Determinants Of Electronic Money (E-Money) Adoption in Thailand: The Roles of Perceived Usefulness, Perceived Ease of Use, Management Innovation, And Behavioral Intention

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Abstract

The rapid digital transformation of the global financial landscape has compelled developing economies to accelerate their transition toward cashless societies. In Thailand, the adoption of electronic money (e-Money) has surged, driven by robust infrastructure and changing consumer behaviors. However, while the Technology Acceptance Model (TAM) explains user adoption through perceived usefulness and ease of use, it often overlooks the organizational mechanisms—specifically Management Innovation—that differentiate successful service providers in a saturated market. This research aims to bridge this theoretical gap by analyzing the causal relationships between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Management Innovation, and Behavioral Intention on the actual Adoption Behavior of e-Money services in Thailand. Employing a mixed-method research design, this study integrates quantitative data from 360 e-Money users analyzed via Structural Equation Modeling (SEM) and qualitative insights from 20 in-depth interviews with key informants selected through intensity sampling. The conceptual framework synthesizes the classic TAM constructs with contemporary management innovation theories to provide a holistic view of digital adoption. Anticipated findings suggest that while technological utility remains fundamental, management innovation—manifested through service customization, process efficiency, and strategic agility—plays a pivotal role in driving user intention and sustaining long-term usage behavior. These insights offer critical strategic implications for both Bank and Non-bank fintech providers striving to enhance competitive advantage in the digital economy.

Introduction

The global economic landscape is undergoing a profound structural shift, transitioning from resource-dependency to a paradigm driven by information, knowledge, and digital technology. This evolution has positioned digital platforms as the central nervous system of modern commerce, where the expansion of the technology sector significantly outperforms traditional industries. Recent analyses by the OECD indicate that the digital economy is no longer merely a subset of the market but the primary driver of global competitiveness, fundamentally altering supply chains and trade patterns. Concurrently, the proliferation of e-commerce has necessitated a parallel evolution in financial infrastructure, where electronic money (e-Money) has emerged as a critical enabler of cross-border knowledge exchange and efficient market transactions.

Within this global context, Thailand serves as a compelling case study for digital financial adoption. The country has strategically positioned itself to escape the middle-income trap through the "Thailand 4.0" policy, which emphasizes value-based operational models and digital innovation. This national agenda is supported by the Digital Development for Economy and Society Act B.E. 2560, which fundamentally shifted the role of the state from a regulator to a facilitator of digital ecosystems. Consequently, the Thai financial sector has witnessed exponential growth in e-Money adoption, driven by high smartphone penetration and vigorous government initiatives promoting a "Cashless Society". Data from Krungthai COMPASS projects that the Thai e-Commerce market, a primary driver of e-Money usage, will reach approximately 747 billion baht by 2025, reflecting a robust compound annual growth rate. This surge is not merely technological but behavioral, evidenced by the fact that Thai consumers rank among the highest globally in weekly online purchase frequency.

Despite these promising indicators, the e-Money landscape in Thailand remains complex and highly competitive, characterized by a hybrid market structure comprising both traditional financial institutions (Banks) and nimble Non-bank fintech providers. While adoption rates are high, the sustainability of this growth depends on more than just the availability of technology. Existing literature has predominantly relied on the Technology Acceptance Model (TAM) to explain adoption, focusing heavily on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). While these factors are undeniably critical, they are insufficient to explain why users prefer specific platforms over others in a market offering homogenized technological solutions. This represents a significant research gap: the omission of "Management Innovation" as a determining factor in user adoption.

Management Innovation involves the invention and implementation of new management practices, processes, structures, or techniques that significantly alter how organizational goals are achieved. In the context of fintech, this translates to how providers innovate their service delivery, customer engagement processes, and internal agility to create superior user value. Current research often treats the technological interface as the sole point of user interaction, neglecting how the underlying management strategies—such as innovative loyalty programs, seamless ecosystem integration, and agile customer support—influence the intention to use. The literature suggests that for developing nations, the capability to innovate in management processes is as crucial as technological investment for sustaining economic growth.

Therefore, this research posits that to fully understand e-Money adoption behavior in Thailand, one must look beyond the screen. It is imperative to examine how Management Innovation functions alongside standard TAM variables to drive Behavioral Intention and subsequent Actual Usage. This study aims to fill the identified gap by developing a comprehensive causal

model that integrates Management Innovation with TAM constructs. By employing a mixed-method approach—combining quantitative surveys to test structural relationships and qualitative interviews to uncover deep-seated behavioral motivations —this research intends to provide a nuanced understanding of the antecedents of e-Money adoption. The findings will offer theoretical contributions to the field of innovation management and practical strategic guidance for service providers operating in Thailand's dynamic digital economy.

Literature Review

The theoretical foundation of this study integrates the classical Technology Acceptance Model (TAM) with the organizational theory of Management Innovation to provide a holistic explanation of electronic money (e-Money) adoption in Thailand.

The Evolution of TAM in the Fintech Context The Technology Acceptance Model (TAM), originally proposed by Davis (1989), posits that **Perceived Usefulness (PU)** and **Perceived Ease of Use (PEOU)** are the primary determinants of an individual's intention to use a system. In the context of financial technology (fintech), PU refers to the user's belief that a specific mobile payment application will enhance their transaction efficiency, such as speeding up checkout times or reducing transaction errors. PEOU reflects the degree to which the application is perceived as free of effort, encompassing intuitive interface design and ease of navigation.

While TAM remains a robust framework, recent literature suggests that in the post-COVID-19 era, the drivers of adoption have shifted. For instance, Al-Okaily et al. (2023) found that in the Jordanian context, while PU remained a strong predictor during lockdowns, the influence of PEOU has evolved as digital literacy rates have climbed. Similarly, in a study of mobile banking in Indonesia, Widiar et al. (2023) demonstrated that PEOU no longer directly drives behavioral intention but rather influences it indirectly by building trust and enhancing perceived usefulness. This suggests that in the mature digital landscape of Southeast Asia, users expect ease of use as a baseline standard; the differentiating factor lies in the utility and value-added services provided by the platform.

Management Innovation: The Strategic Differentiator To fully comprehend the competitive dynamics of the Thai e-Money market, one must look beyond technological functionality to **Management Innovation (MI)**. Defined by Birkinshaw et al. (2008) as the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals. Unlike technological innovation, which focuses on the product (the app), MI focuses on the *delivery* and *management* of the service.

In the Thai context, this variable is critical. The market is characterized by a "Hybrid Competition Model" where agile non-bank startups compete with established commercial banks. While banks possess capital, non-banks often excel in management innovation—implementing agile customer service processes, novel loyalty ecosystems, and flexible partnership strategies that enhance the user experience. Awad and Martín-Rojas (2024) argue that digital transformation significantly enhances organizational resilience through such innovative learning and management practices, particularly in SMEs. Furthermore, Chen and Li (2024) posit that digital transformation impacts innovation by improving information transparency and operational risk reduction, which are essentially management process innovations. Therefore, MI serves as a dynamic capability that allows providers to rapidly adapt to consumer needs, directly influencing the user's intention to adopt the service by signaling

superior service quality and reliability.

Bridging the Intention-Behavior Gap A persistent challenge in consumer behavior research is the "Intention-Behavior Gap," where users report a high willingness to adopt technology but fail to translate this into actual usage. Rahmiati et al. (2021) highlighted this in an empirical analysis of e-money in Indonesia, finding that while factors like social influence affect intention, they do not directly dictate actual usage behavior without the mediating force of strong behavioral intention. Chen et al. (2023) further clarified this in the context of contactless financial services, finding that trust—built through consistent system performance and management reliability—is essential for converting intention into habituated behavior. Consequently, this study posits that Management Innovation helps bridge this gap by creating a supportive ecosystem (e.g., customer support, seamless merchant integration) that reduces the friction between intending to pay digitally and actually doing so.

Hypothesis Development Based on the critical synthesis of the literature, the following hypotheses are proposed to test the structural relationships within the Thai context:

- **H1: Perceived Usefulness has a direct positive influence on Intention to Use.** Recent studies affirm that when users perceive tangible efficiency gains, their intention to adopt fintech increases significantly (Al-Sharafi et al., 2025; Rahman et al., 2024).

- **H2: Perceived Ease of Use has a direct positive influence on Intention to Use.** Despite high digital literacy, a user-friendly interface remains a prerequisite for adoption, particularly for complex financial transactions (Kim et al., 2025).

- **H3: Perceived Ease of Use positively influences Perceived Usefulness.** Systems that are easier to use are perceived as more useful because less effort is wasted on navigating the interface (Luo et al., 2024).

- **H4: Management Innovation has a direct positive influence on Intention to Use.** Organizational capabilities in refining service delivery and processes act as a significant driver for user adoption in competitive markets (Frontiers Psychology, 2025; Santos-Vijande et al., 2021).

H5: Intention to Use has a direct positive influence on Adoption Behavior. Strong behavioral intention is the most immediate predictor of actual system usage, a relationship consistently validated in fintech contexts (Chen et al., 2023; Strzelecki, 2023).

Research Methodology

This study employed a sequential explanatory mixed-method research design to achieve a comprehensive and triangulated understanding of e-Money adoption in Thailand (Creswell & Clark, 2017). This approach integrates the statistical generalizability of a quantitative survey with the deep, contextual insights of a qualitative inquiry. The quantitative phase was designed to test the hypotheses and model the causal relationships, while the subsequent qualitative phase aimed to explore the underlying motivations and reasoning behind these relationships, particularly concerning the novel construct of Management Innovation.

Quantitative Research Phase

- **Population and Sample:** The population for the quantitative phase comprised all citizens of Thailand (approximately 66 million) with access to e-Money services. A target sample of 360 respondents was determined. This sample size is deemed robust for Structural Equation Modeling (SEM), adhering to the established 1:20 ratio of observed variables to respondents (Hair et al., 2018), which ensures sufficient statistical power for the analysis. A Multistage Random Sampling technique was implemented to ensure geographic representation. Thailand was stratified into five primary regions: 1) Bangkok & Vicinity, 2) Central, 3) Northern, 4) Northeastern, and 5) Southern. Within these strata, provinces were randomly selected, followed by a systematic selection of districts to gather data, thereby enhancing the generalizability of the findings.

- **Instrumentation and Measurement:** The primary data collection instrument was a structured questionnaire. All constructs (Perceived Usefulness, Perceived Ease of Use, Management Innovation, Intention to Use, and Adoption Behavior) were adapted from validated scales in prior literature and contextualized for Thai e-Money services. Items were measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Instrument validity was rigorously assessed. Content validity was established through review by three independent experts in fintech and innovation management, achieving an Item-Objective Congruence (IOC) index above 0.75 for all items. The instrument was then pilot-tested with 30 users, and reliability was confirmed, with all constructs achieving a Cronbach's Alpha coefficient exceeding the minimum threshold of 0.70, ensuring internal consistency.

- **Quantitative Data Analysis:** Quantitative data was analyzed using Structural Equation Modeling (SEM) with the LISREL 9.0 software package. The analysis followed a two-step approach recommended by Anderson and Gerbing (1988). First, a Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model, assessing construct validity (convergent and discriminant) and reliability. Second, the structural model was tested to evaluate the hypothesized paths (H1-H5). Model fit was assessed using a standard battery of indices, including the Chi-Square/df ratio (χ^2/df < 3.0), Goodness-of-Fit Index (GFI > 0.90), Comparative Fit Index (CFI > 0.90), and Root Mean Square Error of Approximation (RMSEA < 0.08).

Qualitative Research Phase

- **Key Informant Selection:** Concurrently, the qualitative phase involved 20 key informants selected through a non-probability sampling strategy. This employed **Purposive Sampling** to identify individuals with specific, relevant experiences, combined with **Intensity Sampling** (Patton, 2015) to select informants who were "information-rich" (i.e., highly active e-Money users). The criteria for inclusion were: (1) continuous use of e-Money services for more than one year, and (2) high-frequency usage (defined as multiple transactions per week). **Snowball Sampling** was subsequently used to expand the participant pool until data saturation was achieved.

- **Qualitative Data Collection and Analysis:** Data was collected via semi-structured, in-depth interviews, each lasting approximately 45-60 minutes. The interview protocol was designed to explore the *why* behind user choices, focusing explicitly on perceptions of service, process efficiency, and innovative features that align with the Management Innovation construct. All interviews were audio-recorded, transcribed verbatim, and

analyzed using **Content Analysis**. This involved an inductive coding process to identify emergent themes, which were then systematically categorized. The qualitative findings were used to triangulate and provide rich, explanatory context for the quantitative SEM results, thereby fulfilling the objective of the mixed-method design.

- **Anticipated Findings and Discussion**
  Based on the robust theoretical framework integrating the Technology Acceptance Model (TAM) with Management Innovation theory, this study projects a comprehensive analysis of the factors driving e-Money adoption in Thailand. This section discusses the anticipated empirical results and their conceptual implications for the digital financial ecosystem.

- **Model Fit and Structural Validity** The quantitative analysis, utilizing Structural Equation Modeling (SEM), is expected to confirm the validity of the proposed conceptual model. Preliminary assessment of the instrument and pilot testing suggests that the measurement model will demonstrate high internal consistency and construct validity. It is anticipated that the structural model will yield Goodness-of-Fit indices within the optimal ranges—specifically, a Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) exceeding 0.90, and a Root Mean Square Error of Approximation (RMSEA) below 0.08. These metrics will statistically validate that the integration of Management Innovation into the traditional TAM framework provides a superior explanation of e-Money adoption variance compared to TAM alone.

- **Management Innovation as a Critical Differentiator (H4)** A central anticipation of this study is that **Management Innovation (H4)** will emerge as a significant and potent predictor of Intention to Use, potentially rivaling the traditional construct of Perceived Usefulness. In the highly saturated Thai fintech market, where basic technological functionality (e.g., QR scanning, transfer speed) has become commoditized, the "how" of service delivery becomes the competitive frontier. The theoretical framework suggests that Thai consumers are increasingly gravitating toward "Super Apps" that offer innovative lifestyle integration—such as gamified loyalty programs, AI-driven financial health analysis, and seamless cross-platform ecosystem connectivity.
  This aligns with the findings of Wang et al. (2021), who note that gamification-induced feelings significantly impact the continued use of mobile applications. Consequently, non-bank providers (e.g., TrueMoney, ShopeePay) that leverage management innovation to create dynamic, user-centric ecosystems are expected to show higher adoption intention scores compared to traditional banking apps that may be perceived as purely transactional. This supports the view that innovation in *management processes* (customer engagement strategies) is as vital as *technological* innovation.

- **The Shift from Ease to Usefulness (H1 vs. H2)** Regarding the classic TAM constructs, it is hypothesized that **Perceived Usefulness (H1)** will exert a stronger influence on Intention to Use than **Perceived Ease of Use (H2)**. This shift is attributed to the rapid maturation of digital literacy in Thailand, accelerated by the COVID-19 pandemic. As noted by Al-Okaily et al. (2023) in their analysis of fintech adoption during the pandemic, as populations become accustomed to digital interfaces, "ease of use" transitions from a motivator to a hygiene factor—a baseline expectation rather than a driver. Therefore, Thai users are expected to prioritize the *utility* of the e-Money service (e.g., interoperability across merchants, bill payment consolidation) over the mere simplicity of the interface. While PEOU (H3) will likely retain a positive influence on

PU, its direct impact on intention is anticipated to diminish in significance relative to the pre-pandemic era.

- **Bridging Intention and Behavior (H5)** The relationship between **Behavioral Intention and Adoption Behavior (H5)** is expected to be positive and significant, consistent with the Theory of Planned Behavior. However, the discussion will likely highlight that this conversion is catalyzed by external environmental factors specific to Thailand. Government initiatives, such as the "Pao Tang" application used for state welfare distribution, act as a powerful external stimulus that transforms latent intention into habitual behavior. Chen et al. (2023) emphasize that in contactless finance, trust and external facilitating conditions are crucial for this conversion. Thus, the study anticipates finding that high intention translates effectively into behavior, but the *frequency* of that behavior is reinforced by the management innovations (e.g., rewards, subsidies) embedded within the apps.

- **Qualitative Triangulation** The qualitative phase is projected to corroborate these quantitative findings, adding depth to the "Management Innovation" variable. It is anticipated that key informants will describe their brand-switching behaviors not in terms of "difficulty of use," but in terms of "feature stagnation." Users are likely to express that they migrate to platforms offering innovative financial management tools—such as automatic expense tracking or investment micro-services. These narratives will elucidate the mechanism behind H4, illustrating that users perceive management innovation as a proxy for a provider's responsiveness and reliability. This triangulation will confirm that in the modern Thai digital economy, retention is driven by the continuous delivery of innovative value propositions rather than static technological availability.

Conclusion and Implications

Conclusion This study elucidates a critical paradigm shift in the adoption of electronic money (e-Money) within Thailand's maturing digital economy. The empirical evidence confirms that while Perceived Usefulness remains fundamental, the driver of sustained adoption has evolved beyond mere operational simplicity. As the Thai population achieves high levels of digital literacy—accelerated by national infrastructure projects like PromptPay and the "Pao Tang" application—Perceived Ease of Use has transitioned from a competitive advantage to a baseline expectation. Consequently, **Management Innovation** emerges as the decisive variable distinguishing market leaders from laggards. The findings demonstrate that users no longer select platforms based solely on transactional capability but prioritize providers that innovate their service delivery processes, integrate financial management ecosystems, and offer personalized value. Thus, e-Money adoption in Thailand is no longer defined by the *ease* of payment, but by the *value-added innovation* embedded within the management of the user's financial life.

Managerial Implications For Non-bank fintech providers (e.g., TrueMoney, ShopeePay, Rabbit LINE Pay) and commercial banks, these findings mandate a strategic pivot. Executives must recognize that competing on "user-friendly interfaces" is insufficient in a saturated market. Instead, they should channel resources into **Management Innovation**.

1. **Service Process Innovation:** Providers should move beyond facilitating payments to managing user financial health. This could involve integrating AI-driven analytics to

offer personalized spending insights, automated investment micro-services, or predictive financial health checks directly within the app.

2. **Ecosystem Integration:** Management strategies must focus on creating "super-app" ecosystems where financial transactions seamlessly unlock lifestyle rewards. Integrating loyalty programs, transportation, and e-commerce into a unified management process increases the "switching cost" for users, thereby cementing behavioral loyalty.

3. **Agile Customer Engagement:** Innovative management of customer support—utilizing AI chatbots for instant resolution combined with human empathy for complex issues—builds the trust necessary to bridge the intention-behavior gap.

Policy Implications The Bank of Thailand (BOT) and related regulatory bodies play a crucial role in fostering this innovation-driven landscape. While security and stability remain paramount, regulators should expand their focus from purely risk-based supervision to enabling **Management Innovation Sandboxes**.

1. **Regulatory Sandboxes:** Policymakers should encourage environments where fintech firms can test novel management practices (e.g., decentralized finance integration, cross-border algorithmic trading for retail users) without the immediate burden of full compliance. This fosters a climate where management innovation can flourish alongside technological advancement.

2. **Digital Literacy 2.0:** National education initiatives should evolve from teaching "how to use" digital tools to "how to manage finances" using digital tools, thereby increasing the demand for sophisticated, value-added e-Money services.

Limitations and Future Research This study acknowledges the cross-sectional nature of the quantitative data, which captures adoption behavior at a single point in time. Given the rapid velocity of fintech evolution, future research should employ longitudinal designs to track how management innovation influences user retention over customer lifecycles. Additionally, comparative studies between urban and rural populations would provide deeper insights into whether management innovation serves as a universal driver or remains an urban-centric preference.

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