

A THEORETICAL OVERVIEW OF ELECTRONIC PAYMENT ADOPTION AND ITS IMPLICATIONS FOR RETAIL CHAINS: A CASE FOR VIETTEL STORE

PhD. Vu Duc Loi* - Tran Hoang Chung**

Abstract: *This paper provides a comprehensive theoretical overview of electronic payment (e-payment) adoption, drawing on established technology acceptance models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT, including UTAUT2). It synthesizes findings from various empirical studies on factors influencing consumer intention and actual usage of e-payment services across diverse contexts and geographies. Key determinants examined include perceived usefulness, perceived ease of use, social influence, facilitating conditions, hedonic motivation, price value, habit, trust, and perceived risk. While acknowledging the general benefits and challenges of e-payment, this paper also discusses potential implications for retail chains seeking to implement effective e-payment solutions. Specifically, it considers these general findings in the hypothetical context of Viettel Store. It is important to note that the provided source materials do not contain specific information regarding Viettel Store, thus the discussion on its behalf is illustrative and based solely on the generalized insights derived from the literature on e-payment adoption.*

• **Keywords:** *electronic payment, technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), perceived usefulness, perceived ease of use, social influence, trust, perceived risk, retail chains, Viettel Store.*

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1. Introduction

The rapid advancement of technology and widespread mobile phone use have transformed financial transactions, making mobile payment a widely accepted method (Hsiao, 2019). E-payment refers to monetary transactions made via electronic communication, enabling fast, convenient, and low-risk exchanges for both consumers and sellers (Thi et al., 2024). Its adoption is growing globally, with notable progress in regions like Asia for example, Thailand's PromptPay and China's mobile payment boom. Academic research has examined consumer behavior in tech adoption using models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Escobar-Rodríguez & Carvajal-Trujillo, 2014). These frameworks help explain how users accept new ICTs, offering valuable insights for businesses, especially retail chains, aiming to implement digital payment systems. This paper provides a theoretical overview of e-payment adoption, focusing on TAM and UTAUT constructs and their relevance to retail settings, using Viettel Store as a hypothetical example. The discussion is illustrative only, as no data

on Viettel Store is included in the source materials.

2. Electronic Payment: Concepts, Advantages, and Challenges

2.1. Definition and Types of Electronic Payment

Electronic payment (e-payment) refers to any monetary transaction initiated using electronic communication methods (Thi et al., 2024). This broad term encompasses various forms of digital transactions, including payments for goods, services, and bills/invoices with a mobile device via telecommunications networks or proximity technologies (Hsiao, 2019). Examples include online purchases, e-banking, mobile banking (m-banking), mobile shopping (m-shopping), online trading, and even e-toll collection. The shift towards e-payment is driven by technological advancements, such as the development of Quick Response (QR) codes and Near Field Communication (NFC) (Hsiao, 2019).

Mobile payment, a significant subset of e-payment, is defined as payments conducted through mobile devices like wireless handsets, smartphones, personal digital assistants (PDAs), and NFC-based devices. These systems utilize wireless and other communication technologies to allow users to make quick payments

* Hanoi School of Business and Management (HSB), Vietnam National University (VNU); email:loiud@hsb.edu.vn

** Viettel Commerce Company; email:hoangchung.tran@gmail.com

with their mobile devices (Hsiao, 2019). Different types of mobile payments include remote payment (e.g., via mobile Internet networks) and proximity payment (e.g., via RFID and NFC by holding mobile phones near a device) (Hsiao, 2019). QRIS (Quick Response Code Indonesian Standard) is an example of a digital payment system innovation aimed at facilitating transactions effectively, efficiently, and with guaranteed security.

2.2. Advantages of Electronic Payment

E-payment systems offer several advantages for both companies and users compared to traditional payment methods (Hsiao, 2019): (1) Increased Versatility, (2) Faster Transactions, (3) Greater Convenience, (4) Lower Costs, (5) Enhanced Security and Trust, (6) Broader Financial Inclusion, (7) Increased Productivity and Efficiency.

2.3. Challenges and Concerns in Electronic Payment Adoption

Despite its numerous advantages, e-payment adoption faces several challenges, primarily related to perceived uncertainty and risk (Hsiao, 2019): (1) Security Concerns, (2) Trust Issues, (3) Infrastructure and Technology Issues, (4) Consumer Habits and Inertia, (5) Cost and Pricing Structure, (6) Interoperability.

3. Theoretical Frameworks for Technology Acceptance

Understanding consumer acceptance of technology is central to successful e-payment implementation. Several theoretical models have been developed and applied in this domain, with the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) being the most prominent.

3.1. The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is one of the most powerful theories used to explain user technology adoption. Developed by Davis (1989), TAM postulates that perceived usefulness (PU) and perceived ease of use (PEU) are the primary determinants of a user's attitude towards using a technology, which in turn influences their behavioral intention to use it, and ultimately, actual usage (Wu et al., 2011).

Perceived Usefulness (PU): Defined as “the degree to which a person believes that using a particular system would enhance his or her job performance”. In the context of e-payment, it refers to the belief that using the system will enhance efficiency in completing financial and daily transactions, save time, and bring greater convenience (Thi et al., 2024).

Perceived Ease of Use (PEU): Defined as “the degree to which consumers perceive that utilizing a certain technology requires less effort”. This includes the perception that the system is uncomplicated, effortless, quick to navigate, and easy to learn and become skillful at using.

3.2. The Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT2

Recognizing the limitations of earlier models like TAM and the Theory of Reasoned Action (TRA), (Venkatesh et al., 2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT integrates eight prominent models of technology acceptance into a unified framework. It posits that Performance Expectancy, Effort Expectancy, and Social Influence affect the behavioral intention to use a technology, and behavioral intention and facilitating conditions influence the actual use of the technology.

UTAUT2 integrates three new constructs and redefines the seven original constructs from a consumer perspective (Escobar-Rodríguez & Carvajal-Trujillo, 2014). The seven factors influencing a consumer's intention to use ICT in UTAUT2 are: (1) Performance Expectancy (PE), (2) Effort Expectancy (EE), (3) Social Influence (SI), (4) Facilitating Conditions (FC), (5) Hedonic Motivation (HM), (6) Price Value (PV), (7) Habit (HA).

In UTAUT2, actual use of ICT is influenced by behavioral intention, facilitating conditions, and habit (Escobar-Rodríguez & Carvajal-Trujillo, 2014). The UTAUT2 model has been confirmed to improve the percentage of variance explained in both intentions to use ICT and actual use of ICT compared to the original UTAUT model (Escobar-Rodríguez & Carvajal-Trujillo, 2014). It has been widely applied to various consumer contexts, including mobile banking, mobile phone technologies, online dispute resolution, location-based services, and online purchasing (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

3.3. Extensions and Additional Constructs

Beyond the core constructs of TAM and UTAUT/UTAUT2, several studies have incorporated additional variables to enhance predictive power and capture specific contextual nuances in e-payment adoption.

Trust: A key predictor in e-commerce and mobile payments, encompassing security and data protection (Hsiao, 2019; Thi et al., 2024).

Perceived Risk: Negatively affects e-payment adoption, often moderated by trust, linked to security and privacy concerns.

Perceived Safety (PS): Influences intention to use technologies like autonomous vehicles through perceived usefulness.

Perceived Credibility (PC): Crucial for trust in issuers, especially in digital currency adoption.

Perceived Convenience (PC): Strong positive effect on intention to use e-wallets; often a top predictor (Thi et al., 2024).

Willingness (W): Directly influences behavioral intention to use e-wallets.

Personal Innovativeness (PI): Reflects an individual's readiness to try new technologies. It has been found to influence perceived usefulness and perceived ease of use.

Digital Financial Literacy (DFL): Can have a significantly positive effect on mobile usefulness and mobile ease of use mobile fintech.

Innovation Resistance Theory (IRT): Combined with UTAUT2, IRT introduces barriers to adoption, such as tradition barrier (TB) or value barrier (VB), providing a more holistic view of adoption inhibitors.

4. Empirical Findings on Key Determinants of E-Payment Adoption

Empirical research across various e-payment contexts has provided valuable insights into the influence of different factors on user acceptance. While some findings are consistent, others show variations depending on the specific technology, cultural context, or user group.

4.1. Performance Expectancy (Perceived Usefulness)

Performance Expectancy (PE) and Perceived Usefulness (PU) are consistently found to be strong determinants of behavioral intention to use technology.

Strong Positive Effect: Using mobile shopping apps enables users to accomplish goal-oriented tasks, similar to how PU affects m-shopping intention and mobile financial services usage intention.

Enhancing Efficiency: The utilization of e-payment is argued to enhance productivity and efficiency in payment-related processes (Thi et al., 2024). For mobile payment services, utilitarian benefits (convenience, no spatial restrictions for financial transactions) are important drivers of adoption.

Influence on Trust and Satisfaction: Trust is positively influenced by perceived usefulness (Thi et al., 2024). In the TAM context for OTT services, PU positively affects user satisfaction.

4.2. Effort Expectancy (Perceived Ease of Use)

Effort Expectancy (EE) and Perceived Ease of Use (PEU) are also critical, particularly in the early stages of new technology adoption.

Positive Effect on Intention: EE/PEU often positively influences behavioral intention to use mobile apps. Learning how to use LCC e-commerce websites (air ticket purchasing sites) easily is a driver of online purchase intention (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Influence on Perceived Usefulness: PEU frequently has a significant positive effect on PU. For cloud storage

services, PEU has the strongest direct relationship towards PU, implying that easy-to-use services are perceived as more useful.

Impact on Trust and Satisfaction: Perceived ease of use also positively affects trust (Thi et al., 2024). In mobile credit card usage, PEU has a significant effect on user satisfaction.

Contextual Variations: While generally influential, EE/PEU may not always directly impact behavioral intention to adopt mobile payment across all contexts.

4.3. Social Influence

Social influence (SI) refers to the impact of important others on an individual's intention to use a technology.

Positive Effect on Intention: SI has been found to positively influence behavioral intention to use mobile payment. For QRIS payments, Social Influence has a positive effect on Perceived Usefulness and Perceived Ease of Use.

Cultural Moderation: The impact of SI can vary significantly across cultures. For example, SI had a positive, significant influence for Italian mobile payment users but a non-significant effect for Chinese users.

Influence on Trust: Social influence significantly influences customer trust (Thi et al., 2024).

4.4. Facilitating Conditions

Facilitating conditions (FCs) relate to the resources and support available to perform a behavior.

Positive Effect on Intention/Usage: FCs positively influence the behavioral intention to adopt mobile payment.

Practical Resources: This includes having the necessary resources (e.g., mobile devices, internet access), knowledge, and compatibility with other technologies.

4.5. Hedonic Motivation

Hedonic motivation (HM) refers to the fun or pleasure derived from using technology.

Positive Effect on Intention: HM has been found to have a positive effect on behavioral intention to use mobile shopping apps. In UTAUT2, HM is considered more important than performance expectancy in explaining intention to use ICT in a consumer context (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Contextual Variations: The influence of HM can vary. Some studies found HM to positively influence mobile payment adoption while others found no significant influence in either the Italian or Chinese mobile payment samples.

4.6. Price Value

Price value (PV) represents consumers' cognitive trade-off between perceived benefits and the monetary cost of using applications.

Mixed Effects on Intention: PV can positively influence behavioral intention to adopt mobile payment, especially for Chinese respondents.

Impact on Use Behavior: Interestingly, price saving did not affect LCC online purchase usage in one study, despite its influence on intention (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Importance of Perceived Value: Perceived value, which relates to PV, has been found to significantly influence behavioral intention towards mobile coupon applications and customer satisfaction and loyalty in mobile commerce.

4.7. Habit

Habit refers to the extent to which using a technology has become routine or natural (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Strong Predictor of Intention and Usage: Habit is a strong predictor of online purchase intention and actual online purchase usage.

Influence on Actual Use: Actual usage behavior in respect of a new technology is affected by habit (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Diminished Importance of Intention: As habit strengthens, the intention to use a specific form of technology could become less important (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

4.8. Trust and Perceived Risk

As habit strengthens, the intention to use a specific form of technology could become less important (Escobar-Rodríguez & Carvajal-Trujillo, 2014) Click or tap here to enter text..

Trust as a Key Predictor: Consumer trust is often the strongest predictor of online purchase intention in contexts like LCC air tickets (Escobar-Rodríguez & Carvajal-Trujillo, 2014), (Wu et al., 2011). Trust is positively influenced by information quality, perceived security, and privacy protection.

Role of Security and Privacy: Perceived security and privacy protection are important antecedents of consumer trust.

Perceived Risk as an Inhibitor: Perceived risk negatively impacts the intention to use digital payments (Thi et al., 2024). It can also negatively influence customer trust.

Conflicting Findings: In some studies, perceived risk (specifically privacy risk and security risk) did not significantly affect behavioral intention to use mobile shopping apps in the USA (Chopdar et al., 2018). Similarly, perceived risk had no impact on behavioral intention to use mobile payment systems in a study combining Valence Framework and TAM (Altes et al., 2024).

4.9. Other Relevant Factors

Perceived Convenience (PC): Demonstrated the

highest impact on electronic payment adoption in Ho Chi Minh City, underscoring its critical role as the primary consideration for consumers (Thi et al., 2024). It has a positive significant effect on behavioral intention to use e-wallets.

Willingness (W): A positive significant effect on the Behavioral Intention (BI) to use an e-wallet as the mode of payment.

Personal Innovativeness (PI): Found to influence perceived usefulness positively (Shanmugavel & Micheal, 2022). In Spain, PI was a determinant of intention to use QR code payment.

Digital Financial Literacy (DFL): Positively affects mobile usefulness and mobile ease of use for mobile fintech apps.

Age and Gender: Can moderate the influence of key constructs on behavioral intention and usage behavior (Martins et al., 2014). For instance, men might play a more prominent role than women in strengthening mobile fintech use and digital financial inclusion.

National Culture: Cultural dimensions influence consumer behavior and mobile technology adoption, leading to divergent results in cross-country comparisons (e.g., Italy vs. China in mobile payment adoption).

5. Implications for Retail Chains: A Hypothetical Case for Viettel Store

Understanding the theoretical constructs and empirical findings on e-payment adoption offers valuable insights for retail chains seeking to implement or enhance their digital payment solutions. While the specific context of “Viettel Store” is not detailed in the provided sources, the generalized implications can be applied to such a retail environment. Effective e-payment solutions must address consumer perceptions and behaviors identified in the literature to drive adoption and continued use. Specific recommendations for Viettel Store would require dedicated market research and analysis.

5.1. Prioritizing Perceived Usefulness and Performance Expectancy

For a retail chain like Viettel Store, emphasizing the usefulness of e-payment is paramount (Thi et al., 2024).

Time and Efficiency Savings: Highlight how e-payment allows customers to complete transactions more quickly and efficiently, reducing checkout times and queues, especially in busy periods. This can free up customers’ time for other activities.

Convenience: Promote the convenience of paying anytime, anywhere, directly from their mobile devices, without needing cash or physical cards (Hsiao, 2019). This aligns with findings that convenience is a primary consideration for consumers (Thi et al., 2024).

Enhanced Productivity: Frame e-payment as a tool that enhances the overall shopping experience

by streamlining the payment process, making it more productive for customers.

Loyalty Programs and Benefits: Integrate e-payment with loyalty programs, discounts, or exclusive offers (Chopdar et al., 2018), (Escobar-Rodríguez & Carvajal-Trujillo, 2014). Customers perceiving greater benefits compared to monetary costs (Price Value) are more likely to use mobile shopping apps (Chopdar et al., 2018). Viettel Store could offer specific discounts or reward points for e-payment usage.

5.2. Ensuring Perceived Ease of Use and Minimal Effort

Ease of use is crucial, particularly for new users and in the early stages of adoption (Chopdar et al., 2018).

User-Friendly Interface: Any e-payment solution implemented by Viettel Store (e.g., QR code scanning, NFC tap-to-pay, integrated app payments) must have a clear, simple, and intuitive interface. “It is easy for me to become skillful at using mobile shopping apps” is a key indicator.

Seamless Integration: Ensure the e-payment process is seamlessly integrated into the existing checkout system and customer journey, requiring minimal physical and mental effort.

Easy Learning: Provide clear, step-by-step instructions or visual guides (e.g., via digital displays at checkout or in-app tutorials) to ensure customers can easily learn and become skillful at using the new payment methods (Thi et al., 2024).

Overcoming Hesitations: For BOP (Bottom of Pyramid) users, easy-to-understand and operate m-fintech services can overcome hesitations (Thi et al., 2024). Viettel Store, serving a diverse customer base, should ensure its solutions are accessible across different digital literacy levels.

5.3. Building and Maintaining Trust and Addressing Perceived Risk

Trust is a paramount factor in driving e-payment adoption, and directly addressing perceived risks is essential (Thi et al., 2024).

Security Measures: Viettel Store must implement and clearly communicate advanced security technologies and strict security policies for its e-payment systems. This includes safe shopping guarantees, encryption, and authentication mechanisms to reassure customers about the safety of their personal and financial information. Visible security badges or certifications on payment screens can increase perceived security (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Privacy Protection: Clearly explain privacy policies and guarantee the protection of confidential personal information (names, addresses, payment details) collected during transactions. Third-party certifications

assuring privacy can also build trust (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Information Quality: Provide accurate, complete, and up-to-date information regarding payment processes, terms, and conditions on their website or app. This includes clear information on fares, availability, and timetables for service-related transactions if applicable (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Reliability and Stability: Ensure the e-payment system is reliable, minimizing errors, connection losses, or battery issues, which are common fears associated with mobile payment.

Customer Support: Offer robust customer support channels to quickly address any payment-related issues or concerns, enhancing overall trust and reassurance.

5.4. Leveraging Social Influence and Cultivating Habit

People are influenced by those important to them, and habitual use reinforces adoption (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Peer Influence: Encourage existing satisfied customers to share their positive e-payment experiences through word-of-mouth or social media campaigns.

Influencer Marketing: Collaborate with local influencers or community figures (if appropriate for Viettel Store’s target demographic) to promote the ease and benefits of their e-payment solutions.

Normalization of Behavior: Create a perception that using e-payment at Viettel Store is a widely accepted and appropriate behavior within the community (Chopdar et al., 2018).

Incentivizing Repetitive Use: Offer incentives for repeated e-payment use (e.g., small discounts for subsequent e-payment transactions) to help establish habit (Escobar-Rodríguez & Carvajal-Trujillo, 2014). This can make the use of e-payment become “natural” to customers (Chopdar et al., 2018).

Contextual Advertising: Advertise different usage contexts and occasions for e-payment (e.g., buying a new phone, paying bills, purchasing accessories) to integrate it into customers’ daily routines (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

5.5. Addressing Facilitating Conditions and Other Factors

Resource Availability: Ensure that customers have the necessary resources and knowledge to use e-payment. This might involve offering free Wi-Fi in stores, ensuring staff are knowledgeable about the systems, or providing clear instructions on how to set up relevant apps (Chopdar et al., 2018).

Compatibility: Ensure the e-payment solution is compatible with various mobile devices and existing technologies customers already use (Chopdar et al., 2018).

Hedonic Motivation: While not always significant, adding an element of fun or enjoyment to the payment process can be beneficial (Escobar-Rodríguez & Carvajal-Trujillo, 2014). This could include gamified elements, pop-up discounts, or pleasant animations during transactions (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

Addressing Digital Literacy: For a diverse customer base, providing educational support and ensuring solutions are accessible to varying levels of digital financial literacy is important (Ashoer et al., 2024), (An et al., 2024).

By strategically addressing these factors, Viettel Store, like any other retail chain, can increase the likelihood of widespread adoption and continued use of its e-payment solutions, leading to improved customer experience and operational efficiency.

6. Conclusion

The landscape of financial transactions is undeniably shifting towards electronic payment systems, driven by technological innovations and the inherent advantages of convenience, speed, and efficiency. This paper has provided a comprehensive theoretical overview of e-payment adoption, primarily grounded in the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2). Key determinants such as perceived usefulness, perceived ease of use, social influence, facilitating conditions, hedonic motivation, price value, and habit consistently emerge as crucial factors influencing consumers' behavioral intention and actual usage of these technologies. Furthermore, external factors like trust and perceived risk play a pivotal role, often acting as strong facilitators or significant barriers to adoption, respectively.

Empirical studies from various global contexts, including specific comparisons between countries like Italy and China, or India and the USA, highlight both universal principles and culturally specific nuances in technology acceptance. While perceived usefulness and ease of use frequently exhibit strong positive effects, the influence of social factors, hedonic motivation, and price value can vary depending on the technological maturity of a market or the specific user demographic. The critical role of trust and security, particularly in the sensitive realm of financial transactions, remains a consistent finding across the literature.

The implications for retail chains, such as the hypothetical Viettel Store, are clear: successful e-payment implementation necessitates a deep understanding of these consumer-centric factors. Prioritizing solutions that offer tangible benefits, are intuitive and easy to use, foster a sense of trust and security, align with social norms, and integrate seamlessly into daily habits will

drive higher adoption rates. Investing in user-centric design, robust security protocols, clear communication, and strategic marketing that emphasizes convenience and value are essential steps.

Limitations and Future Research: This paper's primary limitation lies in the absence of specific data or studies related to "Viettel Store" within the provided sources. Consequently, the practical implications discussed for Viettel Store are illustrative applications of general academic findings, not tailored recommendations based on specific operational or market characteristics of the company. Future research could focus on conducting empirical studies within specific retail chain contexts to validate these generalized implications and identify unique factors relevant to their operations and customer base. Furthermore, exploring the long-term impact of e-payment adoption on consumer loyalty and overall business performance for retail chains, as well as the evolving role of new payment technologies (e.g., blockchain in finance) would provide valuable insights. Comparative studies across different retail sectors and emerging markets could also deepen our understanding of e-payment dynamics.

By continuing to investigate the multifaceted determinants of e-payment adoption, researchers and businesses can collaborate to foster an environment where digital transactions are not just a convenience but a universally embraced and trusted standard.

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