Fintech Adoption in Banking Sector: Mediating Effect of User Innovativeness

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Abstract. Financial technology (FinTech) has revolutionized the banking sector, transforming traditional financial transactions through digital platforms. This study investigates the key factors influencing FinTech adoption among banking customers in Nepal, focusing on financial literacy, government support, perceived ease of use, perceived usefulness, and user innovativeness. Additionally, the study examines the mediating role of user innovativeness in the relationship between financial literacy, government support, and FinTech adoption. Employing a quantitative approach, data were collected from 208 banking customers using a structured questionnaire. PLS-SEM was utilized for analysis. The findings reveal that financial literacy and government support do not have a direct influence on FinTech adoption. However, when mediated by user innovativeness, their indirect effect becomes significant. Perceived ease of use and perceived usefulness exhibit a strong positive relationship with FinTech adoption, highlighting the importance of user-friendly platforms and clear functional benefits. The study's findings have significant implications for financial institutions, policymakers, and technology developers. While financial literacy and government support alone may not drive adoption, they contribute indirectly by fostering user innovativeness. This underscores the need for strategies that encourage digital adaptability and openness to technology. Future research should explore FinTech adoption across various industries, assess long-term behavioral changes, and examine regional differences in adoption patterns. By understanding these determinants, stakeholders can develop targeted strategies to enhance digital financial inclusion and promote sustainable FinTech growth.

Keywords: FinTech adoption, Financial literacy, Government support, Nepal, Perceived ease of use, Perceived usefulness, User innovativeness.

1. INTRODUCTION

Financial technology, commonly referred to as FinTech, represents the intersection of financial services and technological advancements. The evolution of financial globalization and technology can be traced back to the late 19th century, highlighting the continuous role of innovation in shaping the financial sector. Arner et al. (2016) classify the development of FinTech into three stages-FinTech 1.0 (1866–1967), when financial services were largely analog; FinTech 2.0 (1967–2008), marked by digitalization driven by communication and transaction technologies; and FinTech 3.0 (2008–present), characterized by the rise of startups and tech companies offering financial solutions directly to consumers and businesses. More recently, FinTech 3.5 has emerged, particularly in Asia and Africa, where governments actively promote financial technology to drive economic prosperity (Arner et al., 2016). These developments have led to a paradigm shift in the banking industry, reinforcing its critical role in financial innovation.

The banking sector has historically been at the forefront of financial innovation, transitioning from physical banking methods to digital solutions that enable regional and global financial expansion (Hu et al., 2019). This transformation has led to the emergence of various FinTech services such as mobile payments, online portfolio management, peer-to-peer lending, and digital wallets, all of which challenge traditional banking institutions (Anyfantaki, 2016). The necessity of convenient and secure financial transactions has further accelerated the adoption of FinTech, influencing consumer behavior and financial decision-making. The shift toward digital banking solutions has been particularly evident in response to economic crises and global events, such as the COVID-19 pandemic, which significantly increased the demand for contactless payment options and digital banking services (Fu & Mishra, 2020; Hasan et al., 2021).

Previous studies have examined various aspects of FinTech adoption, emphasizing factors such as technological advancements, government support, and user perceptions. Fu & Mishra (2020) found that North America and Asia lead in FinTech adoption, particularly in mobile payment technologies. In Germany, financial technology services, including online banking, peer-to-peer lending, and robo-advisors, have significantly reshaped the financial landscape (Dorfleitner et al., 2017). In Asia, Huong et al. (2021) highlight varying levels of FinTech adoption across countries, with Singapore experiencing high penetration rates, while emerging markets such as Cambodia and Myanmar are still in nascent stages. Similarly, Nugraha et al. (2022) suggest that perceived usefulness, ease of use, government support, and user innovativeness are key determinants of FinTech adoption among small and medium-sized businesses in Indonesia.

In the context of Nepal, the banking sector has evolved significantly over the past century. The first bank was established in 1937, with only four government-owned banks operating until 1984 (Mishra, 2008). Over time, Nepal has embraced financial innovations, introducing debit cards, automated teller machines (ATMs), internet banking, and mobile banking services. The COVID-19 pandemic further accelerated the adoption of digital financial services, increasing reliance on mobile banking, QR code payments, and e-wallets (Nepal Rastra

Bank, 2022). A Payment Oversight Report by Nepal Rastra Bank (2022) highlights that the number of digital wallet users surged from 6.27 million in 2020 to 13.68 million in 2022, indicating a significant shift toward digital banking. However, despite these advancements, research on the determinants of FinTech adoption in Nepal remains limited.

This study seeks to contribute to the existing literature by identifying key determinants influencing FinTech adoption among banking customers in Nepal. While previous studies have explored FinTech adoption in global contexts (Buckley & Webster, 2016; Nugraha et al., 2022; Setiawan et al., 2021), limited research focuses on developing countries unique banking landscape. This study aims to bridge this gap by examining the impact of financial literacy, government support, user innovativeness, perceived ease of use, and perceived usefulness on FinTech adoption in commercial banking sector in Nepal.

The primary objective of this study is to identify the key factors influencing FinTech adoption among commercial bank customers in Nepal. Specifically, it aims to investigate the role of financial literacy, government support, user innovativeness, perceived ease of use, and perceived usefulness in shaping users' adoption decisions. Additionally, the study seeks to analyze the mediating effect of user innovativeness on the relationship between financial literacy, government support, and FinTech adoption. By doing so, it will provide insights into how these factors interact and contribute to the growing acceptance of digital financial services.

This study is expected to provide insights into the key drivers of FinTech adoption among banking customers in Nepal. By understanding these factors, policymakers, financial institutions, and technology providers can develop targeted strategies to enhance digital financial services, improve financial literacy, and create a supportive regulatory environment for FinTech growth. Furthermore, the findings will contribute to the broader discourse on digital banking transformation and consumer behavior in emerging markets, offering valuable implications for future research and industry practices.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT
2.1. Theories Related to Tech Adoption

Technology Acceptance Model (TAM): It is one of the most widely used frameworks in technology adoption studies. Introduced by Davis (1986), TAM posits that two key variables, perceived usefulness and perceived ease of use, affect an individual's intention to adopt technology, ultimately leading to actual adoption (Marangunić & Granić, 2015). Perceived usefulness refers to how much an individual believes that using a system will enhance performance, while perceived ease of use relates to the effort required to operate it (Davis, 1986). Studies such as Singh et al. (2020), Setiawan et al. (2021), and Marakarkandy et al. (2017) have employed TAM to examine FinTech adoption, incorporating additional variables to understand behavioral aspects.

Technology Acceptance Model 2 (TAM2): TAM2, an extension of TAM developed by Venkatesh and Davis (2000), enhances the original model by including subjective norm and cognitive instrumental processes. Subjective norm, derived from the Theory of Reasoned Action (Fishbein & Ajzen, 1977), refers to the perceived social pressure to use a particular technology. Cognitive instrumental processes involve perceived ease of use, perceived usefulness, and other external factors influencing these perceptions. Studies such as Singh et al. (2020) and Hasan et al. (2021) have applied TAM2 to FinTech adoption, highlighting the role of subjective norm in shaping user behavior. Marakarkandy et al. (2017) also examined how subjective norm influences actual FinTech usage.

Unified Theory of Acceptance and Use of Technology (UTAUT): The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. (2016) to consolidate multiple existing models of technology adoption. UTAUT identifies four key determinants: performance expectancy, effort expectancy, social influence, and facilitating conditions, all of which influence behavioral intention and actual usage. Singh et al. (2020) explored social influence as both an independent and mediating factor in FinTech adoption, demonstrating its significance in shaping user behavior.

Innovation Diffusion Theory (IDT): The Innovation Diffusion Theory (IDT), proposed by Rogers et al. (2014), examines how new ideas and technologies spread within a social system. The theory suggests that innovation adoption depends on factors such as relative advantage, compatibility, complexity, trialability, and observability. Ahmad Wani and Wajid Ali (2015) define innovation as any product or service offering a unique utility to users. Marakarkandy et al. (2017) specifically studied the relationship between trialability, perceived ease of use, and behavioral intention, linking them to FinTech adoption.

Theories such as TAM, TAM2, UTAUT, and IDT provide crucial insights into the factors influencing FinTech adoption. TAM and TAM2 emphasize the role of perceived usefulness, ease of use, and subjective norm, while UTAUT integrates performance expectancy and facilitating conditions. IDT extends this understanding by focusing on the diffusion of innovation and its adoption patterns. Together, these theories offer a comprehensive framework for studying FinTech adoption, guiding future research and policy formulation in digital financial services.

2.2. Interaction between Financial Literacy, Government Support, Perceived Usefulness
2.2.1. Perceived Ease of Use, User Innovativeness and FinTech Adoption

Financial Literacy and FinTech Adoption: Financial literacy plays a role in FinTech adoption, but its significance varies across studies. Setiawan et al. (2021) found that while financial literacy contributes to FinTech adoption in Indonesia, it is not among the top determinants, with even individuals with low financial literacy being active users of FinTech services. Morgan & Trinh (2019) reported a significant positive correlation between financial literacy and FinTech adoption, emphasizing the role of progressive income and education levels. Nugraha et al. (2022) identified an indirect relationship between financial literacy and FinTech adoption among SMEs, but the inclusion of user innovativeness as a mediating factor strengthened this association positively and significantly.

User Innovativeness and FinTech Adoption: User innovativeness significantly influences FinTech adoption. Setiawan et al. (2021) found that innovativeness mediates the relationship between financial literacy and government support with FinTech adoption, showing that while government support alone had no direct impact, its effect became positive through user innovativeness. Nugraha et al. (2022) further confirmed its positive and significant role in FinTech adoption. Shaikh & Amin (2024) also reported a strong association between consumer innovativeness and FinTech adoption in Pakistan, emphasizing its importance in technology acceptance.

Government Support and FinTech Adoption: The role of government support in FinTech adoption remains debated. Marakarkandy et al. (2017) found that government support positively influenced FinTech adoption through trust as a mediating factor, whereas attitude and behavioral intention had no impact. Similarly, Nugraha et al. (2022) confirmed a positive correlation between government support and FinTech adoption among SMEs, both directly and through user innovativeness. However, Setiawan et al. (2021) found no direct impact of government support on FinTech adoption but noted a positive effect when mediated by financial literacy and user innovativeness. Conversely, Balaskas et al. (2024) reported an insignificant effect of government support on FinTech adoption, indicating the need for further research.

Perceived Usefulness and FinTech Adoption: Perceived usefulness has been identified as a critical determinant of FinTech adoption. Singh et al. (2020) highlighted its prominence alongside social influence as key drivers. Hasan et al. (2021) found that perceived usefulness, along with security and trust, significantly impacted mobile payment adoption in the Netherlands. Marakarkandy et al. (2017) established that perceived usefulness positively affects internet banking adoption, with attitude serving as a mediating factor. Similarly, Nugraha et al. (2022) and Setiawan et al. (2021) reinforced the positive association between perceived usefulness and FinTech adoption, suggesting that users adopt financial technologies based on their perceived benefits in daily life.

Perceived Ease of Use and FinTech Adoption: The impact of perceived ease of use on FinTech adoption varies. Nangin et al. (2020) found that perceived ease of use, mediated by trust, significantly influenced FinTech adoption. However, Setiawan et al. (2021) reported no direct impact but observed a strong indirect effect when mediated by perceived usefulness. Marakarkandy et al. (2017) identified perceived ease of use as a determinant of internet banking adoption, with attitude playing a mediating role. Singh et al. (2020) ranked perceived ease of use as the second most significant driver after perceived usefulness, while Nugraha et al. (2022) also confirmed a positive impact on FinTech adoption.

Financial Literacy, Government Support, and User Innovativeness: Von and Gin (2008) found that government support enhances user innovativeness, which in turn drives FinTech adoption in China. Setiawan et al. (2021) highlighted that user innovativeness mediates the relationship between financial literacy and government support with FinTech adoption. Nugraha et al. (2022) reinforced the role of user innovativeness as a crucial mediator in strengthening the influence of financial literacy and government support on FinTech adoption.

With the above note of discussion, the following hypothesis were formulated:

H_1: *Financial literacy has a significant influence on fintech adoption.*
H_2: *Financial literacy has a significant influence on user innovativeness.*
H_3: *Government support has a significant influence on fintech adoption.*
H_4: *Government support has a significant influence on user innovativeness.*
H_5: *Perceived ease of use has a significant influence on fintech adoption.*
H_6: *Perceived usefulness has a significant influence on fintech adoption.*
H_7: *User innovativeness has a significant influence on fintech adoption.*
H_8: *User innovativeness mediates the influence of financial literacy on fintech adoption.*
H_9: *User innovativeness mediates the influence of government support on fintech adoption.*

Research Gap: The rapid evolution of financial technology has transformed traditional banking, increasing digital payment adoption globally (Fu & Mishra, 2020). Research indicates that factors such as perceived usefulness, ease of use, financial literacy, and user innovativeness significantly impact FinTech adoption (Setiawan et al., 2021; Shaikh & Amin, 2024). However, studies show mixed findings on the role of financial literacy and government support, with some suggesting their effects are indirect (Nugraha et al., 2022; Setiawan et al., 2021). In Nepal, FinTech adoption is growing, yet research on its determinants remains scarce. While Maharjan et al. (2022) found perceived ease of use had no significant impact on e-purchases during COVID-19, *Nepal Rastra Bank* (2022) reported a surge in digital wallet users, highlighting the need for further study.
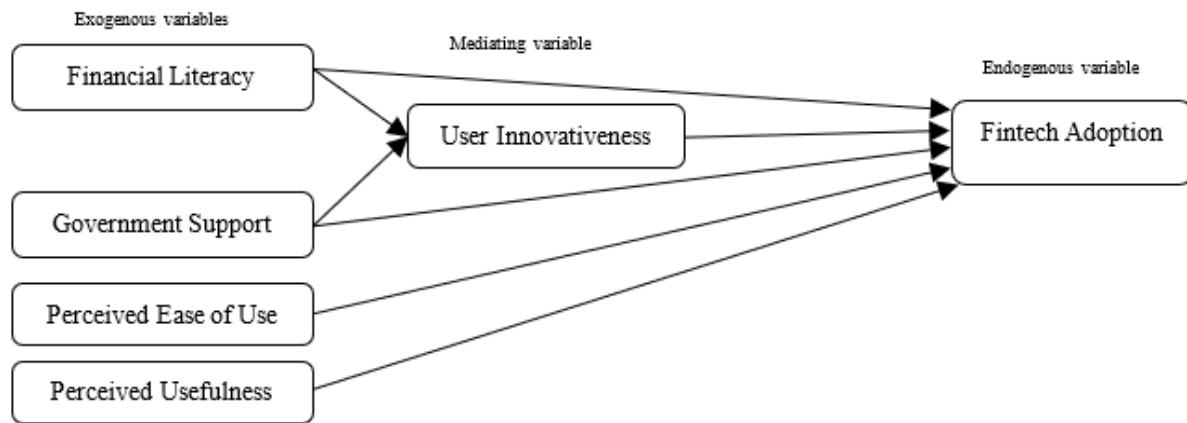
Figure 1: Conceptual framework.

3. METHODS

Research desing: This study employs a quantitative approach and employs a descriptive and causal research design to analyze the determinants of FinTech adoption among banking customers. Descriptive research provides a detailed overview of variable characteristics, while causal research examines cause-and-effect relationships between dependent and independent variables.

Population and sample: The study targeted banking customers in Nepal who use FinTech services, with 300 individuals contacted in person. Using purposive sampling, a final sample of 208 fully responded and was included in the analysis.

Table 1: Respondents' profile.

Demographic Variables	Category	N	%
Gender	Male	130	62.5
	Female	78	37.5
Age	18–30	160	76.9
	31–42	41	19.7
	43–54	4	1.9
	Above 54	3	1.4
Education Level	Plus 2	49	23.6
	Bachelors	83	39.9
	Master's Degree	76	36.5
Monthly Income	Upto Rs. 25,000	58	27.9
	Rs. 25,000 – Rs. 50,000	84	40.4
	Rs. 50,000 – Rs. 100,000	51	24.5
	Rs. 100,000 and above	15	7.2
Frequency of Use	Daily	144	69.2
	Weekly	53	25.5
	Monthly	4	1.9
	Rarely	7	3.4

Data collection procedure and instrumentation: This study began with a comprehensive literature review on FinTech adoption determinants. A structured questionnaire, based on studies by Setiawan et al. (2021), Mudzingiri et al. (2018), Marakarkandy et al. (2017) was distributed in physical form to 300 banking customers using FinTech services, utilizing a seven-point Likert scale to measure perceptions. Prior to distribution, a pilot study with 30 respondents was conducted to assess reliability, following Nunnally (1978). Based on the results, minor adjustments were made before finalizing the questionnaire for data collection.

Data analysis techniques: The collected data were coded and organized in Microsoft Excel before being analyzed in SPSS for descriptive statistics. For inferential analysis, PLS-SEM was performed using SmartPLS 4, employing bootstrapping with 10,000 sub-samples and the percentile technique for hypothesis testing. This approach ensures a robust evaluation of the model.

Data normality, common method bias, measurement and structural model: Mardia's test was conducted to evaluate univariate and multivariate normality, revealing non-normality in the data. Mardia's multivariate skewness was 346.299 (p = 0.001) and kurtosis was 1193.160 (p = 0.001), both exceeding the acceptable limits of ± 3 for skewness and ± 2 for kurtosis (Kline, 2012). The significant Mardia's coefficient (critical ratio > 1.96) further confirmed the presence of non-normality. To assess common method bias, Harman's single-factor test was applied, showing that a single factor explained only 38% of the total variance, indicating that common method bias was not an issue.

4. RESULTS

4.1. Measurement Model Assessment

First the measurement model assessement has been done, ensuring construct reliability, validity, and discriminant validity (Hair et al., 2019). The study measured financial literacy (FL1-FL5), government support (GS1-GS5), user innovativeness (UI1-UI5), perceived ease of use (PEU1-PEU5), perceived usefulness (PU1-PU5), and FinTech adoption (FA1-FA5).

4.2. Construct reliability and validity

Construct reliability was assessed using Cronbach's alpha and composite reliability, both exceeding the minimum threshold of 0.7, and Average Variance Extracted (AVE) exceeding 0.5 (Hair et al., 2019). The item GS4 and UI4 were omitted to obtain AVE more than 0.5. However, item FA3 with outer loading 0.608 and PEU4 with 0.692 are still included regardless of its outer loading being below minimum threshold of .708. It is because AVE for FA and PEU is above 0.5 even at its presence. This ensured convergent validity, confirming that multiple measures of the same concept correlated well (Hair et al., 2019). Table 2 presents the construct reliability and validity.

Table 2: Construct reliability and validity.

Construct	Items	FA	VIF	AVE	CA	CR
FinTech Adoption	FA1	0.758	1.62	0.528	0.775	0.782
	FA2	0.759	1.521			
	FA3	0.608	1.25			
	FA4	0.742	1.548			
	FA5	0.756	1.523			
Financial Literacy	FL1	0.810	2.194	0.649	0.865	0.873
	FL2	0.851	2.365			
	FL3	0.828	2.051			
	FL4	0.806	1.951			
	FL5	0.728	1.623			
Government Support	GS1	0.821	1.894	0.670	0.836	0.837
	GS2	0.830	1.966			
	GS3	0.810	1.721			
	GS5	0.814	1.693			
Perceived Ease of Use	PEU1	0.727	1.574	0.548	0.794	0.798
	PEU2	0.773	1.66			
	PEU3	0.785	1.631			
	PEU4	0.692	1.413			
	PEU5	0.722	1.407			
Perceived Usefulness	PU1	0.743	1.525	0.591	0.827	0.827
	PU2	0.769	1.778			
	PU3	0.791	1.836			
	PU4	0.785	1.735			
	PU5	0.756	1.622			
User Innovativeness	UI1	0.841	1.881	0.610	0.787	0.797
	UI2	0.721	1.439			
	UI3	0.753	1.483			
	UI5	0.805	1.591			

4.3. Discriminant Validity

Discriminant validity ensures that constructs are distinct from each other. Three test were used- cross-loading analysis, the Fornell-Larcker criterion, and the Heterotrait-Monotrait (HTMT) ratio. Indicators had higher loadings on their respective constructs than on others, confirming discriminant validity. The Fornell-Larcker criterion benchmark has been achieved, all the square root of AVE for each construct was higher than the inter-construct correlations, further confirming discriminant validity (Fornell & Larcker, 1981). Likewise, the HTMT values were below the 0.90 threshold recommended by Gold et al. (2001), supporting discriminant validity. Table 3 and 4 presents the indicators of discriminant validity and crossloading matrix has been placed in Annexure 1.

Therefore, the measurement model demonstrated strong reliability, convergent validity, and discriminant validity, confirming that the constructs were distinct and measured effectively. The results align with prior research on FinTech adoption and support the model's robustness for further structural analysis.

Table 3: Fornell-larcker criterion.

Variables	FA	FL	GS	PEU	PU	UI
FA	0.727					
FL	0.393	0.806				
GS	0.094	0.363	0.818			
PEU	0.583	0.587	0.28	0.740		
PU	0.578	0.605	0.244	0.702	0.769	
UI	0.591	0.54	0.374	0.575	0.574	0.781

Table 4: Heterotrait-monotrait ratio.

Variables	FA	FL	GS	PEU	PU	UI
FA						
FL	0.472					
GS	0.181	0.432				
PEU	0.734	0.711	0.346			
PU	0.713	0.715	0.303	0.867		
UI	0.76	0.639	0.467	0.717	0.697	

5. STATUS OF FINTECH ADOPTION, INCLUDING FINANCIAL LITERACY, GOVERNMENT SUPPORT, PERCEIVED EASE OF USE, PERCEIVED USEFULNESS, USER INNOVATIVENESS

The descriptive analysis examined key factors influencing FinTech adoption, including financial literacy, government support, perceived ease of use, perceived usefulness, user innovativeness, and overall FinTech adoption. Responses were measured on a seven-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). The result shows that the banking customers demonstrated strong financial literacy (M = 5.73, SD=0.861), with the highest agreement on compounding interest and the lowest on risk diversification. Government support received moderate agreement (M = 5.20, SD=1.062), with the strongest indicator being responsiveness to FinTech-related issues. Perceived ease of use was rated highly (M = 5.86, SD=0.663), particularly for remembering FinTech-related tasks, while learning to operate FinTech services had a slightly lower agreement. Perceived usefulness was also high (M = 5.99, SD=0.744), with the agreement for FinTech making financial transactions easier. User innovativeness (M = 5.62, SD=0.848) indicating a positive attitude toward new FinTech services but variability in willingness to adopt them. FinTech adoption showed strong agreement (M = 6.08, SD=0.610), with the highest endorsement for recommending FinTech services. While overall perceptions were positive, differences in adoption intensity suggest varying levels of engagement among banking customers.

The findings indicate that banking customers exhibit a strong inclination toward FinTech adoption, driven by perceived ease of use, usefulness, and financial literacy. While government support plays a moderate role, user innovativeness significantly influences adoption levels. Customers recognize FinTech services as effective tools for enhancing productivity and financial transactions. However, varying levels of agreement on certain factors suggest differences in familiarity and adoption readiness. Strengthening financial literacy initiatives and enhancing user experience could further encourage FinTech adoption, while targeted government policies can support wider accessibility and trust in digital financial services.

The correlation analysis reveals significant relationships between financial literacy (FL), government support (GS), perceived ease of use (PEU), perceived usefulness (PU), user innovativeness (UI), and FinTech adoption (FA). Financial literacy shows a moderate positive correlation with FinTech adoption ($r = 0.393$, $p < 0.05$), indicating that individuals with higher financial literacy are more likely to adopt FinTech services. Government support has no correlation with FinTech adoption ($r = 0.094$, $p > 0.05$), suggesting that while government initiatives don't influence adoption, other factors may have a stronger impact. Perceived ease of use ($r = 0.583$, $p < 0.05$) and perceived usefulness ($r = 0.578$, $p < 0.05$) both exhibit strong correlations with FinTech adoption, highlighting their crucial roles in users' willingness to engage with FinTech services. User innovativeness also shows a strong positive correlation with FinTech adoption ($r = 0.591$, $p < 0.05$), emphasizing that individuals open to technological innovations are more likely to adopt FinTech services. The findings suggest that while financial literacy, perceived ease of use, perceived usefulness, and user innovativeness strongly influence adoption, the role of government support is relatively weaker but still significant in shaping FinTech adoption behavior.The descriptive and correlational analysis is placed in Table 5.

Table 5: Descriptive and correlational analysis.

Variables	M	SD	FA	FL	GS	PEU	PU	UI
FL	5.73	0.861	0.393*					
GS	5.20	1.062	0.094**	0.363*				
PEU	5.86	0.663	0.583*	0.587*	0.280*			
PU	5.99	0.744	0.578*	0.605*	0.244*	0.702*		
UI	5.62	0.848	0.591*	0.540*	0.374*	0.575*	0.574*	
FA	6.08	0.610		0.393*	0.094**	0.583*	0.578*	0.591*

Note: NB: *Significant at 1% level; **Not Significant

6. STRUCTURAL MODEL ASSESSMENT

The structural model assessment was conducted using SmartPLS4 with a bootstrapping procedure with 10000 sub samples, percentile bootstrap technique.

6.1. Path Analysis - Hypothesis Testing Results

Path analysis was conducted to examine the direct and mediating effects of financial literacy, government support, user innovativeness, perceived usefulness, and perceived ease of use on FinTech adoption. The path coefficients (β), standard deviations (SD), t-values, p-values, and confidence intervals (CI) at a 95% confidence level were analyzed to determine statistical significance.

Financial literacy does not have a significant direct influence on FinTech adoption (β = -0.068, SD = 0.078, t = 0.87, p = 0.384). The confidence interval (-0.212, 0.096) includes zero, confirming the lack of significance. Hence, *H1* is not supported.

Financial literacy has a significant positive influence on user innovativeness (β = 0.464, SD = 0.07, t = 6.621, p = 0.001). The confidence interval (0.323, 0.600) does not include zero, confirming statistical significance. Hence, *H2* is supported.

Government support have a significant negative direct influence on FinTech adoption (β = -0.163, SD = 0.057, t = 2.864, p = 0.004). The confidence interval (-0.273, -0.050) includes negative values, indicating a negative impact. Hence, *H3* is supported.

Government support significantly influences user innovativeness (β = 0.210, SD = 0.069, t = 3.042, p = 0.002). The confidence interval (0.083, 0.356) does not include zero, confirming its significance. *H4* is supported. Likewise, perceived ease of use has a significant positive effect on FinTech adoption (β = 0.271, SD = 0.070, t = 3.89, p = 0.001). The confidence interval (0.125, 0.399) does not include zero, supporting its significance. Hence, *H5* is supported. Similarly, perceived usefulness significantly influences FinTech adoption (β = 0.248, SD = 0.095, t = 2.601, p = 0.009). The confidence interval (0.072, 0.441) does not include zero, confirming its importance. Hence, *H6* is supported.

Further, user innovativeness has a strong positive influence on FinTech adoption (β = 0.392, SD = 0.071, t = 5.524, p = 0.001). The confidence interval (0.250, 0.530) does not include zero, validating the significance. Hence, *H7* is supported.

The hypothesis testing results indicate that financial literacy do not have direct significant effects on FinTech adoption. However, financial literacy and government support significantly influence user innovativeness, which in turn positively impacts FinTech adoption. Additionally, government support, perceived ease of use, perceived usefulness, and user innovativeness significantly drive FinTech adoption, highlighting the importance of user-centered factors in technological adoption in the financial sector. To test the collinearity or highest correlation between variables VIF is used. The maximum threshold for VIF is 5 (Hair et al., 2011), has been maintained in the model. The path analysis and VIF is placed in the table 6.

Table 6: Path analysis – hypothesis testing.

Hypothesis	Path	β	SD	t value	p values	CI 95% 2.50%	97.50%	VIF	Supported
H1	FL -> FA	-0.068	0.078	0.870	0.384	-0.212	0.096	1.889	No
H2	FL -> UI	0.464	0.070	6.621	0.001	0.323	0.600	1.831	Yes
H3	GS -> FA	-0.163	0.057	2.864	0.004	-0.273	-0.050	1.220	Yes
H4	GS -> UI	0.210	0.069	3.042	0.002	0.083	0.356	1.162	Yes
H5	PEU -> FA	0.271	0.070	3.890	0.001	0.125	0.399	2.269	Yes
H6	PU -> FA	0.248	0.095	2.601	0.009	0.072	0.441	2.335	Yes
H7	UI -> FA	0.392	0.071	5.524	0.001	0.250	0.530	1.812	Yes
H8	FL -> UI -> FA	0.182	0.047	3.844	0.001	0.099	0.282	-	Yes
H9	GS -> UI -> FA	0.082	0.030	2.790	0.005	0.031	0.147	-	Yes

6.2. Model Estimate (Coefficient of Determination-R²)

R-Square (R²) measures the predictive power of a model by determining the proportion of variance in dependent variables explained by independent variables. Sarstedt et al. (2014) mentioned R² serves as an

indicator of a model's predictive capability within the sample used for estimation. The values range from 0 to 1, where higher values indicate stronger predictive accuracy (Hair et al., 2014). R^2 values of 0.75, 0.50, and 0.25 correspond to high, moderate, and low predictive accuracy levels, respectively. Similarly, Chinn and Brewer (1998) classify R^2 values as 0.67 (high), 0.33 (moderate), and 0.19 (low). The results indicate that the model explains 49.3% of the variance in FinTech adoption among banking customers. This implies that financial literacy, government support, perceived ease of use, perceived usefulness, and user innovativeness collectively account for 49.3% of the changes in FinTech adoption. This R^2 value suggests a moderate level of predictive accuracy (Hair et al., 2014).

For user innovativeness, the R^2 value is 0.33, indicating that financial literacy and government support explain 33% of its variance. Chinn and Brewer (1998) mentioned this predictive level is moderate but on the lower side. While the model exhibits reasonable predictive power for FinTech adoption, its ability to predict user innovativeness is weaker. Nevertheless, both R^2 values fall within the acceptable range, supporting the model's overall reliability in explaining FinTech adoption trends. The model demonstrates moderate predictive power and a good fit. Model estimate and model fit indices are palced in Table 7.

Table 7: Coefficient of Determination-R^2.

Endogenous variables	R^2	SD	t value	p values	CI 95% 2.50%	97.50%	Model fit SRMR
FA	0.493	0.067	7.396	0.001	0.371	0.636	0.076
UI	0.330	0.052	6.39	0.001	0.246	0.450	

6.3. Effect Size (F^2)

Cohen's F^2 is a crucial metric for assessing the effect size of each path model by quantifying changes in R^2 when an exogenous variable is removed from the model. Cohen(1988) explains effect sizes are categorized as small ($F^2 > 0.02$), medium ($F^2 > 0.15$), and large ($F^2 > 0.35$). This measure aids in evaluating the predictive significance of latent variables. Table 8, presents the F^2 values for latent variables. The relationship between financial literacy and FinTech adoption shows an F^2 value of 0.005, indicating that its omission has negligible impact on FinTech adoption. Conversely, government support ($F^2 = 0.043$), perceived ease of use ($F^2 = 0.064$), and perceived usefulness ($F^2 = 0.052$) have small effects on FinTech adoption, as their values fall within the 0.02–0.15 range. User innovativeness has an F^2 value of 0.168, signifying a medium effect, as it falls between 0.15 and 0.35. Additionally, financial literacy ($F^2 = 0.279$) has a medium effect on user innovativeness, while government support ($F^2 = 0.057$) has a small effect. These results highlight the varying degrees of influence different variables exert on FinTech adoption and user innovativeness, reinforcing the importance of certain predictors in the model. The effect size is placed in Table 8.

Table 8: Effect size (F^2).

Path	F^2	SD	t value	p values	CI 95% 2.50%	97.50%
FL -> FA	0.005	0.014	0.339	0.735	0.001	0.051
FL -> UI	0.279	0.11	2.529	0.011	0.124	0.551
GS -> FA	0.043	0.03	1.435	0.151	0.004	0.117
GS -> UI	0.057	0.042	1.358	0.174	0.009	0.172
PEU -> FA	0.064	0.039	1.651	0.099	0.012	0.161
PU -> FA	0.052	0.043	1.193	0.233	0.005	0.169
UI -> FA	0.168	0.073	2.295	0.022	0.062	0.344

6.4. Mediation Analysis

The mediation analysis was conducted using SmartPLS4 with bootstrapping techniques to examine the mediting effect of user innovativeness in the relationship of financial literacy, government support and FinTech adoption. User innovativeness significantly mediates the relationship between financial literacy and FinTech adoption ($\beta = 0.182$, SD = 0.047, t = 3.844, p = 0.001). The confidence interval (0.099, 0.282) does not include zero, confirming a significant indirect effect. User innovativeness significantly mediates the relationship between government support and FinTech adoption ($\beta = 0.082$, SD = 0.030, t = 2.79, p = 0.005). The confidence interval (0.031, 0.147) does not include zero, indicating a significant mediating effect. Hence, both H8 and H9 is supported.

However, user innovativeness fully mediates the relationship between financial literacy and FinTech adoption, as the direct effect of financial literacy on FinTech adoption is insignificant, while the indirect effect through user innovativeness is significant. Similarly, since the direct and indirect effects have opposite signs, as in the case of user innovativeness mediating, the relationship of government support and FinTech adoption, Variance Accounted For (VAF) cannot be applied, confirming competitive partial mediation. These results highlight the crucial role of user innovativeness in facilitating FinTech adoption. While financial literacy alone does not directly drive adoption, fostering user innovativeness can bridge this gap. Additionally, government support's influence on FinTech adoption is complex, as it may discourage direct adoption but encourage it

indirectly through user innovativeness.

7. DISCUSSION

FinTech adoption has become a crucial topic in the financial services industry, particularly in the banking sector, where digital transformation is reshaping traditional financial transactions. With the increasing availability of digital financial tools, understanding the determinants of FinTech adoption is essential for policymakers, financial institutions, and consumers. This study aimed to identify the key factors influencing FinTech adoption among banking customers, focusing on financial literacy, government support, perceived ease of use, perceived usefulness, and user innovativeness. Additionally, the study examined the mediating role of user innovativeness in the relationship between financial literacy, government support, and FinTech adoption.

The findings of this study reveal that financial literacy has an insignificant relationship with FinTech adoption. This result contradicts the findings of Setiawan et al. (2021) in Indonesia and Morgan & Trinh (2019), who found a significant relationship between financial literacy and FinTech adoption. However, the result aligns with Nugraha et al. (2022), which also showed that financial literacy does not directly impact FinTech adoption. These discrepancies suggest that while financial knowledge is essential, it may not be a primary driver of FinTech adoption. Instead, factors such as ease of use, usefulness, and openness to innovation may have a stronger influence.

Similarly, government support was found to have an insignificant relationship with FinTech adoption. This contradicts the findings of Nugraha et al. (2022) and Marakarkandy et al. (2017), which reported a significant positive relationship between government support and FinTech adoption. However, the results of this study align with findings from Balaskas et al. (2024) in Greece and Setiawan et al. (2021) in Indonesia, both of which concluded that government support does not directly influence FinTech adoption. These results imply that while government support can provide an enabling environment, it does not necessarily translate into higher adoption rates unless other factors, such as ease of use and perceived benefits, encourage consumer engagement with FinTech services.

Conversely, user innovativeness demonstrated a significant positive relationship with FinTech adoption. These findings are consistent with studies by Shaikh & Amin (2024), Setiawan et al. (2021), and Nugraha et al. (2022), where consumer innovativeness was highlighted as a critical determinant of FinTech adoption. Shaikh & Amin (2024) emphasized that users who actively seek new technological solutions are more likely to adopt FinTech services. This suggests that fostering a culture of technological openness and encouraging digital experimentation could play a vital role in accelerating FinTech adoption.

Furthermore, the mediation analysis revealed that financial literacy and government support, when mediated by user innovativeness, had an indirect but significant effect on FinTech adoption, confirming H8 and H9. This aligns with Setiawan et al. (2021) and Nugraha et al. (2022), who found that user innovativeness acts as a bridge between external support factors and FinTech adoption. Similarly, Von and Gin (2008) found that government support significantly enhances user innovation, ultimately improving FinTech adoption. These findings suggest that while government policies and financial education programs alone may not be sufficient, they can cultivate a more innovative user base that is more inclined to explore and adopt FinTech solutions.

Perceived ease of use and perceived usefulness were both found to have a significant relationship with FinTech adoption. These findings contrast with Maharjan et al. (2022), which found no significant relationship between perceived ease of use and FinTech adoption among online grocery buyers in Nepal. However, the results align with studies by Nangin et al. (2020), Singh et al. (2020), and Marakarkandy et al. (2017), all of which confirmed that ease of use and usefulness play crucial roles in determining FinTech adoption. This highlights the importance of user-friendly interfaces and clear functional benefits in promoting digital financial services.

The findings of this study have significant implications for financial institutions, policymakers, and technology developers. First, given the strong influence of perceived ease of use and perceived usefulness on FinTech adoption, financial service providers should focus on simplifying their digital platforms and ensuring that users can see clear advantages in adopting FinTech services. Streamlining user interfaces, providing effective customer support, and demonstrating the tangible benefits of FinTech can encourage more users to transition from traditional banking methods.

Second, while financial literacy and government support do not directly influence FinTech adoption, their impact through user innovativeness suggests that educational initiatives and policy interventions should aim to foster a more innovative consumer base. Governments and financial institutions should collaborate on digital literacy programs that not only teach financial concepts but also promote a culture of technological experimentation and adaptation.

Third, as user innovativeness plays a crucial role in bridging the gap between financial literacy, government support, and FinTech adoption, targeted marketing and promotional strategies should focus on early adopters and tech-savvy consumers. Encouraging influencers and digital adopters to share their positive experiences with FinTech services could help spread awareness and increase adoption rates.

8. CONCLUSION

In conclusion, this study highlights that while financial literacy and government support alone do not directly drive FinTech adoption, they contribute indirectly through user innovativeness. Perceived ease of use and perceived usefulness remain critical determinants, reinforcing the importance of user-centric digital financial services. The meditaing role of user innovativeness underscores the need for strategies that encourage technological openness and adaptability among consumers. These insights provide valuable guidance for financial institutions, policymakers, and technology developers in designing and promoting more effective FinTech solutions for banking customers.

8.1. Implications

The findings of this study provide valuable insights for banks, policymakers, and financial institutions in fostering FinTech adoption. By understanding the key drivers and barriers, strategic initiatives can be undertaken to enhance digital financial inclusion. Banks and the government should focus on financial literacy programs and awareness campaigns to familiarize users with FinTech offerings. Providing clear and accessible information on security and convenience aspects of digital finance can address user concerns and promote greater adoption. Additionally, banks can increase the utility of FinTech platforms by integrating more services such as utility bill payments, fee transactions, and other financial operations, enhancing the perceived usefulness of digital financial services. Optimizing FinTech platforms to be user-friendly based on behavioral insights can further increase engagement.

From a policy perspective, government involvement is crucial in supporting infrastructure development and implementing regulatory frameworks that ensure security and foster innovation in the FinTech ecosystem. Regulatory refinements based on user behavior studies can help create policies that encourage FinTech adoption while maintaining consumer protection. Getting people from different fields, like academia, financial institutions, and the government, to work together can also help promote FinTech solutions and make people more likely to use digital financial services. Understanding user adoption patterns also helps financial institutions develop innovative solutions that align with user needs and market demand.

8.2. Further Research Implications

In terms of research, future studies could extend the current findings by exploring FinTech adoption across different industries to ensure broader applicability. Additionally, incorporating cultural and social factors such as subjective norms can help understand their influence on FinTech adoption. Longitudinal studies assessing the long-term impact of financial literacy, government support, and user innovativeness could provide deeper insights into evolving user behaviors. Comparative studies between developing and developed economies could help identify global trends and region-specific barriers to FinTech adoption. Moreover, integrating emerging technologies such as artificial intelligence and blockchain into FinTech adoption models could provide valuable insights into their impact on financial inclusion and digital security. By addressing these managerial and research implications, stakeholders can contribute to building a more inclusive and efficient digital financial ecosystem, driving higher FinTech adoption rates and user engagement.

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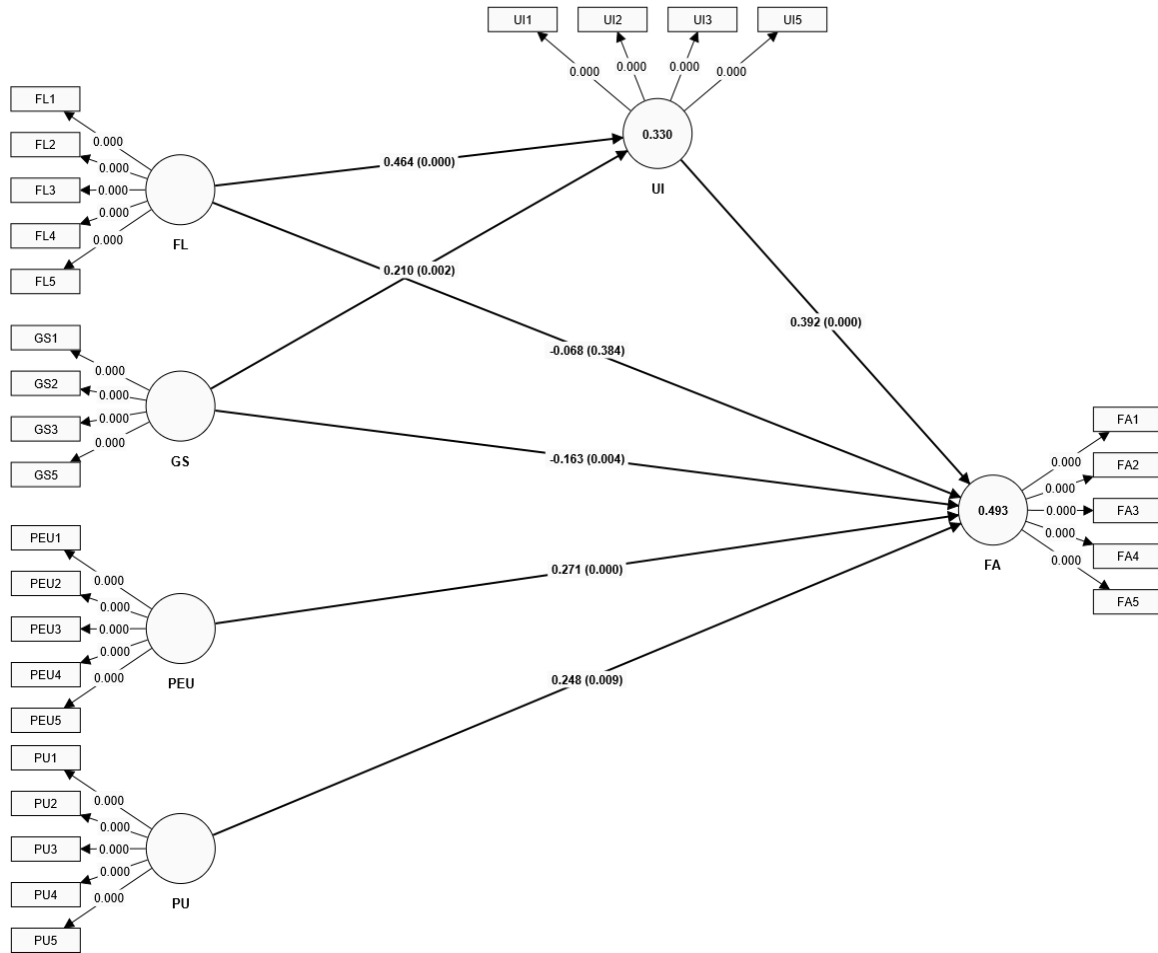
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Annexure 1: Crossloading matrix.

	FA	FL	GS	PEU	PU	UI
FA1	0.758	0.274	−0.061	0.409	0.454	0.378
FA2	0.759	0.335	0.035	0.497	0.505	0.417
FA3	0.608	0.229	0.208	0.377	0.27	0.446
FA4	0.742	0.265	0.064	0.424	0.41	0.421
FA5	0.756	0.313	0.126	0.403	0.435	0.496
FL1	0.317	0.810	0.171	0.36	0.383	0.378
FL2	0.358	0.851	0.286	0.503	0.495	0.483
FL3	0.327	0.828	0.325	0.499	0.552	0.474
FL4	0.337	0.806	0.315	0.538	0.524	0.447
FL5	0.226	0.728	0.375	0.45	0.477	0.376
GS1	0.085	0.272	0.821	0.229	0.1	0.286
GS2	0.043	0.352	0.830	0.227	0.238	0.295
GS3	0.075	0.331	0.810	0.316	0.253	0.314
GS5	0.102	0.24	0.814	0.15	0.202	0.325
PEU1	0.375	0.481	0.183	0.727	0.564	0.384
PEU2	0.443	0.466	0.128	0.773	0.552	0.413
PEU3	0.518	0.384	0.183	0.785	0.489	0.411
PEU4	0.35	0.462	0.275	0.692	0.485	0.41
PEU5	0.449	0.399	0.27	0.722	0.516	0.501
PU1	0.509	0.448	0.023	0.582	0.743	0.411
PU2	0.378	0.481	0.267	0.447	0.769	0.466
PU3	0.433	0.483	0.242	0.526	0.791	0.471
PU4	0.455	0.435	0.219	0.585	0.785	0.449
PU5	0.442	0.481	0.195	0.552	0.756	0.41
UI1	0.461	0.46	0.287	0.49	0.483	0.841
UI2	0.393	0.355	0.433	0.368	0.278	0.721
UI3	0.476	0.319	0.194	0.407	0.427	0.753
UI5	0.508	0.526	0.274	0.514	0.567	0.805
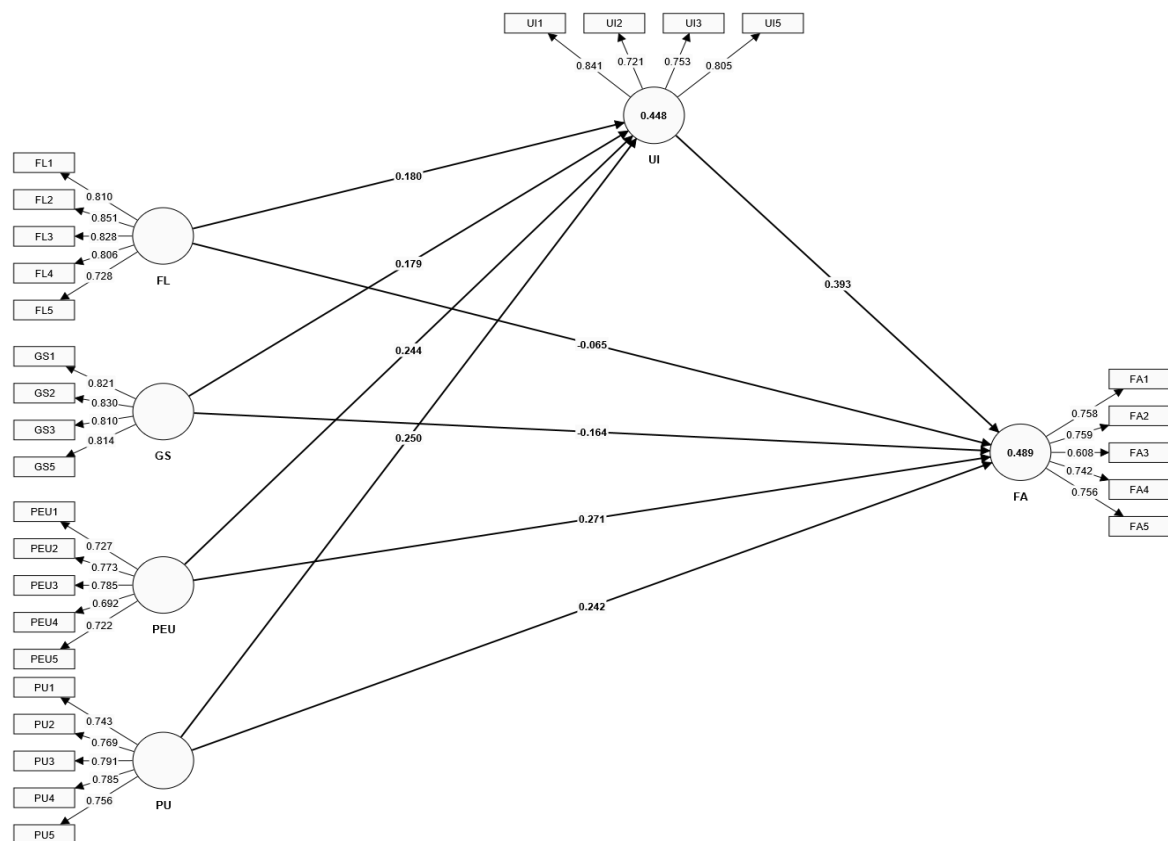
Annexure 2: Measurement model.

Annexure 3: Structural Model.