# Exploring the Effects of Cashless Mobile Payment Adoption in Thailand: A Case of Silver Generation

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## Abstract

This study explores the adoption of cashless mobile payment systems among Thailand's silver generation (aged 60 and above), a demographic experiencing rapid growth in digital engagement yet facing unique adoption challenges. By integrating the Technology Acceptance Model (TAM) with user experience perspectives, the research investigates the influence of perceived ease of use, perceived usefulness, social influence, technology self-efficacy, and trust on user experience, which mediates satisfaction, adoption rates, and behavioral intentions. A quantitative survey of 480 elderly participants in Bangkok was conducted, with data analyzed using structural equation modeling (SEM). Key findings indicate that perceived ease of use and trust significantly enhance user experience, while social influence and technology self-efficacy moderately contribute. The study highlights user experience as a critical mediator, emphasizing the need for user-friendly interfaces, trust-building strategies, and digital literacy programs tailored for the elderly. These findings provide valuable insights for financial institutions, policymakers, and technology developers aiming to promote digital financial inclusion among older populations in emerging economies.

**Keywords:** technology adoption; aging society; user experience; satisfaction; behavioral intentions

## 1. Introduction

The rapid growth of digital payment systems has reshaped the global financial landscape, offering convenient and secure transaction solutions. Mobile payment systems, such as Near Field Communication (NFC), QR codes, and mobile banking applications, have emerged as dominant trends, providing seamless and contactless payment solutions (Dahlberg et al., 2015). In Thailand, mobile payment adoption has significantly accelerated due to government initiatives promoting digital transactions; however, certain segments of the population, particularly older adults, are still encountering substantial barriers (Kraiwanit et al., 2023).

As Thailand's population continues to age, the silver generation individuals aged 60 and above remains a critical demographic in this digital transformation. While their participation in mobile payment systems is increasing (Puriwat & Tripopsakul, 2017), significant barriers such as low digital literacy, concerns about privacy and security, and limited familiarity with technology still pose considerable adoption challenges (Berkowsly et al., 2017; Kraiwanit, et al., 2023). For instance, older adults frequently struggle with complex interfaces and require simplified navigation to use mobile payment applications effectively (Chen & Chan, 2011). Physical impairments associated with aging, such as visual and motor skill deterioration, further hinder their ability to interact effectively with mobile payment interfaces (Razali et al., 2024). Moreover, elderly users often experience difficulties due to small fonts, complicated navigation, and rapid technological updates that are not user-friendly for older adults (Berkowsly, et al., 2017). These usability problems exacerbate hesitancy and negatively affect adoption rates among older demographics.

Addressing these barriers is essential to enhance adoption among elderly users. These challenges become particularly evident during public health crises, such as the COVID-19 pandemic, when elderly populations faced increased pressure to transition to digital transactions due to restrictions on physical interactions. Despite this urgency, many elderly individuals encountered substantial difficulties due to limited digital skills, inadequate technological infrastructure, and concerns over cybersecurity (Msweli & Mawela, 2021; Gupta & Hakhu, 2022). Therefore, improving elderly users' acceptance of mobile payment technologies can significantly enhance their resilience during crises, supporting broader public health initiatives and strengthening economic stability (Raj et al., 2023).

This study seeks to explore the adoption of cashless mobile payment systems by Thailand's elderly population. Despite extensive research on digital payment adoption broadly, a significant gap exists in understanding the specific barriers and facilitators for Thailand's aging population. By integrating the Technology Acceptance Model (TAM) with user experience concepts, the research aims to identify the factors influencing elderly users' adoption of cashless mobile payments and address existing adoption barriers. The quantitative approach employed in this study will provide comprehensive insights into both usage patterns

and experiential factors. Ultimately, the findings will offer insights for policymakers, financial institutions, and technology developers to design inclusive and user-friendly digital payment ecosystems, fostering economic and social participation for Thailand's silver generation.

## 2. Objectives

1) To examine the effects of perceived ease of use, perceived usefulness, social influence, technology self-efficacy, and perceived trust on the adoption of cashless mobile payments among elderly individuals in Thailand.
2) To investigate the mediating role of user experience in influencing satisfaction, adoption rate, and behavioral intentions related to cashless mobile payment systems within the silver generation in Thailand.

## 3. Literature Review

### 3.1 Technology Acceptance Model (TAM)

The adoption of cashless mobile payment systems among the silver generation can be explained primarily through the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The Technology Acceptance Model, proposed by Davis (1989), identifies perceived usefulness and perceived ease of use as the core factors influencing technology adoption. These frameworks provide complementary perspectives on technology adoption, particularly among older adults (Alexandru et al., 2019). Within mobile payment contexts, perceived usefulness refers to the elderly users' belief about the technology's ability to enhance their financial transactions, whereas perceived ease of use denotes their assessment of the effort required to utilize the technology effectively (Park et al., 2022).

Several studies have emphasized the relevance of TAM for understanding mobile payment adoption. Kim et al. (2010), for example, established that perceived usefulness and ease of use are crucial determinants influencing mobile payment acceptance. Additionally, elderly users often exhibit increased sensitivity towards security and privacy issues associated with digital platforms, making trust and security integral factors in adoption decisions (Khalilzadeh et al., 2017; Venkatesh et al., 2012). Therefore, incorporating trust and security into the TAM framework provides essential insights into elderly users' concerns about potential risks in using digital platforms (Yang et al., 2023).

Informed by TAM, this study proposes hypotheses examining how perceived ease of use influences user experience among elderly populations. Specifically, perceived ease of use is expected to positively impact elderly individuals' willingness to engage with mobile payment systems, consequently improving their overall user experience (Davis, 1989).

Building on the foundations of the Technology Acceptance Model (TAM), the hypotheses in this study focus on the relationships between perceived ease of use, perceived

usefulness, and user experience in the context of cashless mobile payments among the silver generation in Thailand. Therefore, it is hypothesized that;

*H₁: Perceived ease of use positively influences the user experience of cashless mobile payments among the silver generation in Thailand.*

Perceived usefulness refers to the extent to which individuals believe a specific technology can enhance their performance or productivity (Venkatesh & Bala, 2008). Prior research confirms that perceived usefulness strongly influences technology adoption among older adults, who tend to prioritize functionalities that provide tangible improvements in their daily lives (Yang et al., 2023). For silver generation users, the perceived usefulness of cashless mobile payments is closely tied to the convenience and accessibility these systems provide, particularly by enabling financial transactions without physically visiting banks (Yang et al., 2023; Venkatesh et al., 2012). Consequently, it is hypothesized that;

*H₂: Perceived usefulness positively influences the user experience of cashless mobile payments among the silver generation in Thailand.*

### 3.2 Social Influence

Social influence and social interaction significantly affect older adults' adoption of new technologies (Seo et al., 2023). Older adults frequently depend on guidance and support from their social networks, such as family and peers, to become familiar with and confidently adopt digital technologies (Yang et al., 2023). In recent years, the increased complexity and rapid proliferation of digital platforms have intensified this reliance, emphasizing the importance of immediate social circles in the silver generation's technology adoption decisions (Seo et al., 2023).

Recent research highlights the profound impact of social interactions on how the silver generation perceives the usefulness, ease of use, and overall value of digital technologies (Yang et al., 2023; Sharma et al., 2022). According to Venkatesh and Davis (2000), social interactions play a crucial role in shaping users' perceptions by reinforcing the benefits and ease of technology use. Positive social interactions, particularly guidance and encouragement from trusted individuals, enhance confidence in mobile payment systems, making them more appealing and accessible to elderly users.

Studies focusing on mobile wallet and payment adoption further reinforce the significance of social influence as a key factor driving satisfaction and adoption intentions among the silver generation (Singh et al., 2020; Yang et al., 2023). Beyond facilitating initial adoption, social influence also plays an essential role in sustaining long-term usage, as continuous support and positive reinforcement help maintain engagement with digital payment platforms (Seo et al., 2023).

Additionally, research by Niehaves and Plattfaut (2014) emphasizes that the silver generation's decisions to adopt internet technologies are largely shaped by social factors, demonstrating how social influence can serve as a bridge to overcoming the digital divide. Recognizing this, targeted strategies that leverage social networks and peer influence could significantly enhance the adoption and continued use of digital technologies among the silver generation. Therefore, social influence is essential for enhancing silver generation users' acceptance, continued use, and overall experience with mobile payment systems.

*H₃: Social influence positively affects the user experience of cashless mobile payments among the silver generation in Thailand.*

### 3.3 Technology Self-Efficacy

Technology self-efficacy (TECH) refers to an individual's belief in their ability to effectively use technology to perform specific tasks (Compeau & Higgins, 1995). Grounded in Bandura's (1986) broader concept of self-efficacy, TECH is built on the idea that personal confidence in technological skills influences behavioral intentions, performance outcomes, and attitudes towards technology. With technology increasingly integrated into daily life, TECH significantly shapes how users engage with digital platforms (Venkatesh et al., 2003).

User experience (UX) describes the comprehensive experience resulting from interactions with products, services, or systems (Law et al., 2009). Researchers suggest that individuals with higher TECH tend to experience more positive interactions, as their confidence encourages them to explore features, resolve issues effectively, and utilize technology innovatively (Compeau et al., 1999). Conversely, users with lower TECH may encounter heightened anxiety and frustration, negatively affecting satisfaction and sustained usage (Saadé & Kira, 2009).

Furthermore, TECH has been shown to significantly influence perceived ease of use and perceived usefulness—core constructs of the Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh & Davis, 2000). Users who believe they can skillfully navigate technological platforms often perceive these systems as more accessible and beneficial for achieving personal or professional goals. Consequently, these positive perceptions foster greater satisfaction, stronger engagement, and more favorable intentions toward continued technology use (Venkatesh et al., 2003). From a UX perspective, high TECH encourages users to explore advanced features, provide constructive feedback, and recommend technologies to others (Hong & Tam, 2006). Conversely, low TECH can lead to anxiety or frustration, diminishing users' satisfaction and reducing their willingness to continue using new technologies (Saadé & Kira, 2009). This hypothesis is supported by recent empirical studies highlighting the crucial role of technology self-efficacy in shaping older adults' digital payment experiences.

*H₄: Technology self-efficacy positively impacts the user experience of cashless mobile payments among the silver generation in Thailand.*

### 3.4 Percieved Trust

Perceived trust refers to an individual's belief that a system, service, or entity will fulfill its obligations reliably and honestly (McKnight & Chervany, 2002). In technology-mediated contexts, perceived trust often encompasses faith in data security, privacy protection, and ethical use of personal information (Gefen et al. 2003). As digital platforms and services grow increasingly complex, users rely on trust to reduce uncertainty and mitigate perceived risks associated with online transactions (Pavlou, 2003). Trust encompasses not only technical elements such as authentication and confidentiality but also users' overall feeling of security. As a result, perceptions of trust significantly influence individuals' attitudes and behaviors toward adopting and using technology (Kapoor et al., 2022).

From a user experience (UX) perspective, perceived trust exerts significant impact on acceptance, satisfaction, and continued usage (Lee & Turban, 2001). When users trust a technology platform or service, they are more likely to engage positively with its features and functionalities, thereby enhancing overall usability and satisfaction (Gefen & Straub, 2004). High levels of perceived trust also encourage users to explore advanced capabilities within a system and sustain long-term loyalty (Pavlou & Fygenson, 2006). In contrast, low trust may lead to heightened skepticism, restricted adoption, and suboptimal user experiences, ultimately undermining the success of digital services and applications (McKnight et al., 2002). Nimrod (2022) also stated that low perceived trust often results in limited exploration of platform features, cautious interaction, and hesitancy in continued technology usage. Service providers must proactively address trust-related concerns by clearly communicating their data security frameworks, adopting transparent privacy policies, and ensuring responsive user support systems (Choudrie et al., 2020).

*H₅: Perceived trust positively influences the user experience of cashless mobile payments among the silver generation in Thailand.*

### 3.5 User Experience (UX) as a Mediator

UX encompasses all interactions between end-users and an organization, including interactions with its services and products. It is broadly conceptualized as encompassing users' perceptions, emotions, and responses resulting from using a product or service (Feng et al., 2023). UX is particularly significant in technology adoption, as it directly influences perceived value and user satisfaction (Hassenzahl & Tractinsky, 2006). Additionally, Seo et al. (2023) highlight the importance of involving older adults in the design of mobile shopping systems, ensuring these systems effectively accommodate their evolving technological needs and preferences.

In the context of cashless mobile payment adoption among Thailand's silver generation, UX serves as a critical mediating factor. A positive UX addresses age-related challenges, including visual impairments, reduced dexterity, and cognitive limitations, thereby significantly enhancing older adults' willingness and ability to adopt mobile payments (Kim, 2010). Developing intuitive and accessible interfaces tailored specifically for older users can mitigate usability issues related to aging and foster greater acceptance and continued usage (Kim, 2010).

Furthermore, UX can be further enhanced by designing mobile payment systems that are enjoyable, easy to navigate, and responsive to the unique requirements of elderly users. Providers who prioritize these usability aspects are more likely to achieve higher adoption rates and sustained user engagement (DeLone & McLean, 2003). Elements such as responsive design, clear navigation, and accessible functionalities are essential to increase overall user satisfaction and perceived value, thereby encouraging continuous usage among older adults (Hassenzahl & Tractinsky, 2006; DeLone & McLean, 2003).

### 3.6 Technology Adoption Rate

Adoption rate refers to the speed and extent to which individuals or groups accept and begin to use a new technology or service. Within the realm of mobile payments, adoption rates can be influenced by multiple factors, including perceived usefulness, perceived ease of use, cost, and social influences (Dahlberg et al., 2008). As mobile payment solutions become more pervasive, the degree of user acceptance often depends on how seamlessly these services integrate into users' daily activities.

Recent studies indicate that user experience significantly shapes the adoption process by affecting users' overall perceptions and satisfaction (Hassenzahl & Tractinsky, 2006). A positive user experience characterized by ease of navigation, intuitive design, and responsiveness. It encourages repeated use and fosters trust, thereby increasing the likelihood of sustained adoption (Gharaibeh et al., 2018). Conversely, a poorly designed interface or suboptimal performance can deter potential users from embracing mobile payment services and ultimately diminish adoption rates (Kim et al., 2010).

*$H_6$: User experience positively influences the adoption rate of cashless mobile payments among the silver generation in Thailand.*

### 3.7 Satisfaction

User satisfaction is a critical factor influencing continued usage of mobile payment services (Gupta & Hakhu, 2022). Users who perceive these services as reliable, beneficial, and secure tend to exhibit higher satisfaction levels, enhancing their commitment to ongoing usage and willingness to recommend the services to others (Yuan et al., 2016).

Previous research consistently demonstrates that satisfaction strongly predicts users' continuance intentions, as highly satisfied individuals are significantly more likely to persist with a service (Naidoo & Leonard, 2007). Among the silver generation, satisfaction levels and consequently usage behaviors can be particularly sensitive to concerns regarding the safety, reliability, and ease of use of technology. Mobile payment providers who effectively address these concerns and optimize user experiences for older adults are likely to achieve higher adoption rates and continued usage in Thailand (Chaveesuk et al., 2018).

*H₇: User experience positively affects satisfaction with cashless mobile payments among the silver generation in Thailand.*

### 3.8 Behavioral Intentions

Behavioral intentions refer to an individual's readiness to perform a specific behavior, in this context, adopting and using mobile payment systems (Ajzen, 1991). For the silver generation, behavioral intentions reflect their willingness and preparedness to embrace mobile payment solutions. According to the Technology Acceptance Model (TAM), perceived usefulness and perceived ease of use are crucial determinants shaping these intentions (Yang et al., 2023). Specifically, older adults are more likely to adopt mobile payments if they perceive these technologies as useful for enhancing their daily activities and easy to operate. Additionally, social influences from family members, friends, and peers strongly impact elderly users' adoption behaviors by enhancing their confidence and providing practical support for technology use. Furthermore, user experience significantly reinforces positive behavioral intentions by ensuring intuitive, user-friendly interfaces that reduce cognitive complexity and physical demands, ultimately facilitating sustained adoption (Zhou, 2011).

*H8: User experience positively impacts behavioral intentions towards cashless mobile payments among the silver generation in Thailand.*

### 3.9 Conceptual Framework

The independent variables in this study are perceived ease of use, perceived usefulness, social influence, technology self-efficacy, social influence and trust. These variables have been identified as critical factors affecting technology adoption in previous studies. User experience serves as the mediating variable in the model, linking these independent factors to the dependent variables. A positive user experience, shaped by ease of use, trust, and other factors, is expected to enhance satisfaction and lead to higher adoption rates and stronger behavioral intentions. The dependent variables in this framework (Figure 1) are satisfaction, adoption rate, and behavioral intentions.
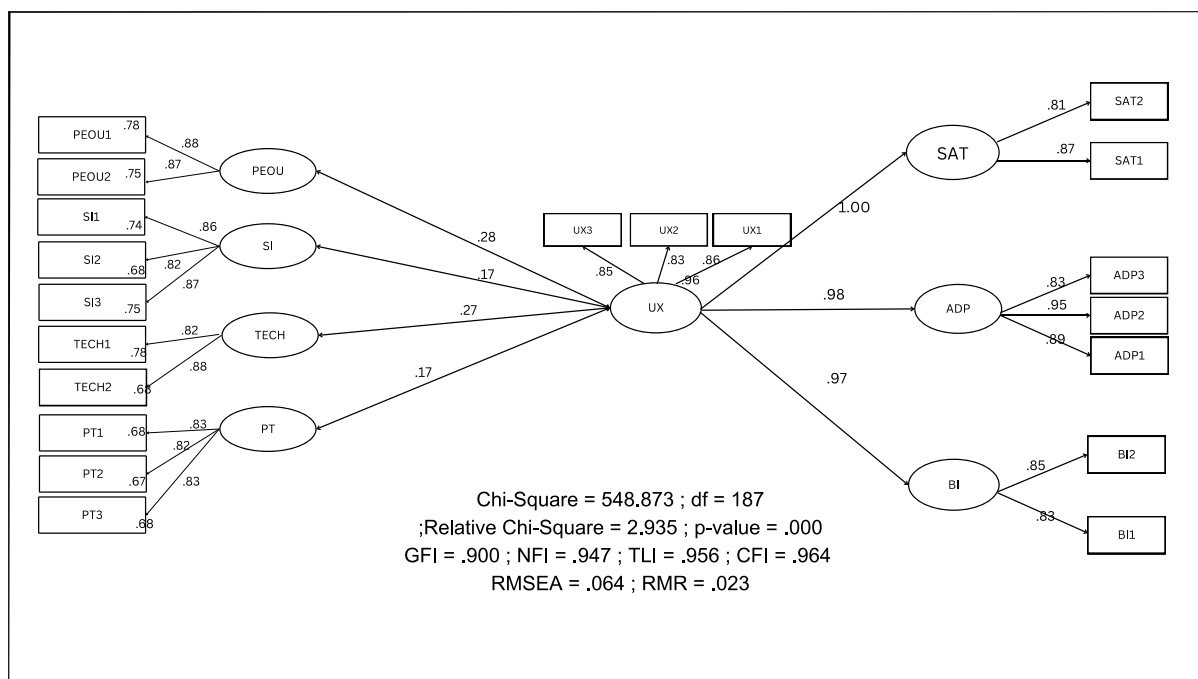
Figure 1 Conceptual Framework

## 4. Research Methodology

This chapter presents the quantitative research methodology used to examine factors influencing cashless mobile payment adoption among the silver generation in Thailand. A quantitative approach is employed to systematically test hypotheses and investigate relationships between key variables, including perceived ease of use, perceived usefulness, social influence, trust, and user experience (Creswell & Creswell, 2018). Data were collected using a structured questionnaire as the primary research instrument. This method allows precise measurement and analysis of the variables influencing elderly users' adoption of mobile payment technologies, providing reliable and generalizable findings relevant to this study.

### 4.1 Sampling

The target population for this study comprises elderly individuals aged 60 years and above residing in Thailand (Kraiwanit et al., 2023). Specifically, the study targets elderly adults who have prior experience with mobile banking applications, as they are more familiar with mobile technology and digital financial services. Convenience sampling was employed due to practical considerations related to time, budget, and accessibility. Data collection was conducted using structured, face-to-face questionnaires administered to 491 elderly participants, resulting in 480 usable responses. Although convenience sampling is efficient, it presents limitations concerning generalizability and potential sampling biases (Bell et al., 2022). To mitigate these limitations and enhance data reliability, interviewers received training on questionnaire administration and were instructed to record responses accurately. Participants

had to fulfill two inclusion criteria: (a) be at least 60 years old, and (b) have experience using mobile banking applications.

**4.2 Survey Instrument**

This research developed a questionnaire based on previous relevant studies to create questions that accurately reflected the constructs under investigation. The reliability and validity of the questionnaire were ensured through a review by experts who evaluated its content to determine alignment with the research objectives. Two academics and one industry expert were involved in this review, assessing whether the questionnaire adequately covered the necessary content areas.

Following the content validation, a pre-test was conducted by distributing the questionnaire to the experts, specifically focusing on improving readability and clarity of the questions. After receiving approval regarding both content and readability, the research proceeded with a pilot test. This pilot test involved distributing the questionnaire to 103 participants, from which 99 responses were valid and used for analysis. The pilot test was essential for refining the questionnaire and confirming its reliability prior to administering it to a larger sample.

Table 1 shows the measurement of the variables

| Variables | Measurement |
|---|---|
| Perceived Ease of Use | Liébana-Cabanillas et al., 2014 |
| Perceived Usefulness | Zhou 2011 |
| Social Influence | Palas et al., 2022 |
| Technology Self-Efficacy | Compeau & Higgins, 1995 |
| Perceive Trust | Zhou 2011 |
| User Experience | Wolfinbarger and Gilly, 2003 |
| Satisfaction | Liébana-Cabanillas et al., 2014 |
| Adoption Rate | Cheng-Chia et al., 2023 |
| Behavioral Intention | Zhou 2011 |

The questionnaire comprised closed-ended questions using Likert scales ranging from 1 to 5 to measure the variables. The survey included sections on demographic information, technology usage, and adoption factors such as perceived usefulness, perceived ease of use, perceived trust, and perceived security. Additional sections focused on user experience, adoption rate, satisfaction, and intention to use mobile payments. The survey instrument was developed using scales from established research on technology adoption.

The reliability and validity of the questionnaire were confirmed through the pilot study. Cronbach's alpha values for each construct were above 0.7, indicating strong internal

consistency and meeting the acceptable threshold for reliability as proposed by Nunnally (1978).

### 4.3 Data Analysis

The coded data were analyzed using SPSS for descriptive and inferential statistical analyses. Descriptive statistics provided a summary of demographic information and technology usage, creating an overview of elderly participants' characteristics and behaviors (Creswell & Creswell, 2018).

Regression analysis was then conducted to examine the relationships between independent variables, including perceived ease of use, perceived usefulness, social influence, technology self-efficacy, and trust, and the dependent variables, namely mobile payment adoption, satisfaction, and behavioral intentions (Hair et al., 2019).

In addition, structural equation modeling (SEM) was employed to test the proposed theoretical model, particularly focusing on the mediating effect of user experience on the relationships involving satisfaction, adoption rate, and behavioral intentions. SEM allowed simultaneous examination of multiple relationships and latent constructs, offering insights into both direct and indirect effects within the research framework (Byrne, 2016; Kline, 2015). Collectively, these analyses highlighted perceived ease of use and trust as critical factors influencing user experience and fostering sustained usage of mobile payment systems among Thailand's elderly population.

### 5. Research Finding

The demographic profile of the respondents consisted of 480 participants, with a nearly balanced gender distribution 46% were female and 53.1% male, while 0.8% identified as other. The age range was predominantly between 60 to 65 years old (45%), followed by 66 to 70 years old (35.4%), and 71 to 75 years old (15.2%). The majority of respondents were married (73.8%), while 20.4% were single and 5.8% reported other statuses. Regarding educational attainment, almost half of the respondents (47.3%) held a bachelor's degree, 26% had vocational training, and 7.5% held a master's degree or higher. Most respondents lived with their families (45%) or with their spouses (43.1%), while a small percentage lived alone (11.9%). In terms of income, the majority reported earning between 10,001 to 20,000 THB (35.8%), followed by 28.5% earning between 20,001 to 30,000 THB, and 20.6% earning more than 30,000 THB. A small portion of the respondents (2.9%) reported having no income.

Table 2 shows the demographic of respondents

|  |  | Frequency | Percent |
|---|---|---|---|
| Age Range | 60-65 yrs old | 216 | 45.0 |
|  | 66-70 yrs old | 170 | 35.4 |
|  | 71-75 yrs old | 73 | 15.2 |

| | | Frequency | Percent |
|---|---|---|---|
| | 76-80 yrs old | 18 | 3.8 |
| | 81 yrs and above | 3 | 0.6 |
| | Total | 480 | 100.0 |
| Gender | Female | 221 | 46.0 |
| | Male | 255 | 53.1 |
| | Other | 4 | 0.8 |
| | Total | 480 | 100.0 |
| Status | Single | 98 | 20.4 |
| | Married | 354 | 73.8 |
| | Other | 28 | 5.8 |
| | Total | 480 | 100.0 |
| Education | Secondary education | 36 | 7.5 |
| | High school | 46 | 9.6 |
| | Bachelor's degree | 227 | 47.3 |
| | Master's degree or higher | 36 | 7.5 |
| | Vocational training | 125 | 26.0 |
| | Other | 10 | 2.1 |
| | Total | 480 | 100.0 |
| Living Status | Living alone | 57 | 11.9 |
| | Living with spouse | 207 | 43.1 |
| | Living with family | 216 | 45.0 |
| | Total | 480 | 100.0 |
| Income | Less than 10,000 THB | 57 | 11.9 |
| | 10,001 - 20,000 THB | 172 | 35.8 |
| | 20,001 - 30,000 THB | 137 | 28.5 |
| | More than 30,000 THB | 99 | 20.6 |
| | No income | 14 | 2.9 |
| | Other | 1 | 0.2 |
| | Total | 480 | 100.0 |

The overall model fit (Figure 1) was assessed using several fit indices. The Chi-Square value was 548.873 with 187 degrees of freedom, resulting in a relative Chi-Square ($\chi^2$/df) of 2.935, which is within the acceptable range, indicating an adequate fit. Additional fit indices showed that the model demonstrated a good fit to the data: Goodness of Fit Index (GFI) = 0.900, Normed Fit Index (NFI) = 0.947, Tucker-Lewis Index (TLI) = 0.956, and Comparative Fit Index (CFI) = 0.964. The Root Mean Square Error of Approximation (RMSEA) was 0.064, and the Root Mean Square Residual (RMR) was 0.023, both indicating a good model fit.
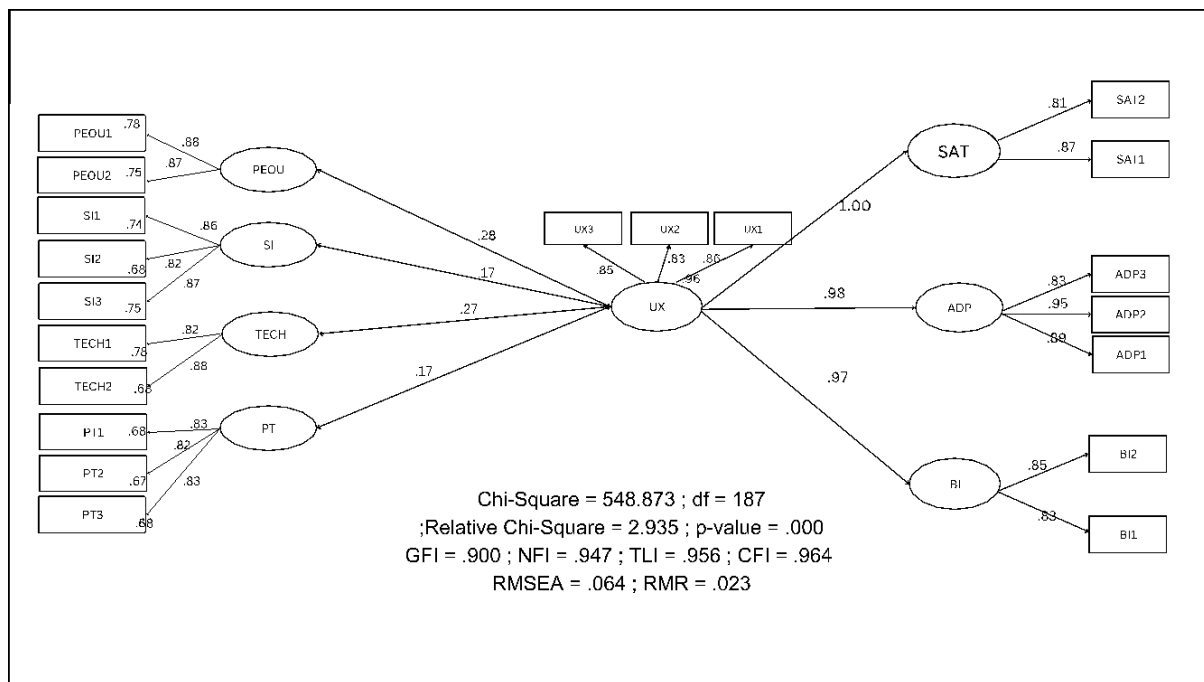
Figure 2 examines the relationship between perceived ease of use, social influence, technology self-efficacy, social influence, and perceived trust.

Figure 2 presents the structural relationships among the variables analyzed in this study, highlighting both direct and indirect effects. The results indicate that perceived ease of use (PEOU), social influence (SI), technology self-efficacy (TECH), and perceived trust (PT) significantly influence user experience (UX). Specifically, perceived ease of use had the strongest positive impact on user experience ($\beta$ = 0.28), followed by technology self-efficacy ($\beta$ = 0.17), social influence (SI) ($\beta$ = 0.17), and perceived trust (PT) ($\beta$ = 0.17). These findings imply that perceived ease of use is the most influential determinant.

User experience, in turn, substantially influences satisfaction ($\beta$ = 0.94), adoption rate ($\beta$ = 0.84), and behavioral intentions ($\beta$ = 0.91). This indicates that enhancements in user experience strongly contribute to improved satisfaction, increased adoption rates, and stronger intentions for continued mobile payment use among elderly individuals.

Table 3: Comparison of the impact of the cause variable on the model's effect variable.

| Independent Variables | | | | | |
|---|---|---|---|---|---|
| | DE | | IE | | TE |
| PEOU | 0.276* | UX | 0.269* | BI | 0.545 |
| | | UX | 0.272* | ADP | 0.548 |
| | | UX | 0.275* | SAT | 0.551 |
| SI | 0.172* | UX | 0.168* | BI | 0.34 |
| | | UX | 0.17* | ADP | 0.342 |

| Independent Variables | | | | | | |
|---|---|---|---|---|---|---|
| | DE | | IE | | | TE |
| | | UX | 0.172* | SAT | | 0.344 |
| TECH | 0.27** | UX | 0.263* | BI | | 0.533 |
| | | UX | 0.266* | ADP | | 0.536 |
| | | UX | 0.269* | SAT | | 0.539 |
| PT | 0.174** | UX | 0.169* | BI | | 0.343 |
| | | UX | 0.171* | ADP | | 0.345 |
| | | UX | 0.173* | SAT | | 0.347 |
| Remark DE = Direct Effect, IE = Indirect Effect, TE = Total Effect, *p < .01, **p < .05 | | | | | | |

The results in Table 3 reveal that perceived ease of use (PEOU) has the strongest overall impact on satisfaction, adoption rate, and behavioral intentions, indicating that when users find a system easy to use, it significantly enhances their satisfaction and drives adoption and continued use. In comparison, social influence (SI) has a moderate effect on these outcomes, suggesting that while social factors are relevant, they are less impactful than PEOU. Similarly, technology self-efficacy (TECH) and trust (PT) demonstrate strong effects on satisfaction but have relatively lower impacts on adoption rate and behavioral intentions. These findings emphasize the critical role of usability, user confidence, and trust in shaping positive user experiences and promoting favorable behavioral outcomes in technology adoption.

Table 4 shows the results of hypothese testing of the research

| | Relationship | | | Standardized regression weight | S.E. | C.R. | P | Results |
|---|---|---|---|---|---|---|---|---|
| H1 | UX | <--- | PEOU | 0.276 | 0.06 | 4.21 | *** | Supported |
| H2 | UX | <--- | PU | 0.149 | 0.107 | 1.603 | 0.109 | Not supported |
| H3 | UX | <--- | SI | 0.172 | 0.045 | 3.849 | *** | Supported |
| H4 | UX | <--- | TECH | 0.270 | 0.13 | 2.025 | 0.043 | Supported |
| H5 | UX | <--- | PI | 0.174 | 0.092 | 2.092 | 0.036 | Supported |
| H6 | ADP | <--- | UX | 0.985 | 0.043 | 23.9 | *** | Supported |
| H7 | SAT | <--- | UX | 0.996 | 0.039 | 25.453 | *** | Supported |
| H8 | BI | <--- | UX | 0.974 | 0.041 | 23.704 | *** | Supported |

The results of the hypothesis testing, presented in Table 4, provide insights into the relationships between the independent variables and the mediating variable (User Experience), as well as the subsequent effects of User Experience on the dependent variables. The analysis revealed that Perceived Ease of Use (PEOU) significantly influences User Experience ($\beta$ = 0.276,

C.R. = 4.21, p < 0.001), thus supporting hypothesis H1. This finding emphasizes the importance of simplicity and user-friendliness for elderly users in adopting cashless mobile payments. However, the relationship between Perceived Usefulness (PU) and User Experience was not statistically significant ($\beta$ = 0.149, C.R. = 1.603, p = 0.109), leading to the rejection of hypothesis H2. This outcome suggests that elderly users may prioritize ease of use and straightforward interaction over the perceived functional advantages of the technology.

Social Influence (SI) was found to have a significant positive effect on User Experience, indicating that elderly users strongly consider recommendations from family members and peers, with standardized regression weights of 0.172, 0.270, and 0.174, respectively, supporting H3, H4, and H5 This highlights the crucial role social networks play in technology adoption. Additionally, Technology Self-Efficacy significantly influenced User Experience, suggesting that users with greater confidence in their digital skills experienced a more favorable interaction with mobile payment platforms. Trust regarding data security and privacy also had a significant positive effect, as increased confidence mitigates privacy concerns and promotes adoption among elderly users.

Moreover, the mediating role of User Experience was significantly linked to all three dependent variables: Adoption Rate ($\beta$ = 0.985, C.R. = 23.9, p < 0.001), Satisfaction ($\beta$ = 0.996, C.R. = 25.453, p < 0.001), and Behavioral Intentions ($\beta$ = 0.974, C.R. = 23.704, p < 0.001). These findings supported hypotheses H6, H7, and H8, confirming that positive user experiences are crucial in influencing users' satisfaction, their continued intentions to use, and the overall adoption rate. In summary, these results underscore the mediating role of user experience as a pivotal determinant in facilitating desired behavioral outcomes, emphasizing its importance in technology adoption framework.

## 6. Conclusion and Discussion

This study aimed to investigate the factors influencing the adoption of cashless mobile payment systems among Thailand's silver generation, with particular attention to user experience (UX) as a mediating variable. The findings demonstrated significant positive effects of Perceived Ease of Use (PEOU), Social Influence (SI), Technology Self-Efficacy (TECH), and Perceived Trust (PT) on User Experience (UX). Subsequently, User Experience strongly influenced Adoption Rate (ADP), Satisfaction (SAT), and Behavioral Intentions (BI). Interestingly, Perceived Usefulness (PU) did not significantly impact UX in this specific context, indicating demographic or contextual differences in how older adults assess mobile payment technologies.

### Perceived Ease of Use

PEOU significantly influenced user experience, highlighting its critical role in determining elderly users' adoption of cashless mobile payment technology. This result aligns with previous research by Chen and Chan (2011), emphasizing the necessity of simplicity and user-

friendly design in technology adoption among the elderly. In other words, when elderly users perceive a mobile payment system as easy to understand and operate, they become more likely to use it consistently, resulting in higher satisfaction and adoption rates. Given these insights, developers should prioritize user-centric designs that minimize complexity, for example, through the implementation of larger font sizes, streamlined navigation structures, and clear, step-by-step instructions designed explicitly for elderly users.

According to Lewis and Sauro (2023), perceived ease of use significantly influences overall user experience and behavioral outcomes. In the post-pandemic era, the significance of PEOU has become even more pronounced. The COVID-19 pandemic accelerated digital transformation, leading to a rapid shift towards cashless and contactless transactions, yet older populations often found themselves inadequately prepared to adapt to these rapid changes (Nosike, et al., 2024). As highlighted by Zajicek (2004), effective interface design for elderly users must carefully address age-related functional declines, including visual impairments, reduced motor skills, and slower cognitive processing speed. Developers can improve interfaces specifically for this demographic by implementing larger fonts, high-contrast colors, and minimalistic designs to alleviate visual strain.

### Perceived Usefulness

Perceived usefulness (PU) did not significantly impact user experience (UX) among elderly users aligns with findings from other studies. For instance, research by Chen and Chan (2014), found that neither perceived ease of use (PEOU) nor PU were significant predictors of technology use among older adults. In previous studies (Aslam et al., 2017; Shankar & Datta, 2018) consistently highlight perceived usefulness as a primary driver of technology adoption, this current study suggests demographic or contextual variations among older adults. Such differences might stem from the prioritization of ease of use, security, and social endorsement rather than the inherent functional benefits alone. Moreover, a study by Berkowsky et al. (2017) indicated that while both PEOU and PU are predictors of technology adoption, the strength of these predictors can vary among older adults. This finding implies that traditional theoretical frameworks like the Technology Acceptance Model (TAM) may require adaptation to accurately reflect the nuanced considerations among the elderly, particularly in the context of post-pandemic behaviors. This finding implies that traditional theoretical frameworks like the Technology Acceptance Model (TAM) may require adaptation to accurately reflect the nuanced considerations among the elderly, particularly in the context of post-pandemic behaviors.

Indeed, post-pandemic realities have notably reshaped consumer behavior, with novel behavioral patterns emerging significantly (Ertz et al., 2021). The COVID-19 pandemic has accelerated changes in payment habits, prompting greater reliance on digital and contactless transactions. These emerging trends may partly explain the current findings, especially the

increased significance placed on ease of use and trust due to heightened security and health concerns among older users.

### Perceived Trust

Perceived trust significantly influenced user experience, underscoring its crucial role in determining the adoption of cashless mobile payments among the elderly. This result aligns with recent literature emphasizing trust as a central factor in the acceptance and usage of digital technologies, particularly among older adults who often face heightened concerns about security, privacy, and fraud risks (Alsaad & Al-Okaily, 2022; Khalilzadeh et al., 2017). Elderly populations are commonly cautious about embracing digital payment systems, partly due to unfamiliarity with new technologies, exacerbating anxieties about potential threats such as data misuse, identity theft, and online scams (Sinha et al., 2019).

The role of perceived trust has been further amplified in the post-pandemic period, during which the silver generation consumers have experienced an accelerated shift towards digital platforms due to the increased adoption of contactless transactions and social distancing measures (Alsaad & Al-Okaily, 2022). The COVID-19 pandemic has significantly reshaped consumer payment behavior globally, increasing reliance on digital financial solutions and concurrently intensifying security-related apprehensions, particularly for those less digitally literate (Ertz et al., 2021).

Previous studies have consistently indicated that trust in digital technologies involves multiple dimensions, including institutional trust, system reliability, perceived privacy protection, and fraud prevention mechanisms (Khalilzadeh et al., 2017; Lian & Yen, 2014). Hence, institutions and service providers must actively communicate security protocols, compliance with established safety standards, and transparent privacy policies to build silver generation users' confidence. Given this context, service providers and policymakers should focus on clear and explicit communications that highlight stringent security measures and privacy protocols. Specific initiatives such as multi-layered security features, easily accessible customer service to address security concerns, and continuous education campaigns on cybersecurity practices can significantly enhance trust among older adults, thereby positively influencing their overall user experience and adoption intentions (Lian & Yen, 2014).

### Technology Self-Efficacy and Social Influence

The findings revealed Technology Self-Efficacy as a significant determinant influencing User Experience among the silver generation consumers. This result aligns with recent research that emphasizes technology self-efficacy as a critical factor in determining older adults' technology acceptance (Choudrie et al., 2020). Technology self-efficacy refers to an individual's belief in their capability to successfully interact with and utilize digital tools, significantly shaping their willingness and comfort in adopting new technologies (Choudrie et al., 2020). Elderly individuals with high self-efficacy perceive fewer barriers and demonstrate reduced anxiety when using unfamiliar digital platforms (Tsai et al., 2015).

This supports findings by Pan & Jordan-Marsh (2010), who demonstrated that higher self-efficacy reduces anxiety and fosters confidence in using digital tools, particularly among older users. Msweli and Mawela (2021) also highlighted that self-efficacy plays a critical role in reducing perceived barriers, making technology more approachable. Recent research highlights that elderly individuals who possess greater confidence in their technological skills experience lower anxiety and increased willingness to embrace emerging digital services, such as mobile payments (Nimrod, 2022).

In practice, this underscores the importance of targeted training initiatives tailored explicitly for older adults, emphasizing hands-on learning experiences, interactive workshops, step-by-step demonstrations, and accessible user-support resources.

The findings reveal that social influence exerted a moderate impact on user experience and adoption behaviors among the silver generation, aligning with prior research on technology adoption within this demographic (Zhou, 2011). Recent studies reinforce that silver generation, due to generational traits and relational preferences, tend to rely on recommendations from trusted individuals within their social circles, such as family and friends (Tsai et al., 2022; Yang et al., 2021).

The silver generation is particularly susceptible to social cues from family members or peers, which may influence their decision to adopt new technologies (Chen and Chan, 2011). Specifically, social validation and support from peers and family members substantially shape elderly individuals' perceptions of technology's ease and usefulness, thus increasing their likelihood of sustained engagement and positive experience (Yang et al., 2021). The post-pandemic digital transformation further underscores the relevance of social influence, as elderly users were compelled to adapt quickly to new technologies to maintain social connectivity and perform essential financial transactions (Nimrod, 2022).

## 7. Research Suggestions

This study identified crucial factors influencing the adoption of cashless mobile payment systems among Thailand's silver generation, emphasizing User Experience (UX) as a pivotal mediator. The findings provide valuable theoretical insights and practical implications, particularly relevant in the post-pandemic context, which has significantly reshaped elderly consumer behaviors towards digital solutions. Specifically, the results underline the importance of perceived ease of use, perceived trust, social influence, and technology self-efficacy in fostering a positive user experience among elderly individuals. Notably, perceived usefulness did not significantly influence user experience, highlighting a distinctive shift in older users' technology evaluation criteria in the current digital landscape, potentially influenced by pandemic-driven changes.

Given these findings, it is essential for developers, policymakers, and service providers to collaborate in creating user-centered solutions tailored to the specific needs of elderly

users. Simplified interfaces, robust training programs, and transparent communication about security measures are key to building confidence and trust. Additionally, leveraging social networks and cultural dynamics can enhance engagement, as elderly users often rely on the influence and support of family members and peers.

The study also emphasizes the importance of addressing broader systemic barriers, such as digital literacy gaps and accessibility challenges. Future efforts should focus on expanding outreach and support to underrepresented groups, ensuring inclusivity in the transition toward a cashless society.

In conclusion, this study significantly enriches theoretical and practical understanding of technology acceptance among elderly populations, particularly within the evolving post-pandemic landscape. It emphasizes that successful adoption depends on acknowledging the unique needs, limitations, and concerns of elderly users. By focusing on tailored user experiences, fostering trust through transparent security measures, and enhancing self-efficacy via targeted interventions, stakeholders can promote broader inclusion and empower the silver generation to confidently participate in Thailand's emerging cashless economy.

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