“Examining the adoption of Apple Pay among generation Z in Vietnam”

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EXAMINING THE ADOPTION OF APPLE PAY AMONG GENERATION Z IN VIETNAM

Abstract

This study examines the level of knowledge, use, and determinants determining the adoption of Apple Pay among Generation Z customers in Vietnam. An online survey with 339 participants aged 18-26 was done using quantitative methods. The participants were recruited using social media platforms. The study model included elements from technological acceptance theories, such as effort expectation, perceived risk, perceived value, and convenience. The measurements were ensured to be reliable and genuine. The hypotheses were tested by analyzing the data using partial least squares structural equation modeling. The study's results suggest that the data collected through PLS-SEM analysis provide evidence in support of the hypotheses proposing that factors such as Mobile User Skillfulness, Personal Innovation, Perceived Usefulness, Effort Expectation, Convenience, and Perceived Value have a positive influence on individuals' Intentions to Use Apple Pay in Vietnam. Furthermore, the study revealed that the variables of Perceived Risk and Social Image did not have a statistically significant influence. The findings suggest that the pragmatic orientation of Generation Z towards the functionality and ease of use of Apple Pay has a significant impact on their adoption of this payment system in Vietnam. The study offers banks in Vietnam significant insights regarding the promotion of mobile wallet adoption among the younger demographic. Adoption may be increased by presenting Apple Pay as a practical and convenient application.

Keywords consumer behavior, developing markets, digital payment, innovation diffusion, mobile payment, mobile wallet, PLS-SEM, technology adoption

JEL Classification D12, E44, G21, G41

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INTRODUCTION

Mobile payments include a variety of transaction types, including peer-to-peer transfers, contactless payments done in physical establishments, and online purchases (Slade et al., 2015a). The total value of all mobile point-of-sale transactions around the world was expected to hit USD 5.4 trillion by 2024 (Statista, 2023). According to Apple's annual report for the year 2023, Apple Pay facilitated global transactions valued at USD 6 trillion in 2022 (Apple, 2023). Apple Pay was launched in 2014. Apple Pay lets users tap their iPhone or Apple Watch on compatible payment terminals after entering debit or credit card information into Apple Wallet. Fingerprint or face recognition makes Apple Pay fast, secure, and convenient. Mobile payment platforms like Apple Pay are rarely studied in developing nations.

Notwithstanding the fact that mobile payment services such as Apple Pay offer an alternative mode of conducting transactions, conventional banking systems continue to hold significant importance within the financial ecosystem. Through issuing debit and credit cards that are linked to digital wallets and forming partnerships with companies such as Apple, banks facilitate the adoption of these new payment technologies (de Luna et al., 2019). The banking system facilitates the

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verification of user identities, the authorization of payments, and the settlement of transactions through its infrastructure (Slade et al., 2015a). Additionally, banks guarantee funds for mobile payment purchases. Banks also provide dispute resolutions, fraud monitoring, and purchase protections, which serve to mitigate potential risks. Banks continue to provide the trust, security, and regulatory compliance that are fundamental to any payment system, even though emerging payment technologies offer increased convenience (Mew & Millan, 2021). The banking system's foundations facilitate the benefits of mobile payments. Hence, consumers can benefit from the optimal combination of mobile payment accessibility and bank stability by means of a partnership between established financial institutions and fintech innovators.

Nevertheless, there is a scarcity of scholarly investigations that specifically examine the determinants impacting the acceptance and utilization of mobile payment systems, especially within the settings of developing economies (Raj et al., 2023). In addition, there is limited academic research on the acceptability of mobile wallets among young cohorts such as Generation Z (born 1997–2012), despite their inclination towards early adoption of new technologies (Purohit et al., 2022).

The digital payment ecosystem in Vietnam saw a significant transformation on August 8, 2023, with the introduction of Apple Pay (Appleinsider, 2023). The introduction of Apple Pay in Vietnam has significantly enhanced Apple's collaboration with domestic financial institutions and payment networks. The payment system is capable of processing debit and credit card transactions from six prominent Vietnamese commercial banks, including ACB, MB Bank, Sacombank, Techcombank, Vietcombank, and VPBank. The introduction of Apple Pay in Vietnam marked a significant milestone in enhancing digital capabilities and fostering competition in the realm of payment systems.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The global use of mobile wallets and payments has seen rapid growth, prompting extensive research efforts to determine the primary determinants. Acceptance of Technology Perceived usefulness and ease of use are frequently identified as key motivators in model research (Slade et al., 2015b). Additionally, across all adoption situations, trust in the security and privacy of the payment system emerges as a critical predictor (Sleiman et al., 2021). Younger and better educated consumers frequently show increased adoption, which is influenced by demographic characteristics as well (Purohit et al., 2022; Wei et al., 2021).

Despite being in its early stages, preliminary research suggests that the desire to embrace Apple Pay is impacted by factors such as perceived security, usability, compatibility, and social pressure. Perceived value and peer acceptance were important variables in the China context (Pu et al., 2020).

Multiple studies have demonstrated that Generation Z exhibits a greater inclination towards adopting mobile payment systems in comparison to older consumer groups. This inclination may be attributed to their status as digital natives, as highlighted by Wei et al. (2021). However, there is still a lack of research on the factors that affect acceptance among this group, particularly Apple Pay. Analyzing the adoption of payment methods may reveal emerging patterns that are poised to shape the future of payment systems.

There is a dearth of academic study pertaining to the use of mobile payments in a general context, as well as the specific examination of Apple Pay. Furthermore, it is worth noting that there is a lack of research conducted on the adoption rates of Generation Z customers, as well as the acceptance of the aforementioned product in emerging nations such as Vietnam. The present study aims to address a notable gap in the existing body of research.

Mobile user skillfulness – defined as the capacity and assurance to use mobile technologies – positively increases the perceived value of mobile pay-

ments (Al-Qudah et al., 2022). Mobile payments are seen as more effective for increasing productivity and efficiency by users who are more experienced with smartphones and applications. Mobile literacy boosted the perceived value of mobile wallets, according to a 2020 survey of Spain customers (Liébana-Cabanillas et al., 2020).

Personal innovation is a term used to describe an individual's openness and eagerness to explore and experiment with emerging technologies (Agarwal & Prasad, 1998). According to Ramos-de-Luna et al. (2016), consumers who are highly innovative are more inclined to place a high value on innovation, exhibit interest in novel services such as mobile wallets, and demonstrate a greater intention to adopt them. Although further investigation is necessary, a recent study conducted by Ai et al. (2021) suggests that personal innovation does not directly influence the utilization of mobile wallets among Malaysian youth.

Perceived usefulness, as defined by Davis (1989), refers to the extent to which users believe that a technology improves productivity and efficiency. Recent studied conducted by J. Kim & M. Kim (2022) and Mun et al. (2017) suggest that there is a positive relationship between perceived usefulness and the intention to implement a mobile wallet.

Effort expectation, as defined by Venkatesh et al. (2012), refers to the perceived level of ease with which a technology can be used. Mobile wallets that are easier to use and comprehend are perceived as being more user-friendly, leading to higher user adoption (Slade et al., 2015a).

Perceived risk is a reflection of concerns about unfavorable adoption outcomes (Gerrard & Barton Cunningham, 2003). Numerous studies (Ai et al., 2021; Liébana-Cabanillas et al., 2020) indicate that perceived risk has a negative effect on consumers' adoption intentions for mobile payment systems.

Social image, or how a person is viewed by society, can have a substantial effect on the intention to use Apple Pay. This is because Apple Pay can be regarded as a status symbol, reflecting technological savvy and affiliation with a globally recognized brand like Apple. Moreover, Apple Pay's marketing strategies emphasize its usability, security, and privacy, which can better its social image and influence individuals' intent to use it. However, it is essential to note that the influence of Social Image on the intention to use Apple Pay can be mediated by a number of factors. Alfany et al. (2019) discovered that social influence, self-efficacy, perceived enjoyment, and individual mobility can affect attitudes towards utilization and the intention to use. Consequently, although social image can influence the intention to use Apple Pay, it is only one of several factors in play.

Convenience is the combination of usefulness and simplicity of use in terms of time and location (Pal et al., 2015). According to a 2021 study of Malaysian youth conducted by Ai et al. (2021), the adoption of mobile wallets was significantly influenced by their convenience and perceived value.

Perceived value is a cognitive tradeoff between benefits and costs (Zeithaml, 1988). Recent studies indicate that a higher perceived value of mobile wallets like Apple Pay increases utilization intent among younger demographics (Ilieva et al., 2023).

Finken and Heiduk (2021) examined how proximity mobile payments, particularly Apple Pay, are adopted in Germany. The study examined brand perception, sociodemographic factors, and technology acceptance factors from previous research. A quantitative online survey with 617 participants and 14 qualitative interviews with financial services industry experts were used in the mixed-methods study. This exhaustive data collection allowed a thorough analysis of German Apple Pay early adopters. The findings showed significant differences between Apple Pay users and non-users. The biggest differences were personal willingness to innovate, perceived concerns about mobile payment risk, Apple's security, technology providers' trustworthiness, social influences, gender, and the user's desire to be seen as technologically savvy. The perceived benefits of mobile payments, reasons for non-use, and potential value-added services to improve user experience were also examined and recommendations made.

Liébana-Cabanillas et al. (2020) study how Spanish consumers adopt mobile payment services, par-

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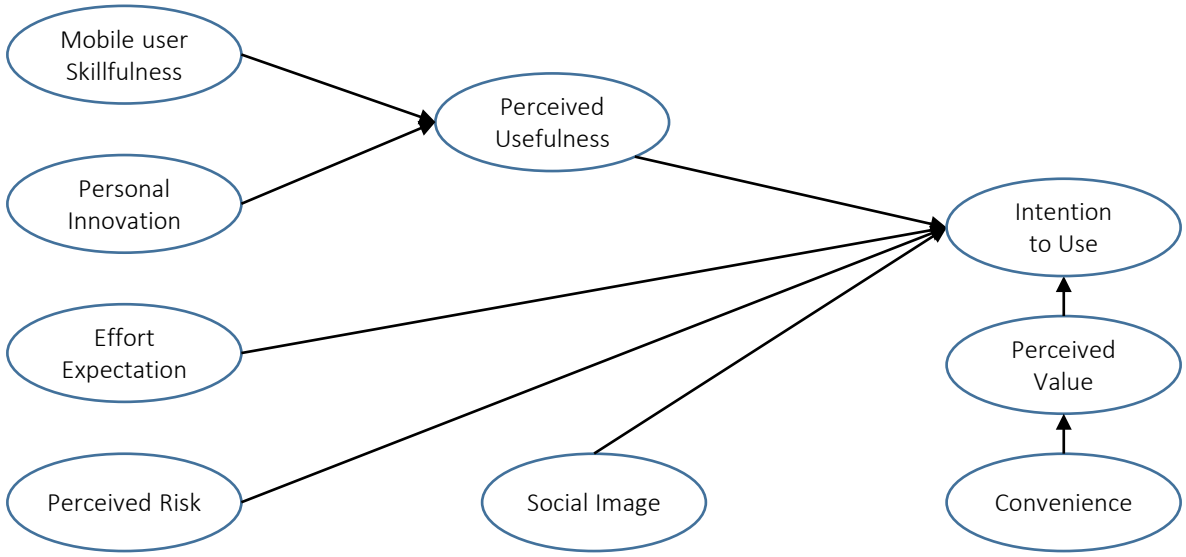

Figure 1. Research model for examining the adoption of Apple Pay among generation Z in Vietnam

ticularly Apple Pay. The survey only covers Spain and Apple Pay's NFC technology. Mobile user skillfulness, personal innovation, convenience, and perceived risk are added to a behavioral model based on TAM and UTAUT theories of technology acceptance. The data for this study came from 539 respondents who watched an Apple Pay video. Data are analyzed using exploratory and confirmatory factor analyses and structural equation modeling. Personal innovation and effort expectation do not predict Apple Pay intent, but perceived value, utility, and risk do. The authors also suggest management and research directions. The article tests hypotheses using appropriate methods based on prior research.

Pu et al. (2020) study Apple Pay in China to determine what factors influence NFC-based mobile payment service adoption. Chinese iPhone users with Apple Pay, an NFC technology that allows contactless payments, are the research focus. Survey-based research included 166 questionnaire responses. Researchers add trust, service quality, and user history to the technology acceptance model (TAM). Data are analyzed using structural equation modeling to determine variable relationships and test hypotheses. Perceived usefulness and trust predict Apple Pay behavior, according to research. Dependability affects behavioral intention most through perceived efficacy. The study also shows that perceived utility and usability mediate service quality and behavioral intention. This study provides empirical evidence from China, one of the largest and most competitive mobile payment markets, to the mobile payment adoption literature.

Liu and Zhou (2017) investigated what factors affect users' intention to keep using Apple Pay, a popular mobile payment service. The survey only includes Apple Pay users in China, where it launched in 2016. The authors examine how effort expectancy, perceived control, and focused attention affect users' continuance intention using the Unified Theory of Acceptance and Usage of Technology (UTAUT) and flow experience theory. The study used SPSS20.0 and AMOS17.0 to test hypotheses based on a questionnaire of 300 Apple Pay users. The results show that all three factors positively affect users' intention to continue using the service, and the authors make recommendations for service providers.

The following hypotheses have been developed as a result of a review of the relevant research literature as well as the available empirical evidence (Figure 1).

H1: Mobile user skillfulness directly improves Apple Pay perceived usefulness.

H2: Personal innovation directly improves Apple Pay perceived usefulness.

H3: Mobile user skillfulness indirectly increases Apple Pay intention through perceived usefulness.

H4: Perceived usefulness of personal innovation indirectly increases Apple Pay intention.

H5: Perceived usefulness directly increases Apple Pay intention.

H6: Effort expectation negatively affects Apple Pay intention.

H7: Risk perception negatively impacts Apple Pay intention.

H8: Apple Pay intention is positively correlated with social image.

H9: Convenience boosts Apple Pay value.

H10: Convenience indirectly increases Apple Pay intention through perceived value.

H11: Perceived value directly increases Apple Pay intention.

2. METHODOLOGY AND DATA

This study utilized a quantitative online cross-sectional survey to investigate the adoption of Apple Pay among Vietnamese Gen Z. Online surveys allow for the efficient collection of data from geographically dispersed samples.

The survey was developed using Google Forms and disseminated via popular social media platforms among Vietnamese adolescents in 2022–2023, such as Facebook, Instagram, and Zalo. Platforms like Facebook have a high penetration rate among Generation Z, allowing for an effective reach for online surveys on mobile technology adoption (Irimia-Diéguez et al., 2023).

Due to the exploratory nature of this investigation on an understudied population, convenience sampling was utilized. Although convenience samples are not random, they can still offer valuable insights for preliminary behavioral research. They are commonly employed in studies on mobile payment adoption, as demonstrated by Al-Qudah et al. (2022) and Liébana-Cabanillas et al. (2020). The survey link was publicly shared, and participants were motivated to complete it by being given the opportunity to enter a prize drawing.

According to sample size recommendations for structural equation modeling, 200 to 500 samples are sufficient for models with 5 to 10 constructs (Hair et al., 2014). Vietnamese Gen Z aged 18 to 26 made up the intended sample size.

The online survey consisted of demographic inquiries and multi-item scales derived from prior studies, in accordance with the research model shown in figure 1, to assess the study's framework.

The questionnaire was pilot tested with 20 participants to refine questions and assure system reliability. According to the study hypotheses, descriptive analysis was conducted, and a structural equation model was developed to examine the effects of the constructs on Apple Pay adoption intention.

The data obtained from an online survey were analyzed using a quantitative approach and Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM is a suitable approach for early-stage research that focuses on predicting important target constructs and identifying key driver constructs (Hair et al., 2014).

The measurement model and structural model relationships were evaluated using SmartPLS version 3.3.3 and SPSS version 25 statistical software applications. SmartPLS facilitated evaluation of the multi-item constructs' internal consistency reliability, convergent validity, and discriminant validity (Henseler et al., 2009). SPSS facilitated the sifting of preliminary data, the descriptive analysis of sample demographics, and the examination of common method bias.

There was a two-step procedure followed:

1. Evaluation of the Measurement Model

   In SmartPLS, an indicator reliability analysis was conducted to examine item loadings on re-

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spective constructs. Items with loadings lower than 0.4 were eliminated. Using SmartPLS to calculate composite reliability, internal consistency reliability was analyzed (Hair et al., 2014). Values greater than 0.7 were acceptable. In SmartPLS, convergence validity was evaluated using average variance extracted (AVE). AVE should surpass 0.5. Using SmartPLS to compare square root of AVE values with latent variable correlations, discriminant validity was determined. When the square root of AVE exceeds correlations, discriminant validity is evident (Fornell & Larcker, 1981).

2. Assessment of the Structural Model

Using a bootstrapping method and 5,000 samples, the hypothesized relationships between constructs were examined in SmartPLS using a bootstrapping procedure. Path coefficients and significance levels were evaluated to ascertain the significance and strength of relationships. To evaluate the impact of independent constructs on adoption intent, effect sizes (f2) were computed. According to best practices for model testing (Homburg et al., 2022), this systematic PLS-SEM analysis facilitated robust statistical evaluation of the measurement model and structural relationships.

3. RESULTS

After collecting a total of 353 responses for the online survey, it was determined that 339 of these responses were valid and thus included in the final sample for analysis (Table 1). The gender breakdown of the survey results provides valuable insights into the adoption of Apple Pay. It is worth noting that 71% of the respondents were female, while the remaining 29% were male. This nearly equal division will allow for the comparison of adoption patterns by gender among Generation Z in Vietnam.

The age data is of great significance, as it reveals that 79% of the respondents fall within the 18-20 years old age range. This sample of young individuals aligns closely with Generation Z and their patterns of technology usage.

Additionally, it is worth noting that a significant majority of the respondents, specifically 78%, identified themselves as university students. This focus group is an excellent choice for the research aims, as university environments are known for their inclination towards adopting new technology.

Income levels also provide useful context, as the majority of respondents earn less than 10 million VND per month. Financial factors are expected to play a significant role in shaping the adoption of fee-based services such as Apple Pay within this budget-conscious demographic.

Finally, the top employment categories of students and staff suggest lifestyles that are compatible with the use of mobile technology. The on-the-go nature of individuals necessitates the consideration of convenience and ease-of-use when it comes to the adoption of Apple Pay.

Table 1. Descriptive metrics for demographic variables

Question	Category	Frequency	Percentage
Gender	Male	98	29%
	Female	241	71%
Age	18-20 years old	268	79%
	21-23 years old	47	14%
	24-26 years old	24	7%
Education Level	University	263	78%
	Postgraduate	76	22%
Monthly Income	Under 5 million VND	157	46%
	5-10 million VND	153	45%
	10-20 million VND	22	7%
	Over 20 million VND	7	2%
Employment	Student	146	43%
	Staff	173	51%
	Self-employed	7	2%
	Part-time work	5	1%
	Other	8	2%

Cronbach's alpha was utilized to assess the reliability of the measurement scales. As can be seen in Table 2, every variable achieved a reliability score that was higher than the required minimum of 0.7 (Hair et al., 2017; Nunnally, 1975), with values ranging from 0.748 (Social Image) to 0.906 (Personal Innovation). This finding implies that the measurements exhibit a significant level of internal consistency and reliability.

Table 2. Testing the reliability level of variables in detail

Variables	Corrected Item-Total Correlation	Cronbach's Alpha
Mobile user Skillfulness (MS)		
MS1	0.847	0.829
MS2	0.905	
MS3	0.837	
Personal Innovation (PI)		
PI1	0.904	0.906
PI2	0.931	
PI3	0.917	
Perceived Usefulness (PU)		
PU1	0.884	0.845
PU2	0.878	
PU3	0.859	
Effort Expectation (EE)		
EE1	0.888	0.901
EE2	0.926	
EE3	0.927	
Perceived Risk (PR)		
PR1	0.950	0.875
PR2	0.815	
PR3	0.880	
Social Image (SI)		
SI1	0.781	0.748
SI2	0.880	
SI3	0.779	
Convenience (CO)		
CO1	0.803	0.811
CO2	0.850	
CO3	0.900	
Perceived Value (PV)		
PV1	0.923	0.844
PV2	0.917	
PV3	0.771	
Intention to Use (IU)		
IU1	0.900	0.859
IU2	0.905	
IU3	0.844	

The Mobile User Skillfulness scale exhibited a high degree of reliability, as indicated by a Cronbach's alpha value of 0.829. Above 0.8 was the level of correlation shown by all three variables. In a similar vein, the Personal Innovation scale and all three of its items demonstrated excellent reliability, as indicated by a Cronbach's alpha value of 0.906 and inter-item correlations that were greater than 0.9.

Additionally, the scales for Perceived Usefulness, Expected Effort, Perceived Risk, and Intention to Use all showed good reliability, with values ranging from 0.845 to 0.901 respectively. High corrected item-total correlations, ranging from 0.844 to 0.950, were found between their items.

The Social Image scale had the lowest Cronbach's alpha score, but its value of 0.748 is still considered satisfactory. The correlations between its three items ranged from 0.779 to 0.880 and were considered to be moderate. Finally, the Cronbach's alphas for the Convenience and Perceived Value scales came in at 0.811 and 0.844 respectively, indicating that these scales performed well.

To determine whether or not Generation Z in Vietnam has adopted Apple Pay, the measurements demonstrated a level of reliability and internal consistency that was satisfactory. Every one of the variables was found to be at or above the typical limit for exploratory research. This bolsters our faith in the reliability of the scales that were utilized in this research.

The stability and discriminant validity of the measurements were assessed through the utilization of exploratory factor analysis (Table 3). Hair et al. (2014) suggested that factor loadings that exceed 0.5, average variances extracted (AVE) surpassing 0.5, and composite reliabilities exceeding 0.7 are indicative of strong convergent validity. To evaluate discriminant validity, it is necessary for the square root of the average variance extracted (AVE) to be greater than the inter-construct correlations (Fornell & Larcker, 1981). As can be seen in Table 3, all constructs had AVE values greater than 0.5 and between 0.664 and 0.841. This suggests that the items have sufficiently converged on their respective constructs. Additionally, composite reliabilities were above the suggested 0.7 level, ranging from 0.855 to 0.941. This shows even better internal consistency and dependability.

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Table 3. Testing the stability and discriminant validity of variables

Variables	Composite Reliability	Average Variance Extracted (AVE)
Mobile user Skillfulness (MS)	0.898	0.746
Personal Innovation (PI)	0.941	0.841
Perceived Usefulness (PU)	0.906	0.763
Effort Expectation (EE)	0.938	0.835
Perceived Risk (PR)	0.914	0.780
Social Image (SI)	0.855	0.664
Convenience (CO)	0.888	0.726
Perceived Value (PV)	0.905	0.763
Intention to Use (IU)	0.914	0.781

This criterion was satisfied, which suggests sufficient discriminant validity. Based on suggested standards (Hair et al., 2014; Fornell & Larcker, 1981), the measurements showed satisfactory stability, convergent validity, and discriminant validity for evaluating the adoption of Apple Pay among Generation Z in Vietnam.

Figure 2 illustrates the outcomes of the Partial Least Squares Structural Equation Modelling (PLS-SEM) model. The Chi-square statistical value of the model is reported as 1159.609. According to the research conducted by Ugoni and Walker (1995) and Cho et al. (2020), a model is deemed appropriate for the given data if it attains a standardized root mean square residual (SRMR) score lower than 0.1 (Pavlov et al., 2021). Based on the SRMR value of 0.051, which is below the accepted threshold of 0.1, it can be concluded that the research model effectively represents the relationships within the proposed research model in the Vietnamese context.

To determine the dependability of the model, the bootstrapping approach was used. This method required the resampling of a total of 5,000 datasets (n = 5,000). The bootstrapping weighted average reveals that the starting weights are significant, and the results of the bootstrap test suggest that all of the coefficients are positive integers. Table 4 presents the results of the bootstrapping test.

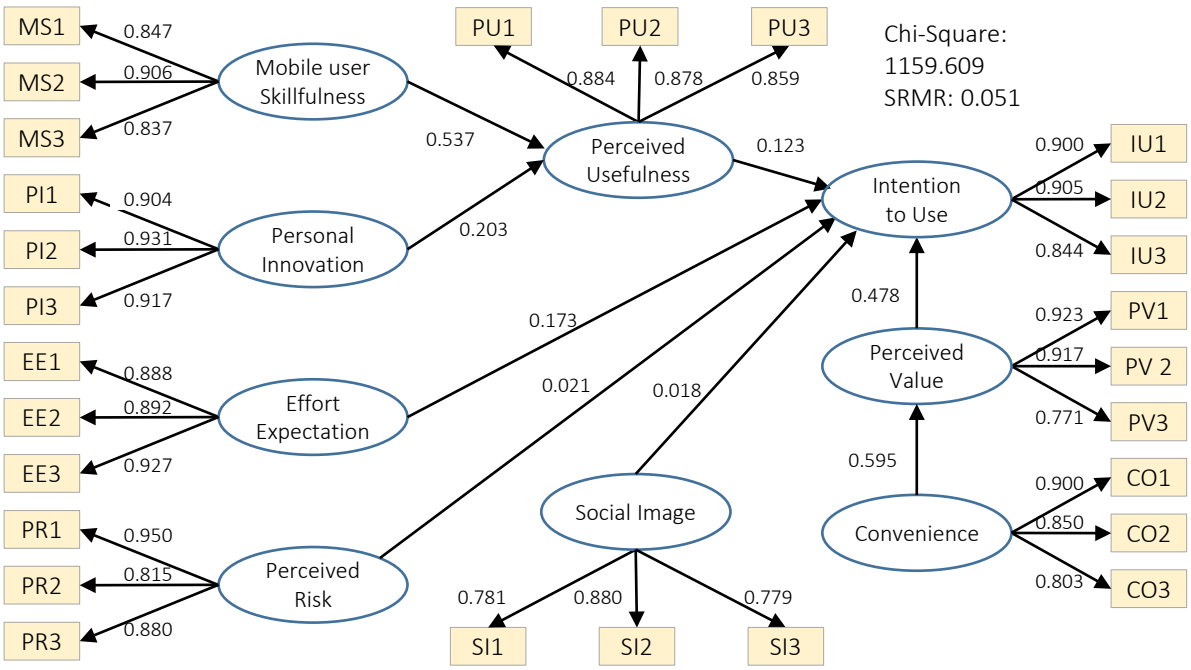

Figure 2. Results of PLS-SEM model analysis to examine Apple Pay adoption among Vietnam's generation Z

Table 4. Results of hypotheses evaluation

Hypothesis	Relationship	β	P-Values	Std. deviation	Decision
H1	Mobile user Skillfulness → Perceived Usefulness	0.537	0.000	0.053	Supported
H2	Personal Innovation → Perceived Usefulness	0.203	0.000	0.052	Supported
H3	Mobile user Skillfulness → Perceived Usefulness → Intention to Use	0.066	0.039	0.032	Supported
H4	Personal Innovation → Perceived Usefulness → Intention to Use	0.025	0.099	0.015	Supported
H5	Perceived Usefulness → Intention to Use	0.123	0.034	0.058	Supported
H6	Effort Expectation → Intention to Use	0.173	0.005	0.061	Supported
H7	Perceived Risk → Intention to Use	0.021	0.639	0.044	Rejected
H8	Social Image → Intention to Use	0.018	0.786	0.065	Rejected
H9	Convenience → Perceived Value	0.595	0.000	0.048	Supported
H10	Convenience → Perceived Value → Intention to Use	0.285	0.000	0.045	Supported
H11	Perceived Value → Intention to Use	0.478	0.000	0.063	Supported

H1 was supported with a standardized beta (β) of 0.537 and a p-value of 0.000, indicating that Mobile user Skillfulness has a significant positive influence on Generation Z in Vietnam's perception of Apple Pay usefulness. *H2* (β = 0.203, p-value = 0.000) was supported, indicating that Personal Innovation increases the Perceived Usefulness of Apple Pay among young Vietnamese consumers. *H3* (β = 0.066, p-value = 0.039) was supported, indicating that Mobile user Skillfulness indirectly influences intention to use Apple Pay in the Vietnamese youth market via Perceived Usefulness. *H4* (β = 0.025, p-value = 0.099) was marginally supported, indicating that Personal Innovation may indirectly influence Generation Z in Vietnam's intentions to use Apple Pay via Perceived Usefulness. *H5* (β = 0.123, p-value = 0.034) was supported, indicating that Perceived Usefulness has a direct positive effect on young Vietnamese consumers' intentions to use Apple Pay. *H6* (β = 0.172, p-value = 0.005) was supported, indicating that Effort Expectation has a direct positive effect on Generation Z's intentions to use Apple Pay in Vietnam. *H9* was supported with a standardized beta (β) of 0.595 and a p-value of 0.000, indicating that the perceived value of Apple Pay is positively affected by convenience among young Vietnamese users. *H10* (β = 0.28, p-value = 0.000) was supported, indicating that perceived value indirectly influences Generation Z in Vietnam's intentions to use Apple Pay. *H11* (β = 0.478, p-value = 0.000) was supported, indicating that perceived value has a strong direct positive effect on Apple Pay adoption intentions among the target demographic.

H7 and *H8* were found to be unsupported, suggesting that the intentions of Generation Z to adopt Apple Pay in the Vietnamese market are not significantly influenced by Perceived Risk and Social Image.

4. DISCUSSION

The findings offer valuable perspectives on the determinants that impact the adoption of Apple Pay among Generation Z individuals in Vietnam. A number of theories were corroborated, while others were refuted, providing a compelling portrayal of the opinions held by this insufficiently researched community.

The findings support hypothesis *H1*, showing that Generation Z's perception of Apple Pay utility in Vietnam is significantly positively influenced by Mobile user Skillfulness. This is consistent with earlier research (Liébana-Cabanillas et al., 2020; Al-Qudah et al., 2022) that demonstrates that having more experience with mobile technologies increases the perceived value and productivity gains from mobile payment solutions. However, contrary to the findings of this study, other research (Lu & Yu-Jen Su, 2009) found that skillfulness directly predicted adoption.

Personal Innovation may increase the Perceived Usefulness of Apple Pay among young Vietnamese consumers, according to hypothesis *H2*, which was also confirmed. However, unlike some studies that find innovativeness strongly predicts adoption (Ramos-de-Luna et al., 2016), personal innovation did not directly impact intention. Its influence was indirectly felt through usefulness, suggesting that Vietnamese Gen Z values usefulness

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over novelty. This concurs with Ramos-de-Luna et al. (2016) but is at odds with other studies on technology adoption that link innovation to intention (Agarwal & Prasad, 1998). Instead of emphasizing Apple Pay's cutting-edge features, marketers should concentrate on highlighting its advantages.

According to the findings of hypothesis *H3*, Perceived Usefulness of Mobile user Skillfulness indirectly influences young Vietnamese people's intentions to use Apple Pay. According to a study by Davis (1989), perceived efficacy and usability are fundamental determinants of user acceptance. This indicates that if young Vietnamese perceive Apple Pay to be beneficial and simple to use, they are more likely to intend to use it. Similarly, a study on mobile website user satisfaction discovered a positive correlation between perceived usefulness, perceived simplicity of use, and user satisfaction (Amin et al., 2014). This suggests that the more useful and easy-to-use Apple Pay is perceived to be by young Vietnamese consumers, the more satisfied they are likely to be with it, which may influence their intent to use it. However, these studies do not specifically examine the impact of mobile user proficiency or the Vietnamese youth context. It is also important to note that although perceived usefulness and convenience of use can influence intentions to use a technology, other factors such as trust, social influence, and individual inventiveness can also play a role.

H4, which proposed that Personal Innovation might indirectly influence Intentions to Use Apple Pay via perceived usefulness, received only marginal support. Although innovation did not directly influence adoption intentions, it did have a small influence on how usefulness was perceived. It is essential to observe, however, that these studies do not investigate the role of personal innovation directly. Further research is required to explicitly examine the relationship between personal innovation, perceived usefulness, and intentions to use, even though these results provide some support for the assertion. A study on the acceptance of e-wallets found that perceived usefulness has a positive and statistically significant effect on the intention to use e-wallets (Effendy et al., 2021). Another study using the Technology Acceptance Model (TAM) to investigate the acceptability of crowdsourcing platforms found that perceived usefulness has a significant positive relationship with behavioral intention (Mohd Amir et al., 2020).

Perceived Usefulness directly influenced Intentions to Use Apple Pay, in line with hypothesis *H5*. This supports extensive prior research on technology acceptance modelling and shows that despite its novelty, pragmatically minded Gen Z users in Vietnam find Apple Pay to be useful (Davis, 1989). Apple Pay adoption could be boosted by showcasing its value in streamlining transactions and enhancing financial accountability.

As anticipated in *H6*, the Effort Expectation influenced the Intention to Use Apple Pay positively. In contrast to some studies, the smooth, user-friendly interface of Apple Pay appealed to the Vietnamese Generation Z. According to a study on mobile payments conducted in Indonesia, consumers' intentions to adopt technology are influenced by a variety of variables, including performance expectations, effort expectations, social influence, perceived risk, and perceived cost (Saputri, 2022). Similar to this, a study on the variables affecting users' intention to use e-CNY (a digital version of the Chinese government's currency) discovered that performance expectations, effort expectations, and financial education have a favorable impact on users' intention to use e-CNY (Song & Wang, 2022). Even though these studies showed a favorable correlation, it is crucial to remember that the precise effects of Effort Expectation can change based on the situation and the technology under study. Another investigation into the intention to continue using mobile apps, for instance, indicated that while effort expectancy was a significant driver, other elements like satisfaction and habit were also crucial (Tam et al., 2020).

However, because Perceived Risk and Social Image had negligible effects on adoption intentions, hypotheses *H7* and *H8* were not supported. In contrast to earlier research, highly tech-savvy Generation Z was not deterred by perceived security and privacy risks (Gerrard & Barton Cunningham, 2003). This divergence may be explained by their higher institutional trust in digital systems. Aside from that, social influences had

no impact on adoption, in contrast to studies that claimed using a mobile wallet was motivated by one's social status (Alfany et al., 2019). Vietnamese youth who are practical report that intrinsic motivations outweigh extrinsic ones.

According to what was foreseen in *H9*, the Perceived Value of Apple Pay among young Vietnamese users was significantly influenced by Convenience. This is consistent with research that demonstrates convenience, which combines the advantages of utility and usability, is a key driver of mobile wallet adoption (Pal et al., 2015). Some studies, however, found that cost sensitivity restricted the use of mobile wallets in developing markets (Liébana-Cabanillas et al., 2020).

There was also support for *H10*, with Perceived Value having an indirect influence on convenience on Intentions to Use Apple Pay. Even though some studies claim that cost sensitivity restricts uptake in developing markets, convenience increased the perception of benefits versus costs. However, according to other research (Slade et al., 2015b), Convenience predicted adoption of mobile wallets directly as opposed to indirectly. By increasing the perceived value of Apple Pay, demonstrating how it can save time and effort may persuade users who are still on the fence.

Finally, *H11* was validated because adoption intentions were directly influenced by Perceived Value. Convenience shaped value perceptions drove adoption, even though it did not directly affect intentions. This supports Zeithaml (1988), but it goes against the findings of Wei et al. (2021), who discovered that value did not directly predict intention. Vietnamese Gen Z may choose Apple Pay over competing services if frictionless payments are promoted as having lifestyle advantages.

CONCLUSION

This study was designed to investigate the understudied market of Vietnam and the adoption of Apple Pay among representatives of Generation Z. The main goals were to evaluate Apple Pay usage and awareness in this demographic and to pinpoint the elements influencing and impeding its acceptance.

The study discovered that among Vietnamese youth, perceptions of Apple Pay's utility are positively influenced by Mobile user Skillfulness. Mobile payments are more valuable in the eyes of those with more smartphone experience. Contrary to some earlier studies, skillfulness did not directly predict adoption intentions. It was discovered that personal innovation increased the perceived usefulness of Apple Pay but had no direct influence on adoption intention. This suggests that when Gen Z adopts new technologies like Apple Pay, they favor usefulness over novelty. Expectedly, intentions to use Apple Pay increased directly as a result of Perceived Usefulness. Vietnamese Gen Z views digital wallets realistically, emphasizing their practical advantages. Putting a focus on how Apple Pay enhances transactions and money management may increase adoption. It is interesting to note that Effort Expectation had a positive influence on adoption intention, indicating that young, tech-savvy demographics find Apple Pay's easy-to-use interface appealing. Convenience was found to increase Apple Pay's perceived value, which in turn affected adoption intentions indirectly. Vietnamese youth might adopt mobile wallets if convenience benefits are positioned in favor of them. Contrary to some earlier studies, perceived risks and social influences had a little effect on Vietnamese Gen Z's adoption of Apple Pay. Their high level of digital proficiency probably mitigates allays security worries.

This study's shortcomings open up new research opportunities. First, the study primarily selected educated urban young people, limiting its generalizability. Therefore, future research should cover larger geographic regions and age groups beyond Generation Z. Second, comparing mobile wallet systems may provide more information than Apple Pay alone. Thirdly, longitudinal designs can better explain post-adoption use trends. Finally, this exploratory study covers gaps in an understudied demographic and culture, but it mostly prepares for larger mobile payment acceptance studies.

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AUTHOR CONTRIBUTIONS

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Methodology: Nguyen Minh Sang.
Software: Nguyen Minh Sang.
Visualization: Nguyen Minh Sang.
Writing – original draft: Nguyen Minh Sang.
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