

Factors Affecting Customers' Intention and Use Behavior Toward Digital Banking Services in Vietnam

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ABSTRACT

Digital banking has become a strategic priority for commercial banks in the context of rapid digital transformation. This study examines the factors influencing customers' behavioral intention and use behavior toward digital banking services in Vietnam. Drawing on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), the study extends the model by incorporating security, trust, and personalization to better reflect the characteristics of digital banking in an emerging market. Data were collected from 630 valid respondents and analyzed using SPSS 22 and AMOS 20 through reliability analysis, exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. The results show that security, personalization, habit, trust, and social influence significantly affect behavioral intention, while behavioral intention, personalization, and habit significantly influence actual use behavior. In contrast, performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, and price value do not have significant effects in the structural model. The findings contribute to the digital banking literature by extending UTAUT2 in the Vietnamese context and suggest that banks should prioritize security enhancement, trust building, and personalized service design to strengthen customer adoption and continued use of digital banking services.

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1. INTRODUCTION

In the context of the Fourth Industrial Revolution, digital transformation has become a strategic imperative across industries, including banking. For commercial banks, digital platforms are no longer merely complementary service channels; rather, they are increasingly central to value creation, customer engagement, and competitive positioning. Large international banks have substantially increased their investments in technology and digital capabilities to enhance operational efficiency, improve customer experience, and strengthen long-term competitiveness (JPMorgan Chase & Co., 2019; Yiu, 2018).

This global trend is also evident in Vietnam. The banking sector has made significant progress in digital transformation in recent years, supported by rapid growth in non-cash payments, mobile banking, and internet-based financial services. According to the State Bank of Vietnam, by the end of 2022 the banking sector had invested heavily in digital transformation, while digital payments continued to expand at a remarkable pace (Vietnam News, 2023). In particular, non-cash payment transactions rose sharply in both volume and value, with internet- and mobile-based transactions recording especially strong growth (Vietnam News, 2023). These developments suggest that digital banking is becoming an increasingly important component of the Vietnamese financial system. Vietnam's demographic structure also provides favorable conditions for the expansion of digital banking services. The country's population was estimated at 99.46 million in 2022, of which 37.3% lived in urban areas, while the labor force aged 15 and above reached 51.7 million people (Government News, 2023). This relatively young and economically active population is more likely to

adopt digital technologies and engage with online financial services. As access to smartphones, internet connectivity, and digital payment infrastructure continues to improve, Vietnamese consumers are increasingly able to integrate digital banking into their daily financial activities.

At the industry level, commercial banks in Vietnam have actively introduced digital banking applications and expanded online service offerings. Digital banking services now typically include account opening, money transfers, bill payments, savings products, and other value-added utilities delivered through mobile applications and internet banking platforms. As digital banking becomes more widespread, competition among banks is shifting from basic service provision to customer acquisition, retention, and experience optimization. In this environment, understanding the factors that shape customers' intention to use and actual use behavior has become both theoretically important and practically relevant.

Although previous studies have examined technology adoption in financial services, the determinants of digital banking usage may vary across national and institutional contexts. In emerging markets such as Vietnam, issues such as trust, security, personalization, and habitual usage may play a particularly important role in shaping customer behavior. Against this background, the present study investigates the factors influencing customers' behavioral intention and use behavior toward digital banking services in Vietnam. By identifying the key drivers of adoption and continued usage, the study aims to provide empirical evidence that can help commercial banks refine their digital strategies, improve customer experience, and strengthen their competitive advantage.

2. LITERATURE REVIEW

2.1. Literature review

Digital banking adoption has received increasing scholarly attention, particularly in emerging markets where banking digitalization has accelerated rapidly. Prior studies have commonly examined customers' acceptance and use of digital banking services through established technology adoption frameworks, especially the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Davis, 1989; Venkatesh et al., 2003, 2012). Overall, the literature suggests that customers' behavioral intention and actual use behavior are shaped by a combination of technology-related perceptions, social and behavioral influences, affective evaluations, and trust- and security-related considerations. However, empirical findings remain mixed across countries and contexts, indicating the need for further investigation in specific markets such as Vietnam.

A substantial body of prior research highlights the role of technology-related factors, including performance expectancy, effort expectancy, facilitating conditions, and price value. From the perspectives of TAM and UTAUT2, customers are more likely to adopt digital banking when they perceive such services as useful, easy to use, and supported by adequate technical and organizational resources (Davis, 1989; Venkatesh et al., 2012). Empirical evidence from Vietnam indicates that performance expectancy and effort expectancy positively influence customers' behavioral intention toward digital banking services (Nguyen et al., 2020; Nguyen, 2020; Pham, 2022). Facilitating conditions have also been found to support customers' adoption decisions in some contexts, particularly when access to smartphones, internet connectivity, and technical support is readily available (Pham, 2022). By contrast, the effect of price value appears less consistent. While some studies show that price-related considerations significantly affect customers' intention to use digital banking services, other studies report no significant relationship, especially when such services are offered with minimal or no direct monetary cost (Alalwan et al., 2017, 2018; Anggraeni et al., 2021). These mixed findings suggest that technology-related perceptions remain important, but their effects may vary depending on the maturity of digital infrastructure and customer familiarity with digital services.

Beyond functional considerations, prior research also emphasizes the importance of social and behavioral factors, particularly social influence and habit, in shaping customers' digital banking decisions. Social influence refers to the extent to which individuals perceive that important others believe they should use a technology (Venkatesh et al., 2003). In collectivist and relationship-oriented societies, recommendations from family members, friends, and peers may encourage customers to adopt digital banking services (Liang, 2016). Several studies have confirmed a positive association between social influence and behavioral intention in digital banking contexts (Anggraeni et al., 2021; Pham, 2022). Habit, in contrast, captures the extent to which behavior becomes automatic through repeated use and prior learning (Venkatesh et al., 2012). In digital banking, repeated activities such as checking balances, transferring money, and paying bills may gradually develop into stable usage routines. Previous studies consistently report that habit is one of the strongest predictors of both behavioral intention and actual use behavior (Anggraeni et al., 2021; Kwateng et al., 2018; Nguyen et al., 2020; Nguyen Thu Thuy, 2020). Taken together, these findings indicate that digital banking behavior is shaped not only by rational evaluations of utility and ease of use, but also by social norms and routinized behavioral patterns.

Another important group of determinants concerns affective and experiential factors, especially hedonic motivation and personalization. Although digital banking is fundamentally utilitarian, customers may still respond positively to pleasant user experiences, attractive interfaces, and engaging interactions. Hedonic motivation, defined as the enjoyment or pleasure derived from using technology, has been found to positively influence behavioral intention in several digital banking studies (Anggraeni et al., 2021; Nguyen et al., 2020; Nguyen Thu Thuy, 2020). Personalization has also become increasingly relevant in digital service environments. Personalized recommendations, tailored offers, and user-specific interfaces may enhance perceived relevance, customer satisfaction, and engagement, thereby strengthening both intention to use and actual use behavior (Wolfinbarger & Gilly,

2003). Although personalization has received less attention than traditional technology adoption variables, it is increasingly recognized as a customer-centered mechanism through which banks can differentiate digital services in highly competitive markets. Finally, a substantial stream of literature identifies trust- and security-related factors, particularly security and trust, as critical determinants of digital banking adoption. Because digital banking involves technology-mediated transactions, customers often face uncertainty regarding privacy, fraud, system reliability, and the protection of personal and financial information. Security therefore plays a central role in reducing customers' concerns about potential loss or misuse of data (Nguyen, 2020). Prior studies have shown that when customers perceive digital banking systems as secure, they are more likely to develop favorable attitudes and stronger usage intentions (Annida, 2022; Nguyen, 2020). Closely related to security is trust, which refers to the belief that the bank and its digital channels are reliable, competent, and able to provide services in a safe and dependable manner (Castelfranchi & Falcone, 2000). Trust has repeatedly been identified as a significant antecedent of digital banking intention because it reduces uncertainty and perceived risk in online financial transactions (Alalwan et al., 2017; Mufarih et al., 2020; Pham, 2022). Moreover, security may strengthen trust by increasing customers' confidence in the safety of the digital environment. These findings imply that customers' willingness to adopt and continue using digital banking services depends not only on system functionality, but also on their confidence in the security and trustworthiness of the service.

Although the existing literature has generated important insights, several gaps remain. First, empirical findings are still inconsistent regarding the effects of performance expectancy, effort expectancy, facilitating conditions, and price value. Second, many studies focus primarily on behavioral intention, whereas fewer studies simultaneously examine both intention and actual use behavior. Third, although trust and security are widely acknowledged as important in digital financial services, they are not always systematically integrated with core adoption variables. Finally, personalization remains underexplored despite its growing relevance in customer-centered digital banking strategies. To address these gaps, the present study proposes an integrated framework in which technology-related perceptions, social and behavioral influences, affective and experiential factors, and trust- and security-related considerations jointly explain customers' behavioral intention and use behavior toward digital banking services in Vietnam.

2.2. Hypothesis development

Prior research on digital banking adoption suggests that customers' intention and actual usage are shaped by a combination of technological, social, experiential, and trust-related considerations. Building on the existing literature, the present study groups the determinants into broader conceptual categories in order to develop a more integrated explanation of digital banking adoption behavior in Vietnam.

Technology-related factors have long been recognized as core determinants of technology acceptance. In particular, performance expectancy, effort expectancy, facilitating conditions, and price value represent customers' functional evaluations of a digital service. Performance expectancy reflects the extent to which individuals believe that using digital banking services will improve the efficiency, speed, and effectiveness of their financial transactions (Venkatesh et al., 2003, 2012). When customers perceive digital banking as useful and beneficial in managing their banking activities, they are more likely to form a favorable intention to adopt it. Effort expectancy, similarly, captures the perceived ease associated with learning and using the service. If customers find digital banking applications simple, clear, and easy to navigate, their resistance to adoption is likely to decrease (Davis, 1989; Venkatesh et al., 2012).

Facilitating conditions also play an important role because customers' willingness to adopt digital banking depends not only on perceived usefulness and ease of use, but also on the availability of supporting resources such as smartphones, internet connectivity, technical support, and compatible digital infrastructure. In addition, price value reflects customers' evaluation of whether the benefits of digital banking outweigh its monetary and non-monetary costs, such as transaction fees, internet expenses, or the effort required to learn the system (Venkatesh et al., 2012). Although previous studies have reported mixed results regarding the strength of these individual effects, the broader literature generally indicates that customers are more likely to adopt digital banking when they perceive it as useful, manageable, supported, and economically worthwhile (Alalwan et al., 2017, 2018; Davis, 1989; Venkatesh et al., 2012). Therefore, the following hypothesis is proposed:

H1: Technology-related factors, including performance expectancy, effort expectancy, facilitating conditions, and price value, significantly influence customers' behavioral intention to use digital banking services.

In addition to functional evaluations, digital banking adoption is also influenced by customers' social environment and prior behavioral patterns. Social influence refers to the extent to which individuals perceive that important others, such as family members, friends, colleagues, or peers, believe that they should use a particular technology (Venkatesh et al., 2003). In the case of digital banking, recommendations, positive word-of-mouth, and social norms may reduce uncertainty and encourage adoption, especially in collectivist or socially interconnected contexts. Prior research has shown that social influence can positively shape behavioral intention by reinforcing the legitimacy, desirability, and perceived normality of using digital banking services (Liang, 2016; Venkatesh et al., 2012).

Habit, by contrast, reflects the extent to which behavior becomes automatic through repeated use and accumulated experience (Venkatesh et al., 2012). In digital banking, customers who repeatedly use applications for checking balances, paying bills, or transferring money may gradually develop routine usage patterns. Once such routines are formed, customers may no longer rely

solely on deliberate evaluations when deciding whether to use digital banking; instead, usage becomes partly automatic. This suggests that habit may influence not only behavioral intention but also actual use behavior. Prior studies consistently identify habit as one of the strongest predictors of continued technology use because repeated prior behavior tends to reinforce both willingness and actual performance (Kwateng et al., 2018; Venkatesh et al., 2012). Taken together, these findings imply that social and behavioral factors can jointly shape both intention and actual usage of digital banking services. Accordingly, the following hypothesis is proposed:

H2: Social and behavioral factors, including social influence and habit, significantly influence customers' behavioral intention and use behavior toward digital banking services.

Although digital banking is often regarded primarily as a utilitarian service, customers' adoption decisions may also be shaped by affective and experiential considerations. Hedonic motivation refers to the fun, enjoyment, or pleasure derived from using a technology (Venkatesh et al., 2012). Even in a financial services context, customers may respond positively to a digital banking application that offers a smooth interface, attractive design, and an engaging user experience. When customers enjoy interacting with a digital platform, they may develop more favorable attitudes and stronger intentions to use it. Prior research has shown that hedonic motivation can be a meaningful predictor of behavioral intention, particularly when digital services are embedded in increasingly user-centered and experience-driven environments (Anggraeni et al., 2021; Venkatesh et al., 2012).

Personalization is another experiential factor that may be particularly relevant in digital banking. Personalized services allow banks to tailor recommendations, offers, and user interfaces to customers' individual preferences, financial needs, and usage histories. When customers perceive digital banking services as relevant to their personal situation, they may be more likely to engage with such services and continue using them over time. Personalization may therefore enhance both behavioral intention and actual use behavior by making the service more convenient, meaningful, and customer-centered. Prior service literature suggests that personalization contributes positively to customer satisfaction, perceived value, and engagement, all of which can support service adoption and continued use (Wolfenbarger & Gilly, 2003). Therefore, the following hypothesis is proposed:

H3: Affective and experiential factors, including hedonic motivation and personalization, significantly influence customers' behavioral intention and use behavior toward digital banking services.

Trust- and security-related factors are particularly important in the context of digital banking because customers conduct financial transactions in an environment characterized by uncertainty, technological mediation, and perceived vulnerability. Security refers to customers' perceptions that their personal information, account data, and financial transactions are adequately protected from fraud, unauthorized access, and privacy violations. In digital financial services, perceived security is essential because customers are often required to disclose sensitive information and rely on the digital platform to process transactions accurately and safely. If customers perceive digital banking systems as secure, they are more likely to develop confidence in the platform and express a stronger intention to use it (Nguyen, 2020).

Closely related to security is trust, which reflects the belief that the bank and its digital channels are reliable, competent, and capable of delivering services in a safe and dependable manner (Castelfranchi & Falcone, 2000). Trust helps reduce uncertainty and perceived risk, thereby increasing customers' willingness to adopt digital banking services. Moreover, security may serve as an important antecedent of trust, because customers are more likely to trust a digital banking platform when they believe that appropriate safeguards are in place to protect their transactions and personal data. Prior studies have shown that both security and trust are central determinants of digital banking adoption and intention to use (Alalwan et al., 2017; Mufarih et al., 2020; Nguyen, 2020). Thus, the following hypothesis is proposed:

H4: Trust- and security-related factors, including security and trust, significantly influence customers' behavioral intention to use digital banking services.

Behavioral intention is widely recognized in technology adoption research as an immediate antecedent of actual behavior. It reflects an individual's readiness, willingness, and conscious plan to perform a particular action (Ajzen, 2005). In the context of digital banking, customers who express a stronger intention to use digital banking services are more likely to translate that intention into actual usage, such as conducting transactions through mobile banking applications or internet banking platforms. This relationship is well established in prior theories of planned behavior and technology acceptance, which argue that intention serves as the most direct predictor of actual behavior when individuals have the necessary resources and opportunities to act (Ajzen, 2005; Venkatesh et al., 2003). Accordingly, the following hypothesis is proposed:

H5: Customers' behavioral intention positively influences their actual use behavior toward digital banking services.

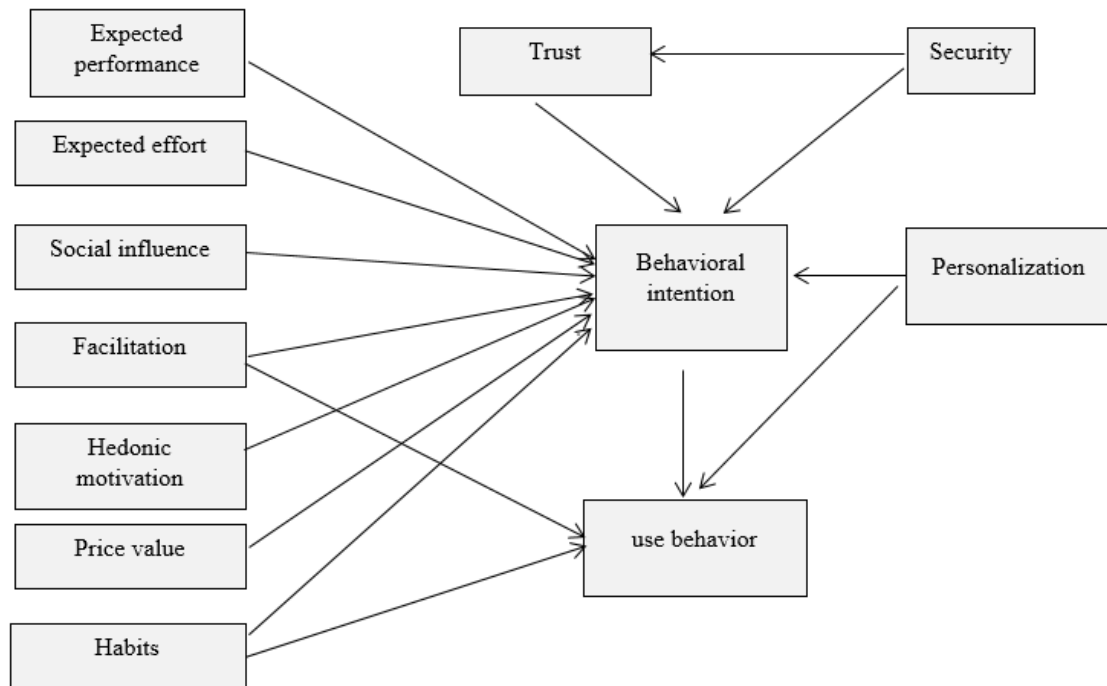


Figure 1. Research model

3. RESEARCH METHODOLOGY

3.1. Research design and data collection

This study employed a quantitative research design to examine the factors influencing customers' behavioral intention and use behavior toward digital banking services in Vietnam. Data were collected through an online survey administered over a four-month period, from August 1, 2022 to November 30, 2022. The online survey approach was considered appropriate because it enabled the researchers to reach a large number of respondents efficiently and was consistent with the digital nature of the research context. The target respondents were individuals who had experience with or exposure to digital banking services. To improve the representativeness of the sample, the survey was distributed to customers in two major regions of Vietnam, namely the North and the South. A total of 650 questionnaires were collected. After the data screening process, 20 responses were excluded due to incompleteness or inconsistency, resulting in 630 valid observations retained for the final analysis. The questionnaire was developed using structured questions and consisted of two main sections. The first section measured the constructs included in the research model, namely the factors influencing customers' intention to use and actual use behavior toward digital banking services. The second section collected respondents' demographic information, including gender, age, marital status, education, occupation, and income. All measurement items for the main constructs were assessed using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The use of a five-point scale was considered appropriate because it is widely applied in behavioral research and allows respondents to express their level of agreement in a simple and consistent manner.

3.2. Measurement development

The measurement scales used in this study were adapted from prior studies on technology acceptance, digital banking adoption, and related areas. The questionnaire items were designed to reflect the theoretical constructs proposed in the research model, including performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, security, trust, personalization, behavioral intention, and use behavior. To ensure content validity, the wording of the items was adjusted to fit the context of digital banking services in Vietnam while maintaining consistency with their original theoretical meanings. Before conducting the formal survey, the study was implemented in two stages, including a preliminary study and a formal study. The preliminary stage was conducted to refine the wording, structure, and clarity of the questionnaire items and to ensure that respondents could understand the survey content appropriately. Based on feedback from this stage, the questionnaire was revised before being used in the formal survey. The formal study was then carried out to collect the data used for hypothesis testing and model estimation.

3.3. Data analysis

The collected data were analyzed using SPSS 22 and AMOS 20. The data analysis procedure was carried out in several steps in order to assess the reliability and validity of the measurement scales and to test the proposed structural relationships. First, Cronbach's alpha analysis was conducted using SPSS 22 to evaluate the internal consistency reliability of the measurement scales. This step aimed to identify and eliminate observed variables that did not perform well in measuring the intended constructs. In accordance with commonly accepted standards in the literature, a Cronbach's alpha coefficient greater than 0.60 was considered

acceptable for exploratory research. In addition, items with corrected item-total correlations lower than 0.30 were considered for removal because such items may not adequately contribute to the reliability of the scale. Second, Exploratory Factor Analysis (EFA) was performed to examine the underlying factor structure of the observed variables and to assess the preliminary validity of the measurement model. EFA was used to identify whether the observed items loaded appropriately onto their expected factors and to eliminate items with weak factor loadings. In this study, items with factor loadings lower than 0.40 were excluded from subsequent analyses. At the same time, the total variance explained and the factor structure were examined to ensure that the retained items adequately represented the proposed constructs. Third, after the reliability and exploratory analyses, Confirmatory Factor Analysis (CFA) was conducted using AMOS 20 to assess the measurement model more rigorously. CFA was used to evaluate convergent validity, discriminant validity, and the overall goodness-of-fit of the measurement model. Specifically, convergent validity was assessed through standardized factor loadings, composite reliability, and average variance extracted, while discriminant validity was examined by comparing the square root of the average variance extracted with the inter-construct correlations. Finally, Structural Equation Modeling (SEM) was employed to test the hypothesized relationships among the constructs in the research model. SEM was considered appropriate because it enables the simultaneous estimation of multiple relationships among latent variables and provides a comprehensive assessment of both the measurement model and the structural model. Through SEM, the study examined the effects of the proposed antecedent factors on behavioral intention and use behavior toward digital banking services.

4. RESEARCH RESULTS

4.1. Descriptive statistics

Table 1. Demographic Characteristics

		Frequency	Percent
1	Gender		
	Male	251	39.8
	Female	379	60.2
2	Ages		
	From 18 to 25 years old	166	26.3
	From 25 to under 50 years old	311	49.4
	From 50 years old and above	153	34.3
3	Marital Status		
	Married	122	19.4
	Single	384	61
	Other	124	19.6
4	Education		
	University/College	348	55.2
	Universal	133	21.1
	Postgraduate	149	23.7
5	Jobs		
	Self-employed	216	34.3
	State	173	27.5
	Other	241	38.3
6	Income		
	Under 5 million	143	22.7
	From 5 million to less than 10 million	158	25.1
	From 10 million to less than 15 million	152	24.1
	From 15 million or more	177	28.1

Table 1 reports the demographic characteristics of the respondents based on the survey conducted by the authors in 2022. Female respondents accounted for 60.2% of the sample, while male respondents represented 39.8%. The largest age group consisted of respondents aged from 25 to under 50 years old (49.4%), followed by those aged 18–25 years old (26.3%) and those aged 50 years old and above (24.3%). In terms of marital status, single respondents constituted the majority of the sample (61.0%), whereas

married respondents accounted for 19.4% and those in the “other” category represented 19.6%. Regarding education, most respondents held a university or college degree (55.2%), followed by postgraduate qualifications (23.7%) and general education (21.1%). In terms of occupation, the largest proportion of respondents fell into the “other” category (38.3%), followed by self-employed respondents (34.3%) and those working in the state sector (27.5%). Income was relatively evenly distributed across the sample, with 22.7% earning under 5 million VND per month, 25.1% earning from 5 million to less than 10 million VND, 24.1% earning from 10 million to less than 15 million VND, and 28.1% earning 15 million VND or more. Overall, the sample reflects a relatively diverse demographic profile, with a concentration among female, single, well-educated, and working-age respondents, who are likely to represent an important segment of digital banking users in Vietnam.

4.2. Evaluating the scale reliability and validity

Two criteria to evaluate a factor that is reliable when measuring through observed variables are Cronbach’s Alpha coefficient greater than 0.6 and the item-total correlation greater than 0.3. Observed variables with a total correlation coefficient less than 0.3 will be excluded from the factor and considered as garbage variables. After elimination, this observed variable will not be included and in subsequent analyzes.

Table 2: The reliability test

Items	AVE (%)	Composite Reliability	Cronbach's Alpha
NLKV	0.601	0.817	0.809
HSKV	0.584	0.808	0.806
DKTL	0.703	0.876	0.875
GTCP	0.778	0.913	0.911
DLH	0.627	0.834	0.830
AHXH	0.53	0.768	0.763
CNH	0.607	0.822	0.822
TQ	0.629	0.833	0.826
BM	0.595	0.852	0.838
NT	0.511	0.758	0.723
YD	0.761	0.905	0.902
HV	0.67	0.924	0.922

Table 2 reports the reliability and convergent validity of the measurement scales using Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach’s Alpha. The results show that all constructs satisfy the recommended thresholds for reliability and convergent validity. Specifically, Cronbach’s Alpha values range from 0.723 to 0.922, indicating satisfactory internal consistency across all scales. Composite Reliability values range from 0.758 to 0.924, confirming that the indicators consistently represent their corresponding latent constructs. In addition, AVE values range from 0.511 to 0.778, all above the minimum threshold of 0.50, thereby supporting convergent validity. Among the constructs, GTCP, YD, DKTL, and HV exhibit particularly strong measurement properties, while NT shows the lowest values but still remains within acceptable limits. Overall, the findings suggest that all constructs are reliable and valid and can therefore be retained for subsequent confirmatory factor analysis and structural equation modeling.

Table 3: Discriminant validity

	HV	GTCP	BM	DLH	TQ	CNH	NLKV	HSKV	AHXH	YD	DKTL	NT
HV	0.818											
GTCP	-0.038	0.886										
BM	0.242	-0.102	0.789									
DLH	0.167	0.033	0.209	0.792								
TQ	0.308	0.037	0.224	0.318	0.793							
CNH	0.35	-0.068	0.352	0.506	0.479	0.813						
NLKV	0.095	-0.019	0.269	0.22	0.195	0.288	0.775					
HSKV	0.134	-0.026	0.058	0.069	0.009	0.11	0.131	0.764				
AHXH	0.19	-0.042	0.294	0.198	0.34	0.338	0.233	0.090†	0.728			
YD	0.386	-0.054	0.496	0.448	0.414	0.545	0.362	0.146	0.407	0.866		
DKTL	0.022	-0.086†	0.019	-0.051	0.069	0.009	0.022	0.058	0.012	0.051	0.839	
NT	0.317	-0.056	0.347	0.14	0.211	0.187	0.275	0.085†	0.159	0.394	0.052	0.715

Table 3 reports the discriminant validity of the constructs using the Fornell–Larcker criterion. The diagonal elements represent the square roots of the average variance extracted (AVE), while the off-diagonal elements indicate the correlations among constructs. The results show that the square root of AVE for each construct is greater than its correlations with all other constructs, thereby confirming adequate discriminant validity. Specifically, the diagonal values range from 0.715 to 0.886, all of which exceed the corresponding inter-construct correlations. Although several constructs show moderate correlations, such as CNH with YD (0.545) and DLH with CNH (0.506), these values remain below the respective diagonal elements. Therefore, the findings indicate that all constructs are empirically distinct and that the measurement model satisfies the requirement of discriminant validity.

5. CONCLUSION

This study contributes to the growing literature on digital banking adoption by providing empirical evidence on the factors influencing customers' behavioral intention and use behavior toward digital banking services in Vietnam. Drawing on the UTAUT2 framework and extending it with additional constructs relevant to the digital banking context, the study offers a more comprehensive understanding of customer adoption behavior in an emerging market setting.

From a theoretical perspective, the findings confirm the usefulness of the UTAUT2-based framework in explaining digital banking adoption. The proposed model explains 75.652% of the variance in digital banking use behavior, indicating strong explanatory power. More importantly, the results show that customers' adoption of digital banking services is not determined solely by functional and technological considerations, but is also shaped by trust- and experience-related factors. In particular, security, personalization, habit, trust, and social influence were found to significantly influence behavioral intention, while behavioral intention, personalization, and habit significantly affected actual use behavior. These findings enrich the existing literature by highlighting the importance of both traditional technology acceptance factors and customer-centered service factors in explaining digital banking behavior.

From a managerial perspective, the study offers several implications for commercial banks in Vietnam. First, banks should prioritize the enhancement of security systems in order to strengthen customers' confidence in digital banking services and reduce concerns related to fraud, privacy, and transaction safety. Second, banks should invest in personalization strategies by using customer data and digital analytics to design services, recommendations, and interfaces that better match individual preferences and financial needs. Third, because habit and behavioral intention were found to be important drivers of actual use behavior, banks should encourage repeated usage through convenient, user-friendly, and engaging digital experiences. For example, banks may introduce reward-based programs, gamified features, or loyalty mechanisms that motivate customers to use digital banking applications more frequently. In addition, the significant role of social influence suggests that banks should strengthen customer relationships and promote positive word-of-mouth through customer satisfaction, referral programs, and digital community engagement.

Despite these contributions, the study has several limitations. First, the data were collected through a cross-sectional survey, which may not fully capture changes in customers' perceptions and behavior over time. Second, the study relied primarily on variables derived from the UTAUT2 framework and a quantitative survey approach; therefore, other potentially relevant factors may not have been fully considered. Future research could extend the model by incorporating additional contextual variables, such as perceived risk, service quality, or digital literacy, and by combining quantitative analysis with qualitative methods such as expert interviews or in-depth customer interviews. Third, demographic variables were not examined in greater depth as potential moderating factors. Future studies may therefore investigate whether the effects of the proposed determinants differ across gender, age, income, education, or prior digital banking experience.

In conclusion, this study demonstrates that digital banking adoption in Vietnam is influenced by a combination of technological, behavioral, and customer-centered factors. As digital transformation continues to reshape the banking industry, a deeper understanding of these factors can help banks design more effective strategies to promote customer adoption, strengthen continued usage, and improve the overall digital banking experience.

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