Investigating the endorsement of the technology acceptance model for mobile banking: The case of Lampang Province, Thailand

Sirikorn Srirojanakul[1], Pongsiri Kamkankaew[2]

[1]*The British International School of Northern Thailand, Lampang, Thailand*

[2]*North-Chiang Mai University, Chiang Mai, Thailand*

JOMEINO
ISSN: 2522-381X (Print) 2521-7054 (Online)
DOI: 10.31039/jomeino

Received 19 March 2022
Revised 20 April 2022
Accepted 29 April 2022

check for updates

Citation: Srirojanakul S., & Kamkankaew P. (2022). Investigating the endorsement of the technology acceptance model for mobile banking: The case of Lampang Province, Thailand. *Journal of Management, Economics, and Industrial Organization,* 6(2), 28-47.
http://doi.org/10.31039/jomeino.2022.6.2.3

corresponding author:
Kpongsiri85@gmail.com

Abstract

At present, the transformation of financial technology has affected consumer's behavior of technology adaptation on a global and local level. This study investigated the impact of perceived usefulness, perceived ease of use, and trust of use in the intent of use for mobile banking in Lampang Province, Thailand. This research data was collected using questionnaires. The sample size of this research was 385 respondents who have used mobile banking in Lampang Province, Thailand. The data's were analyzed by multiple regression analysis. The results found that perceived usefulness, perceived ease of use and trust of use in the intent of use for mobile banking. The predictive coefficient value (R2) was 0.515 or 51.50 percent with statistical significance at the 0.05 level. This research recommends the effective suggestion for Thai banks and Thai government agencies that the financial technology management and the fundamental of financial technology systems were improved to achieve financial service efficiency in future.

Keywords: Perceived usefulness, Perceived ease of use, Trust of use, Intent of use, Technology Acceptance Model, Mobile banking.

***JEL Classification Codes*:** G40, M31, M39, O3.

1. Introduction

Technological advances are transforming the world today (Trivedi, Mehta & Sharma, 2021). The solutions of technological intelligence are causing great innovations in society. In recent years, electronics commerce (e-commerce), electronics business (e-business) and mobile business (m-business) have enhanced on a large scale (Wang, Wagner, Sundhararajan & Joo, 2021). The m-business is the pathway to transform the competence of directing the recent business (Gonzalez, Mitra & Turel, 2020). Consumers are growing unable to be divided from their mobile accessories (Sukwadi, Sant Caroline & Yu-Hsin Chen, 2022). In parallel, the new transformations in the banking operation have increased competition in the banking market sector (Sultana & Akter, 2021). It is forcing the banking market sector to provide customers with choices (Minh-Duc, 2021). The technological expansion has provided a great opportunity for service producers to develop new services and give a new way to adaptability for customer services (Tom & Rakesh, 2021). The banks have been launching various methods of accessing services via new delivery channels, such as automatic teller machines (ATM), the internet, housing telephone and recently the mobile phone (Ibrahim, Sare & Adam, 2021).

The automated teller machine (ATM) was the first instance of a self-service mechanism that is addressed to offer assistance to customers to connect with their banking services (Bati & Gozupek, 2019). Mobile banking is the next step in banking services, and it is another direction in the financial services sector (Mavers & Baker, 2021). The financial service allows a service where customers to perform banking service operations on their mobile phones (Chabbi, Boudour & Semchedine, 2020).

In the middle of the nineteenth century, many banks started to have a new experience for customers through the capability of the internet (Mavers & Baker, 2021). The internet has shown a new opportunity to give new banking services. The m-banking services allow customers to access, manage and make transactions on their bank accounts by way of the internet system. Banking currently serves a full option of financial services (Gonzalez, Mitra & Turel, 2020).

The most recent is the bank account access service via mobile phone or smartphone which is called mobile banking (Ibrahim, Sare & Adam, 2021). Mobile banking is described as a distribution in which the customer can participate in service through a mobile phone and smartphone (Gonzalez, Mitra & Turel, 2020). Mobile banking has been investigated as an extended system due to the characteristics of mobile technologies such as convenience,

pervasiveness and collectivity (Kwok, Yan, Qu & Lau, 2021). In the present day, users can perform banking services anywhere and at any time, which is connected to the banking service conveniently and quickly through mobile phones (Miraz, Hassan & Mahyadin, 2021). Mobile banking services are offered rapidly and interactively (Parikh, Patel & Jaiswal, 2021). Highly competitive banking service environments have affected banks to express strategies to achieve competitive advantages (Yu & Song, 2021).

The improvement mobile banking authorizes the customer to connect the account balances, pay bills and transfer funds (Parikh, Patel & Jaiswal, 2021). The mobile banking direction demonstrates the significant capability for the banking sector (Yu & Song (2021)). The bank can recognize current customers by providing a mobile banking service. It is the prospect to turn on the mobile phone of customers into a new banking service (Kwok, Yan, Qu & Lau, 2021). In Thailand, according to the latest data from the Electronic Transactions Development Agency of Thailand (ETDA), smartphones are totalled, in 2021, 50.1 million users (Electronic Transactions Development Agency, 2021a). It was found that 75% of the population of Thailand has a mobile phone and 83.6% of these have a mobile phone with an Internet connection (Electronic Transactions Development Agency, 2021b). These data reinforce the idea that Thailand has interesting characteristics to develop this research. This research aims to explore which elements contribute to the behavioral intention of the customer and utilize the mobile banking service.

During the last two decades, many researchers was interested in the technology acceptance model (TAM) to illustrate the acceptance of information technologies from the customer perspective (Gonzalez, Mitra & Turel, 2020). However, TAM elements did not indicate the acceptance of mobile banking services. So, it enhances necessary to address other theories to discuss the adoption of mobile banking. Therefore, the theory of planned behaviour (TPB) disclose the behaviour of the user. Trust is one factor of the demanding factors for the endorsement of mobile banking undertaking (Dimitriadis & Kyrezis, 2010; Lin, Lu, Wang & Wei, 2011; Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Liu, et.al., 2019; Filieri, et.al., 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). There are studies in the literature on the variables that can influence the behaviour of the online consumer, indicating the perceived usefulness and perceived ease of use construct as the factors of considerable impact on the intention to use (Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Liu, et.al., 2019; Filieri, et.al., 2021; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021).

Other components that have an impact on the intention to use mobile banking are the perception of security and privacy which can affect users' decisions to choose new technology like mobile banking services (Minh-Duc, 2021). It is inspected how does the perceived ease of use, the perceived usefulness and the trust can be represented in the choice of adopting the use of mobile banking (Lin, Lu, Wang & Wei, 2011). Mobile banking services can contribute to consumer perception which are important aspects that banking and financial services management need to explore (Chen, Tao & Zhou, 2019). However, the most relevant point, according to studies by Chen, Tao & Zhou, 2019 Filieri, et.al. (2021) and Tiwari, Tiwari & Gupta (2021) is the evidence studies that generate a sharp relationship between the banking company and the customers.

After identifying the aspects that influence the perceived usefulness, perceived ease of use and trust of use on the intent of use for mobile banking, this study attempt to investigate the behavioural consequences in the intention to use mobile banking services. The model of this study was developed and tested, through a survey, which relates the intention to trust construct and its antecedents, impacting the impact on the intention to use mobile banking in Lampang province, Thailand.

2. Research Objective

This research aims to investigate the impact of perceived usefulness, perceived ease of use and trust of use on the intent of use for mobile banking in Lampang Province, Thailand.

3. Literature Review

Based on the research objective of this research as outlined above, the following section presents the literature and empirical studies that are related to state the research hypothesis. This section demonstrates the concept of financial technology application and the technology adoption model.

3.1. Financial Technology Application

In several developed countries, technological methods of accessing services have already surpassed traditional branch-based retail banking, making the technology essential to obtain competitive advantages in the financial market (Ibrahim, Sare & Adam, 2021; Trivedi, Mehta & Sharma, 2021). This technological development provided an opportunity for banks to offer their customers greater flexibility, increase efficiency and provide a more consistent service with the availability of different forms of access to services through self-service technologies

(Wang, Wagner, Sundhararajan & Joo, 2021), via a new way of banking services such as ATM, the internet banking and mobile banking (Au & Kauffman, 2008).

The adoption of internet communication technology (ICT), its rapid diffusion and enormous use, as well as the large investment made in Information and Communication Technologies (Rohlinger & Bunnage, 2015), encouraged the offer of banking services through this channel of interaction with customers, giving rise to the internet banking (Ibrahim, Sare & Adam, 2021). This has a larger, more complete range of services, which allowed cost reductions, without time restrictions, with services being available 24 hours a day every day (Yukhno, 2021). However, continuous technological development has raised customer expectations and the internet banking market competitiveness has increased (Kamkankaew, et. at., 2021), which has lost its prominence and has become a launching pad for the most recent Information Technology in the banking offer, Mobile Banking (Wang, Wagner, Sundhararajan & Joo, 2021).

Mobile Banking (MB) is a cellular service distribution, in which the customer interacts with their banking adopting a utilization. The customers can be downloaded from a virtual store and set on a mobile device. (Ibrahim, Sare & Adam, 2021). The mobile banking service is better than the traditional banking services which it is cannot serve the needs of customers in real-time. Moreover, the mobile banking service can offer greater mobility than internet banking through its ubiquity and instantaneity. The mobile banking service is also a service of greater quality, availability and utility.

Mobile Banking services support customers to perform banking procedures accidentally, enabling them to consult their account, balance, movements and respective details, carry out transfers between national and international accounts (Kamkankaew, 2020), make payments, access information or request credit applications, monitor quotations in the capital market in real-time and carry out buy or sell orders. This service adds value to customers, as it allows banking operations to be carried out anywhere, outside the bank's opening hours, providing greater efficiency, time savings, convenience and a feeling of control (Kapadia, 2020).

Mobile Banking has great potential to provide financial services through a technology with which clients are already familiar and which is already widespread throughout the world (Trivedi, Mehta & Sharma, 2021). This is one of the main technological innovations for financial institutions having additional benefits such as ubiquity, convenience, efficiency and contextually as well as complementing traditional distribution channels, which will result in

relatively high savings in operating costs and increase the bank's profits on an average or long term (Kapadia, 2020).

However, the Mobile Banking market is still very small compared to banking transactions as a whole and the pace of adoption is very weak compared to what was expected (Arsic, 2021), with the number of users still very low compared to other channels. The high penetration and abundant use of mobile banking and some barriers are delaying the use of mobile services in banking transactions.

3.2. Technology Adoption Model (TAM Model)

The technology acceptance model (TAM) was nominated by Davis (1989). The TAM model indicated that assumptions produce attitudes of the customer. Davis (1989) explained that the TAM model is indicating on technology acceptance which is an impact on the behavioural intent of the customer. This model is developed by two elements such as perceived usefulness and perceived ease of use. The first factor is the element that exploited the system to develop the personal performance of the customer. The second is the factor that is uncomplicated using the technology of the customer. The two factors of the TAM model were investigated in this study. The purpose of the TAM model support a scrupulous decisive of technology adoption that would be acceptable for the application of user behaviour in comprehensive of technological innovations (Ajzen, 1991; Yu & Song, 2021).

Davis, Bagozzi & Warshaw (1989) indicated cognition rather than actual use. The emphasis on cognition may be appropriate for an organization where adoption is mandatory. The users have little decision-making power, but it is insufficient for an explanation in the context of consumption. The potential users are clear to approve or reject a new technology based on how the customer feels and what is the customer think about it (Yu & Song, 2021). The individuals were merely technology users and not mobile banking. The latter cannot be considered only technology users, as they are also service consumers and, consequently, fully assume the cost of adoption and voluntary use (Wai & Wai, 2021).

Perceived ease of use affects perceived usefulness, and both impact the individual attitude of the customer (Bagheri, Bondori, Allahyari, & Surujlal, 2021; Yu & Song, 2021). The perceived usefulness and attitude of customers have affected the behavioural intention to use, that is the intention to use the system in the future (Parikh, Patel & Jaiswal, 2021). The TAM model was created to analyze the impact of the factors on customers' expectations, attitudes and intentions. The main factor modelled by most studies on the acceptance and adoption of new technologies (Bagheri, Bondori, Allahyari, & Surujlal, 2021). The assessment of

intention to use is the main antecedent of actual use is quite recurrent in the literature and has already been tested and verified (Parikh, Patel & Jaiswal, 2021).

One of the biggest limitations of the TAM model is that it assumes that there are no ways to prevent people from using an information system. Despite having limitations, it has great empirical support, gained through validations, applications and replications made by professionals and researchers. Bagheri, Bondori, Allahyari, & Surujlal (2021) Parikh, Patel & Jaiswal (2021) Yu & Song (2021) Wai & Wai (2021) emphasize that the TAM model provides support to anticipate and explain the acceptance of information technology. According to scholars above, despite its limitations, it is an important management tool that complements other organizational analyses.

Davis (1989) definition of technology acceptance is similar to the step of the decision progresses about innovations, the stage of deciding whether or not to adopt an innovation, which employs the proposed concept of innovations by Rogers & Shoemaker (1971) and Rogers (2003). The first stage would occur after the individual is aware of the existence of the innovation and the understanding of the innovation. It would be followed by the stage of persuasion. In the second stage, the customers seek information about the innovation through various communication channels, both through the media of mass and interpersonal relationships, and then the customer forms their attitude with favourable or unfavourable towards innovation.

3.2.1. Intent of use

The intention to use is a construct that expresses the consumer's discrete probability of using something specific in a representative period (Xu, 2013). The intention to adopt reflects the individual's propensity to adopt a certain technology, given their attitude towards the technology in question (Gonzalez, Mitra & Turel, 2020). In the case of technology adoption by consumers, the construct to be understood and modelled is the intention of adoption, and not the actual use. The role of the intended use as the main antecedent of its actual use is well documented in the literature and has been extensively tested and verified (Oh, Lehto & Park, 2009). Based on the concept of Davis (1989) Fishbein & Ajzen (1975) and Ajzen (1991), many pieces of research in e-commerce has demonstrated that intentions of use. The involving online transactions are a significant predictor of the effective participation of consumers in e-commerce operations (Xu, 2013). The intention to use is based on the expectation that the customer can make the logical decision based on their perception. Thus, the performed customer's behavioural intention is the instantaneous conclusive of the

customer's substantive behaviour (Fishbein & Ajzen, 1975). The behavioural intention can be explained that is specifically to buy the product in certain familiar buyers. So, it is a predictor of the real consumer behaviour of purchase decisions (Joo.2016).

3.2.2. Perceived usefulness

The perceived usefulness disclosed an individual recognizes that technology can boost the efficiency output and performance of the technology acceptance (Fishbein & Ajzen, 1975). The definition of perceived usefulness referred to consumer perception in the use of mobile banking applications which related the enhancement of the contribution for the customer experience of using an electronic financial product easier. This perception firmly affects the trust and intention to use mobile banking. (Tiwari, Tiwari & Gupta, 2021). The perceived usefulness reflects how easy and efficient the consumer understands that their queries and transactions become via mobile banking. This construct is positively related to the consumer's intention to use (Tom & Rakesh, 2021). Therefore, as mobile banking is a technological innovation, its adoption and use fit perfectly to the perspectives of the TAM model (Davis, 1989) and the concept of diffusion of innovations (Wilson, Keni & Pattyranie Tan, 2021). The perceived usefulness and the perceived ease of use by reducing perceived risks and encouraging trust can be determinants (Adams, Nelson & Todd, 1992). This study considered that the perceived usefulness and perceived ease of use are factors that can impact trust if use determinants. The effect of perceived usefulness on the intent of use has been confirmed in previous studies (Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Grover, et.al., 2019; Liu, et.al., 2019; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). In such a way, the hypothesis of this study is proposed that

Hypothesis 1 (H1): Perceived usefulness impact on intent of use for mobile banking in Lampang Province, Thailand.

3.2.3. Perceived ease of use

The perceived ease of use is the one leading elements of the TAM model (Davis, 1989). It is explained as the individual's expectation of customer in the effortlessness of knowledge of new technology acceptance (Fishbein & Ajzen, 1975). The perceived ease of use for mobile banking is the better way to improve the attitude of customers (Chen, Tao & Zhou, 2019). The studies (Filieri, et.al., 2021; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021) demonstrate in their research that this variable has a direct effect on the attitude of customers. According to Davis (1989), the direct effect of perceived ease of use is related to the consideration of technological usefulness (Adams, Nelson & Todd,

1992). The indirect effect of perceived ease of use is involved the technologies' intention to adopt in mobile banking (Tom & Rakesh, 2021). The mobile device restrictions can be challenging for a user to use mobile banking (Tiwari, Tiwari & Gupta, 2021). The perceived ease of use for mobile banking would reverse the ability of banking service providers and understanding of banking service providers which is possibly affecting customer confidence. Likewise, perceived ease of use for mobile banking systems would diminish the intention of customer learning that how does the customer employ mobile banking and merge their impression of handle over the mobile banking application (Filieri, et.al., 2021). It cooperates to attract the consumer's attention on the basic activity and reform the experience of the customer. The effect of perceived ease of use on the intent of use has been confirmed in previous studies (Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Liu, et.al., 2019; Filieri, et.al., 2021; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). In such a way, the hypothesis of this study is proposed that

Hypothesis 2 (H2): Perceived ease of use impact on intent of use for mobile banking in Lampang Province, Thailand.

3.2.4. Trust of use

Fishbein & Ajzen (1975) and (Davis, 1989) described four distinctive elements of trust to use which are competence to use, integrity, benevolence and predictability. The competence to use is the expectation that the customer has the strength and power to do what they need to be done. Benevolence is the expectation that the customer attends and can be motivated by the other customer. Integrity is the expectation that the customer makes compromise for good conviction, declares the truthfulness of the product, shows ethically, and keep commitments. Predictability is the expectation that the responses of the customer are rational supplementary and it can be a predictor in positive situations (Lin, Lu, Wang & Wei, 2011). Trust to use is a crucial condition for expectation to exist because it is increasing trust expectations in employing the technology. It has a positive effect on the intention to trust, and thus both must exist for trust to exist (Zhao, Zhang & Anong, 2020).

In the framework of mobile banking, competence to use pointed to the individual's customer expectation and customer perception that producers of mobile banking have the capacity, skills and knowledge of e-financial services (Wang, Genc & Peng, 2020). Benevolence is the expectation of the customer has a positive perception that bank managerial principle is shown in the interest to take care of the customer. Integrity is the expectation regarding the issue's perception that the bank follows a scene of fundamentals generally encouraged by

trustworthy the customer (Lu, Yang, Chau & Cao, 2011). The recognition of competence, benevolence and integrity of mobile banking can perform an essential role in resolving the customer's attitudes which is towards using the mobile application (Dimitriadis & Kyrezis, 2010).

Bolen & Ozen (2020) supposed that trust to use is the foundation of customer perceptions of the technology acceptance system. Zhao, Zhang & Anong (2020) commented that consumers recognize the specialized know-how of mobile banking which is according to their perceptive of the technique for supervision of mobile banking transactions. The customer considers that banks provide the capacity of mobile banking and contribute sufficient mobile banking transactional services. Thus, the perception of trust to use can present in a more positive attitude towards intention to use mobile banking. The effect of trust of use on the intent of use has been confirmed in previous studies (Dimitriadis & Kyrezis, 2010; Lin, Lu, Wang & Wei, 2011; Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Liu, et.al., 2019; Filieri, et.al., 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). In such a way, the hypothesis of this study is proposed that:

Hypothesis 3: Trust of use impact on intent of use for mobile banking in Lampang Province, Thailand.

4. Research Methodology

A quantitative research method was exploited in this study. The research comprised of the results of data accumulated from users of mobile banking in Lampang Province, Thailand. This research applied a questionnaire as a measurement tool. During the management of the data collection, it was found that 15 users were no longer uncompleted and were therefore excluded from the sample. The total questionnaires were 385, representing a 92.25 per cent response rate on the final sample of this study. The structured questionnaire was the research instrument which consisted of 20 items designed to determine aspects of perceived usefulness, perceived ease of use, trust of use and intent of use. The questionnaire of this research was noted that previous empirical works (Dimitriadis & Kyrezis, 2010; Lin, Lu, Wang & Wei, 2011; Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Liu, et.al., 2019; Filieri, et.al., 2021; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). The scale of questionnaires employed a five-point Likert scale ranging from ‘Strongly Disagree’ (1) to ‘Strongly Agree’ (5). The reliability of Cronbach’s alpha coefficient estimates for perceived usefulness, perceived ease of use, trust of use and intent of use ranged

from 0.659 to 0.916 which the value of Cronbach's Alpha are considered as very good for further testing of the study. To examine the research hypothesis, multiple regression was used.

5. Research Result

The result of this study is considered by the research objective. To identify and analyse the impact of perceived usefulness, perceived ease of use and trust use on the intent of use for mobile banking in Lampang Province, Thailand. This research has handled the core test that has directly helped this research in determining whether their advised hypothesis is accepted or rejected. It can be summarized that the main test that has been presented in this research is descriptive statistics to test the normal distribution of each variable, correlation analysis and enter method regression analysis. These all tests will serve in attending the evidence and validating the impact of perceived usefulness, perceived ease of use and trust to use on the intent of use for mobile banking in Lampang Province, Thailand.

5.1. Descriptive statistics of the variables

To discover the dimension of perceived usefulness, perceived ease of use, trust of use and intent of use Average mean score, standard dilation (S.D.), Skewness (SK) and Kurtosis (KU) for each statement was calculated and displayed in the table below.

Table 1: Descriptive statistics of the variables

Variables	Mean	S.D.	SK	KU	Meaning of Mean
Perceived usefulness	3.68	0.495	1.097	0.572	Agree
Perceived ease of use	3.56	0.603	1.025	1.178	Agree
Trust of use	3.78	0.630	0.869	0.835	Agree
Intent of use	3.46	0.620	0.708	0.644	Agree

According to Table 1, most of the variables are rated as Agree as follows; trust to use (Mean = 3.78; S.D. = 0.630; SK = 0.869; KU = 0.835);perceived usefulness (Mean = 3.68; S.D. = 0.495; SK = 1.097; KU = 0.572); perceived ease of use (Mean = 3.56; S.D. = 0.603; SK = 0.869; KU = 0.835) and intent of use (Mean = 3.78; S.D. = 0.630; SK = 0.869; KU = 0.835) respectively. In all the variables, the standard deviation was concluded to be zero. It means that all of the value variables were completed to the mean. The ranges of the skewness of all variables were enclosed by the range of twice the standard error of the skewness of the variables. It indicated that the values were not reached the highest point. Then as well, the

ranges of the Kurtosis of all variables were enclosed by the range of twice the standard error of Kurtosis of the variables. It indicated that the variables were not reached their highest point (Barbosa Cabral, de Souza & Leão, 2022). Then the data distributions of the resultant variables were generally normal.

5.2. Correlation analysis

Correlation analysis is applied to quantify the relationship between the extended variables. In this study, the correlation analysis table (Table 2) is based on the Pearson correlation values and significant level. Before starting to test the hypotheses, all the independent variables, which are perceived usefulness (PU), perceived ease of use (PE) and trust to use (TU), have to be positively interlinked with the dependent variable, which is the intent of use (Y_IU). The data shows that correlation value has a positive linear relationship with sig level =.001.

Table 2: Correlation analysis

	Y_IU	**PU**	**PE**	**TU**
Y_IU	1.000	0.746**	0.790**	0.727**
PU	0.746**	1.000	0.732**	0.862**
PE	0.790**	0.732**	1.000	0.760**
TU	0.727**	0.862**	0.760**	1.000

The strongest correlation is between the Perceived usefulness (PU), and Trust of use (TU) with the correlation being positive (r = 0.862, sig level =.001). The weak correlation is between the Intent of use (Y_IU) and Trust of use (TU) with the correlation being positive (r = 0.727, sig level =.001). The data shows that the correlation values (r) between the variables are highly correlated with a linear combination of the other covariates than 0.700 which is represented multicollinearity. The table ..., it is shown that the VIF values has not more than 10. The VIF values of this study are 1.207 to 1.314. The tolerance values are below 0.10 which are 0.761 to 0.829. Thus, it can be concluded that there is no multicollinearity (Hair, et. al., 2010). All variables can be investigated for hypothesis testing.

Table 3: The result of multicollinearity testing

Variables	VIF values	Tolerance values	Meaning
Perceived usefulness (PU)	1.314	0.761	Not Multicollinearity
Perceived ease of use (PE)	1.207	0.829	Not Multicollinearity
Trust of use (TU)	1.261	0.793	Not Multicollinearity

5.3. Hypothesis Testing

To investigate the hypothesis, the enter method regression analysis was adopted to determine the impact of perceived usefulness, perceived ease of use and trust use on the intent of use for mobile banking in Lampang Province, Thailand. This regression equation model can be expressed thus:

$$Y\_IU = a + ß\ PU + ß\ PE + ß\ TU + e$$

The running of entering method regression analysis shows that the results for testing modified hypothesis 1 (H1), hypothesis 2 (H2) and hypothesis 3 (H3) with entering method regression scores are shown in Table 4. The results indicated that all independent variables are positive impact and significant relationship between intent of use (P_IU), perceived usefulness (PE) (ß = 0.321, p = 0.000), perceived ease of use (PU) (ß = 0.309, p = 0.000) and trust of use (TU) (ß = 0.315, p = 0.000). The model is significant overall (F = 137.0.43 p = 0.000) and has explanatory power (Adjusted R^2 = 0.515). This means that 51.50 per cent of the total variation in the model can be explained by the perceived usefulness, perceived ease of use and trust of use on the intent of use for mobile banking in Lampang Province, Thailand.

Table 4: The result of entering method regression analysis

Independent Variable	Dependent Variable: Y_IU				
	b	**SE**	**ß**	**t**	**p-value**
a(constant)	1.219	0.127		9.626	0.000
PE	0.228	0.029	0.321	7.875	0.000
PU	0.231	0.029	0.309	7.920	0.000
TU	0.233	0.030	0.315	7.901	0.000
$R = 0.720$, $R^2 = 0.519$, Adjusted $R^2 = 0.515$, $R^2_{change} = 0.519$ F = 137.043, Sig F = 0.000, Durbin-Watson = 1.977					

** p > 0.05*

Based on the result from Table above, the regression equation for this model is presented below:

$$Y\_IU = 0.127 + ß\ (0.321)\ PU + ß\ (0.309)\ PE + ß\ (0.3015)\ TU + e$$

6. Discussion

From the regression equation for this model above, it can be determined that perceived usefulness is higher, users will perceive higher the intent of use for mobile banking. Hypothesis 1 (H1) therefore is confirmed with standardized coefficient Beta 0.321 and significant level 0.05 ($p < 0.05$). The result of hypothesis 1 is supported by several studies (Su, Wang & Yan, 2018; Chen, Tao & Zhou, 2019; Grover, et.al., 2019; Liu, et.al., 2019; Kwok, Yan, Qu & Lau, 2021; Minh-Duc, 2021; Tiwari, Tiwari & Gupta, 2021). In combination with the positive relationship of perceived ease of use are more likely to rate an intent of use for mobile banking. As a result for hypothesis 2 (H2) is confirmed with a standardized coefficient Beta 0.309 and a significant level of 0.05 ($p < 0.05$). This would mean users who live in more perceived ease of use would be more likely to adopt the intent of use for mobile banking. The result of hypothesis 2 is developed the relational paradigm for the empirical works by Su, Wang & Yan (2018) Chen, Tao & Zhou (2019) Liu, et.al. (2019) Filieri, et.al. (2021) Kwok, Yan, Qu & Lau (2021) Minh-Duc (2021) and Tiwari, Tiwari & Gupta (2021). Accordingly the positive impact between trust of use and intent of use is acceptable and hypothesis 3 (H3) is confirmed with standardized coefficient Beta 0.315 and significant level 0.05 ($p < 0.05$). The positive relationship with the intent of use is explained that the more users in a relatively trust of use the more they are likely to the intent of use mobile banking. The result of hypothesis 3 is similar to Dimitriadis & Kyrezis (2010) Lin, Lu, Wang & Wei (2011) Su, Wang & Yan (2018) Chen, Tao & Zhou (2019) Liu, et.al. (2019) Filieri, et.al. (2021) Minh-Duc (2021) and Tiwari, Tiwari & Gupta (2021) who conducted the effect of trust of use on the intent of use.

7. Conclusion and Policy Implication of Findings

Over the last few years, several studies have been carried out on a worldwide scale that attempts to explain individual behaviour of acceptance to new technologies. In Thailand, this study address to present a conceptual model, where theories such as Financial Technology Application and Technology Adoption (TAM Model) are integrated, applied to country reality. As already mentioned, Thailand is one country in Asians which the highest infiltration rate in mobile services and presents interesting to develop this study because it becomes interesting to understand perceived usefulness, perceived ease of use and trust to use impact on intent of use for mobile banking in Lampang Province, Thailand. To achieve the intended objectives, this study conforms to the existing model in the literature and through a collected questionnaire the necessary data. Based on the conceptual model, this study was

able to partially explain the intent of use for mobile banking in Lampang Province, Thailand (0.515) that 51.50 per cent of the total variation in the model can explain that perceived usefulness, perceived ease of use and trust to use impact on intent of use for mobile banking in Lampang Province, Thailand. The result expressed that the essential determinants of intent to use mobile banking which is the effect of perceived usefulness, perceived ease of use and trust of use for mobile banking in Lampang Province, Thailand.

This research presents contributions, both for academic and professional management. For academics, this research proposes a range for perceived usefulness, perceived ease of use and trust of use on the intent of use for mobile banking. The comparative analysis is in terms of the corresponding importance of each factor which can explain the intent of use for mobile banking. In terms of implications for the mobile banking service in Thailand, this research shows the impact of perceived usefulness, perceived ease of use and trust use on the intent of use for mobile banking which is the factor that influence to intention to the behaviour of Thai users.

Thus, Thailand proves to be a country with a collective culture, as in Asian countries, where individuals are more easily influenced by the opinions of others. This is a result that goes against countries with low collective culture, such as Anglo-Saxon countries. Due to these characteristics, Thai banking has contributed an advantage in mobile banking adopters because the opinion of the customer can bring about a positive viewpoint in potential customers, as well as word of mouth. It has a subsequent impact on the acceptance behaviour of capability users.

Next, this research also concludes that perceived usefulness, perceived ease of use and trust of use are the strongest antecedent of the intent of use for mobile banking, which directly impacts behaviour intention through perceived usefulness, perceived ease of use and trust of users.

This research highlights the obligation of the Thai banking service to present a mobile banking service, with characteristics of mobile banking. It allows banking to recognize the best service for the customer. It can improve the bank performance which increases the bank productivity and improve the bank's effectiveness to achieve.

Some improvements are made. Thai Banks must also provide customers with sufficient information, including the existence of mobile banking, must make known its benefits and must compare the service with others that already exist such as internet banking and other services. Addressing the issue of risk is also fundamental, it is best to start addressing this

issue with users who already use mobile banking because users already have a low concern about the risk of the mobile baking service. Subsequently, these users begin to sensitize new customers to try the service and it is only a matter of time before this disclosure takes place.

Nevertheless, this research has some modifications that should be addressed. The respondents of this research compiled comprise only in Lampang Province, not all Thais customers and the results of this study cannot be directly transferred to other provinces in Thailand and other countries. Due to the evidence that in Thailand this topic is little explored, there is a wide scope to carry out interesting studies on this topic. Thus, in the future study, mobile banking should be correlated with Internet banking and other banking services, as long as the difference in banking business environment and technological factors. It will be necessary to explore the connection between an individual's customer acceptance and results to determine the long-term of mobile banking operation. It would also be interesting to progress a study with users of the service only to understand what they value most about the service and what limitations they encounter. In addition to the above, a connection between the results of several countries could also be interesting.

References

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly*, 16(2), 227–247. https://doi.org/10.2307/249577

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior Human Decision* Process. 50,179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Arsic, V. B. (2021). Challenges of Financial Risk Management: AI Applications. Management: *Journal of Sustainable Business & Management Solutions in Emerging Economies*, 26(3), 26–32. https://doi.org/10.7595/management.fon.2021.0015

Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research & Applications*, 7(2), 141–164. https://doi.org/10.1016/j.elerap.2006.12.004

Bagheri, A., Bondori, A., Allahyari, M. S., & Surujlal, J. (2021). Use of biologic inputs among cereal farmers: Application of technology acceptance model. *Environment, Development & Sustainability*, 23(4), 5165–5181. https://doi.org/10.1007/s10668-020-00808-9

Barbosa Cabral, C. R., de Souza, N. L., & Leão, J. (2022). Bayesian measurement error models using finite mixtures of scale mixtures of skew-normal distributions. *Journal of Statistical Computation & Simulation*, 92(3), 623–644. https://doi.org/10.1080/00949655.2021.1969397

Bati, S., & Gozupek, D. (2019). Joint optimization of cash management and routing for new-generation automated teller machine networks. *IEEE Transactions on Systems, Man & Cybernetics. Systems*, 19(12), 2724–2738. https://doi.org/10.1109/TSMC.2017.2710359

Bolen, M. C., & Ozen, U. (2020). Understanding the factors affecting consumers' continuance intention in mobile shopping: The case of private shopping clubs. *International Journal of Mobile Communications*, 18(1), 101–129. https://doi.org/10.1504/IJMC.2020.104423

Chabbi, S., Boudour, R., & Semchedine, F. (2020). A secure cloud password and secure authentication protocol for electronic NFC payment between ATM and smartphone. *Ingenierie Des Systemes d'Information*, 25(2), 139–152. https://doi.org/10.18280/isi.250201

Chen, X., Tao, D., & Zhou, Z. (2019). Factors affecting reposting behaviour using a mobile phone-based user-generated-content online community application among Chinese young adults. *Behaviour & Information Technology*, 38(2), 120–131. https://doi.org/10.1080/0144929X.2018.1515985

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q*. 13(3):319–340. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003. https://doi.org/10.1287/mnsc.35.8.982

Dimitriadis, S., & Kyrezis, N. (2010). Linking trust to use intention for technology-enabled bank channels: The role of trusting intentions. *Psychology & Marketing*, 27(8), 799–820. https://doi.org/10.1002/mar.20358

Electronic Transactions Development Agency. (2021a). *Thailand internet user behavior 2020*. Ministry of Digital Economy and Society, Bangkok, Thailand.

Electronic Transactions Development Agency. (2021b). *Value of e-commerce survey in Thailand 2020.* Ministry of Digital Economy and Society, Bangkok, Thailand.

Filieri, R., Acikgoz, F., Ndou, V., & Dwivedi, Y. (2021). Is trip advisor still relevant? The influence of review credibility, review usefulness, and ease of use on consumers' continuance intention. *International Journal of Contemporary Hospitality Management*, 33(1), 199–223. https://doi.org/10.1108/IJCHM-05-2020-0402

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research,* Addison-Wesley.

Gonzalez, E., Mitra, S., & Turel, O. (2020). Motivational impacts on intent to use health-related social media. *Journal of Computer Information Systems*, 60(2), 136–145. https://doi.org/10.1080/08874417.2017.1406829

Grover, P., Kar, A. K., Janssen, M., & Ilavarasan, P. V. (2019). Perceived usefulness, ease of use and user acceptance of blockchain technology for digital transactions – insights from user-generated content on Twitter. *Enterprise Information Systems*, 13(6), 771–800. https://doi.org/10.1080/17517575.2019.1599446

Hair, J. F., Black, W.C., Babin, B. J., & Anderson, R. E. (2010*). Multivariate data analysis* (7th ed.). Prentice Hall, Upper Saddle River, New Jersey.

Ibrahim, M., Sare, Y. A., & Adam, I. O. (2021). An application of frequency domain approach to the causal nexus between information, communication and technology infrastructure and financial development in selected countries in Africa. *International Journal of Finance & Economics*, 26(1), 1206–1235. https://doi.org/10.1002/ijfe.1846

Joo, J. (2016). Exploring Korean collegians' smartphone game behavior: Focusing on conciseness, perceived ease of use, perceived enjoyment, flow, and intent to use. *Journal of Digital Convergence*, 14(1), 379–386. https://doi.org/10.14400/JDC.2016.14.1.379

Kamkankaew, P. (2020). Corporate brand management: The way to success for small and medium enterprise. *Journal of Management Sciences, Suratthani Rajabhat University*, 7(2), 218-238.

Kamkankaew, P., Chaunwan, C., Phattarowas, V., Limpiaongkhanan, P., Khumwongpin, S., & Sribenjachot, S. (2021). The impact of disposal behavior on business after the COVID-19: A preliminary holistic view of Thai business. *MUT Journal of Business Administration*, 18(2), 26-42.

Kapadia, J. M. (2020). Blockchain technology: Application in the financial industry. *Scholedge International Journal of Management & Development*, 7(8), 130–135. https://doi.org/10.19085/sijmd070801

Kwok, P. K., Yan, M., Qu, T., & Lau, H. Y. K. (2021). User acceptance of virtual reality technology for practicing digital twin-based crisis management. *International Journal of Computer Integrated Manufacturing*, 34(7/8), 874–887. https://doi.org/10.1080/0951192X.2020.1803502

Lin, J., Lu, Y., Wang, B., & Wei, K. K. (2011). The role of inter-channel trust transfer in establishing mobile commerce trust. *Electronic Commerce Research & Applications*, 10(6), 615–625. https://doi.org/10.1016/j.elerap.2011.07.008

Liu, Y., Wang, M., Huang, D., Huang, Q., Yang, H., & Li, Z. (2019). The impact of mobility, risk, and cost on the users' intention to adopt mobile payments. *Information Systems & E-Business Management*, 17(2–4), 319–342. https://doi.org/10.1007/s10257-019-00449-0

Lu, Y., Yang, S., Chau, P. Y. K., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. Information *& Management*, 48(8), 393–403. https://doi.org/10.1016/j.im.2011.09.006

Mavers, S., & Baker, R. (2021). A look at an automation adoption through a human performance technology lens: A case study of bank tellers and automated teller machines. *Performance Improvement,* 60(2), 21–30. https://doi.org/10.1002/pfi.21957

Minh-Duc Le. (2021). User acceptance of enterprise resource planning systems: A study in small and medium enterprises in Vietnam. *International Journal of Entrepreneurship & Innovation Management,* 25(1), 72–104. https://doi.org/10.1504/IJEIM.2021.113799

Miraz, M. H., Sharif. K. I. M., Hassan. M. G., M. A., & Mahyadin F. B. (2021). Bitcoins in the Malaysian economy. *Journal of Management, Economics, and Industrial Organization*, 5(3), 70-85. http://doi.org/10.31039/jomeino.2021.5.3.6

Oh, S., Lehto, X., & Park, J. (2009). Travelers' intent to use mobile technologies as a function of effort and performance expectancy. *Journal of Hospitality Marketing & Management*, 18(8), 765–781. https://doi.org/10.1080/19368620903235795

Parikh, A., Patel, J. D., & Jaiswal, A. K. (2021). Managing job applications online: Integrating website informativeness and compatibility in theory of planned behaviour and technology acceptance model. *Decision (0304-0941)*, 48(1), 97–113. https://doi.org/10.1007/s40622-020-00266-2

Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of innovation: A cross-cultural approach* (2nd ed.). The Free Press, New York.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.) Free Press.

Rohlinger, D. A., & Bunnage, L. A. (2015). Connecting people to politics over time? Internet communication technology and retention in MoveOn.org and the Florida tea party movement. *Information, Communication & Society*, 18(5), 539–552. https://doi.org/10.1080/1369118X.2015.1008541

Su, P., Wang, L., & Yan, J. (2018). How users' internet experience affects the adoption of mobile payment: A mediation model. *Technology Analysis & Strategic Management*, 30(2), 186–197. https://doi.org/10.1080/09537325.2017.1297788

Sukwadi, R., Sant Caroline, S., & Yu-Hsin Chen, G. (2022). Extended technology acceptance model for Indonesian mobile wallet: Structural equation modeling approach. *Engineering and* Applied *Science Research*, 49(2), 146-154.

Sultana, F., & Akter, A. (2021). Women e-commerce: Perspective in Bangladesh. *Journal of Management, Economics, and Industrial Organization*, 5(3), 1-13. http://doi.org/10.31039/jomeino.2021.5.3.1

Tiwari, P., Tiwari, S. K., & Gupta, A. (2021). Examining the impact of customers' awareness, risk and trust in m-banking adoption. *FIIB Business Review*, 10(4), 413–423. https://doi.org/10.1177/23197145211019924

Trivedi, S., Mehta, K., & Sharma, R. (2021). Systematic literature review on application of blockchain technology in e-finance and financial services. *Journal of Technology Management & Innovation*, 16(3), 88–100. https://doi.org/10.4067/s0718-27242021000300089

Chan, W. M., & Lee, J. W. C. (2021). 5G connected autonomous vehicle acceptance: The mediating effect of trust in the technology acceptance model. *Asian Journal of Business Research*, 11(1), 40–60. https://doi.org/10.14707/ajbr.210098

Wang, J., Wagner, N., Sundhararajan, Son, L. H., & Joo, M. (2021). Application of wavelet transform image processing technology in financial stock analysis. *Journal of Intelligent & Fuzzy Systems*, 40(2), 2017–2027. https://doi.org/10.3233/JIFS-189204

Wang, Y., Genc, E., & Peng, G. (2020). Aiming the mobile targets in a cross-cultural context: Effects of trust, privacy concerns, and attitude. *International Journal of Human-Computer Interaction*, 36(3), 227–238. https://doi.org/10.1080/10447318.2019.1625571

Wilson, N., Keni, K., & Pattyranie Tan, P. H. (2021). The role of perceived usefulness and perceived ease-of-use toward satisfaction and trust which influence computer consumers' loyalty in China. *Gadjah Mada International Journal of Business*, 23(3), 262–294. https://doi.org/10.22146/gamaijb.32106

Xu, H. (2013). The effect of perceived security on consumers' intent to use: Satisfaction and loyalty to m-commerce in China. *Journal of Electronic Commerce in Organizations*, 11(4), 37–51. https://doi.org/10.4018/jeco.2013100103

Yu, Z., & Song, X. (2021). User intention of anonymous social application "Soul" in China: analysis based on an extended technology acceptance model. *Journal of Theoretical & Applied Electronic Commerce Research*, 16(7), 2898–2921. https://doi.org/10.3390/jtaer16070159

Yukhno, A. S. (2021). Perspective of blockchain technology application in corporate governance: Recent trends. *Management Sciences*, 11(2), 57–72. https://doi.org/10.26794/2404-022x-2021-11-2-57-72

Zhao, H., Zhang, L., & Anong, S. (2020). Financial experiences, expectations, and near field communication based mobile payments among young adults. *Journal of Financial Counseling & Planning*, 31(1), 69–82. https://doi.org/10.1891/JFCP-18-00077