

Technology Acceptance FinTech Using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

Dely Indah Sari^{1*}, I Made Sondra Wijaya², Adritriani Zahra³, Nabila Khairunnisa⁴

Institut Teknologi Batam, Kepulauan Riau, Indonesia^{1,2,3,4}

deli@iteba.ac.id^{1*}, desondra@iteba.ac.id², adritriani@iteba.ac.id³, nabila@iteba.ac.id⁴



Article History

Received on 21 April 2026

1st Revision on 02 May 2026

2nd Revision on 25 May 2026

3rd Revision on 02 June 2026

Accepted on 29 June 2026

Abstract

Purpose: This study investigates the factors influencing FinTech acceptance using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework.

Methodology: A quantitative research design was employed using an online survey of 276 Indonesian FinTech users. Data were collected from existing users and analyzed using PLS-SEM to examine the relationships among the UTAUT2 constructs, Behavioral Intention and Use Behavior.

Results: Social Influence was the strongest predictor of Behavioral Intention ($\beta = 0.489$, $p < 0.001$), followed by Performance Expectancy, Hedonic Motivation, and Habit. Facilitating Conditions strongly influenced Use Behavior ($\beta = 0.830$, $p < 0.001$), while Price Value was insignificant. The UTAUT2 model explained 81.9% of Behavioral Intention and 77.9% of Use Behavior variance.

Conclusions: Social Influence and Facilitating Conditions were the strongest determinants of Behavioral Intention and Use Behavior, indicating that social influence plays a more important role than perceived price value in encouraging FinTech acceptance.

Limitations: The use of a cross-sectional survey design limits the ability to capture changes in user behavior and technology acceptance.

Contribution: This study confirms the robustness of the UTAUT2 framework in explaining FinTech acceptance and provides practical insights for FinTech providers to enhance user-acceptance.

Keywords: *Behavioral Intention, Fintech, Technology Acceptance, Use Behavior, UTAUT2*

How to Cite: Sari, D. I., Wijaya, I. M. S., Zahra, A., & Khairunnisa, N. (2026). Technology Acceptance FinTech Using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). *Reviu Akuntansi, Manajemen, dan Bisnis*, 6(2), 415-428.

1. Introduction

The continuous advancement of digital technology across various parts of the world has brought significant changes to many sectors of life, including the economy and business. Digital transformation has driven the emergence of new, more innovative, flexible, and technology-based business models, one of which is start-up companies ([Schmitz, Díaz-Martín, & Guillén, 2022](#)). In Indonesia, the growth of start-ups has shown a positive trend, in line with increasing Internet penetration, the widespread use of digital devices, and the continuous development of the digital ecosystem ([Schmitz et al., 2022](#)).

According to a study conducted by the Indonesia Internet Service Provider Association (APPJII), the total number of Internet users in Indonesia reached 215.63 million during the 2022-2023 timeframe. This number represents a 2.67% increase from the earlier period, which noted 210.03 million users aided by the extensive accessibility of information along with improved opportunities for communication and access ([Katadata, 2023](#)). This condition enables interactions between sellers and buyers to occur virtually without the need to meet face-to-face when conducting transactions. The development of Internet technology has also been accompanied by the rapid growth of various digital industries, such as online media and start-up companies, which are increasingly demonstrating their presence in the technology sector ([Amnas, 2023](#)).

Advancements in information technology within companies also play a crucial role in supporting business decision-making processes ([Jayanti, 2025](#)). The appropriate use of technology can enhance operational efficiency and provide competitive advantages ([Solihat, 2021](#)). Therefore, companies can compete not only with competitors in the same industry but also with business actors across various sectors, even on a global scale ([Wu, 2024](#)). However, the development of startups is not without challenges, particularly in terms of investment in information technology ([Alisia, 2024](#)). IT investment is a crucial factor that determines a start-up's success in product development, improves operational efficiency, and creates competitive advantage. Without adequate IT investment, startups will face difficulties in adapting to rapid technological changes and dynamic market demands ([Amnas, 2023](#)).

However, the success of technology implementation is not only determined by technical aspects but also by the level of user acceptance and actual use of the technology ([Xie, 2021](#)). In this context, the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model is a relevant approach for analyzing the factors influencing technology adoption. This model explains that the intention and usage behavior of technology are influenced by several key factors, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), and additional factors such as Hedonic Motivation (HM), Price Value (PV), and Habit (H). These factors play an important role in determining the level of technology acceptance and usage, particularly in dynamic digital environments such as startups ([Khatun & Tamanna, 2021](#)).

Based on these issues, this study aims to analyze the role of FinTech information technology investment in developing local digital start-ups in Indonesia using the UTAUT model approach ([Arifin, Natsir, Darryl, & Janet, 2025](#)). This research is intended to provide both theoretical and practical implications, particularly in understanding the factors that influence the success of technology acceptance and its implications for digital business development. Furthermore, the findings of this study are expected to serve as a reference for start-up practitioners, investors, and policymakers in formulating strategies to develop a more optimal digital ecosystem in Indonesia ([Shahzad, 2022](#)).

2. Literature Review and Hypotheses Development

[Venkatesh, Moris, Davis, and Davis \(2003\)](#) proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) by merging eight earlier recognized model related to technology acceptance and utilization. Within the UTAUT model, four primary elements are highlighted: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). These constructs influence consumers' behavioral intentions and actual technology use ([Amnas, 2023](#)). Furthermore, digital literacy and trust were incorporated as moderating variables influencing the relationships between the independent and dependent variables. The key constructs of the UTAUT model are defined as follows: Performance Expectancy (PE) is the extent to which utilizing a technology offers advantages to users in carrying out specific tasks ([Prakash, 2024](#)). Effort Expectancy (EE): the degree to which a technology is perceived as easy to learn and use by its users. Social Influence (SI): The degree to which users feel that significant others (such as relatives and peers) think they ought to adopt a specific technology ([Ilona, 2025](#)). Facilitating Conditions (FC): users' views on the resources and assistance accessible to carry out a specific action ([Amnas, Selvam, Raja, Santhoshkumar, & Parayitam, 2023](#)).

Within the Unified Theory of Acceptance and Use of Technology (UTAUT), Performance Expectancy (PE), Effort Expectancy (EE), and Social Influence (SI) are recognized as significant predictors of technology adoption intention. In turn, behavioral intention, together with facilitating conditions, is assumed to drive actual technology use. Conceptually, the UTAUT is grounded in a utilitarian perspective that emphasizes functional benefits as the primary driver of technology adoption. The model was initially formulated to explain employees' acceptance and utilization of information systems in organizational environments. Subsequently [Venkatesh et al. \(2003\)](#) extended the framework through the inclusion of additional constructs, namely Hedonic Motivation (HM), Price Value (PV), Experience, and Habit, resulting in the development of UTAUT2. The extended model is designed to capture technology acceptance behavior in consumer contexts ([Tamilmani, Rana, Wamba, & Dwivedi, 2021](#)). It incorporates several additional constructs, including Hedonic Motivation (HM), which reflects the enjoyment derived from technology use; Price Value (PV), which represents users' evaluation of benefits relative to the costs incurred; Experience, which refers to prior interactions and familiarity with the technology; and Habit, which describes the tendency to perform behaviors automatically based on repeated past use.

In the UTAUT2 framework, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and habit are hypothesized to influence behavioral intention. Furthermore, behavioral intention, along with Facilitating Conditions, Price Value, and habit, is posited to directly affect actual usage behavior. Demographic and experiential factors such as age, gender, and prior experience act as moderating variables that shape the relationships among these constructs ([Amnas, 2023](#)). Given that this study examines technology acceptance and usage within a consumer-oriented setting, UTAUT2 was employed as the primary theoretical foundation of the research model ([Amnas et al., 2023](#)). Based on this framework, a set of research hypotheses is formulated and elaborated in the following sections.

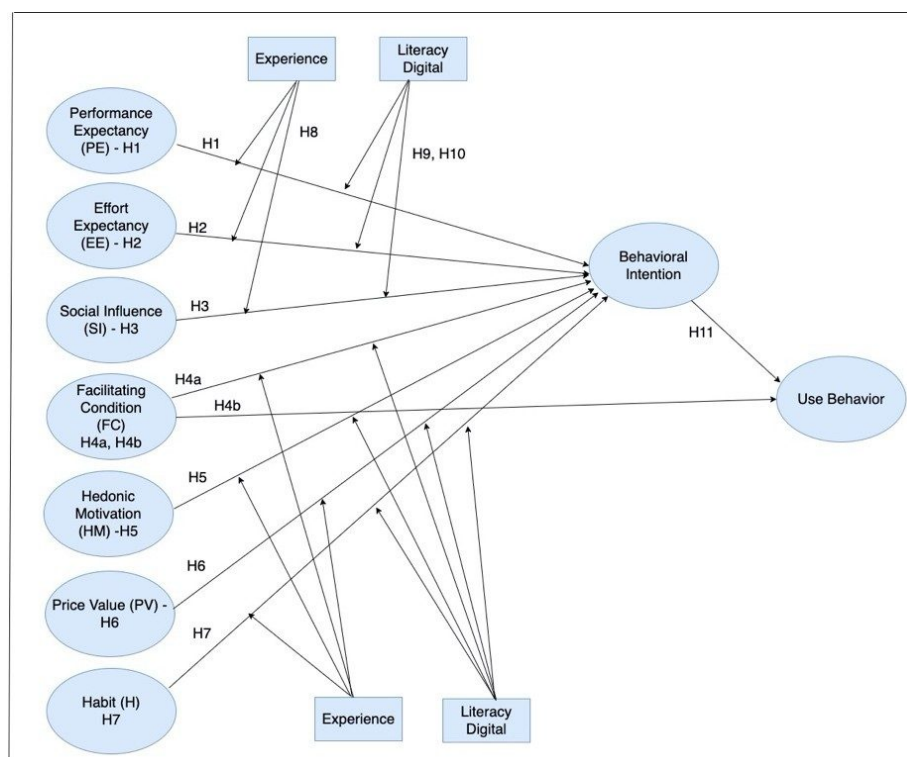


Figure 1. The hypothesized conceptual model of the study

Figure 1 presents the research framework developed from the UTAUT2 model, which is further enhanced by incorporating Digital Literacy and Experience as moderating factors. The framework suggests that Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit serve as antecedents of Behavioral Intention. In addition, Facilitating Conditions are expected to have a direct impact on use behavior, while behavioral intention

is proposed to positively influence the actual use of FinTech services. The model also assumes that Digital Literacy moderates the relationship between Performance Expectancy and Behavioral Intention, as well as the relationship between behavioral intention and use. Moreover, Digital Literacy is hypothesized to directly affect use behavior. By combining the original UTAUT2 constructs with user-related characteristics, the proposed framework offers a broader understanding of the factors driving FinTech adoption and continued usage.

2.1 Performance Expectancy (PE) and Behavioural Intention

Startups that invest in FinTech and possess the necessary capabilities to understand and implement such innovations are likely to achieve greater operational efficiency, enhanced performance, and improved business outcomes. As these benefits become evident, users are more inclined to adopt and utilize FinTech services. Therefore, the expectation of improved performance resulting from FinTech adoption can be regarded as a key predictor of both behavioral intention and sustained usage among startup actors. Empirical evidence reported by Amnas indicates that performance expectancy is a significant determinant of FinTech adoption intention. Similarly, previous research has demonstrated that the perceived usefulness of FinTech services positively influences behavioral intention, reinforcing the argument that expected performance benefits are central to users' technology adoption decisions ([Alkhwaldi, 2025](#)).

Furthermore, Prior research has consistently indicated that perceived usefulness and perceived ease of use play a significant role in shaping users' intentions to adopt FinTech services ([Shaikh, 2024](#)). Within the UTAUT2 model, performance expectancy is regarded as one of the primary factors influencing individuals' behavioral intention to adopt FinTech. Users who believe that FinTech services can improve their productivity, facilitate faster transactions, and enhance service efficiency are more likely to develop favorable intentions toward adopting and continuing to use them. Accordingly, the following hypothesis is proposed.

H₁: Performance Expectancy (PE) positively influences the Behavioral Intention (BI) to use Financial Technology

2.2 Effort Expectancy (EE) and Behavioural Intention (BI)

The adoption of FinTech services is more likely when users perceive the technology as easy to understand and use. Features such as an intuitive system design, accessible functionality, and clear instructions can reduce the effort required to use the technology, thereby enhancing users' willingness to adopt it. Moreover, when FinTech applications are viewed as less complex and easier to use than previously experienced systems, individuals are more likely to form favorable behavioral intentions toward their continued use ([Shaikh, 2024](#)).

Empirical evidence has consistently shown that the perceived ease of using a technology plays a significant role in shaping adoption decisions. Systems that are straightforward to learn and operate generally experience greater acceptance, as lower-effort requirements reduce barriers to usage. Consistent with this perspective, previous studies have reported a positive relationship between ease of use and the adoption of fintech services. Nonetheless, the impact of effort expectancy may weaken when trust is included as an additional explanatory variable, as users may prioritize issues related to security and reliability over usability. Despite this possibility, UTAUT2 identifies effort expectancy as a fundamental determinant of behavioral intention toward adopting technology. Therefore, the following hypothesis is proposed:

H₂: Effort Expectancy (EE) positively influences the Behavioral Intention (BI) to use Financial Technology

2.3 Social Influence (SI) and Behavioural Intention (BI)

Social influence is defined as the extent to which individuals perceive that significant others, such as colleagues, peers, or professionals, encourage or expect them to adopt FinTech technologies ([Idrees, 2024](#)). In practical settings, prior use of FinTech by individuals within one's social or professional environment may stimulate broader adoption, as users tend to follow prevailing practices in financial activities.

According to the UTAUT2 framework, social influence represents the perceived pressure or encouragement from significant others to use a technology. Numerous empirical studies have identified social influence as an important determinant of behavioral intention, suggesting that recommendations and expectations from peers, colleagues, family members, or other influential groups can affect technology adoption decisions. In the context of FinTech, users are more likely to embrace and continuously utilize such services when they perceive that their social environment values and supports its use. Therefore, drawing on prior empirical findings that establish a positive association between social influence and behavioral intention, the following hypothesis is formulated:

H₃: Social Influence (SI) positively influences Behavioral Intention (BI) to use Financial Technology

2.4 Facilitating Condition (FC), Behavioural Intention (BI) and Use Behavioural (UB)

Within the technology adoption context, facilitating conditions represent the degree to which individuals perceive that the required technical infrastructure and organizational support are available to enable the effective use of fintech solutions. The availability of compatible systems, reliable resources, and supportive environments can strengthen users' confidence and promote technology utilization ([Cera, 2022](#)).

Behavioral intention is strengthened when individuals perceive that they possess sufficient control over the resources and technological capabilities needed to perform a particular behavior. Moreover, prior research has demonstrated that factors such as user attitudes, accumulated experience, and digital literacy contribute significantly to the adoption and continued use of FinTech ([Shahzad, 2022](#)).

Grounded in the technology acceptance framework as the theoretical foundation of this study, the following hypotheses are proposed.

H_{4a}: Facilitating Conditions (FC) positively influence the Behavioral Intention (BI) to use Financial Technology

H_{4b}: Facilitating Conditions (FC) positively influence Use Behavior (UB) to use Financial Technology

2.5 Hedonic Motivation (HM) and Behavioural Intention (BI)

The presence of innovative and interactive features in FinTech applications can enhance users' enjoyment and overall experience, thereby increasing their motivation to engage with and continue using these technologies. Prior studies have identified enjoyment as an important intrinsic motivator that positively influences technology acceptance and adoption. Within the FinTech environment, hedonic motivation reflects the pleasure and satisfaction derived from using digital financial services, which contributes to users' willingness to adopt and maintain the use of these technologies. Consistent with the UTAUT2 framework, hedonic motivation is regarded as a significant predictor of behavioral intention, suggesting that higher levels of enjoyment are associated with stronger intentions to use FinTech services ([Xie, 2021](#)). Based on these arguments, the following hypothesis is proposed:

H₅: Hedonic Motivation (HM) has a positive effect on Behavioral Intention (BI) to use Financial Technology

2.6 Price Value (PV) and Behavioral Intention (BI)

Within technology adoption research, price is recognized as a significant predictor of behavioral intention. Users typically assess the trade-off between the expected benefits of a technology and the costs required to access and utilize it. In the case of FinTech services, adoption decisions are often influenced by users' perceptions of whether the value generated by the technology exceeds the associated financial expenditures, time investment, and effort required for its use ([Amnas, 2023](#)).

Empirical research has consistently demonstrated that technologies requiring lower financial and operational costs are more readily accepted by the users. In the context of FinTech, digital financial services provide greater efficiency, convenience, and cost savings than conventional transaction methods, while also enhancing service effectiveness. Consequently, a favorable evaluation of the benefits-to-cost ratio increases users perceived value, which in turn promotes both the adoption and sustained use of fintech technologies. Based on this rationale, the following hypothesis is

proposed.

H₆: Price Value (PV) positively influences Use Behavior (UB) in the use of Financial Technology

2.7 Habit, Behavioral Intention (BI), and Use Behaviour (UB)

This study employs the UTAUT2 model to empirically investigate user behavior in adopting and using FinTech technologies on digital platforms. Within this framework, habit is conceptualized as a critical determinant that influences both behavioral intention and actual technology use ([Jauhari, 2026](#)). Prior research has highlighted the significant role of habitual behavior in shaping users' intention to engage with technological systems. Nevertheless, behavioral intention is often regarded as a more robust predictor of actual usage than habit in isolation.

Existing studies further indicate that recurring usage patterns among digital platform users, such as repeated financial transactions, digital financial management, and information exchange, substantially affect both behavioral intention and actual use behavior ([Rana, 2025](#)). In the FinTech context, individuals who have developed a routine of using digital financial services are more likely to continue using them over time. Accordingly, studies grounded in the UTAUT2 framework suggest that habit is significantly associated with both users' behavioral intentions and their continued engagement with FinTech technologies. Based on these findings, the following hypothesis is proposed:

H₇: Habit (H) positively influences the Use Behavior (UB) of Financial Technology

2.8 Behavioural Intention (BI) and Use Behaviour (UB)

Behavioral intention is defined as an individual's readiness or willingness to perform a specific behavior, whereas use behavior reflects the actual utilization of a technology. Empirical evidence indicates that users' intentions significantly determine the frequency and intensity of their engagement with FinTech ([Matar, 2025](#)). Prior research has consistently demonstrated that behavioral intention is a strong antecedent of actual usage behavior. In the technology adoption literature, behavioral intention represents the extent to which individuals are willing and prepared to perform a specific action, which subsequently influences their actual engagement with technology.

Empirical studies grounded in the UTAUT2 framework further support the notion that behavioral intention is a key mechanism through which technology adoption is translated into actual use. In the FinTech environment, the intention to engage in activities such as digital transactions, financial management, and online payment services is closely associated with actual usage behavior. As a result, behavioral intention is commonly recognized as a fundamental determinant of users' continued engagement with FinTech. Based on this rationale, the following hypothesis is proposed.

H₈: Behavioral Intention (BI) positively influences the Use Behavior (UB) of Financial Technology

2.9 Moderating Effect of Literacy Digital and Trust Type within The UTAUT2 Framework

Previous research has highlighted that gender differences shape individuals' perceptions of technology use. Empirical findings suggest that women tend to perceive technological systems, including FinTech, as more beneficial than men do, although they may simultaneously experience higher levels of technology-related anxiety. These observations imply that gender functions as a moderating variable in the relationship between performance expectancy and behavioral intention in the context of FinTech adoption ([Cera, 2022](#)).

Furthermore, age has been identified as a moderating factor in the relationship between performance expectancy and behavioral intention, with stronger effects frequently observed among younger users. Studies grounded in the UTAUT2 framework consistently confirm the significant influence of performance expectancy on behavioral intention, while also emphasizing that individual characteristics such as age, gender, and experience can alter the strength of these relationships in the use of FinTech ([Wu, 2024](#)). Based on these considerations, the following hypotheses are proposed.

H₉: Digital literacy moderates the effect of Performance Expectancy on Behavioral Intention

H₁₀: Trust moderates the relationship between Effort Expectancy and Behavioral Intention in using Financial Technology

[Santini \(2026\)](#), conducted research involving 107 studentst using newly introduced word processing software and found that user experience acts as a moderating variable in the relationship between perceived ease of use and behavioral intention. This implies that the impact of ease of use on intention varies depending on the user's level of experience. Furthermore, prior studies have reported that experience also moderates the relationship between effort expectancy and behavioral intention, with gender differences observed; men tend to perceive systems as easier to use than women. In addition, research on personal computer usage has demonstrated that individual experience moderates the relationship between social influence and behavioral intention. This finding is supported by [Shaikh \(2024\)](#), who confirmed that experience significantly moderates the effect of social influence on behavioral intention.

When applied to the financial technology context, these findings underscore the importance of user experience in influencing technology adoption. Individuals who have previously used digital financial services, such as mobile banking and e-wallet applications, are generally less dependent on perceptions of ease of use because they already possess the skills and familiarity required to operate such technologies. A substantial body of technology acceptance research highlights the significance of moderating variables in explaining variations in users' behavior. Previous studies have shown that user experience can moderate the relationship between perceived ease of use and behavioral intentions. Similarly, empirical evidence suggests that experience strengthens the effect of effort expectancy on behavioral intention, while demographic characteristics, including gender, may influence users' perceptions of technology's usability.

Furthermore, prior research indicates that experience moderates the relationship between social influence and behavioral intentions. Other studies have also identified age as an important moderating factor, demonstrating that the impact of social influence on behavioral intention tends to be stronger among older users. In the FinTech environment, moderating variables become particularly relevant because of the heterogeneous nature of users, ranging from individual consumers to entrepreneurs and small business owners. Differences in digital literacy, financial knowledge, and technological capability shape how users perceive ease of use, effort expectancy, and social influence when accepting FinTech services. Likewise, variations in user characteristics affect the extent to which facilitating conditions, such as technological infrastructure, system reliability, security, and customer support, influence actual usage behaviors.

Therefore, user characteristics are expected to moderate the relationship between facilitating conditions and FinTech usage behavior. Business users with more complex operational needs may rely heavily on technical support and infrastructure, whereas individual users may emphasize accessibility and transaction convenience. Thus, incorporating moderating variables can provide a more comprehensive understanding of FinTech adoption across different user groups. Based on the UTAUT2 framework, the following hypotheses are proposed.

H_{11} : Experience (EXP) positively moderates the effect on Use Behavior (UB) in the utilization of FinTech services

H_{12} : Digital literacy (LD) moderates the relationship between Facilitating Conditions (FC) and Use Behavior (UB) in the use of FinTech platforms

3. Research Methodology

A clear and systematic research procedure is essential to ensure the methodological rigor, transparency, and reproducibility of the findings. Therefore, this study adopts a structured research flow to examine the acceptance of IT investment in fintech startups based on the UTAUT2 framework ([Kunal, 2025](#)). The research process integrates theoretical development, empirical data collection, and advanced statistical analysis using SEM-PLS [Hair, Ringle, and Sarstedt \(2013\)](#) to generate a comprehensive and validated model of fintech acceptance and usage. The overall stages of this study are illustrated in Figure 2.

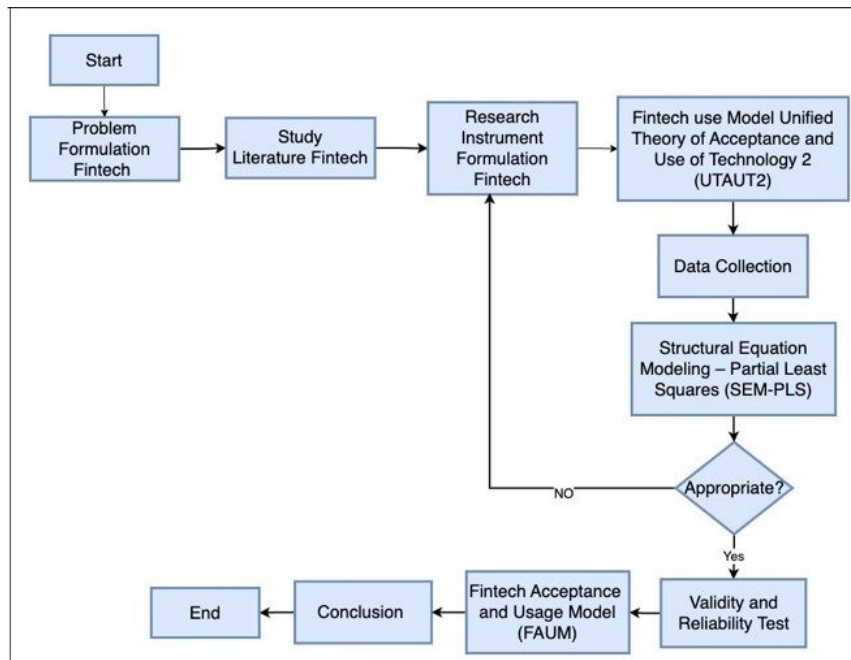


Figure 2. Methodology

Figure 2 the research process began with the problem formulation stage, which focused on identifying key issues related to technology acceptance in the fintech context. This stage establishes the foundation for defining the research objectives and determining the relevant variables (Hair et al., 2013; Meiranto, 2024). Subsequently, a literature review was conducted to develop a robust theoretical foundation. This includes identifying key constructs, examining the relationships among variables, and highlighting research gaps. The insights derived from this stage were used to construct a conceptual framework grounded in the UTAUT2 model (Chen, 2023).

Based on the theoretical framework, the study proceeds with the formulation of the research instrument, typically involving the development of a structured questionnaire. This instrument was designed to measure core constructs such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Behavioral Intention (BI), and Use Behavior (UB). The next stage involves data collection, where empirical data are gathered from relevant respondents such as fintech startup actors, users of fintech services, or other stakeholders. The collected data were then analyzed using the SEM-PLS method, which consists of two main components: outer model evaluation, focusing on the validity and reliability of the measurement model. Inner model evaluation focuses on testing the hypothesized relationships among constructs (Samsudeen, 2026).

Following the analysis, the model was assessed to determine whether it was appropriate. If the model does not meet the required criteria of validity or reliability, refinement procedures are conducted, as indicated by the iterative feedback loop in the diagram (Hair, 2019). Once the model satisfies all evaluation criteria, the study proceeds to validity and reliability testing, ensuring that the measurement instruments and constructs meet established scientific standards (Ho, 2025). The final outcome of this process is the development of Fintech, which represents a validated empirical model explaining user acceptance and usage behavior of Fintech technologies (Schmitz, Díaz-Martín, & Guillén, 2022). The research concludes with the conclusion stage, where the key findings are summarized, followed by the theoretical and practical implications. The process then reaches its end point.

4. Results and Discussions

4.1 Descriptive Statistics of Measurement Items

Table 1 presents the descriptive statistics of respondents' demographic profiles in the context of FinTech startups (N = 385). In terms of experience, the largest proportion of respondents had more

than one year of experience using FinTech startup services (208 individuals), while a smaller group reported less than three months' experience (31 individuals). Regarding respondent categories, the majority were general users or customers (260 respondents), whereas the remaining respondents were professionals or practitioners in the FinTech startup ecosystem (125 respondents).

Table 1. Demographic characteristics of respondents (N=385)

Variables	Frequency	Persentase (%)
Experience		8.1
Less than 3 months	31	20.0
3 – 6 months	77	28.1
6 – 12 months	108	43.9
More than 1 year	169	100
	385	
Literacy Digital		
Low	77	20.0
Moderate	193	50.1
High	115	29.9
	385	100

Table 1 presents the respondents' demographic profiles. Most respondents had more than one year of experience using FinTech services (43.9%), followed by those with 6–12 months of experience (28.1%). This suggests that most respondents were relatively experienced. In terms of digital literacy, most respondents fell into the moderate category (50.1%), followed by high (29.9%) and low (20.0 %) levels. This distribution indicates that the respondents generally possessed sufficient digital capabilities to engage with the FinTech startup platforms.

4.2 Partial Least Squares Structural Equation Modeling (PLS-SEM)

4.2.1 Measure Model

The data analysis in this study employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, utilizing SmartPLS 3.0 software. The model evaluation was carried out in two phases: first, the assessment of the measurement model (outer model), followed by the evaluation of the structural model (inner model).

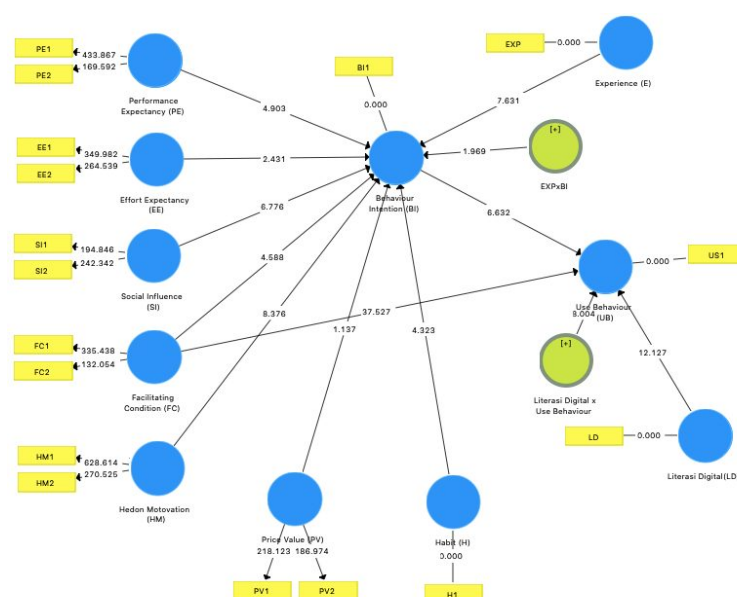


Figure 3. PLS-SEM structural model with measurement model

Figure 3 the measurement model was assessed in terms of construct reliability and validity. Reliability was evaluated using Cronbach alpha and composite reliability, both of which exceeded the recommended threshold of 0.70. Convergent validity was examined through outer loadings and the Average Variance Extracted (AVE), with all indicators showing loadings above 0.70 and AVE values greater than 0.50. Discriminant validity was assessed using cross-loadings, the Fornell–Larcker criterion, and the Heterotrait–Monotrait Ratio (HTMT). The findings show that each indicator loaded more strongly on its intended construct than on others, the square root of the AVE for each construct exceeded the correlations between constructs, and all HTMT values were below the recommended threshold. These results confirm that discriminant validity was established .

Table 2. Reliability, convergent and discriminant validity of measure model

Construct	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	CR b	ac
BI	1.000									1.000	1.000
EE	0.790	0.926								0.923	0.833
FC	0.787	0.838	0.920							0.917	0.831
H	0.832	0.813	0.803	1.000						1.000	1.000
HM	0.802	0.919	0.886	0.748	0.957					0.956	0.910
PE	0.840	0.805	0.951	0.870	0.847	0.942				0.940	0.873
PV	0.762	0.885	0.932	0.728	0.925	0.874	0.949			0.948	0.890
SI	0.872	0.900	0.919	0.911	0.870	0.944	0.887	0.918		0.915	0.815
UB	0.775	0.815	0.904	0.711	0.816	0.858	0.954	0.873	1.000	1.000	1.000

Note: PE, performance expectancy; EE, effort expectancy; SI, social influence; FC, facilitating condition; HM, hedonic motivation; PV, price value; HB, habit behavior; BI, behavioral intention; US, use behavior. a: square root of AVE (average variance extracted); b: composite reliability; c: Cronbach alpha

Table 2 presents the reliability, convergent validity, and discriminant validity assessment results of the measurement scales. All constructs achieved Composite Reliability values ranging from 0.915 to 1.000 and Cronbach alpha values between 0.815 and 1.000, exceeding the recommended threshold of 0.70. Furthermore, the square roots of the AVE for all constructs were above 0.50, indicating adequate convergent validity. The Fornell–Larcker criterion also demonstrated satisfactory discriminant validity, as the square root of the AVE for each construct was generally greater than its correlations with other constructs. Therefore, the measurement model exhibited acceptable reliability and validity, supporting further structural model analysis.

4.2.2 Structural Model

The structural model evaluation indicates that most relationships between constructs are statistically significant ($p < 0.05$), confirming that the model is adequate for explaining FinTech usage behavior. For Behavioral Intention (BI), Performance Expectancy ($\beta = 0.409$), Social Influence ($\beta = 0.489$), Hedonic Motivation ($\beta = 0.394$), and habit ($\beta = 0.163$) had positive and significant effects. In contrast, Effort Expectancy ($\beta = -0.103$) and Facilitating Conditions ($\beta = -0.371$) showed negative but significant effects. The price Value was not significant ($\beta = -0.051$; $p = 0.247$). The moderating effect of experience is significant but weakens the relationship between Performance Expectancy and BI ($\beta = -0.031$). For Use Behavior (UB), Facilitating Conditions had the strongest positive and significant effect ($\beta = 0.830$), followed by Behavioral Intention ($\beta = 0.143$). Meanwhile, Habit has a negative significant effect on UB ($\beta = -0.102$). Overall, social, motivational, and facilitating factors are key determinants driving the adoption and usage of FinTech.

Table 3. Path result of structural model

Hypotheses	Paths	Path Coefficient	P-Value
H_1	PE BI	0.409 (β_1)	$P < 0.001$
H_2	EE BI	-0.103 (β_2)	$P = 0.015$
H_3	SI BI	0.489 (β_3)	$P < 0.001$
H_{4a}	FC BI	-0.371 (β_{4a})	$P < 0.001$
H_{4b}	FC UB	0.830 (β_{4b})	$P < 0.001$

Hypotheses	Paths	Path Coefficient	P-Value
H_5	HM BI	0.394(β_5)	P<0.001
H_6	PV BI	-0.051(β_6)	P=0.247
H_7	H $\rightarrow$ BI	0.163(β_7)	P<0.001
H_8	EXP x PE $\rightarrow$ BI	-0.031(β_8)	P=0.047
H_9	LD x BI UB	0.076 (β_9)	P<0.001
H_{10}	LD UB	-0.102(β_{10})	P<0.001
H_{11}	BI UB	0.143(β_{11})	P<0.001

Table 3 presents the results indicating that Social Influence ($\beta = 0.489$) is the strongest predictor of Behavioral Intention, followed by Performance Expectancy ($\beta = 0.409$) and Hedonic Motivation ($\beta = 0.394$). Meanwhile, Facilitating Conditions ($\beta = 0.830$) emerged as the most influential factor affecting Use Behaviour. Of the 11 hypotheses tested, nine were supported, while two (H_2 and H_6) were not. These findings suggest that social influence, perceived usefulness, enjoyment, habit, and facilitating conditions play significant roles in promoting the adoption and continued use of fintech services.

4.2.3 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to assess the explanatory power of the structural model in predicting endogenous constructs. Based on the results, the R^2 value for Behavioral Intention (BI) is 0.819, indicating that 81.9% of the variance in BI could be explained by its predictors: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Habit, and the moderating variables. This value can be categorized as substantial, reflecting the model's strong predictive capability in explaining users' intention to adopt FinTech services. Similarly, the R^2 value for Use Behavior (UB) is 0.779, meaning that 77.9% of the variance in actual usage behavior is explained by Behavioral Intention, Facilitating Conditions, Habit, and related moderating effects. This also indicates a substantial level of explanation. Overall, these findings demonstrate that the proposed model has strong predictive relevance and is effective in explaining both behavioral intention and actual usage behavior in the context of FinTech adoption.

4.2.4 Effect Size (F^2)

Behavioral Intention (BI), Social Influence (SI), Performance Expectancy (PE), and Hedonic Motivation (HM) exhibit relatively large effect sizes, indicating that they are the primary determinants of FinTech usage intention. Habit (H) had a moderate effect. In contrast, Effort Expectancy (EE) and Facilitating Conditions (FC) had small effect sizes despite being significant, suggesting limited contributions. Price Value (PV) shows a very small or near-zero effect size, consistent with its non-significant result.

For Use Behavior (UB), Facilitating Conditions (FC) demonstrate a large effect size and emerge as the most dominant factor influencing actual FinTech usage. Behavioral Intention (BI) had a small to moderate effect, while Habit (H) had a small but significant effect. Overall, the F^2 analysis confirmed that not all variables contributed equally to the model. Social factors, perceived usefulness, and system support are the key drivers of fintech adoption and usage, whereas other variables provide more limited contributions.

5. Conclusions

5.1 Conclusion

This study demonstrates that the proposed model has strong explanatory and predictive power in explaining the adoption and usage behavior of FinTech. The structural model results indicate that most hypothesized relationships are statistically significant, while the coefficient of determination (R^2) values confirm substantial predictive capability for both Behavioral Intention (0.819) and Use Behavior (0.779). Key findings reveal that Social Influence, Performance Expectancy, and Hedonic Motivation are the primary determinants of Behavioral Intention, highlighting the importance of

perceived benefits, social environment, and user experience in driving FinTech adoption. Facilitating Conditions emerged as the most dominant factor influencing actual Use Behavior, emphasizing the critical role of infrastructure and system support. Behavioral Intention also significantly affected Use Behavior, confirming its role as a direct predictor of actual usage.

In contrast, Price Value does not significantly influence Behavioral Intention, indicating that cost considerations are not the main drivers in this context. Additionally, several relationships showed negative effects, suggesting the presence of contextual or user-specific factors that may influence perceptions of ease of use and supporting conditions. Overall, this study confirms that FinTech adoption is primarily driven by social, motivational, and facilitating factors. The findings provide both theoretical contributions to extending the UTAUT2 model and practical implications for FinTech providers to focus on enhancing user experience, strengthening social influence, and improving system support to increase user adoption and engagement.

5.2 Research Limitations

This study had several limitations. First, the use of a cross-sectional design limits the ability to capture changes in the FinTech usage behavior over time. Second, reliance on self-reported questionnaire data may introduce bias and may not fully reflect actual behaviors. Third, the sample size was limited, which may affect the generalizability of the findings. Fourth, the model is restricted to UTAUT2 variables and does not include other relevant factors, such as trust, perceived risk, and security. Finally, some relationships were negative or non-significant, suggesting that additional moderating or mediating variables should be considered in future research.

5.3 Suggestions and Directions for Future Research

Future research should use longitudinal designs to capture behavioral changes over time and expand the sample size to improve generalizability. It is also recommended to include additional variables, such as trust, perceived risk, security, and digital literacy. Incorporating mediating and moderating variables can provide deeper insights into these complex relationships. Furthermore, comparative studies across different FinTech services and the use of mixed methods are suggested to better understand the user behavior.

Acknowledgement

The authors would like to thank LPPM ITEBA for their support and facilitation in the implementation of this research.

Author Contributions

DIS contributed to the conceptualization, methodology, formal analysis, manuscript preparation, and project administration. IMD contributed to the methodology, supervision, validation, and manuscript review. ADZ contributed to the data collection, analysis, and investigation. NBK contributed to the data collection, curation, and investigation. All the authors have reviewed and approved the final manuscript.

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