

-RESEARCH ARTICLE-

INTEGRATING TAM, PERCEIVED RISK, TRUST, RELATIVE ADVANTAGE, GOVERNMENT SUPPORT, SOCIAL INFLUENCE AND USER SATISFACTION AS PREDICTORS OF MOBILE GOVERNMENT ADOPTION BEHAVIOR IN THAILAND

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— Abstract —

This research aims to investigate into how users perceive mobile government (M-government). The investigation builds on the Technology Acceptance Model (TAM) which is particularly centered on the perceived usefulness, the perceived ease of use and some additional factors with a view to inspect the acceptance of M-government among citizens living in Bangkok and metropolitan areas. The model is planned to validate the M-government acceptance model. The data is collected from 400 respondents using the purposive sampling technique. The causal relationships are used to observe association between the constructs. Therefore, the collected data is analyzed using the structural equation modelling (SEM) technique. The results show that the model is a good fit. The study concludes that perceived usefulness, perceived ease of use, perceived risk, trust, relative advantage, government support, social influence and user satisfaction are key determinants of M-government adoption. Social influence and information quality are also found to have an indirect positive effect on M-government adoption via user satisfaction. These findings are expected to help in evaluating human-computer's interaction using the M-government acceptance model as well as to improve the understanding of how citizens adopt M-government in order to implement the M-government system for Thailand in an effective and efficient manner.

Keywords: Mobile Government, Perceived usefulness, Perceived ease of use, Intention to Use, Satisfaction.

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1. INTRODUCTION

Innovation adoption is regarded as a significant subject in the information technology (IT) field. In this era, computer information systems (IS) have become a necessary working tool to accomplish almost every paperwork efficiently. The innovation of technology has been adopted by many governments (Noor Dheyaa et al., 2019) in the world in the recent past in order to create online facilities for their citizens. This technology enables the government to provide broader conveniences to individuals based anywhere in the world online regardless of border and time limit (Mortimer et al., 2015; Society, 2015). With technological development, an access in government services is borderless compared to in the past when every paperwork needed to be done in offices or spatial dimensions in a working hour.

On the hand, mobile government (M-government) is available at all physical locations at any time in places that are connected to the internet. This is a reason why governments nowadays have used the technology system to move toward with the facility online or on mobile. This system ensures better quality (Al-Hubaishi et al., 2017) and availability to decrease difficulties through provision of mobile services. Besides, the number of individuals using a mobile to access services is notably increasing (Phonthanakitithaworn et al., 2016). As internet technology on mobile rises up, smartphones are the main devices to work on this technology since accessing via mobile is getting easier to utilize and the ability to provide more features is much better. Although, it bears to note that an ability to use (Alalwan et al., 2018) the devices also require intensive internet supply (Shaw et al., 2019).

Consequently, this is an opportunity for stakeholders in the government to explore this opportunity as much as possible. According to Statista (2021), the significant numbers of smartphone users has globally increased. In 2016, the number of smartphone users reached 2.5 billion and has passed over 3.6 billion by 2020 (Xie et al., 2017). Prior researches in designing interfaces show how features have an impact on user intention (Sabani et al., 2019) in terms of time spending, satisfaction, interface usability, and accuracy (Al Athmay et al., 2016).

The utilization of innovative information communication technologies by the government will provide more convenient channels for citizens to access government services and result in a greater number of opportunities for citizens to participate in government activities (Joshi et al., 2017). Moreover, it will provide businesses and citizens with easier approach to access government information and services as well as provide opportunities for service quality improvement (Al-Hubaishi et al., 2017; Reddick et al., 2017). It will also provide greater opportunities to contribute to democratic institutions along with improving processes of utilizing mobile services and technologies in wireless communication (Joshi et al., 2017; Sabani et al., 2019).

M-government can be defined as the process of delivering government information and services to citizens by utilizing mobile or wireless communication technology (Noor Dheyaa et al., 2019). The M-government system facilitates government in providing options for individual citizens or organisations to access services in many fields, for instance, climate forecast, education, medical services, transportation, and payment (Phonthanakitithaworn et al., 2016; Rasool et al., 2018). The acceptance of M-government by citizens can be a reflection of the government success rate in terms of developing the country. Therefore, this research is designed to investigate into how M-government works as well as how to develop and increase its effectiveness.

First of all, this research is planned to begin with researches on how end-users perceive mobile government (Tuğberk et al., 2020). Generally, online mobile governments are cost-effective, convenient, and fast. The only one disadvantage is the limitation of technology knowledge since it is still considered to be a new body of knowledge for elders or individuals who lack familiarity with the field. However, statistics show that elders in Thailand tend to use smartphones more often, therefore, this problem is predicted to subside in the future (Xie et al., 2017). This study mainly implements the TAM and integrates it with empirical and theoretical theories of related researches centering on information systems. These theories and researches consist of UTAUT (Venkatesh et al., 2003) and TAM. The UTAUT was created by Venkatesh et al. (2003) in relation to mobile government usability, whereas TAM was generated by (Davis et al., 1989) who offers a theoretically grounded approach towards software acceptability. This approach allows the direct combination of performance evaluation. The TAM is used in this research as the method to measure the level of M-government acceptance on the basis of individual responses collected using a self-administered structured questionnaire. The questionnaires appoint a single point in time with a cross-sectional approach, which is commonly used in various studies observing systems use an UTAUT as a tool to measure information technology acceptance among users toward a unified view (Ajzen, 1991; Rahman et al., 2017). The UTAUT is a recommended choice to explain intention to use IS and discern behavior of subsequent usage.

It is generally agreed that M-government can improve quality of services, the effectiveness and efficiency of public services, and increase profitability (Pedersen, 2017). A successful M-government service requires citizen to understand and accept (Batubara et al., 2018). For this reason, this study seeks to identify the important factors that affect mobile government adoption in Thailand as well as how these factors influence Thai citizen's perception toward mobile government. These research questions can be summarized as followed:

- RQ1: What are the important factors for Thai citizens that influence their behavioral intention to adopt of M-government?
- RQ2: What types of relationships exist among these factors?
- RQ3: Which factors have a significant causal effect on the intention to use M-

government?

RQ4: What are the theoretical and practical implications of the answer to RQ3?

To develop this model, the next section examines the theoretical background on the subject as well as questionnaires to test the hypotheses. Following this, the experimental procedures and instruments used in the study are provided. The data are subsequently analyzed with an in-depth statistical analysis. The results are summarized and discussed in the last sections of the study.

2. LITERATURE REVIEW

2.1 Mobile government

Mobile government (M-government) can be defined as the use of mobile and wireless technology by the government to deliver information and provide services to citizens and businesses, and can be used by the government to improve communication with their citizens (Reddick et al., 2017). M-government has been adopted by many governments such as USA, China, Taiwan etc. The level of M-government project achieved in each country can be different depending on factors such as mobile technologies, e-government development. (Saxena, 2017). For this reason, it is important to understand what the factors affect the intentions and decisions of citizens to engage with M-government services.

There are several opportunities offered by mobile government. It guarantees more availability and accessibility since citizens have the opportunity to access government information on a more flexible basis, at any time and from any location (Tuğberk et al., 2020). In general, cell phones are always in use and on our person. Furthermore, it enables the government to provide new and updated content to end-users in a short period of time. Consequently, governments can also reach a larger segment of the population, primarily those who reside in rural regions and do not have extensive experience with computers (Noor Dheyaa et al., 2019).

It is possible to explain the benefits of mobile government from both, the perspectives of residents and employees (Tuğberk et al., 2020). From the perspective of citizens, mobile government contributes to cost savings through the capacity to access government information and services from any location at any time (Mandari et al., 2017), thereby reducing effort and time spent on administrative tasks. It makes it possible to get instant access to government services and information through mobile-government, which has several advantages, including improving the delivery of government services and information; as a result, individuals have the ability to get instant access to government services and information at any time and from any location (Saxena, 2017). As for employees, mobile-government provides them with a seamless environment in which to meet and communicate without the need to connect to a network interface. More importantly, it allows information to be accessed at any time and from

any location for the aim of making quicker and better judgments. Furthermore, mobile government increases the effectiveness and efficiency of government employees, as they are able to acquire necessary information instantaneously and update records on the fly, hence increasing their effectiveness and efficiency. Mobile government also has the potential to create new avenues for citizens to engage with their government (Pedersen, 2017).

Although smartphones and mobile applications and technologies have become increasingly popular, the Thai government has begun moving toward the implementation of mobile-government, whether by transitioning services from e-government to mobile-government or by introducing services directly through mobile-government (Saxena, 2018). In contrast, the level in the domain of mobile-government as a whole continues to lag behind the intended target, and the services have not reached the levels of adoption that are anticipated (Mandari et al., 2017).

2.2 Theoretical Perspective

The theoretical basis of the present study rests upon the technology acceptance model (TAM). In its simplest form, TAM is derived from the theory of reasoned action (TRA), which holds that beliefs have an impact on intentions, and intentions have an impact on actions (Rahman et al., 2017). TAM and TRA are not interchangeable. There are variances between the two. When it comes to the adoption of new technologies, TAM is more specific and focuses on users' attitudes, behaviors, and perceptions during the adoption of that technology, whereas TRA is more general and can be applied to a variety of cases and adopted behaviors based on perceived positive outcomes (Xie et al., 2017). TAM was first presented in 1986 as a way to gauge user acceptability of new technological innovations. It is anticipated that TAM would assess user acceptability of new technologies based on a variety of characteristics, including behavioral intention to use, attitude toward usage, perceived usefulness, and perceived ease of use (Ajzen, 1991).

The study by Saxena (2017) examines the factors affecting mobile government adoption in 2017 by using TAM, UTAUT, and TPB (Society, 2015) via questionnaire method as the primary research instrument (Saxena, 2018). The independent variables such as perceived ease of use, perceived usefulness, compatibility, influence, interpersonal level, trust (Santa et al., 2019) and self-efficacy, will simplify conditions (Davis et al., 1989) and viewpoints toward dependent variables, which affects intention to adopt mobile government (Almuraqab et al., 2017; Investment, 2017). Researcher implies that user profile characteristics such as age, marital status, occupation, education and frequency of M-government services usage have less effect on mobile government adoption (Almuraqab et al., 2017) but does have a relationship as a driver with another factors (Alalwan et al., 2018; Dahi et al., 2015; Susanto et al., 2015).

The TAM model is chosen as the research paradigm for this study because it has the ability to help us determine the influence of external influences on attitudes, intentions

to use, and beliefs (Stefanovic et al., 2016). As the purpose of this study is to investigate factors that influence behavioral intention to use of M-government applications, TAM was selected as the best model to predict user behavior towards new technologies because most other technology acceptance models only consider technical factors.

2.3 Hypothesis Development

2.3.1 Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). It refers to the users' perception about the usage of services in that the particular services used must be easy in their utilization (Shaw et al., 2019). Thailand has high uncertainty avoidance, where people feel uncomfortable in new or unknown situations. Perceived ease of use is also found to be the most significant factor in determining individuals' intention to use mobile commerce for street vendors in Thailand (Pipitwanichakarn et al., 2019). Hence, it is important to make mobile system easy-to-use in order to influence citizen's intention or decision to adopt mobile government.

H1: Perceived Ease of Use (PEOU) positively influences citizens' intention to use mobile government (ITU).

2.3.2 Perceived Usefulness (PU)

Perceived Usefulness (PU) is defined as the degree to which a person believes that using a particular system will enhance his or her job (Davis, 1989). Perceived usefulness is also found to be an important factor affecting citizens' adoption of M-government (Almuraqab, 2017) and is found to significantly predict intention to use mobile banking in Thailand (Mortimer et al., 2015). Thus,

H2: Perceived Usefulness (PU) positively influences citizens' intention to use mobile government (ITU).

2.3.3 Perceived Risk (PR)

Perceived Risk (PR) is understood as the potential loss associated with adoption of technical innovation and acts as an inhibitor to the adoption decision (Hubert et al., 2018). Perceived risk has been found having effect on e-government adoption in many studies. In E-commerce context, perceived risk is found to have a negative effect on intention to use E-commerce (Saxena, 2018). Perceived risk is found to influence the adoption of mobile payment services in the Thai market (Phonthanukitithaworn et al., 2016). Individual citizens may avoid using mobile government system if they perceive that they may lose something. Thus, we hypothesize the following:

H3: Perceived Risk (PR) have a negative effect on intention to use mobile government (ITU).

2.3.4 Trust (TR)

Trust (TR) can be defined as the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or irrespective of the ability to monitor or control that other party” (Mayer et al., 1995). Citizens’ trust, which led to the adoption of E-government can be divided into two dimensions: trust on the governments and trust on Internet (Santa et al., 2019). In terms of mobile system adoption, trust is an important factor in explaining mobile commerce acceptance and has been integrated into the original TAM (Sarkar et al., 2020). Trust is also found to be the second most important predictor in explaining the intention to use mobile commerce in Thailand for street vendor as well as being another factor affecting people’s intention to adopt mobile payment services in Thailand (Phonthanakitithaworn et al., 2016; Pipitwanichakarn et al., 2019). However, in some study found that trust has no effect on mobile government adoption. (Reddick et al., 2017). However, in light of the significance of trust on technology adoption, we propose,

H4: Trust (TR) positively influences intention to use mobile government (ITU).

2.3.5 Self-Efficacy (SE)

Self-Efficacy (SE) refers to an individual’s ability to perform information technology related activities using a computer system (Joo et al., 2018). In context of mobile government, self-efficacy could refer to the competence or the skills that an individual perceives to be necessary to use mobile government system. Saxena (2018) found that self-efficacy has an effect on intention to use mobile government in India. Given the strong empirical support for the relationship between self-efficacy and mobile technology adoption behavior, we hypothesize:

H5: Self-efficacy (SE) is positively linked with intention to use mobile government (ITU).

2.3.6 Relative Advantage (RA)

Relative Advantage (RA) can be defined as the degree to which mobile government is perceived to be better than using other communication strategies of using government services. Naushad et al. (2020) found relative advantage to be the strongest predictor of intention of adopting computer technology adoption. Relative advantage is found to be one of the most important factors both, in E-government adoption and M-government adoption (Ramli et al., 2017). Thus,

H6: Relative Advantage (RA) positively affects intention to use mobile government (ITU).

2.3.7 Government Support (GOV_SUP)

Government Support (GOV_SUP) refers to the degree to which a government invests in required mobile government infrastructures, and providing regulations and framework

which support the use of mobile government. Government support is confirmed to be one of the most important factors for adopting new technologies and therefore, lack of government support limits e-government acceptance (Mandari et al., 2017). Therefore, if citizens perceive that the government is providing adequate support for them to adopt M-government, their likelihood to adopt M-government may increase. Consequently, it is proposed that

H7: Government Support (GOV_SUP) positively affects the intention to use mobile government (ITU).

2.3.8 Information Quality (INF_QUA)

The quality of government mobile application is important and can affect the expectations of citizens. Therefore, it is necessary to assess the quality of mobile government for improvement (Alsaadi et al., 2018). Information quality (INF_QUA) refers to “the ability of the system to convey the intended meaning of information” (Wang et al., 2012). A study by Al Athmay et al. (2016) shows that information quality factor has the highest priority in mobile government system. Thus, we propose

H8a: Information Quality (INF_QUA) has a positive effect on intention to use mobile government (ITU).

Many studies that focus on user satisfaction in adopting E-government services also suggest that living up to citizens’ demand is the major issue in E-government adoption (Al Athmay et al., 2016). It is important in the field of M-government that user satisfaction is achieved or measured and improved. A study by Al Athmay et al. (2016) also indicates that information quality has a positive direct effect on the satisfaction of E-government services user in United Arab Emirates (UAE).

The intention to adopt mobile government services depend on the perceived satisfaction of services provided through other channels such as E-government channel or offline channel. This is so because the business user’s prior interactions with the government through other channels shapes their belief, confidence, and satisfaction in the government; this, in turn, translates into the perception of the quality of service provided online or in another channel (Al Athmay et al., 2016; Han et al., 2020). Thus, we hypothesize

H8b: Information Quality (INF_QUA) has a positive effect on User Satisfaction (USER_SAT).

H10: User Satisfaction (USER_SAT) positively affects intention to use mobile government (ITU).

2.3.9 Social Influence (SOC_INF)

Social Influence (SOC_INF) is defined as the degree to which use of a certain system (mobile-government services) is influenced by peers (Mansoori et al., 2018). Social

influence is also found to be an important factors vis-a-vis intention to use both E-government and mobile government [Almuraqab et al. \(2017\)](#). The results from a study by [Graf-Vlachy et al. \(2018\)](#) also confirm that social influence is one of the key factors vis-a-vis technology adoption. Similarly, [Amsal et al. \(2021\)](#) found a significant association between social influence and user satisfaction in the perspective of technology adoption. Based on the previous studies, we propose the following hypothesis

H9a: Social Influence (SOC_INF) positively influences the intention to use mobile government (ITU).

H9b: Social Influence (SOC_INF) positively influences user satisfaction.

3. RESEARCH METHODS

3.1 Research model

[Figure 1](#) illustrates the M-government acceptance model that is implemented among citizens. According to previous research, three components TAM are used as indicators. Those components are perceived ease of use, perceived usefulness, and usability. The M-government's usefulness is defined briefly as M-government ability to enhance its performance and efficiency to search and accomplish various transactions ([ElSherif et al., 2016](#)). Perceived ease of use signifies the level of the difficulty absence when they use M-government and expect the same to be effortless. Usage indicates the intent to use and actual use of M-government. With M-government features, citizens are likely to perceive M-government as a technical support connecting them with government via online mobile devices. The success of M-government is to make it a remarkable option which is effective and efficient to use both from the perspective of technology and facility. Therefore, it is necessary for the M-government interface to be useful, suitable, and user-friendly. This is why a large number of empirical studies focus on the relationship between perceived usefulness, perceived ease of use, user acceptance, or intention to use and satisfaction with technology ([Tang et al., 2009](#)).

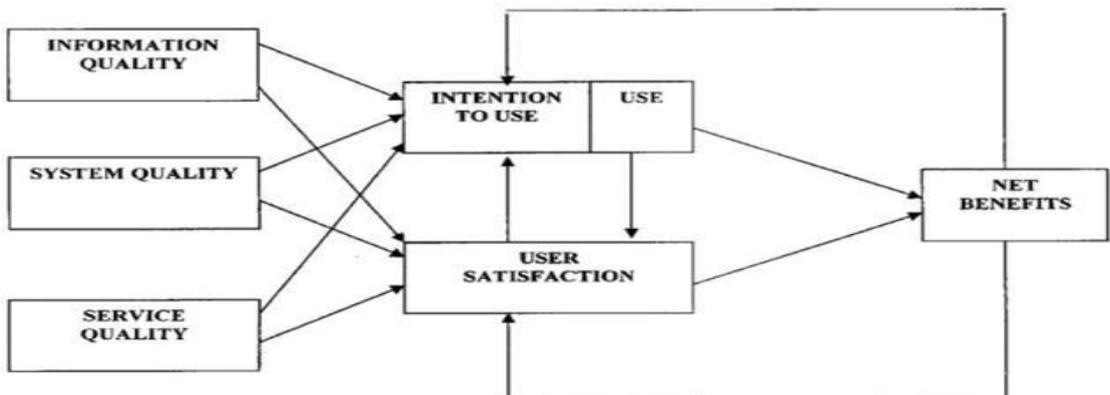


Figure 1: Mobile government acceptance model developed by [Stefanovic et al. \(2016\)](#)

TAM is a paradigm that has been applied in M-government. Therefore, the basic TAM hypotheses are set in the model and need to be validated through evidence. Figure 2 presents the hypotheses as incorporated into the proposed structural model.

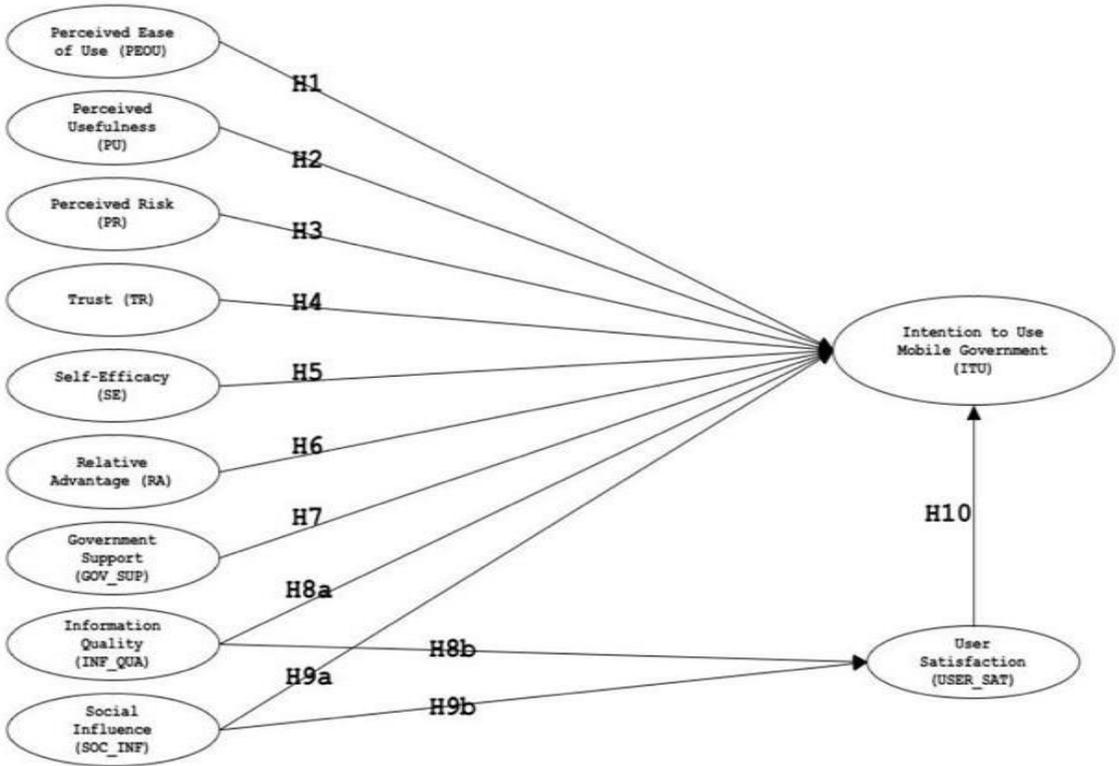


Figure 2: Hypotheses incorporated into structural model

3.2 Participants and data collection

3.2.1 Sampling technique

The target population of this study are Thai citizen who are over 18 years old, living in Bangkok or in the metropolitan area, having the mobile device with internet access and also have past experience in using mobile government. According to those conditions, the population based the National Statistic office is more than 100,000 people. Therefore, the sample size for the study was determined to be approximately 400 (Yamane, 1973). This size of sample is considered to be statistical valid with the SEM and other techniques used in the analysis and development of the theoretical model (Kline, 2015). The purposive sampling technique is used in this study.

3.2.2 Data collection procedure

All participants voluntarily join in the experiment with the declared document (Tang et al., 2009). A questionnaire is the primary instrument for collecting data used in this study and is divided into four sections. Section I questions relate to having experience in using

mobile government; section II questions relate to the type of mobile government usage and the usage frequency; section III questions relate to the age, gender, education of the participants and their current occupation. The participants are asked whether they have mobile device (ex. smartphone or tablet) with internet access or not and they are also asked whether they live or work in Bangkok and the metropolitan area or not. Responses of any participant who is under 18 years old or live outside Bangkok and the metropolitan area or does not have mobile device with internet access are removed. The last section includes specific questions to measure the variables as in the proposed model.

Participants are all asked about their viewpoints toward intention to use and satisfaction TAM. Those two factors are variables in the model measured by Likert scale in order to find out the impact of individual variables. The dependent variables are classified into two factors: intention to use mobile government and users' satisfaction. Factors influencing intention to use consist of perceived ease of use, perceived usefulness, perceived risk, trust, self-efficacy, relative advantages, government support, information quality, social influence, and users' satisfaction. There are only two factors that affecting users' satisfaction which are information quality and social influences. The measurement scale in this research conforms to all psychometric criteria that have been proven in the literature review. In the questionnaires, the perceived ease-of-use latent variable is scaled using five items, perceived usefulness with seven items, perceived risk with four items, trust with eight items, self-efficacy with four items, information quality with six items, social influence with three items, relative advantage with four items, and government support with three items. The variable concerning satisfaction has been measured by four items and the intention to use mobile government has been measured by three items. Individual items use 7-point scale ranging measurement from strongly disagree to strongly agree. [Table 1](#) presents the label used to identify each of the model variables and the number of indicators used to measure each of the variables. References identify existing measuring instruments that are useful in determining the questions to be used for measuring each of the indicators.

For the reliability analysis, Cronbach's Alpha coefficients are calculated for each factor and their sub-factors which results in an acceptable value (≥ 0.70).

3.3 Data analysis

There are two parts of the present data analysis: 1) analysis of profile of the participants through frequency distribution and percentage, and 2) testing the relationships between variables by using structural equation modelling (SEM) and confirmatory factor analysis (CFA) techniques. All the analyses are carried out using SPSS which is a software for statistical data analysis and AMOS which is a software that can be used to perform structural equation modeling.

Table 1: The label used to identify each of the model variables and the number of indicators used to measure each of the variables

Variable	Number of indicators	Measuring instrument
Perceived Ease of Use (PEOU)	5 indicators	Venkatesh et al. (2003), Almuraqab (2017), Saxena (2017)
Perceived Usefulness (PU)	7 indicators	Davis (1989)
Perceived Risk (PR)	4 indicators	Saxena (2018)
Trust (TR)	8 indicators	Saxena (2017), Susanto and Aljoza (2015)
Self-efficacy (SE)	4 indicators	Saxena (2018)
Relative Advantage (RA)	4 indicators	Mandari et al. (2017)
Government Support (GOV_SUP)	3 indicators	Tan and Teo (2000)
Information Quality (INF_QUA)	6 indicators	Wang and Lin (2012), Athmay et al. (2016)
Social Influence (SOC_INF)	3 indicators	Mansoori et al. (2018), Susanto and Aljoza (2015)
User Satisfaction (USER_SAT)	4 indicators	Athmay et al. (2016)
Intention to use mobile government (ITU)	3 indicators	Susanto and Aljoza (2015)

4. RESULTS

4.1 Demographic profile of the participants

Table 2 summarizes the demographic profile of individual participants including their gender, age, education, and occupation. As shown in Table 2, the participants are female more than male (54.3% > 45.8%) which signifies not much of a difference in gender profile. Age of participants is generally during working age of 25-57 years old. Most of them aged between 42-49 years old (23.3%) which accounts for one fourth of overall participants. Most of the participants are public officers (42%) and mostly holding bachelor's degree (45%).

4.2 Relationships between participant's profile and model variables

Participants are tested to have a positive mindset towards intention to use mobile government especially purposes for information requirement, money transaction, survey, and complaint. In regards to gender criteria, females are found to have a more positive perception towards the perceived ease of use, perceived risks, self-efficacy, information quality, social influence, relative advantages, and user satisfaction. Meanwhile males have a more positive perception towards perceived usefulness, trust, and government support. Participants with bachelor's degree have a stronger feeling towards perceived ease of use, perceived risk, self-efficacy, information quality, relative advantage, and tend to be influenced by society more than others. People with a diploma

or high vocational certificate are found to have a stronger positive attitude toward perceived usefulness, trust, and intention to use mobile government. Occupation is another criterion to generate the findings. Public officers tend to recognize perceived ease of use, perceived risk, trust, self-efficacy, information quality, social influence, relative advantage government support and satisfaction after use of mobile government better.

Table 2: Participant’s profile

Characteristics		Frequency	Percentage
Gender	Male	183	45.8
	Female	217	54.3
Age	18-25 years old	53	13.3
	26-33 years old	78	19.5
	34-41 years old	79	19.8
	42-49 years old	93	23.3
	50-57 years old	54	13.5
	58-65 years old	42	10.5
	Over 66 years old	1	0.3
Education	High school	91	22.8
	Diploma or high vocational certification	129	32.3
	Bachelor’s degree	180	45.0
Occupation	Students	45	11.3
	Government or state enterprise officers	53	13.3
	Public officers	168	42.0
	Business owner	72	18.0
	Freelance	61	15.3
	Unemployed	1	0.3

4.3 Hypothesis testing results

In this study, a confirmatory factor analysis (CFA) is employed to measure the validity of the model fit to the collected data. The hypothesis model and collected data are tested using structural equation modeling (SEM). All the analyses are carried out using SPSS and AMOS software programs. The results reveal that the total variance experienced by the model is 79.24%, which is a suitable percentage of variance. To check the goodness-of-fit of the model, the Chi-square (χ^2), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), RMR (Root Mean Square Residual), Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI) are investigated. [Table 3](#) shows that all the indicators exceed their accepted values, demonstrating a good overall fit.

Table 3: Goodness-of-fit indices

Index	Accepted value	Results
Chi-square (χ^2)	Small value of χ^2 and $p > 0.05$	10.09 and $p = 0.43$
GFI	≥ 0.90	0.90
AGFI	≥ 0.90	0.91
RMR	≤ 0.05	0.01
RMSEA	≤ 0.08	0.01
CFI	≥ 0.90	0.91

Standardized path coefficients of the model are presented in [Table 4](#) and [Figure 3](#). It is ensured that path coefficients superior to over 0.70 meet the efficiency. The results found that all the path coefficients of the subsystems are over 0.7. In terms of the influence on intention to use mobile government, the eight latent variables including perceived ease of use, perceived usefulness, trust, self-efficacy, relative advantages, government support, information quality, and social influence are found to have a significant positive effect on intention to use mobile government ($p < 0.05$), with a standardized coefficient of 0.730, 0.727, 0.721, 0.720, 0.709, 0.725, 0.712, and 0.739, respectively.

Table 4: Standardized path coefficients of the model

Dependent variable	Factor	Path coefficient	P-value
Intention to use mobile government (ITU)	Perceived Ease of Use (PEOU)	0.730	0.00
	Perceived Usefulness (PU)	0.727	0.00
	Perceived Risk (PR)	- 0.719	0.03
	Trust (TR)	0.721	0.04
	Self-efficacy (SE)	0.720	0.02
	Relative Advantage (RA)	0.709	0.04
	Government Support (GOV_SUP)	0.725	0.01
	Information Quality (INF_QUA)	0.712	0.04
	Social Influence (SOC_INF)	0.739	0.00
	User Satisfaction (USER_SAT)	0.758	0.00
User Satisfaction (USER_SAT)	Information Quality (INF_QUA)	0.716	0.02
	Social Influence (SOC_INF)	0.712	0.03

While the perceived risk latent variable has a significant negative effect on intention to use mobile government ($p < 0.05$), with a standardized coefficient of -0.719. Thus, the hypotheses H1, H2, H3, H4, H5, H6, H7, H8a, and H9a are supported. Regarding the influence on users' satisfaction, the two latent variables which are information quality and social influence have a positive impact on users' satisfaction ($p < 0.05$), with a

standardized coefficient of 0.716 and 0.712, respectively. Therefore, the hypotheses H8b and H9b are supported. Moreover, users' satisfaction positively influences intention to use mobile government ($p < 0.05$), with a standardized coefficient of 0.758. Consequently, the hypothesis H10 is supported.

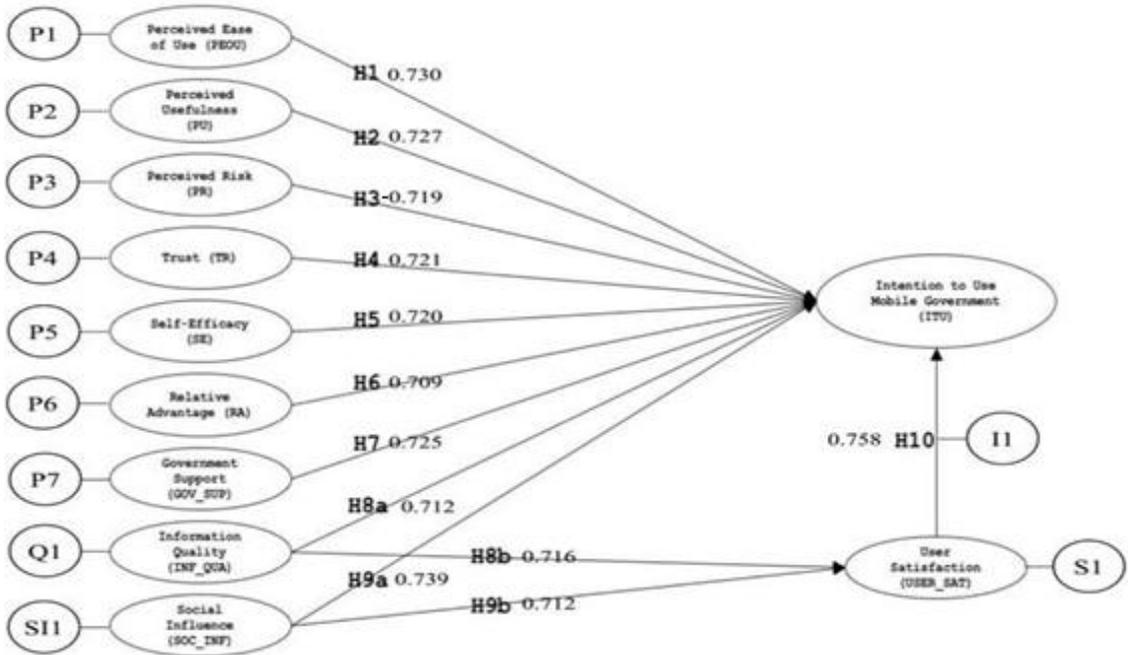


Figure 3: Standardized estimates of AMOS for model specification

5. DISCUSSION

The current research's purpose is to explore the acceptance of mobile government as research instruments for higher education. The model in this research differs from the M-government model created by [Stefanovic et al. \(2016\)](#) due to the contextual and cultural factors in Thailand. Thai government and situation in Thailand have less stability in Thai citizens' perspective, so that, trust and other factors must be counted. The related factors are perceived by citizens in Bangkok and metropolitan areas by applying self-administered structured questionnaire and 7-point-Likert scale to analyze the data. The SPSS and AMOS are used as a tool to validate and test the relationships among the perceived usefulness, perceived ease of use, and actual use of mobile government as an indicator of M-government acceptance.

In addition to the validated framework of TAM ([Davis et al., 1989](#)) emphasizes on perceived usefulness, perceived ease of use, and technology adoption, the findings of the present study reveal that trust, self-efficacy, relative advantage, and government support play a significant role in influencing citizens to adopt mobile government. These results

are in line with prior studies. For instance, [Pipitwanichakarn et al. \(2019\)](#) found a positive impact of trust on intention to use technology among Thai vendors. Similarly, aiming to investigate the influence of psychological factors on M-government adoption in India, [Saxena \(2018\)](#) infers that there is a greater willingness to use M-government services when respondents believe that they have the self-efficacy to operate such services, which is supported by the study findings. Likewise, in a study conducted on rural farmers of [Mandari et al. \(2017\)](#) discover a significant influence of relative advantage and government support on technology adoption. While perceived risk has a negative effect on citizens' mobile government adoption which is consistent with the study of [Saxena \(2018\)](#) who argue that according to respondents adopting M-government services is risk-free and secure. Finally, social influence and information quality have a direct positive effect on citizens' mobile government adoption and also has an indirect positive effect on mobile government adoption via satisfaction. These findings are consistent with prior studies of [Laumer et al. \(2017\)](#) and [Al Athmay et al. \(2016\)](#).

6. CONCLUSION

This study shows how citizens who are familiar with the mobile government system rated their insights towards interface use after directing several enquiries. Technology acceptance model specifies a theoretically method for evaluating M-government. By gathering user perceptions of M-government's usefulness and ease of use, researcher can accurately assess whether systems are eventually acknowledged by users and create a user-centered interface so that future studies are suggested to integrate user interface with positiveness of M-government to expand the use of the mobile government system.

7. RESEARCH IMPLICATIONS

This research offers a number of theoretical and practical implications for scholars and practitioners. The present research model extends the TAM by introducing contextual factors in the existing model. It adds knowledge to the existing body of literature by highlighting the importance of social influence, relative advantage and government support in terms of enhancing user satisfaction and intentions to use of technology relevant to M-government. The current research model extends the research of [Stefanovic et al. \(2016\)](#) by analyzing the indirect effect of social influence and information quality on intentions to use of technology through developing user satisfaction. The results in this study can also be usefully applied for Thai government, related agencies and decision makers, the business community, and citizens in Thailand in order to successfully develop and use the M-government project. This study provides directions to practitioners that with technological developments, there is a need to pay more attention to the contextual factors in order to increase the intention of citizens to use technology in government services.

8. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

There are several limitations to this research. First, this study focuses on citizens living in the metropolitan area, who are considered to have more income and better education with more ability in accessing to mobile technology. Future studies should be focus on people who live in the rural area who form the majority of population in most developing countries. Second, the research follows a cross-sectional research design that limits the researcher to draw causal inferences. Future research works should perform longitudinal studies to gain more in-depth research insights. Finally, the present study follows the non-probability sampling technique that is not recommended to generalize the findings of the study. Therefore, prospective researchers are advised to use probability sampling techniques and validate research findings based on data collected from a randomized sample.

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