

Development of e-wallets and cashless payments: Evidence from Vietnam and implications for emerging economies

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Abstract: Recently, the expanding digital economy has led to a strong rise in the number of cashless payments in Vietnam, in which e-wallets are becoming an icon of financial innovation. This research aims to discover factors driving the adoption of e-wallets in Vietnam, assessing the impact of e-wallets on financial inclusion, as well as implementing recommendations for emerging economies during economic transformation. The research integrates the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) within a Structural Equation Modeling (SEM) framework, using a mixed dataset that combines survey data from 1,268 e-wallet users with secondary data from the State Bank of Vietnam, the World Bank, GSMA, and industry reports. The findings indicate that performance expectancy and trust are the most significant drivers of e-wallet usage, and e-wallet usage has the strongest positive and statistically significant impact on financial inclusion. The study concludes that e-wallets are an effective gateway to financial services in emerging markets, particularly in the context of rapid digital infrastructure development. Practical implications suggest that policymakers should strengthen legal frameworks and data protection, narrow the gap in access to financial services, and promote financial literacy to maximize the inclusive benefits of digital payments.

Keywords: *Cashless payment, Emerging economy, E-wallet, Fintech.*

1. Introduction

1.1. Research background

The development of digital technology is reshaping how people interact with financial services. Recently, cashless payments in Vietnam have grown significantly with more modern and convenient products and services, facilitating transactions for people and businesses and contributing to the promotion of the digital economy and digital society. Following the implementation of Decision No. 1813/QĐ-TTg dated October 28, 2021, of the Prime Minister, approving the Scheme for the Development of Cashless Payments in Vietnam for the period 2021-2025, many results in non-cash payment activities have exceeded the set targets. In particular, e-wallets have become an important catalyst.

With over 102 million people, a young population structure, and an estimated smartphone usage rate of around 76%, Vietnam is recognized by many international organizations as one of the most promising fintech markets in Southeast Asia [1, 2]. The rapid growth of internet infrastructure, along with the widespread adoption of mobile devices, creates an ideal environment for e-wallets to develop as a flexible and accessible payment method for many people.

According to the State Bank of Vietnam, the total value of non-cash transactions reached VND 295.2 quadrillion, significantly increased compared to the previous year and approximately 26 times the country's nominal GDP [3]. Notably, transactions via mobile banking increased by over 52%, while transactions via e-wallets increased by over 100%, reflecting a clear shift from cash to digital payments.

Furthermore, 86.97% of Vietnamese adults had financial accounts in 2024, the highest level recorded, creating a foundation for the expansion of the digital payment ecosystem [3].

1.2. Research Overview and Research Gaps

E-wallets and cashless payments have been widely studied by researchers. They studied behavioral intentions and e-wallet usage behavior in Vietnam, indicating four factors positively influencing behavioral intentions: effort expectations, social influence, incentive motivation, and customer knowledge. Two factors negatively impacting behavioral intentions are efficiency expectations and favorable conditions [4]. In addition, two factors positively influenced usage behavior: behavioral intentions and favorable conditions, whereas security and privacy negatively affect usage behavior.

Major theoretical models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) have long been used to explain technology adoption behavior [5, 6]. TAM posits that perceived usefulness and perceived ease of use determine individuals' intention to adopt a technology, whereas UTAUT extends this framework by incorporating additional determinants such as performance expectancy, effort expectancy, social influence, and facilitating conditions. Many international studies apply these models to digital payments in India, China, Indonesia, and Kenya. However, in Vietnam, quantitative research remains limited in both sample size and integration with large-scale market data.

Market reports by Decision Lab indicate that MoMo leads the market with 86% brand awareness, while Statista reports approximately 31.2 million active users [1, 7]. However, these reports mainly describe market behavior, with little analysis of the relationship to financial inclusion or broader socio-economic impact.

International sources provide a macroeconomic perspective. The Global Findex 2025 reports that 86.97% of Vietnamese adults have a financial account, a relatively high rate among lower-middle-income countries [2]. Digit Asia and Bain & Company indicate a consumer trend towards digital payments and forecast growth of 15-20% per year until 2030 [8, 9].

International research consistently reveals patterns in digital payment adoption across various contexts. Studies indicate that performance expectancy, effort expectancy, social influence, and facilitating conditions are significant predictors of the intention to use e-payments [10-12]. Recent empirical evidence, such as from Trianesti and Balqiah [13], further confirms the relevance of these constructs in digital payment adoption [13]. Data from emerging economies support the importance of behavioral and contextual factors in mobile payment adoption. Changchit et al. [14], using data from Thailand, find that perceived convenience, usability, and technological environment significantly influence users' adoption decisions, reinforcing the applicability of UTAUT frameworks in developing countries [14]. Overall, international evidence suggests that while classical constructs from TAM and UTAUT/UTAUT2 remain central, trust, social influence, user experience, and facilitating conditions are also key drivers of cashless payment adoption in emerging and transitional markets.

Similar results are confirmed in Vietnam. Thuy and Anh [15] show that users adopt e-payments mainly because they find them useful, easy to use, and convenient [15]. Building on this, Le Uyen et al. [16] demonstrate that during COVID-19, performance expectations, social influence, facilitating conditions, perceived technology security, and price expectations significantly increased both adoption and actual spending through digital payments [16]. More recently, Linh and Huyen [17] highlight the combined role of trust, attitude, and perceived behavioral control in shaping usage decisions [17].

From a policy perspective, the State Bank of Vietnam plays an important role in promoting eKYC implementation, QR code standardization, fintech sandbox testing, and systemic risk control. In 2024, transactions via e-wallets increased by over 100%, and the total value of cashless payments reached VND 295.2 quadrillion.

However, several gaps remain in these studies:

- There is a lack of connection between theoretical models and large-scale practical data. Current studies mainly focus on small-scale surveys and do not integrate macroeconomic or market data.

- There is a lack of quantitative analysis of the socio-economic impact of e-wallets. The data sources are large but have not been systematized into a comprehensive evaluation model.
- There is a lack of international comparative studies among emerging economies, making it difficult to determine Vietnam's position and specific characteristics.
- Incomplete assessment of risks associated with online fraud, cybersecurity threats, and digital inequality.

1.3. Research Questions

First, what are the factors that motivate individuals to use e-wallets? The study examines factors such as convenience, speed, incentives, security, reliability, integration of public services and e-commerce, and consumer behavior of the younger generation, consistent with the UTAUT framework.

Second, how do e-wallets impact financial inclusion and socio-economic efficiency? E-wallets help reduce transaction costs, increase transparency, support small businesses, and expand access to finance in rural areas. The World Bank estimates that digital payments save 20-30% of costs [2].

Third, what lessons from Vietnam are valuable for emerging economies? Key lessons include a flexible legal framework, eKYC, public-private partnerships, improved information security, and prioritizing populations that lack access to financial services.

1.4. Contributions And Significance of the Research

The research not only describes trends but also aims to: (i) build an analytical framework for the dynamics of e-wallet adoption in the Vietnamese context; (ii) assess the impact of digital payments on economic efficiency and financial inclusion; (iii) implement policy recommendations for countries undergoing digital transformation in finance and emerging economies similar to Vietnam.

Table 1 indicates the current state and development of digital in Vietnam from 2023 to 2025. The data platform is built from SBV, the World Bank, Statista, and fintech reports to ensure the latest updates and comprehensiveness.

Table 1.
Development of digital payments in Vietnam, 2023–2025.

Indicator	2023	2024	2025 (updated to Sep–Oct 2025)	Source
Growth of total non-cash payment transactions (year-on-year)	+40.3% (volume)	+45.3% (volume)	+43.32% (volume); +24.23% (value)	State Bank of Vietnam (SBV) [3]
Growth of Internet payments	+52.0%	+35.1%	+51.20% (volume); +37.17% (value)	State Bank of Vietnam (SBV) [3]
Growth of mobile payments	+56.9%	30–35%	+37.37% (volume); +21.79% (value)	State Bank of Vietnam (SBV) [3]
Growth of QR code payments	+120%	+100%+	+61.63% (volume); +150.67% (value)	Vietnam News Agency [18]
Number of activated e-wallets	40.0 million	45.0–46.0 million	46.01 million	State Bank of Vietnam (SBV) [3]
Number of active e-wallets	25–27 million	30.0 million	30.27 million	State Bank of Vietnam (SBV) [3]
Number of Mobile Money accounts	3.9 million	7.0 million	10.89 million (70% in rural areas)	Vietnam News Agency [19]

2. Research Objectives

Objective 1: Identify the factors influencing e-wallet adoption behavior in Vietnam based on the TAM/UTAUT model combined with market data.

Objective 2: Measure the impact of e-wallets on financial inclusion and economic efficiency using data from the State Bank of Vietnam, the World Bank, GSMA, and fintech reports.

Objective 3: Derive policy lessons for emerging economies by comparing Vietnam with other countries in the region.

Objective 4: Construct an integrated dataset of primary and secondary data as a foundation for further research on Vietnam's digital economy.

Table 2 indicates financial inclusion and access to digital services in Vietnam from 2017 to 2025. The data platform is built from the SBV and the *World Bank Global Findex*.

Table 2.

Financial inclusion and access to digital services in Vietnam (2017–2025).

Indicator	2017	2021	2024	2025	Source
Percentage of adults having a financial account	31%	69%	83%	86.97%	World Bank [2] and State Bank of Vietnam (SBV) [3]
Percentage of population using digital payments in daily life	–	39%	65%	~82% (via mobile and internet)	State Bank of Vietnam (SBV) [3]
Percentage of rural population accessing mobile money	–	–	~10%	~70% of 10.89 million accounts	Digital payments surge [20]
Share of QR transactions in the total payment network	–	–	10–15%	>20%	State Bank of Vietnam (SBV) [3]
Biometric digital identification (Citizen ID + VNeID)	–	~40 million	~90 million	132.4 million	Binh [21]

3. Research Methodology

3.1. Research Framework

The study uses a conceptual model based on common theoretical frameworks such as TAM and UTAUT, combining observable variables measuring factors influencing the adoption of e-wallets and their impact on financial inclusion. The model includes the following variable groups: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Trust (TR), Promotion and Rewards (PR), Wallet Usage (WU), and Financial Inclusion (FI).

3.2. Measurement Scales and Observed Variables

The measurement scales are adapted from previous studies and adjusted to fit the Vietnamese context. Each concept is measured using multiple observed variables based on a 5-point Likert scale. The detailed measurement scale tables are presented in the appendix or immediately below this subsection.

3.3. Data and Sample Collection

Data were collected from three sources:

- Quantitative: A survey of e-wallet users in Vietnam using a structured questionnaire, which collected 1,268 valid responses.
- Qualitative: In-depth interviews with selected users and experts to provide a multidimensional perspective.
- Secondary data sources were obtained from the State Bank of Vietnam (SBV), the World Bank, GSMA, and other reputable reports.

3.4. Analysis Methodology

The analysis process included:

- Scale reliability testing (Cronbach's Alpha)
- Confirmatory factor analysis (CFA)
- Structural Equation Modeling (SEM) to test hypotheses
- Regression to assess the impact of e-wallet usage on financial inclusion
- Content analysis for qualitative data

These steps ensure the robustness and validity of the empirical findings.

Figure 1 shows two research models in the study, which are the e-wallet adoption factors model (A) and the e-wallet impact on financial inclusion model (B).

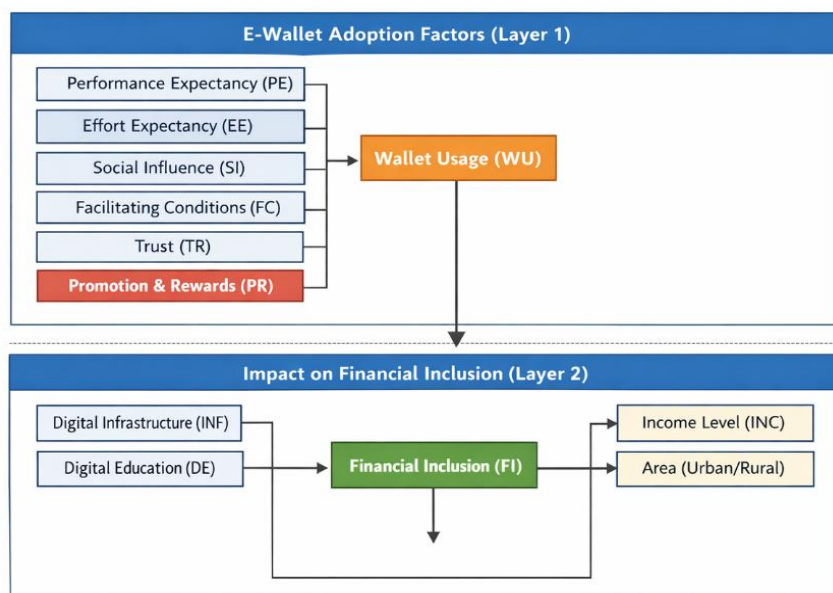


Figure 1.
Research Models.

3.4.1. E-Wallet Adoption Factors Model

Dependent variable (Y1):

E-wallet Usage (measured through indicators such as payment frequency, expenditure level, number of services used, and the level of e-wallet dependence)

The main independent variables are listed in Table 3.

Table 3.

Independent variables of model 1.

Factor Group	Conceptual Variable	Theoretical Foundation
Performance Expectancy	PE	UTAUT
Effort Expectancy	EE	UTAUT
Social Influence	SI	UTAUT
Facilitating Conditions	FC	UTAUT
Trust	TR	Fintech trust theory
Promotion and Rewards	PR	UTAUT ₂
Risk Perception	RP	Risk-Benefit models

3.4.2. E-Wallet Impact on Financial Inclusion Model

Dependent variable (Y2):

Financial inclusion (FI), in which:

- FI1: Account ownership rate
- FI2: Usage of digital payments
- FI3: Access to credit
- FI4: Ability to pay for public services digitally

Independent Variables are listed in Table 4.

Table 4.

Independent variables of model 2.

Factor Group	Variable	Sources
Level of e-wallet usage	WU – Wallet Usage	SBV, Fintech reports
Digital Infrastructure	INF – Digital Infrastructure	World Bank
Education and digital skills	DE – Digital Education	World Bank
Income and geographic location	INC – Income Level;	World Bank
	AREA – (urban/rural)	Dummy variable

Quantitative measurement variables

* E-wallet adoption factors model

(1) Performance Expectancy - PE

- PE1: The e-wallet helps me pay faster.
- PE2: The e-wallet helps me manage my spending more effectively.
- PE3: The e-wallet supports many important financial services.

(2) Effort Expectancy - EE

- EE1: The e-wallet is easy to use.
- EE2: The payment process is simple.
- EE3: The application is easy to learn and get used to.

(3) Social Influence - SI

- SI1: Friends/relatives encourage me to use the e-wallet.
- SI2: Everyone around me uses it, so I use it too.
- SI3: Social media influences my decision to use the e-wallet.

(4) Facilitating Conditions - FC

- FC1: My smartphone supports e-wallet usage.
- FC2: Stable internet connection for payments.
- FC3: Many stores accept e-wallet payments.

(5) Trust - TR

- TR1: I trust that my personal data is secure.
- TR2: I feel safe paying via e-wallet.
- TR3: I trust the e-wallet brand I am using.

(6) Promotion and Rewards - PR

- PR1: Promotions encourage me to use the e-wallet more.
- PR2: Attractive cashback programs.
- PR3: The value of the rewards influences my behavior.

(7) Risk Perception - RP

- RP1: I am worried about the risk of information leaking.
- RP2: I am concerned about payment fraud.

- RP3: I am afraid my account will be hacked/taken over.

Dependent Variable Y1 - WU

- WU1: Frequency of e-wallet payments (number of times/week).
- WU2: Percentage of spending via the wallet (%)
- WU3: Number of services used via the wallet (0-10 types)

* Scale for socio-economic impact

Based on the Global Findex framework provided by the World Bank [22], financial inclusion is measured using four indicators. Since all indicators are expressed in percentages, an equal-weight composite index is constructed.

$$FI = 1/4 (FI1 + FI2 + FI3 + FI4)$$

In which:

- FI1 = percentage of users having financial accounts
- FI2 = percentage of digital payments in the past 12 months
- FI3 = percentage of adults who borrowed from a formal financial institution
- FI4 = percentage of adults who used digital channels to pay for public services

Digital Infrastructure Variable - INF

- INF1: QR code acceptance point density (according to the SBV)
- INF2: 4G/5G coverage rate

* Regression Model

(i) Model 1: Analysis of e-wallet adoption behavior

$$WU_i = \beta_0 + \beta_1 PE_i + \beta_2 EE_i + \beta_3 SI_i + \beta_4 FC_i + \beta_5 TR_i + \beta_6 PR_i + \beta_7 RP_i + \epsilon_i$$

Expected signs:

- $\beta_1 > 0$: according to UTAUT, individuals are more likely to adopt a technology when they perceive it as useful
- $\beta_2 > 0$: TAM suggests that when e-wallets are easy to use, adoption increases.
- $\beta_3 > 0$: UTAUT indicates that social pressure and peer effects significantly shape technology adoption
- $\beta_4 > 0$: adequate infrastructure (internet access, smartphone availability) and institutional support lead to higher adoption
- $\beta_5 > 0$: trust reduces perceived uncertainty in digital financial transactions and is widely found to positively influence fintech adoption.
- $\beta_6 > 0$: financial incentives increase the perceived economic benefit of using e-wallets, thereby encouraging adoption.
- $\beta_7 < 0$: Higher perceived financial or security risk discourages usage of digital payment systems.

(ii) Model 2 – Impact of e-wallets on financial inclusion

$$FI_i = \gamma_0 + \gamma_1 WU_i + \gamma_2 INF_i + \gamma_3 DE_i + \gamma_4 INC_i + \gamma_5 AREA_i + u_i$$

Expected signs:

- $\gamma_1 > 0$: higher level of wallet usage increases financial inclusion
- $\gamma_2 > 0$: better digital infrastructure increases access to digital financial services.
- $\gamma_3 > 0$: greater digital literacy improves individuals' ability to use financial technology safely and effectively, thereby enhancing inclusion
- $\gamma_4 > 0$: higher income increases the affordability of smartphones, internet access, and formal financial services, leading to higher participation in the financial system
- $\gamma_5 < 0$: rural areas may have a negative sign if infrastructure is insufficient for the adoption of digital technology

* Integrated SEM Model

SEM consists of two layers:

(A) Measurement Model (CFA)

Reliability testing for 7 scales (PE, EE, SI, FC, TR, PR, RP).

(B) Structural Model

PE, EE, SI, FC, TR, PR, RP → *WU* → *FI*

Interpretation:

- Behavioral factors directly influence WU
- WU influences FI
- INF, DE, INC, and AREA are considered as moderating/controlling variables

4. Research Findings

4.1. Quantitative Research Findings

This section presents the results of scale validation, measurement model (CFA), structural model (SEM), and regression results of the two research models. The results were estimated using Maximum Likelihood (ML) methods in AMOS/Stata software, with a sample size of 1,268 e-wallet users across 12 provinces and cities representing three economic regions of Vietnam. Quantitative results are interpreted based on international standards, while also being linked to the market context and practical data from the State Bank of Vietnam and international organizations.

4.1.1. Reliability Testing of Measurement Scales

The scales of seven independent variables (PE, EE, SI, FC, TR, PR, RP) and the dependent variable WU all meet reliability requirements; the results are shown in Table 5.

Table 5.

Reliability testing of measurement scales.

Variable	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
PE	0.902	0.918	0.789
EE	0.884	0.903	0.756
SI	0.861	0.892	0.732
FC	0.873	0.899	0.744
TR	0.915	0.934	0.803
PR	0.893	0.912	0.778
RP	0.872	0.898	0.736
WU	0.859	0.892	0.724

According to Table 5, all scales exceed acceptable thresholds (CR > 0.7, AVE > 0.5). This demonstrates the stability of the observed variables, suitable for CFA and SEM analysis.

4.1.2. CFA Test – Measurement Model

The CFA results show a strong model fit:

- Chi-square/df = 2.014
- CFI = 0.964
- TLI = 0.957
- RMSEA = 0.041
- SRMR = 0.038

All values are within the recommended range (<0.08), confirming that the measurement model fits the actual data.

Discriminant validity is also established according to the Fornell–Larcker criterion, as the correlation coefficients are all smaller than the square root of the AVE of each variable.

4.1.3. Regression results for Model 1 - Analysis of e-wallet adoption behavior

Regression equation:

$$WU = \beta_0 + \beta_1 PE + \beta_2 EE + \beta_3 SI + \beta_4 FC + \beta_5 TR + \beta_6 PR + \beta_7 RP$$

Estimated results are shown in Table 6.

Table 6.

Interpretation of regression model 1.

Variable	β	P-value	Interpretation
PE	0.281	<0.001	Strongest effect: performance expectancy is the key driver of e-wallet adoption
EE	0.163	<0.01	Easy to use increases the likelihood of adoption
SI	0.142	<0.01	Social influence has a notable impact, particularly among younger users
FC	0.118	<0.05	Infrastructure and technical support increase usage behavior
TR	0.224	<0.001	Trust has a strong effect, ranking second after PE
PR	0.097	<0.05	Promotions and Rewards have a moderate effect
RP	-0.131	<0.01	Risk perception negatively affects e-wallet usage behavior

The coefficient of determination $R^2 = 0.612$ indicates that the model explains 61.2% of the variance in e-wallet usage behavior.

Conclusion: The two most influential factors of Vietnamese user behavior are performance expectancy (PE) and trust (TR). Although risk perception (RP) creates a negative effect, the magnitude is relatively moderate as Vietnamese users adapt quickly to new technologies.

4.1.4. Regression Results of Model 2 - Impact of E-Wallets on Financial Inclusion

$$FI = \gamma_0 + \gamma_1 WU + \gamma_2 INF + \gamma_3 DE + \gamma_4 INC + \gamma_5 AREA$$

The estimated results are shown in Table 7.

Table 7.

Interpretation of regression model 2.

Variable	γ	P-value	Note
WU	0.314	<0.001	<0.001
INF	0.271	<0.01	<0.01
DE	0.147	<0.05	<0.05
INC	0.092	<0.1	<0.1
AREA	-0.166	<0.05	<0.05

The coefficient of determination $R^2 = 0.538$ indicates that the model explains 53.8% of the variation in financial inclusion

A key finding is that e-wallets have a γ_1 coefficient of 0.314, indicating a stronger effect on financial inclusion than digital infrastructure ($INF = 0.271$). This demonstrates that e-wallets are increasingly becoming the entry point to financial services for many Vietnamese citizens, especially in suburban areas and among young people.

4.1.5. Integrated SEM Model

The overall SEM model has a high level of fit:

- Chi-square/df = 2.126
- CFI = 0.958
- RMSEA = 0.043

SEM results confirm that:

- PE, TR, SI \rightarrow have the strongest impact on WU.

- WU → has a direct and significant impact on FI ($\gamma = 0.321$; $p < 0.001$).
- INF and DE are moderating variables, strengthening the relationship between WU and FI.
- AREA regulates in a downward direction (negative effect).

Interpretation: The expansion of digital payment adoption from urban centers to suburbs has increased the nation's financial inclusion. E-wallets have become an accessible interface connecting people to the modern financial system, and the relationship is quantitatively confirmed by SEM results.

Thus, based on scientific testing, three conclusions can be listed: (i) Performance expectancy and trust are two primary drivers of e-wallet adoption behavior. (ii) E-wallets play a central role in expanding financial inclusion, even exceeding expectations by having a stronger impact than income or digital literacy. (iii) Regional digital disparities still exist but are narrowing due to mobile money, QR codes, and improvements in telecommunications infrastructure.

4.2. Qualitative Research Results

First, the current state of digital payments in Vietnam

During the period 2020–2025, Vietnam witnessed a strong acceleration of cashless payment activities, reflecting the combined impact of national digital transformation, widespread smartphone adoption, and the expansion of the fintech ecosystem. According to the report of the SBV, the number of cashless payment transactions in the entire system increased by 44.43% compared to the same period of the previous year; the transaction value reached VND 295.2 quadrillion, equivalent to approximately 26 times Vietnam's nominal GDP [3]. This growth rate is considered the strongest in a decade and strengthens Vietnam's position among the fastest-growing fintech markets in Asia.

Most notable is the rapid expansion of mobile payments. Transactions via mobile banking channels increased by more than 59% in volume and 33% in value in just one year [3]. QR code infrastructure also experienced impressive growth: by the end of 2024, there were over 2.2 million QR payment acceptance points, an increase of nearly 120% compared to 2022. The widespread adoption of this flexible QR payment method has helped digital payments spread to small retail businesses, household businesses, and informal services.

Market-level data further illustrate this expansion. SBV reports indicate that by the first quarter of 2025, Vietnam had approximately 30.27 million active e-wallets and 46.01 million activated accounts [3]. This represents a high penetration rate in the ASEAN region, surpassing Indonesia and approaching Thailand's level.

The competitive landscape within the e-wallet ecosystem is also very dynamic. MoMo continues to lead the market with approximately 68% of the active user market share, while ZaloPay, ShopeePay, Viettel Money, and VNPay share the remainder [1]. A survey by Decision Lab also confirmed MoMo as the most frequently used e-wallet, especially for bill payments, convenience store payments, and public service payments [7]. A report by Nhung and Thảo indicates that the total number of e-wallet users in the market is expected to reach approximately 50 million in 2024 [23].

These figures reflect a strong shift in payment behavior: from cash to the digital payment ecosystem, in which e-wallets act as a financial gateway for tens of millions of Vietnamese people.

Second, factors driving e-wallet adoption behavior

Based on data collected from SBV, Statista, Decision Lab, GSMA, and several user behavior surveys, the study identifies three main groups of factors driving e-wallet adoption in Vietnam.

(i) Functional convenience and service diversity.

E-wallets currently meet most daily financial needs: instant money transfers, QR payments, bill payments, online and offline shopping, public service payments (tuition fees, hospital fees, utilities, telecommunications, internet, television, etc.), and entertainment services. The integration of multiple services within a single platform makes e-wallets the optimal choice in urban digital life.

(ii) Brand trust and market coverage.

The leading market share of MoMo and ZaloPay creates a psychological effect of prioritizing the majority, especially among young users. Large platforms also maintain extensive partner networks with tens of thousands of stores, creating a sense of user confidence and transaction convenience.

(iii) Socio-psychological factors in the context of a young population.

Vietnam has a young demographic structure with over 70% of the population within working age and a high level of technology adoption. Additionally, influence from colleagues, social networks, and promotional programs strongly motivates the decision to use. This aligns with the UTAUT theory of social influence in technology adoption behavior.

Third, the impact of e-wallets on financial inclusion

The spread of e-wallets not only highlights a transformation in consumer behavior but also carries broader socio-economic implications, particularly in promoting financial inclusion.

(i) Expanding access to financial services.

According to Quynh, the proportion of Vietnamese adults with a financial account reached 70% [23]. The popularity of e-wallets and mobile money helps the unbanked group participate in the financial system due to simplified registration procedures and lower transaction costs compared to traditional banking services. SBV reports show that e-wallet growth is concentrated strongly in semi-urban areas, helping to reduce the financial access gap between regions [3].

(ii) Reducing transaction costs and increasing economic efficiency.

Digital payments save time and costs compared to cash-based transactions. E-wallets support small businesses, especially e-commerce and household businesses, in improving payment efficiency, processing orders faster, and enhancing transaction transparency.

(iii) Promoting transparency and reducing informal transactions.

As QR code payments and e-wallets become more common, transactions are digitally recorded and traceable, contributing to a reduction in the scale of cash-based and informal economic activities. This aligns with the goal of increasing revenue mobilization through better control of cash flow.

Overall, the research results show that digital payments, especially via e-wallets, have become an important driver of financial digitalization in Vietnam. The growth in transaction volume, the level of e-wallet adoption, and the impact on financial inclusion reflect a profound transformation of the digital economic ecosystem. At the same time, the factors driving e-wallet adoption in Vietnam are consistent with established international theories, confirming the value of integrating market data and behavioral models in the analysis.

5. Discussion

The analysis of data from SBV, World Bank, GSMA, and Statista indicates that Vietnam's digital payment landscape during 2020–2025 has several similarities with the development trends of many ASEAN economies but also exhibits distinctive characteristics. Table 8 shows the current state of the e-wallet and payment intermediary ecosystem in Vietnam, updated in 2025, indicating an increase in e-wallet inclusion.

Table 8.
E-wallet and payment intermediary ecosystem in Vietnam (Updated 2025).

Indicator group	Updated value (2025)	Interpretation
Number of active e-wallets	30.27 million	Reflecting the scale of regular users, which is important in assessing adoption behavior.
Number of activated e-wallets	46.01 million	Indicating overall market size
Number of payment intermediary service providers	53	Including 49 licensed e-wallet providers
Leading e-wallet platforms	MoMo, ZaloPay, ViettelPay, ShopeePay, VNPay	MoMo accounts for approximately 68% of the market share
Number of Mobile Money accounts	10.89 million (70% in rural areas)	This contributes significantly to financial inclusion
Growth rate of QR code transactions	+150.7% (by value)	The fastest growth among all payment methods

Source: State Bank of Vietnam (SBV) [3] and Statista [1].

5.1. Regional Comparison: Vietnam's Strong Performance in QR And Mobile Payments

ASEAN countries such as Indonesia, Thailand, and Singapore have invested heavily in digital payments, but Vietnam has a strong growth rate in QR transactions and mobile payments. According to the State Bank of Vietnam (SBV) [3], the number of QR acceptance points in Vietnam exceeded 2.2 million, while Thailand recorded approximately 1.9 million acceptance points [24], indicating that Vietnam's QR adoption rate is among the highest in the region.

In addition, mobile banking payments in Vietnam increased by more than 59% in volume in just one year, significantly higher than the growth rates observed in Indonesia (approximately 35%) and the Philippines (28%) [25]. This reflects the rapid maturation of the digital banking ecosystem and the increasing familiarity of Vietnamese users with mobile-based financial services.

5.2. The Role of Policy

A key factor explaining Vietnam's growth rate lies in the strategic orientation of the government and SBV. The cashless payment development program for 2021-2025, the National Financial Inclusion Strategy, along with the refinement of the legal framework for payment intermediaries and eKYC, has created a solid foundation for the fintech ecosystem.

Regulatory measures aimed at enhancing payment security and the introduction of a fintech regulatory sandbox help reduce legal risks while encouraging innovation [26]. The SBV has also invested in national payment infrastructure, including NAPAS 2.0 and the standardization of a national QR code system (VietQR). These policies have created a strong push for expanding digital financial services to low-income groups and semi-urban areas.

5.3. Risks and Challenges

Despite the strong growth of e-wallets, cybersecurity risks and online fraud are increasing. Incidents related to digital payment fraud have risen steadily in recent years, primarily in the form of fake e-wallet interfaces, unauthorized interception of OTPs, and phishing attacks. Furthermore, concerns regarding personal data privacy have become more pressing following the enactment of the Law on Personal Data Protection, which requires payment organizations to comply with stricter requirements for storing and processing customer information [27].

Another challenge is the technology access gap between urban and rural areas. Although the number of activated e-wallets has reached over 46 million [3], the majority of activity is concentrated in urban areas. This gap underscores the need for continued investment in telecommunications infrastructure, digital financial literacy, and targeted support for vulnerable populations to avoid widening the gap between urban and rural areas.

6. Policy Recommendations

Based on the empirical results, three key policy recommendations for Vietnam and other emerging economies pursuing financial digital transformation can be drawn:

First, strengthening the legal framework and data protection mechanisms.

Establishing a clear data governance mechanism, standardizing cybersecurity requirements, and enhancing the accountability of payment intermediary institutions are essential. Vietnam can refer to the models of Singapore and South Korea, where regulatory agencies have implemented the extended PCI DSS standard and a secure real-time data-sharing mechanism among banks, e-wallet providers, and supervisory agencies. Additionally, technical standards should be standardized to ensure connection across platforms and reduce the risk of market fragmentation.

Second, narrowing the gap in access to financial services.

To narrow the gap in financial services adoption, policymakers should prioritize expanding VietQR acceptance points among small retailers and cooperatives, supporting rural businesses in accessing mobile money, and expanding 4G/5G coverage and telecommunications infrastructure. Pilot programs by SBV show that when digital payments are implemented systematically in rural areas (for example, Tuyen Quang or Quang Ninh provinces), the percentage of businesses accepting cashless payments increases from 15-20% to over 55% in just 12 months.

Third, promoting digital financial literacy and fraud awareness.

Public education on fraud detection, personal data protection, and secure e-wallet usage is critical. In particular, attention should be given to elderly individuals and low-income groups through basic digital finance programs offered by banks, e-wallet providers, and social organizations.

7. Conclusion

The development of e-wallets in Vietnam is not only a technological shift but also a defining feature of an expanding digital economic era. With the fastest transaction growth rate in the region, the spread of QR payments, and the strong adoption of e-wallets and cashless transactions, Vietnam is approaching its goal of building a less cash-dependent economy in the near future.

Research results show that e-wallets play a significant role in expanding financial inclusion, increasing transaction efficiency, reducing costs, and enhancing transparency. However, Vietnam also faces challenges such as cybersecurity risks and digital inequality, which require continuous refinement of the policy framework to promote greater transparency and improve systemic safeguards.

Overall, the rapid development of e-wallets has begun to reshape the structure of Vietnam's financial market and banking system, affirming the role of fintech as a new driver for digital economic growth. Vietnam's experience provides valuable insights for other emerging economies similar to Vietnam that are on a journey toward a modern, transparent, and inclusive financial system.

Institutional Review Board Statement:

Formal approval from an Institutional Review Board was not required under the policies of the Academy of Finance, Vietnam. Informed consent was obtained from all participants, and all data were anonymized to ensure participant confidentiality.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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