and 25 was 55.01%, and 26 to 35 was 40.11%. Most of them were postgraduates and doctorates. 90% of respondents were employees. Among the sample, 48.84% of respondents have 1-5 years of experience.

4.1 Scale Reliability and Scale Validity:

A measurement model is essential for assessing the validity and reliability of latent variables. It defines the relationship between observable variables (indicators) and latent variables, which are theoretical constructs that cannot be directly measured. Observable variables are used to infer the presence and characteristics of latent variables. This Model helps explain how directly measured indicators relate to these unobservable constructs (Henseler et al., 2014; Rönkkö & Cho, 2020).

Table II Internal Consistency

	Model measurement					
Variables		Items	FLVs	Composite Reliability	Cronbach's Alpha	Average Variance Extracted
GRT1			0.783	0.867	0.796	0.622
GRT2			0.702			
GRT3			0.701			
GRT4			0.703			
SI1			0.745	0.853	0.770	0.593
SI2			0.704			
SI3			0.702			
SI4			0.701			
RAD1			0.732	0.858	0.779	0.601
RAD2			0.791			
RAD3			0.704			
RAD4			0.763			
PE1			0.701	0.836	0.756	0.506
PE2			0.725			
PE3			0.756			
PE4			0.701			
PE5			0.702			
EE1			0.700	0.846	0.772	0.523
EE2			0.743			
EE3			0.755			
EE4			0.702			
EE5			0.731			
BI1			0.704	0.810	0.701	0.517
BI2			0.794			
BI3			0.715			
BI4			0.715			

User Intention (UI), Green Tech (GRT), Social Influence (SI), Relative Advantage (RAD), Performance Expectancy (PE), Effort Expectancy, Brand Image (BI).Note P values < 0.05 are desirable / Source(s): Author's calculations

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Reliability refers to the extent to which measurement outcomes are consistent or stable over time (Hu et al., 2019) and reflects the dependability of the components of the research instrument.
We used composite reliability (CR) and coefficient alpha (α) to assess internal reliability.
According to the Spearman-Brown prediction formula, a slight increase in the number of items in the factors would yield acceptable Cronbach's alpha values (Eisinga et al., 2013).
Fornell and Larcker (1981) suggested that constructs with a CR above 0.7 and a value exceeding 0.8 demonstrate strong internal consistency and reliability. Additionally, the average variance extracted (AVE) for each construct was above 0.5, which is favorable for analysis (Henseler et al., 2014).
Cronbach's alpha coefficients for GRT, SI, RAD, PE, EE, UI, and BI were 0.796, 0.770, 0.779, 0.756, 0.772, and 0.701, respectively. Composite reliability values for GRT, SI, RAD, PE, EE, UI, and BI were 0.867, 0.853, 0.858, 0.836, 0.846, 0.810, and 0.805, all exceeding the 0.5 thresholds, while Cronbach's alpha above 0.7, is still considered acceptable (Schmitt, 1996). The composite reliability values for all latent constructs meet the threshold, as shown in Table IV, confirming the Model's adequate internal consistency.

Table III Discriminant Validity

	Fornell-Larcker criterion							Heterotrait-monotrait (HTMT) ratios							
GRT	0.711							GRT	0.662						
SI	0.519	0.788						SI	0.669	0.652					
RAD	0.613	0.551	0.719					RAD	0.842	0.726	0.708				
PE	0.650	0.548	0.613	0.752				PE	0.832	0.672	0.814	0.716			
EE	0.546	0.613	0.601	0.571	0.770			EE	0.705	0.773	0.802	0.731	0.625		
UI	0.495	0.410	0.569	0.581	0.539	0.776		UI	0.643	0.514	0.756	0.728	0.698	0.653	
BI	0.683	0.530	0.627	0.653	0.540	0.600	0.723	BI	0.895	0.679	0.843	0.828	0.693	0.779	0.715

Notes: User Intention (UI), Green Tech (GRT), Social Influence (SI), Relative Advantage (RAD), Performance Expectancy (PE), Effort Expectancy, Brand Image (BI).

In structural equation modeling (SEM) (Bollen, 2014), the HTMT ratio (Heterotrait-Monotrait Ratio of correlations) is a measure of discriminant validity. The extent to which two latent variables are distinct is the discriminant validity. The HTMT ratio below the threshold hold value of 0.9 indicates that two latent variables are distinct. Few studies have shown that an HTMT ratio below 1.00 is acceptable for discriminant validity (Henseler et al., 2014). Table III shows that all the values for the constructs are in the range of 0.495 to 0.788, except for one value and the discrimination between UI and RAD, which is 0.919, which is below 1.00 and, therefore, not a problem for discriminant validity.

Effect size and P values of the Model

This software finds the effect sizes as a ratio of the absolute values of the predictor latent variables to R-squared coefficients of the latent variable, which shows small, medium, or large effects. The threshold values are 0.02, 0.15, and 0.35 (Cohen, 1988) for small to large effects. The effect size ranges from 0.165 to 0.428, indicating a greater effect, as most values are near or above 0.35.

Structural Model of the study
A structural model is a statistical model used to represent the relationships between latent and observed variables. Error terms, the observed variables' unaccounted-for variance, typically represent these relationships. The purpose of structural models is to describe, explain, and predict how various elements interact with one another and how alterations to one component can influence other components within a system to evaluate hypotheses and inform decision-making (Hair et al., 2019).

Table IV	Direct relationship

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	Path co-efficient		f2		
Structural paths	(t-value)	Confidence interval (95%)	Effect size	p-Values	Results
GRT - UI	0.149 (2.436)	(0.033 to 0.273)	0.025	0.015	H1a, Supported
SI - UI	0.161 (2.294)	(0.020 to 0.294)	0.025	0.022	H1b, Supported
RAD – UI	0.106 (1.494)	(-0.030 to 0.247)	0.013	0.135	H1c, Not supported
PE – UI	0.173 (2.821)	(0.057 to 0.295)	0.036	0.005	H2a, Supported
EE – UI	0.085 (1.414)	(-0.026 to 0.209)	0.008	0.157	H2b, Not supported
BI - UI	0.282 (4.560)	(0.155 to 0.397)	0.102	0.000	H2c, Supported
GRT-BI-UI	0.182 (3.114)	(0.070 to 0.298)	0.039	0.002	H3a, Supported
SI-BI-UI	0.222 (3.421)	(0.090 to 0.344)	0.051	0.001	H3b, Supported
PE-BI-UI	0.227 (4.043)	(0.116 to 0.337)	0.064	0.000	H3c, Supported

GRT has no significant influence on customers' usage intentions towards fintech payment app services, as the β value is 0.04 and the p-value for the construct is 0.28, greater than 0.05. Hence, H1 is not supported. SI significantly influences customer usage intention of bank and fintech payment services, as the β value is 0.16 and the p-value is less than 0.01. Therefore, hypothesis 2 is supported. RAD significantly influences customer usage intention of bank and fintech payment services, as the β value is 0.46 and the p-value is less than 0.01. So, hypothesis 3 is also supported. PE significantly influences customer usage intention of bank and fintech payment services, as the β value is 0.16 and the p-value is less than 0.01. So, hypothesis 4 is also supported. EE also significantly influences customer usage intention of bank and fintech payment services, as the β value is 0.25 and the p-value is less than 0.01. So, hypothesis 5 is also supported.

Table No. 5 Indirect relationship Effect among Constructs in the study:

	Sample mean (M)	Standard deviation (STDEV)	P values
BI_ -> UI	0.816	0.027	0.000
EE_ -> BI	0.747	0.056	0.000
EE_ -> UI	0.609	0.052	0.000
GT_ -> BI	-0.137	0.054	0.008
GT_ -> UI	-0.112	0.044	0.009
PE_ -> BI	-0.015	0.061	0.809
PE_ -> UI	-0.012	0.050	0.809
RA_ -> BI	-0.060	0.047	0.188
RA_ -> UI	-0.049	0.038	0.186
SI_ -> BI	0.180	0.062	0.003
SI_ -> UI	0.147	0.051	0.004

Therefore, PE, EE, RAD, and SI, except GRT, significantly influence customer usage intentions of banks and fintech payment services. The study's findings align with earlier research and show that performance expectancy, effort expectancy, social influence, and relative advantage facilitate mobile banking apps' usage rate because of the simplicity and affordability of bank fintech applications. Even users possess a high level of knowledge of using the app; nevertheless, their lack of familiarity with green technology financial products in mobile apps results in no significant impact on their Intention to use the app.

The figure below explains the conceptual Model with the brand image as the moderating variable in the user intention in the banking fintech applications.

Table no. 6 on Direct and Indirect relationship with Brand Image as moderating variable

Specific Effect Type	Hypothesis Label	Relationship	Path Coefficient	T-Statistic	p-Value	Result
Direct Effect	H1a	GT → UI	0.327	6.795	0.000	Supported
Direct Effect	H1b	SI → UI	0.487	13.187	0.000	Supported
Direct Effect	H1c	RA → UI	0.322	6.472	0.000	Supported
Direct Effect	H2a	PE → UI	-0.621	23.927	0.000	Supported
Direct Effect	H2b	EE → UI	-0.233	4.696	0.000	Supported
Direct Effect	H2c	BI → UI	0.409	11.048	0.000	Supported
Indirect Effect	H3a	GRT → BI → UI	0.157	6.172	0.000	Partially Mediated
Indirect Effect	H3b	SI → BI → UI	0.145	4.524	0.000	Partially Mediated
Indirect Effect	H3c	PE → BI → UI	0.134	5.968	0.000	Partially Mediated
Indirect Effect	H3d	EE → BI → UI	0.064	5.218	0.000	Partially Mediated

Fig: 1 Path Diagram

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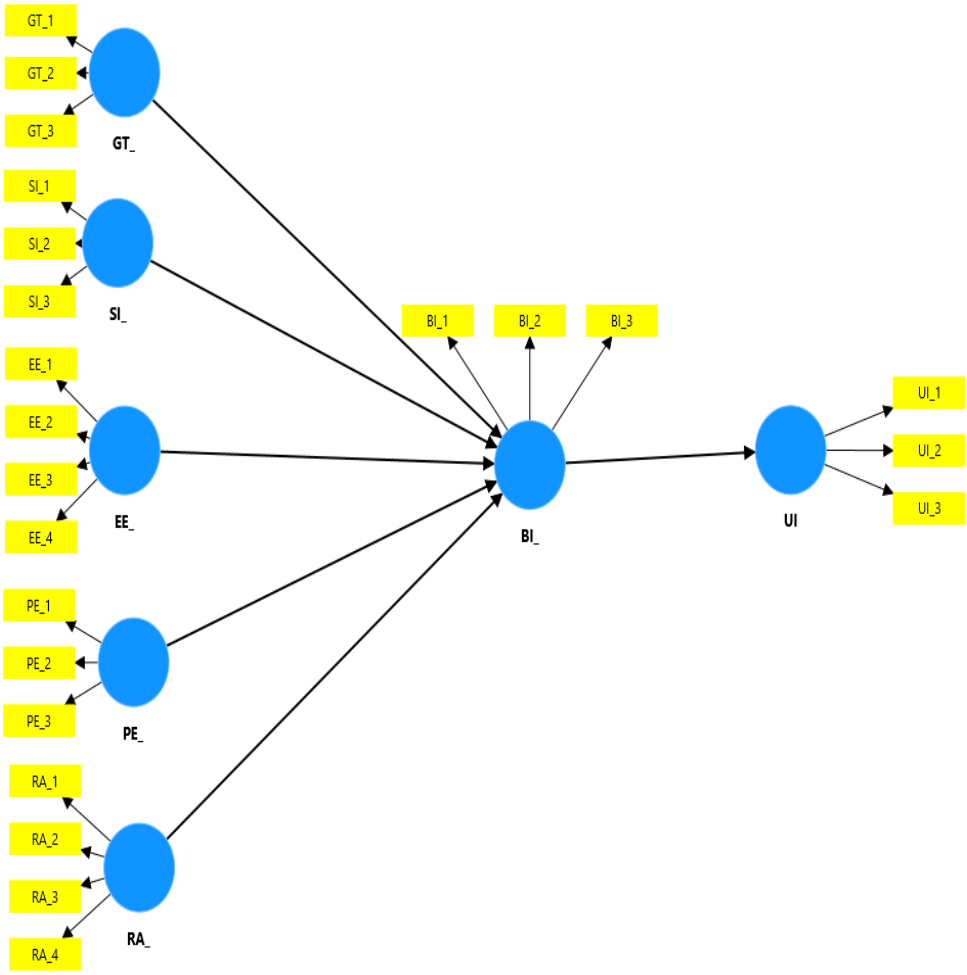
Vol. 36 Issue 1, Jan-June 2026, Pages: 1417-1427



5. Theoretical implications

The primary objective of the present study is to empirically examine the determinants of customers' usage and the Intention of bank and fintech payment services. Results of our study revealed that except for the GRT, all other determinants of Social Influence (SI), Performance Expectancy (PE), and Effort Expectancy (EE), Relative Advantage (RAD) shows a significant influence on customer usage intention of fintech services. When organizations perceive an innovation as more beneficial than their existing systems regarding convenience or satisfaction, they exhibit a greater intent to use and adopt it (Chauhan et al., 2022). Relative advantage is the most influential determinant for customers to use bank fintech services. Brand image is also considered as the study's moderating factor in user intention.

Based on the UTAUT and DOI, this study created an integrated model that considers how people use various financial services, including Green Technology. The suggested Model is important for figuring out how customers plan to use bank and fintech app services because it looks at how users plan to use financial services and how they use new financial services and technology. The links between UTAUT and DOI extracted factors and the new factor, Green Technology, can explain 74% of the variation in usage intentions of bank-fintech payment services. The study also found that users' Intention to use various innovative commercial banking technologies did not change because of Green Technology.

6. Practical implications

The banking industry has seen major transformations over time, with digital trends emerging as a prominent force that has replaced traditional retail banking practices. Many people, including policymakers and common consumers, make numerous recommendations to improve the banking experience. However, a significant domain that remains unexplored is green practices in the banking sector. The digital financial technology services of commercial banks and fintech firms are nascent in India. People intend to accept fintech payment services (Alnsour, 2022) rather than traditional bank payment services because they believe there are relative advantages to traditional financial services. Banks should make their customers think that the new fintech services, unless authorized and licensed, are unsafe and complex, even though they know their many advantages (Xia et al., 2022). Brand image strategies must be created in various forms that lead the technology applications' user intention.

MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
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Commercial banks require several resources, like electricity, air conditioning, electronic equipment, papers, etc., which marginally increase carbon emissions, even though their' environmental effects are less severe than industrial processes and coal mining, which harm the environment. However, commercial banks are still indirectly accountable for climate change. Therefore, commercial banks feel great pressure to make social well-being a central part of their financial operations for several reasons, such as rising energy consumption and prices, government regulations and policies, and consumer interest in innovative products and services. Commercial banks may become more cost-effective by using green technology practices. Small eco-friendly measures like lower utility bills, less paperwork, and more digital services, which reduce costs, and going green confer the benefit of improving consumer perceptions and may quickly establish a reputation as a sustainability-driven, environmentally conscious organization by implementing green bank practices. Historically, however, commercial banks have been slow to adopt sustainable practices. Innovative financial technologies and the rise of digital banking have accelerated the trend toward green technology in banking. Due to technological advancements, banking has been seen and understood in a new light, though initially, it was slow to accept new technologies like AI and ML; however, it is now rapidly adopting cloud-based digital strategies to take advantage of these technologies. The result also shows that relative advantage has a bigger effect on users' plans to use bank fintech services like mobile banking.

So, UPI providers shouldn't ignore the relative benefits of goods and services. Instead, they should make models different from other bank UPI platforms because users will still have the same worries after the pandemic. This finding could assist banks and other financial technology companies make their systems more beneficial and user-friendly so that more people will use UPI apps. Bank fintech companies should make it simpler for users to perform tasks such as sign-up, password creation, software execution, and financial transactions. Fintech service providers could, for instance, enable users to register for mobile applications using their fingerprints or faces.

Most bank customers have limited knowledge of green financial products available via mobile apps. The bank is responsible for informing consumers about the advantages of using green products in mobile applications. Efforts should be made and implemented to increase the popularity of bank-specific mobile banking among customers. Banks should establish a training program to teach and assist consumers in conducting business in an environmentally responsible manner. This study helps commercial banks understand customers' needs, develop strategies for successfully implementing various financial technologies and innovative mobile banking services, and gain insights to improve the usage rate of bank fintech mobile applications with Brand image also a factor.

7. Conclusions

The Indian banking industry has recently introduced innovative banking models like UPI payments, UPI LITE X, and UPI Tap & Pay. It has prioritized its banking sector's accessibility by implementing initiatives such as the Pradhan Mantri Jan Dhan Yojana. With substantial reforms in the banking industry, such as digital payments, the emergence of financial technology (Fintech) has greatly improved India's financial inclusion and contributed to the growth of credit in the country. This study's findings show that customers intend to use innovative fintech services to facilitate fintech financial inclusion. The present study aims to empirically examine the factors that may influence customer usage intention toward bank services in the presence of green financial products in bank-specific mobile apps. GRT, SI, PE, EE, and RAD were identified as influencing customers' Intention to use bank fintech services. Except for green technology, it was shown that every construct significantly influenced customers' intentions to use bank fintech services. Hence, banks should focus on customer usage intention in designing reliable mobile banking applications or systems that will meet their needs and on operational efficiency and technology that emphasizes the relative advantage and usefulness of mobile banking compared to fintech firms and other traditional banking channels. Brand image must be spotted to understand the user intention and its consequences.

The study found that relative advantage had the most significant influence on customers' Intention to use the bank's fintech mobile apps, enabling consumers to utilize services efficiently. Our research discovered that implementing green technology in mobile banking does not significantly affect users' Intention to use it. Hence, banks formulate promotional plans as part of their planning process. The result of our study helps bank executives and app developers integrate financial technology advancement with sustainable initiatives to fulfill their customers' needs. This study proposes that commercial banks should prioritize promotional strategies to enhance the adoption of green technology, as it is not correlated with user intention. Ultimately, the paramount priority for a bank fintech supplier is to offer a greater array of comparatively advantageous functionalities within their mobile applications.

8. Limitations

First, the study did not include all 143 scheduled commercial bank users in India, and it did not focus on regional and foreign bank users in India, limiting the applicability of the results in terms of technical differences. Hence, the generalizability of this study's findings could be improved by expanding the sample and including all scheduled, regional, payment, and foreign banks. Second, the study did not investigate the moderating effects of demographic user factors (such as age, gender, and experience). Future research should investigate issues and build upon the findings of exploratory studies to comprehend the acceptability of bank innovative services and fintech firms' payment services and their actual application in India and other countries.

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ISSN: 1053-7899
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