Causal Factors Influencing User Acceptance of Government Mobile Applications in Thailand

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Abstract

During the COVID-19 outbreak, the necessity for digital technology in service delivery intensified, prompting governmental agencies to develop numerous applications that the public has widely utilized. This research aimed to identify the causal factors influencing user acceptance of these government mobile applications in Thailand. The study utilized quantitative methods, to target individuals at least 18 years old who use government mobile apps. A proportional stratified sampling method was employed to collect data, which was then analyzed using a structural equation model. The results indicated that user attitudes had the most direct influence on the acceptance of government mobile applications. However, when considering the overall impact, perceptions of government mobile applications emerged as the most significant factor, followed by the quality of the applications, government policy, and user attitude, in that order. These findings enable application developers to understand user needs better and assist in developing efficient applications that align with these needs. Furthermore, the insights from this study aid the government sector in promoting technological innovation and service improvement by developing effective and widely accepted applications, thereby encouraging the adoption of new technologies to enhance application quality.

Keywords: Application, Acceptance, Government, Mobile, Digital

Introduction

The enactment of the Digital Development for Economic and Social Act of 2017 has set the stage for Thailand's ambitious national policies spanning from 2018 to 2037, aimed at harnessing digital technologies for sustainable national development. As delineated by the Office of the National Digital Economy and Society Commission (2019), these initiatives are geared towards repositioning Thailand within the dynamic spectrum of global economic and social progress in the digital age. A fundamental element of this transition is the government's shift towards e-governance, which involves modernizing public services through the strategic application of information technology. This transformation includes significant enhancements in

data storage capacities, facilitating digital information dissemination, and expanding communication channels to incorporate all societal sectors (Ministry of Digital Economy and Society, 2016).

Implementing these policies has led to the creation and widespread adoption of various applications that significantly benefit the public. These technological solutions have become increasingly vital as they align with the Public Administration Reform Plan of 2020, which anticipates and adapts to shifts towards reduced physical interactions and greater reliance on digital services. The urgency for these technologies in government service provision has been amplified by historical challenges in traditional service delivery models, such as long wait times at crowded facilities,

which have hindered professional productivity and elevated health risks, notably in critical areas such as healthcare. The ongoing economic challenges further indicate the need for efficient digital services to support economic stability and assist small and medium-sized enterprises and entrepreneurs, particularly vulnerable to economic downturns (Lee & Trimi, 2021).

Moreover, application technology has revolutionized societal transactions, shifting from cash-based exchanges to alternative payment systems. This transition is evident in the widespread adoption of methods such as QR code payments, electronic wallets, bank application transfers, and the PromptPay system, introduced by the Bank of Thailand in 2017. The Bank of Thailand, acting as a facilitator, has fostered collaboration between Thai and international financial institutions to standardize QR code payment systems globally through mobile banking platforms. This initiative aligns with the government's policy objective of transitioning Thailand towards a cashless society (Yakea, 2020).

The accelerated digital transformation accentuates the necessity for empirical research into the factors influencing user acceptance of government mobile applications. Effective adoption and utilization of these technologies are contingent upon understanding user behavior, including their perceptions of application efficiency, security, and usefulness. Moreover, the quality of mobile applications encompasses aspects such as modernity, accuracy, and speed. User attitudes toward these applications, including reliability, performance expectations, and ease of use, are critical determinants of successful technology adoption. (Zhou et al., 2022).

Given the essential role of digital applications in facilitating government interaction with the public, especially in times of social distancing and economic recovery, examining the causal factors that drive user acceptance is imperative. This research is vital for enhancing the design and development of these applications and ensuring that they effectively meet the strategic objectives of government policies Therefore, studying these factors is not just a scholarly pursuit but a practical necessity to inform policy and technological development, ensuring that digital government services are robust, user-friendly, and capable of supporting Thailand's transition into a fully integrated digital economy.

Literature review

Theoretical frameworks for conceptualizing government mobile application acceptance

Understanding the acceptance behavior or intention of citizens in Thailand to use government mobile applications for accessing various services necessitates an exploration of several theoretical frameworks that elucidate user behavior in the context of new technology adoption. The Technology Acceptance Model (TAM), formulated by Davis in 1989, is a foundational framework. Perceived usefulness and perceived ease of use are the two core perceptions that primarily influence user acceptance of technology, according to TAM. We define perceived usefulness as the degree to which an individual believes that using a particular system will enhance their job performance, while perceived ease of use refers to the extent to which a person believes that using technology will be effortless. According to TAM, these perceptions significantly shape users' attitudes toward technology, directly impacting their behavioral intentions and usage. Furthermore, TAM acknowledges that external factors, such as training and support, play a crucial role in shaping these attitudes and intentions.

Several related theories further broaden the understanding of technology adoption processes:

1) Theory of Perceived Attributes (TPA), proposed by Fishbein and Ajzen (1975), explores how consumers evaluate and decide between different products or services based on their attributes.

2) Diffusion of Innovations Theory (DOI), introduced by Rogers (1962), explains how various groups and individuals adopt new technologies or innovations over time. This theory classifies adopters as innovators, early adopters, early majority, late majority, and laggards based on their readiness and speed of adoption.

3) Technology Trust Theory, developed by Mishra (1996), considers the dimensions of ability, benevolence, and integrity as critical to building trust in technology. This theory emphasizes that trust is crucial for the acceptance and sustained use of new technologies.

4) The Unified Theory of Acceptance and Use of Technology (UTAUT), proposed by Venkatesh et al. (2003), integrates elements from various existing theories on technology adoption to offer a comprehensive model. UTAUT suggests that performance expectancy, effort expectancy, social influence, and facilitating conditions are significant determinants of technology use.

These theoretical frameworks provide a multidimensional approach to understanding the factors influencing the acceptance and usage of government mobile applications. They highlight the intrinsic and extrinsic motivations behind technology adoption and the socio-technical dynamics that facilitate or hinder the integration of new technologies into daily routines. This comprehensive understanding is essential for developing strategies to enhance the uptake of government mobile applications, ensuring they effectively meet the needs and expectations of the public.

The government policy of Thailand 4.0

Thailand's strategic vision for economic development, encapsulated in the "Thailand 4. 0" initiative, is a governmental policy framework designed to transition the country into a significant digital economy and society. Articulated by The Secretariat of the Prime Minister (2017), this policy framework represents an ambitious economic development model tailored to reposition Thailand as a prosperous nation adept at navigating the manifold opportunities and challenges of the 21st century.

Central to the "Thailand 4. 0" initiative is the transformation of Thailand's economic structure into a "Value-Based Economy" or an "innovation-driven economy." This paradigm shift involves a critical transition from the production of traditional "commodity" products to "innovative" products. It signals a significant realignment from an industry-centric to a technology-, creativity-, and innovation-driven economy. Furthermore, there is a strategic pivot from focusing predominantly on product production to placing a greater emphasis on the service sector.

The core ambitions of "Thailand 4.0" extend into several strategic domains: It seeks to elevate farmers from traditional agriculture to Agri-entrepreneurship, transform traditional SMEs into intelligent enterprises,

and transition from conventional service offerings to high-value services. This shift also encompasses a move from employing low-skilled labor to fostering a highly skilled and knowledgeable workforce, equipped with expertise crucial for contemporary economic demands.

For the "Thailand 4. 0" vision to materialize effectively, it necessitates a robust science, creativity, innovation, and research and development investment. We expect these investments to fuel continuous advancements in technology and industry clusters, enhancing the nation's competitive edge in the global arena. This policy's overarching goal is to stimulate economic growth and optimize information facilitation and utilization, ensuring that the digital transformation aligns with the broader economic objectives of Thailand. Thus, "Thailand 4. 0" embodies a comprehensive and strategic approach to redefining the economic landscape of Thailand through innovation, skill development, and a shift towards a more knowledge-intensive economy.

Conceptualizing quality of government mobile applications

The quality of government mobile applications is fundamentally characterized by their capacity to fulfill the expectations and needs of citizens, necessitating that these applications be modern, fast, and accurate. This concept of quality is multi-dimensional, encompassing technical, functional, and service-oriented aspects, each of which plays a key role in influencing users' intentions to use and accept these applications (Cheng & Xie, 2018; Alsharhan & Ali, 2021).

Technical quality primarily concerns the performance attributes of the applications, such as responsiveness, speed, and stability. These factors are critical as they directly affect the usability and reliability of the applications, which users often consider when deciding whether to adopt a new technology. Functional quality, on the other hand, relates to the features and capabilities that the applications provide. This includes the range of functions that the app can perform and its user-friendliness and compatibility with various devices and operating systems, which are essential for ensuring broad accessibility and ease of use. Meanwhile, service quality addresses the level of support and assistance provided to users. It includes the effectiveness of the services offered through the app, the availability of help

and support resources, and the responsiveness of mechanisms to address user feedback and issues. Adequate service quality ensures that users feel supported throughout their interaction with the application, enhancing their overall satisfaction and willingness to continue using it.

Therefore, the overarching quality of government mobile applications synthesizes these three critical dimensions— modernity, accuracy, and speed. Each element must be carefully managed and continuously improved to meet citizens' evolving expectations and ensure the successful adoption and effective utilization of these digital tools in public administration. This holistic approach to application quality enhances user satisfaction and supports the broader objectives of governmental digital transformation initiatives.

Perceptions of government mobile applications

The public perceives government mobile applications as technologies that enhance efficiency and utility in accessing services provided by government agencies. This perception is crucial as it directly influences these digital tools' adoption and utilization rates.

The concept of perceived usefulness, as initially outlined by Davis (1989) within the Technology Acceptance Model (TAM) framework, is central to understanding these perceptions. Perceived usefulness is the degree to which an individual believes that using a specific technology or system will enhance their performance in various tasks. This belief is critical to the user's intention to adopt and continuously use a technology. In the context of government mobile applications, perceived usefulness includes general performance enhancement and specific attributes such as perceived efficiency and security. These attributes are integral to user satisfaction and are considered pivotal in the decision- making process regarding technology usage.

Service user attitudes toward government mobile applications

The concept of "attitude" in user interactions with government mobile applications includes several key components: Feelings, reliability and trust, system performance expectations, and perceived ease of use. Attitude, as a psychological construct, encapsulates a person's overall thoughts, feelings, and predispositions towards responding to various stimuli, which in this case are the features and functionalities of government mobile applications.

Theoretical perspectives on attitude suggest that individuals manifest their attitudes through mental readiness or inclination to respond, observable in specific behaviors like agreement or disagreement (Kijpredarborisuthi, 1997). Moreover, the article by Thurstone and Chave (1966) expands on this by defining attitude as the cumulation of a person's feelings and thoughts towards an object, which may bear either positive or negative valences, such as preferences or biases. These attitudes are deeply held and often evident in expressed opinions, serving as markers of one's stance on a particular issue.

Building on this foundation, Munn (1971) articulates that attitudes are enduring, organized beliefs and feelings that critically predispose individuals towards certain behaviors. These attitudes effectively prompt individuals to act in specific ways, displaying a readiness to engage or disengage with the subject. In the context of government mobile applications, user attitudes encompass components of cognitive assessment (thoughts), affective reaction (emotions), and conative response (actions), such as the trust in the system's reliability, the expectation of system performance, and the ease of navigating the application.

These theoretical insights into attitudes are essential for understanding how users perceive and interact with government mobile applications. By examining these attitudes, developers and policymakers can better tailor these applications to meet user expectations and needs, thereby enhancing overall satisfaction and increasing the likelihood of sustained use.

For this research has determined 2 objectives of the study as follows:

1. To study the level of acceptance of government mobile applications by citizens in Thailand.

2. To study the causal factors of government policy. Perception of government mobile applications Quality of government mobile applications and attitude of service users that influence the acceptance of government mobile applications

The research hypotheses are as follows:

1. The adoption of government mobile applications is directly influenced by government policy. Perception of government mobile applications Quality of government mobile applications and attitude of service users

2. Government policies are directly influenced by perceptions of government mobile applications, the quality of these applications, and the attitudes of service users. (Chirapapaisarn, 2020; Li, 2016)

3. The quality of government mobile applications directly influences the perception of government mobile applications. And attitude of service users. (Johnston & Hawke, 2002; Chuenyindee et al., 2022; Wu et al., 2017)

4. The quality of government mobile applications: User attitudes directly influence the quality of government mobile applications (Alsharhan & Ali, 2021; Bhatia, 2015).

Methodology

This research adopted quantitative methods to investigate the usage of government mobile applications across Thailand, such as "Pao Tang" or "Thang Rat". The study targeted must be at least 18 years old. The researchers conducted the study within five major regions of Thailand, selecting the provinces with the highest populations in each region to ensure representative sampling. Specifically, Bangkok represented the Central region, which includes 18 provinces; Chonburi for the Eastern region, comprising 8 provinces; Nakhon Ratchasima for the Northeastern region, encompassing 20 provinces; Chiang Mai for the Northern region, which includes 17 provinces; and Nakhon Si Thammarat for the Southern region, comprising 14 provinces. Altogether, the study covered all 77 provinces of Thailand. According to the official statistical registration systems of the Department of Provincial Administration, as of December 31, 2022, Thailand's population was recorded at 66,090,475, with 53,079,740 individuals aged 18 and above, as reported by the Bureau of Registration Administration (2023).

Following the guidelines suggested by Hair et al. (2010), researchers determined the sample size was determined to be 10 to 20 times the number of variables being observed. Given that this study examined 15 variables, a sample size 300 was deemed adequate to maintain statistical validity. Researchers utilized a stratified sampling method to collect data, ensuring diverse demographic representation.

Table 1 Population and sample

Region	Highest population province	Population age 18 and above (number of people)	Sample size (number of people)
Central	Bangkok	14,423,717	82
East	Chonburi	4,087,991	23
Northeast	Nakhon Ratchasima	17,584,704	99
North	Chiang Mai	9,747,089	55
South	Nakhon Si Thammarat	7,236,239	41
Total		**53,079,740**	**300**

Source: Bureau of Registration Administration, Department of Provincial Administration (2023)

Researchers primarily collected data using a well-evaluated questionnaire designed to ensure content validity and reliability. The questionnaire divides into 7 sections: Section 1 covers personal, Sections 2-6 focus on variables, and Section 7 addresses problems, obstacles, and includes additional suggestions. Questions with an IOC value of 0.50-1.00 demonstrate usable accuracy value. Responses were measured using a Likert scale developed by Likert (1932), with scoring criteria set on a 5-level scale to interpret the average

scores. Each questionnaire item had to achieve an Index of Content Validity (IOC) greater than 0.60, and the reliability was confirmed with a Cronbach's alpha exceeding 0.700 for each variable. The collected data were subsequently analyzed using structural equation modeling (SEM) to assess the relationships between the variables and using the Lisrel statistic program version 9.2 for computing.

Results

Causal factors influencing the acceptance of government mobile application

In refining the structural model, the researchers utilized modification indices provided by the structural equation modeling (SEM) software to optimize the fit between the model and the observed data. Modification indices estimate potential model improvements by indicating where changes, such as adding or removing paths, could enhance its performance. The process began with the initial analysis, where the SEM program generated a set of modification indices alongside the standard fit indices. These indices pointed to specific areas within the model where changes could reduce discrepancies between the predicted and observed data correlations.

The researchers systematically considered each potential modification, weighing the theoretical justification for each adjustment against the empirical evidence provided by the modification indices. This iterative process involved making targeted changes to the model's structure—such as adding paths between latent variables or allowing errors to correlate—based on the indices' recommendations. After each modification, researchers re-evaluated the model to assess improvements in fit indices, including the Chi-square statistic, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). The goal was to achieve a model that fits the data well according to these statistical criteria and remains coherent with the underlying theoretical framework guiding the research, ensuring that the final model was both statistically robust and theoretically sound.

Table 2 provides details on the goodness of index statistics. After modifying the model, we found that the indicators meet the criteria for each index, ensuring a good fit with the data (Hayduk, 1996).

Table 2 Goodness of fit index statistics.

Indicator	Cut off value	Before model modification	After model modification
Chi-square/df	< 2.00	1.959	1.548
SRMR	≤ 0.05	0.034	0.027
GFI	≥ 0.90	0.93	0.95
AGFI	≥ 0.90	0.90	0.92
PGFI	≥ 0.50	0.62	0.61
CFI	≥ 0.90	0.99	1.00
RMSEA	< 0.05	0.057	0.043
CN	≥ 200	207.09	267.03

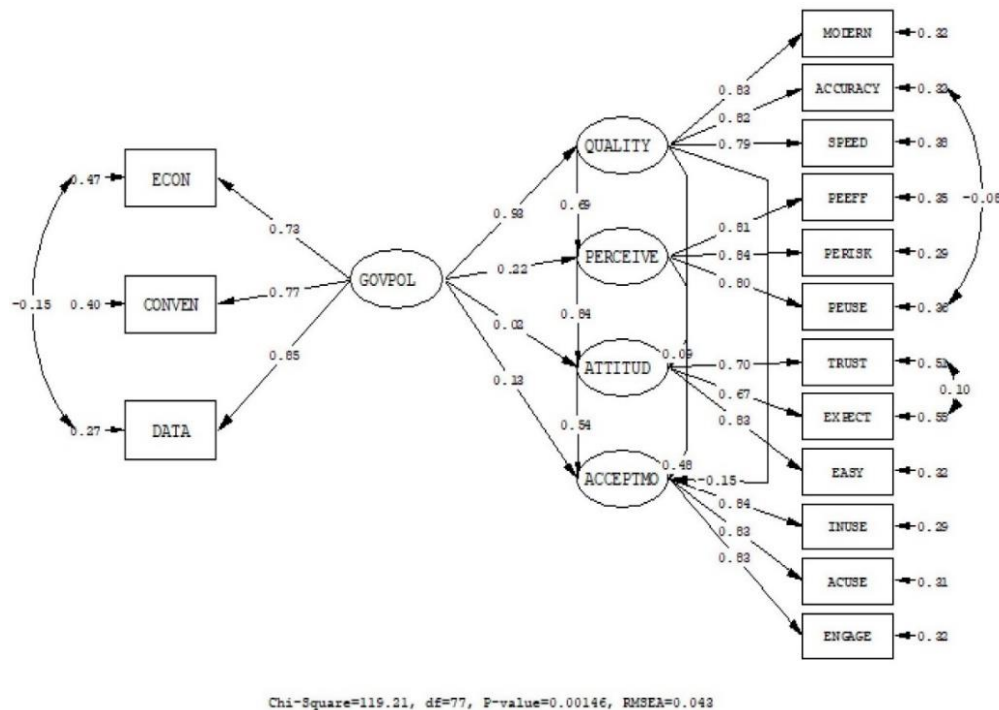Chi-Square=119.21, df=77, P-value=0.00146, RMSEA=0.043

Figure 1 Model analysis results after model modification.

The influence between variables in the structural equation model

The following 4 structural equations represent the results of the analysis in **Figure 1**:

1) Acceptance of government mobile applications (ACCEPTMO) was directly influenced by government policy (GOVPOL) , quality of government mobile applications (QUALITY) , perceived government mobile applications (PERCEIVE), and attitude of users (ATTITUD), as indicated in the equation below:

$$ACCEPTMO = 0.12GOVPOL + 0.15QUALITY + 0.48PERCEIVE + 0.54ATTITUD,$$
$$(0.06) \qquad (0.26) \qquad (0.25) \qquad (0.26)$$
$$0.81 \qquad 0.62 \qquad 2.09 \qquad 2.62$$

$$Errorvar. = 0.0053, R^2 = 0.96$$
$$(0.01)$$
$$1.38$$

The analysis's results showed that user attitudes and perceptions of government mobile applications directly influenced acceptance, accounting for 96 % of the variation in acceptance.

2) The user attitude (ATTITUD) was directly influenced by government policy (GOVPOL) , the quality of government mobile applications (QUALITY), and perceived government mobile applications (PERCEIVE). This relationship can be expressed using the following structural equation:

$$ATTITUD = + 0.02 \, GOVPOL + 0.09 \, QUALITY + 0.84 \, PERCEIVE, Errorvar. = 0.012, R^2 = 0.87$$
$$(0.06) \qquad (0.27) \qquad (0.15) \qquad (0.01)$$
$$0.087 \qquad 0.29 \qquad 4.9 \qquad 2.62$$

The analysis revealed that perceived government mobile applications directly influenced users' attitudes, accounting for 87 % of the variation in service users' attitudes.

3) Perceived government mobile application (PERCEIVE) was directly influenced by government policy (GOVPOL) and the quality of government mobile applications (QUALITY) , as a structural equation as follows:

$$PERCEIVE = 0.22\ GOVPOL + 0.69\ QUALITY,\ Errorvar. = 0.025,\ R^2 = 0.79$$
$$(0.08)\quad\quad (0.25)\quad\quad (0.01)$$
$$0.95\quad\quad\ 4.45\quad\quad 3.87$$

The analysis's results indicated that the quality of government mobile applications directly influenced how people perceived them, accounting for 79 % of the variation.

4) The quality of government mobile applications (QUALITY) was directly influenced by government policy (GOVPOL), as a structural equation as follows:

$$QUALITY = 0.93\ GOVPOL,\ Errorvar. = 0.017,\ R^2 = 0.86$$
$$(0.02)\quad\quad (0.01)$$
$$15.18\quad\quad 3.38$$

The analysis's results revealed that government policy directly influenced the quality of government

mobile applications, accounting for 86 percent of their variation.

Table 3 Direct, indirect effect, and total effect among the studied variables.

Dependent Variable	Influence	Independent Variable				R^2
		GOVPOL	QUALITY	PERCEIVE	ATTITUD	
QUALITY	DE	0.93	-	-	-	0.86
	IE	-	-	-	-	
	TE	0.93	-	-	-	
PERCEIVE	DE	-	0.69	-	-	0.79
	IE	0.64	-	-	-	
	TE	0.64	0.69	-	-	
ATTITUD	DE	-	-	0.84	-	0.87
	IE	0.54	0.58		-	
	TE	0.54	0.58	0.84	-	
ACCEPTMO	DE	-	-	0.48	0.54	0.96
	IE	0.60	0.64	0.45	-	
	TE	0.60	0.64	0.93	0.54	

Table 3 We found that the acceptance of government mobile applications was most directly influenced by service users' attitudes, with an influence

size of 0.54, followed by perception of government mobile applications. The influence size was 0.48, respectively.

Discussion

This study identifies the causal factors that influence user acceptance of government mobile applications in Thailand, including:

1) The perceptions of mobile applications have a more significant impact on user acceptance of government mobile applications. This is the variable that has the that has the greatest overall impact on user acceptance of government mobile applications. Users of government mobile applications prioritize the benefits they receive over the complexity of registering for some state mobile applications. If people who benefit from the registration process are willing to overlook usability issues, ensuring that the application is practical and secure can significantly increase user acceptance. This is consistent with the findings of Liao et al. (2007), who used the technology acceptance model in their research. The findings are consistent with Davis (1989), who proposed that perceived usefulness and ease of use determine the acceptance or rejection of technology. Additionally, the perceived usefulness of using technology leads users to perceive it as more economical and valuable than other transaction methods. Moreover, if users perceive that technology is easy to use and does not require advanced skills, they can learn to use it on their own. Therefore, users' acceptance of technology, based on perceived usefulness and ability to use technology, influences their behavior in using financial transaction services through mobile application platforms (Wang et al., 2006; Jeong & Yoon, 2013).

Consistent with these findings, Lee (2009) identified that perceived effectiveness, financial and security risks ignificantly influence user acceptance of Internet banking. Similarly, Zhou (2011) observed that perceived effectiveness enhances users' acceptance of online smartphone transactions, attributing this to the efficiency improvements offered by mobile applications, such as easy access to transaction information, receipt of account balance notifications, and time and cost savings. Oliveira et al. (2016) found that perceived security plays a crucial role in technology acceptance, driven by users' concerns over the potential risks to personal data in financial transactions, such as exposure credit card details and birth dates.

2) The quality of government mobile applications has the second- largest overall influence on user acceptance of government mobile applications that meet the needs of people, provide services based on the expectations of mobile applications, and are modern, fast, and accurate. High- quality mobile applications exhibit technical quality, functionality, and service quality, which are crucial factors influencing users' intention to use and adapt to these applications (Cheng & Xie, 2018; Alsharhan & Ali, 2021). People using government mobile applications do not want apps that do not meet their needs. Therefore, data collection should be conducted regularly and continuously, focusing on data and accurate evaluation (Chu, 2019; Gao, 2019; Maddox, 2016).

Supporting this, research by Jinthanon and Rapeepisarn (2020) found that the quality of e-wallet applications significantly influences user intentions to utilize them. Similarly, research by Karaket and Distanont (2018) indicated that the quality of Fintech applications should emphasize system security to ensure the safe online handling of users' financial data, tailoring development to meet user needs effectively. When applications meet these needs, user acceptance tends to increase, as demonstrated by Charoenwiriyakul and Sukkasame (2015), who concluded that website quality significantly influences e- loyalty. Online customers assess whether a website is trustworthy and consider the security measures to protect personal data. Furthermore, Himarat and Khongmalai (2018) discovered that reliability is established through systems that demonstrate consistent performance and uninterrupted connectivity, highlighting stability as a critical system quality attribute. Consistent with the findings by Ren et al. (2016), system quality is a vital factor in enhancing business value and ensuring operational stability.

3) Government policy is the third important factor in user acceptance of government mobile applications. Due to its relationship with the reliability and trust of people towards the government and its services, according to the National Digital Economy and Society Development Plan and Policy (2019), driving the economy with digital technology stimulates the country's economy by encouraging Thai businesses to use digital technology to reduce production costs and increase efficiency in conducting business. Furthermore, this development leads to new forms of

business competition. Mobile and e-commerce technologies can stimulate economic growth in the country, while digital technology has the potential to drive economic growth (Agyapong, 2017).

Furthermore, government policies facilitate user convenience. People use mobile applications to access internet services instead of traditional browsers. Thus, smartphones have become devices that allow people to receive services from the government. Mobile applications also have the potential to improve the delivery of public services and foster citizen engagement with the government, including increased government participation and transparency (Fuentes-Enriquez & Rojas-Romero, 2013). The flexibility of smartphones enables citizens to access necessary information. The perception of information about services and complaints about various problems will help government agencies better respond to citizens. Data utilization also increases user acceptance of mobile applications because connecting and sharing data among government sectors is crucial for developing Thai bureaucracy 4.0. Interconnecting data from each government agency allows for examining and displaying information within a single application (Cho & Park, 2018; Deakin, 2016; Yusuf et al., 2019).

4) Users' attitudes towards services directly influence the acceptance of government mobile applications. Factors that lead to behavioral changes in accepting or using government applications are positive attitudes (Vicente & Lopes, 2016; Koul & Eydgah, 2017). People's beliefs and attitudes shape their acceptance of technology. As a result, users with positive attitudes are more confident and trustworthy, expect the system to work well, and perceive ease of use. They will accept the application, and then download and use it. This aligns with Alsswey et al. (2018). Attitudes influence the acceptance of health applications among elderly Arab users. Lule et al. (2012) found that perceived ease of use influences the acceptance of mobile banking. Similarly, El-Gohary (2012) found that the intention to accept electronic marketing among small entrepreneurs in the Egyptian tourist industry depends on the perceived ease of use. Maduku (2014) also found that perceived ease of use influences the acceptance of technology, similar to the research conducted by Wang et al. (2006) and Jeong and Yoon (2013), which revealed that users perceived ease of use,

usefulness, and ability to use technology affect technology usage behavior. Upon careful consideration, we discovered that the perceived ease of use motivates users to participate in various technological activities. As for users' attitudes towards reliability and trust, these factors significantly impact their behavior.

Furthermore, the study's findings are consistent with the TAM theory, which states that perceived usefulness, perceived ease of use, and attitude toward technology significantly impact behavior (Davis et al., 1989). Conducting financial transactions through mobile applications is easy; everyone can do it. As new features become available, learning to use them is easy. Thus, frequent mobile app transactions help improve users' usability skills.

Recommendations

Based on the findings and analysis of this study, several recommendations can enhance the acceptance and use of government mobile applications in Thailand:

1) From the results of structural equation analysis, it was found that Perception of government mobile applications and the application's quality greatly influence users' acceptance of government mobile applications. Government agencies should prioritize the development of high-quality mobile applications that are user-friendly, fast, reliable, and secure. To achieve this, it is essential to focus on the following aspects:

· User-Centric Design: Applications should be designed with the user experience in mind, ensuring intuitive navigation, explicit interfaces, and accessibility for all users, including those with disabilities.

· Performance Optimization: Applications should be optimized for speed and reliability, minimizing downtime and ensuring they perform consistently well across different devices and network conditions.

· Security Measures: Implementing robust security protocols is critical to protecting users' data and fostering application trust. Regular security updates and transparent communication about data protection measures will help to build user confidence.

2) The research results also found that government policy is another factor that affects users' acceptance of government mobile applications. Government policies should be aligned to increase public acceptance and trust

in mobile applications. Key policy recommendations include:

· Promotion of Digital Literacy: Initiatives should be launched to educate the public on the benefits and usage of government mobile applications. This could include workshops, online tutorials, and partnerships with educational institutions to improve digital literacy.

· Transparency and Communication: The government should ensure transparency in its policies related to mobile applications, including clear communication about how user data is managed and protected. This will help alleviate concerns and build trust among users.

· Supportive Infrastructure: Investing in the digital infrastructure necessary to support widespread mobile application use is essential. This includes expanding access to high-speed internet nationwide and ensuring that government applications are compatible with a wide range of devices.

3) To improve public acceptance, raising awareness about the availability and benefits of government mobile applications is essential. Recommendations include:

· Public Awareness Campaigns: Launch targeted campaigns to inform citizens about the benefits of using government mobile applications, emphasizing ease of use, efficiency, and safety. Social media, traditional media, and community events can be leveraged

· Incentivize Usage: Consider offering incentives for initial use, such as discounts, rewards, or access to exclusive services through the application. This can encourage hesitant users to try the applications

· Engagement Platforms: Create platforms where users can provide feedback, report issues, and suggest improvements. This will not only help enhance the applications but also make users feel heard and valued.

Policy recommendations

1) Government policies should encourage the public to use government mobile applications to facilitate travel and enable tracking and monitoring of various statuses. The government should implement economic stimulation measures through mobile applications that are easily accessible and cost-effective and provide identity verification. Additionally, there

should be secure data collection to build user trust and allow for data analysis to develop applications that meet user needs.

2) The quality of a mobile application must be modern, meet user needs, and ensure accuracy and speed in its functionality.

3) Promoting public awareness of the of using the application's effectiveness, risks, and benefits is important. When people know the risks, they will be more cautious in their usage, such as ensuring others do not know their passwords.

4) In terms of attitude, it is essential to build trust and confidence among the public. The application should be practical, meet expectations, and be user-friendly with straightforward processes.

5) The main factors driving acceptance of government mobile applications are perceived mobile applications' effectiveness, perceived security risks, and perceived usefulness. Therefore, the government should prioritize designing the service to make users feel that the app is beneficial. This will lead to positive word-of-mouth among users about its benefits.

Administrative suggestions

1) The government or related agencies must provide information regarding the security and trustworthiness of government applications. This includes protecting users' data, implementing robust security measures, and regularly updating applications with new features and enhancements. Continuous improvements and updates help reduce concerns and increase user reliability.

2) Before releasing applications to the public, the government must ensure their reliability, high quality, and thorough testing to ensure smooth operation, fix errors and listen to user feedback.

3) The government should create awareness and understanding about app usage, foster a positive attitude among users, and raise awareness about the importance of using reliable and trustworthy applications. Additionally, developers should create user-friendly apps that facilitate easy navigation and prioritize the user experience. This includes categorizing functions and providing precise and detailed formats.

Future research directions

The researchers conducted a comprehensive study on the overall acceptance of government mobile applications in Thailand, rather than focusing on a single app. As a result, future research should focus on specific government apps, such as "Pao Tang" or "Thang Rat," to obtain more precise results.

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