

## SOCIAL MEDIA BANKING ADOPTION AMONG TEENAGERS: A CASE STUDY OF NORTHEAST THAILAND

WARANSANANG BOONTARIG AND CHARNSAK SRISAWATSAKUL\*

Faculty of Computer Science  
Ubon Ratchathani Rajabhat University  
2 Ratchathani Road, Naimueang, Mueang, Ubon Ratchathani 34000, Thailand  
waransanang.b@ubru.ac.th; \*Corresponding author: charnsak@researcher.in.th

Received May 2022; accepted July 2022

**ABSTRACT.** *Social media has grown in popularity over the past decade. Numerous services from a wide variety of industries have migrated to social media. The banking industry is likewise recognizing social media's potential for client engagement. Initially, social media was being used as a platform for marketing communication. The beneficial aspects of social media include its ubiquitous nature, convenience, ease of use, and large user base that could support financial services. As a result, financial institutions have begun to offer transactional banking services directly through social media platforms. However, the concept of using social media for financing purposes is relatively new, particularly among teenagers. As such, the main objective of this study is to determine the factors that influence youths in Northeast Thailand's intention to use social media banking. The research model for this study was adapted from UTAUT by extending perceived convenience. The data of 159 participants were gathered through the online questionnaires. The hypotheses were empirically tested using partial least square structural equation models. The findings indicated that Performance Expectancy ( $\beta = 0.202$ ), Social Influence ( $\beta = 0.745$ ), and Perceived Convenience ( $\beta = 0.561$ ) significantly influenced the intention to use social media banking. The only component that is not relevant is the Facilitating Conditions. Finally, the paper discussed and provided practical implications for stakeholders on social media banking to design a platform or marketing campaign that increases teenagers' willingness to use social media banking.*

**Keywords:** Social media banking, Transactional banking, Online banking, Technology adoption, UTAUT

**1. Introduction.** Social media has grown in popularity with consumers and importance as a business tool in recent years. In January 2020, Thailand had 55 million social media users, representing 78.7 percent of the population. Furthermore, social media users surged by 3 million over the preceding year [1]. This figure demonstrates how prevalent social media platforms are in the daily lives of Thai people. Social media platforms are not just communication tools; they also serve as a substitute for conventional media in various ways. Additionally, it enables numerous businesses to cultivate relationships with their clients. Through mobile devices, consumers can now access social media without regard for time or location limits. The use of social media for business can result in the following benefits: increased brand exposure, higher website traffic, enhanced interaction and communication with key audiences, conversion rate optimization, positive brand association, and brand identity creation [1]. Furthermore, social media is now used across banking and financial services [2].

Social media was used in everyday life by 92.6 percent of Generation Z and 97.3 percent of Generation Y. Transactional banking via social media is a relatively new application in Thailand. Therefore, understanding the factors that drive technology adoption is crucial

[6]. However, the nature of the technology discussed in the preceding theories is quite distinct from that of other types of information system adoption. There have also been numerous studies on mobile and social media banking [3-8]. All of these publications consider a variety of facets of human behavior in predicting its acceptance. However, none of them examines the issue of social media banking among Thai teenagers in the Northeast Thailand. Therefore, we intend to address a research gap in this study by answering the following research question and objectives.

**Research Question:** “What are the factors that influence teenagers’ adoption of social media banking in the Northeast Thailand?”

**Research Objective:** 1) To identify the factors affecting the intention to use social media banking in teenagers of Northeast Thailand. 2) To provide a recommendation to social media banking stakeholders such as developers, marketers, and banks to increase social media banking usage.

To answer the research question raised earlier, we proposed a new theoretical framework that integrates the Unified Theory of Acceptance and Use of Technology (UTAUT) with perceived convenience. The model and hypothesis are validated using data from participants’ questionnaires.

## 2. Literature Review.

**2.1. Social media banking.** In the past decade, the banking industry has recognized social media’s potential for client engagement. According to a recent study, numerous banks now utilize social media for banking activities such as marketing, client interaction, and help. They ignore, however, the possibility that these platforms could offer transactional banking services for their customers [2]. Majekodunmi and Harris [5] advised that just a tiny percentage of consumers had opened a bank account using social media, citing concerns about data security and privacy as barriers.

Social media banking refers to users’ ability to conduct financial transactions such as product purchases or fund transfers through the social media platform [2]. Financial institutions in Thailand use social media to communicate with consumers, as well as advertise and promote their products and services. Kbank (Kasikorn bank), one of Thailand’s most well-known banks, has launched the first transactional banking services on the LINE social network, branded “LINE BK” [9]. Link BK started offering various financial services through the Line social media platform, including new lending options and more convenient fund transfers. Users may benefit from social media banking because it is more user-friendly, accessible, and lifestyle-oriented on mobile. Furthermore, social media platforms enable banks to contact and communicate with people anytime and anywhere, providing information and strengthening relationships with consumers.

**2.2. Unified theory of acceptance and use of technology.** The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by combining eight user acceptance models in order to gain a better understanding of consumers’ perceptions toward new technology acceptance [10]. The UTAUT model is composed of four components: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Previous studies have used the UTAUT model to investigate users’ perceptions and intentions toward adopting mobile banking services [6,8,11]. For example, the UTAUT model was used to determine the acceptance and use of social media banking in the Sultanate of Oman [7]. The UTAUT was entrusted with the responsibility of examining users’ intent and use of social media banking. However, additional factors would enhance the model’s understanding of users’ perceptions of social media banking for various financial services. For example, Khan et al. [12] analyzed and compared online banking acceptability in Pakistan and Turkey using the UTAUT2 extended with perceived credibility to predict customers’ behavioral intentions and online banking usage.

To summarize, social banking is a relatively new phenomenon in Thailand. As a result, it is essential to study its adoption. In this study, a modified version of UTAUT will be used in the context of social banking.

### 3. Research Methodologies.

3.1. **Designing the conceptual model.** Figure 1 depicts the conceptual framework of this study. The framework was developed based on UTAUT, albeit with an additional focus on perceived convenience.

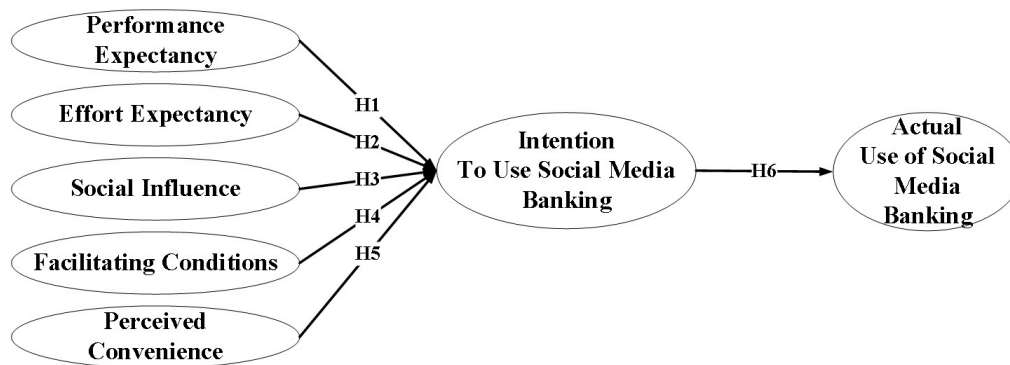


FIGURE 1. The proposed theoretical framework of the study

3.1.1. *Performance Expectancy.* Performance Expectancy (PE) refers to “*the degree to which an individual believes that using the system will help him or her to attain gains in job performance*” [10]. PE also appears to positively affect users’ attitudes and perceptions toward mobile and Internet banking [6,8]. As a result, if using social media for transactional banking improves users’ performance as expected, they will be more willing to adopt and use the service. The study makes the following hypothesis:

**H1:** Performance Expectancy has a positive effect on users’ behavioral intention to use social media banking.

3.1.2. *Effort Expectancy.* Effort Expectancy (EE) is referred to as “*perceived ease of use*” in Technology Acceptance Model (TAM) [13]. Thomas et al. [7] found that EE has the most substantial influence on behavior intention towards social media banking in the Sultanate of Oman. In this study, EE represents users’ ease of using social media banking. This study hypothesizes that users will be more likely to adopt the service if it is easy to use, simple to understand, and requires little effort to complete transactions.

**H2:** Effort Expectancy has a positive effect on users’ behavioral intention to use social media banking.

3.1.3. *Social Influence.* Social Influence (SI) is defined as “*the degree to which an individual perceives that important others believe he or she should use the new system*” [10]. Ahmed et al. [6] showed that SI is the most influential factor among youth in the adoption of mobile banking by youth in Bangladesh. Bhatiasavi [8] also reported that SI directly affects users’ behavioral intention. As a result, users are more likely to use social media banking if they are influenced by others who are influential in their lives. The study hypothesized the following:

**H3:** Social Influence has a positive effect on users’ behavioral intention to use social media banking.

3.1.4. *Facilitating Conditions.* The term Facilitating Conditions (FC) refers to “*the degree to which a user believes that an organizational and technical infrastructure exists to use the system*” [10]. Purwanto and Loisa [11] and Gharaibeh et al. [14] found that FC significantly affects users’ adoption of mobile banking. Thus, this study postulates that if users believe that a significant support condition is provided, it will help persuade them to adopt social media banking for their transactions. Therefore, the following hypothesis is proposed:

**H4:** Facilitating Conditions have a positive effect on users’ usage behavior of social media banking.

3.1.5. *Perceived Convenience.* According to Liao and Cheung [15], the fact that customers can conveniently access financial services via the Internet at any time and from any location using the appropriate devices distinguishes it from traditional banking. Bhatiasevi [8] also intergraded the Perceived Convenience (PC) factor in UTAUT to explain the adoption of mobile banking. The result showed that PC is an essential factor influencing users’ behavioral intention to use mobile banking. Thus, PC in this study context refers to the degree of convenience when using the system, such as ubiquitously accessing various financial services over social media on any device. Hence, the study hypothesizes the following:

**H5:** Perceived Convenience has a positive effect on users’ usage behavior of social media banking.

3.1.6. *Intention to use social media banking and actual use of social media banking.* The intention to adopt has been defined as “the degree to which a person has formulated conscious plans regarding whether to perform a specified future behavior”. Thus, in the context of this study, intention to adopt “refers to the intention to use social media banking”. Additionally, the intention will result in actual social media banking use. Hence, our hypothesis is as follows:

**H6:** Intention to use social media banking has a positive effect on the actual use of social media banking.

3.2. **Participants and data collection.** This study’s target population is teenagers from Northeast Thailand. The participants of this study were chosen through a convenience sample method. The data was gathered using a self-administered online questionnaire. The questionnaire was distributed to online social networking groups. The questionnaire is divided into two sections. The first section elicited demographic data. The second section contains the proposed research model’s constructs. The constructions of the variables were evaluated using a seven-point Likert scale, with one indicating “strongly disagree”, and seven indicating “strongly agree”. The questionnaire was accessible (September 2021) through the Internet for one month. As a result, 198 persons completed the questionnaire. However, 39 of them did not meet the screening criteria. Therefore, 159 datasets ( $N = 159$ ) were chosen to test the hypotheses. Table 1 shows the descriptive statistics of the participants.

Partial Least Squares Structural Equation Modeling (PLS-SEM) is used to examine the collected data [16]. The PLS-SEM algorithm does not require that the data be normally distributed. Additionally, the PLS is well-known for its ability to analyze a tiny sample. Previously published research indicated that a sample size of 100-200 is sufficient for path analysis modeling using PLS-SEM [17,18]. Furthermore, the bootstrapping procedure was used to test the hypotheses [19]. The instruments used to conduct this study are listed in Table 2.

4. **Results.** The collected data were analyzed using SmartPLS version 3.3.3 software [21]. We followed the procedures outlined in [22]. The first step is to evaluate the accuracy and

TABLE 1. Descriptive statistics of participants

Variable	Frequency	Percentage
<b>Gender</b>		
Male	50	31.4%
Female	108	67.9%
Other	1	0.7%
Total	159	100%
<b>Province</b>		
Buriram	7	4.4%
Mukdahan	5	3.1%
Yasothon	7	4.4%
Roi Et	7	4.4%
Si Sa Ket	16	10.1%
Surin	10	6.3%
Nong Khai	9	5.7%
Ubon Ratchathani	83	52.2%
Amnat Charoen	15	9.4%
Total	159	100%

validity of the measurement model, followed by an evaluation of the structural model to test the hypotheses. This section describes the findings of the analyses.

**4.1. Evaluation of the measurement models.** The PLS method requires a skewed data distribution for the measurement model [17]. Skewness and kurtosis are acceptable in the range of  $-2$  to  $+2$  [23]. As shown in Table 3, the kurtosis and skewness of the data in this study are acceptable. Furthermore, the internal consistency of the measurement models should be evaluated for reliability, internal consistency, convergent validity, and discriminant validity. The evaluation results of the measurement model are shown in Table 4. The reliability was assessed using Cronbach’s alpha coefficient, Rho\_A coefficient, and composite reliability. The Cronbach’s alpha coefficient should be greater than 0.70 but less than 0.95 [24]. The constructs have the lowest value of Cronbach’s alpha coefficient at 0.70. Therefore, the instrument is reliable. The Rho\_A coefficient of this model is more than 0.70, which is beyond the threshold of 0.60 [28]. Most of the composite reliability values are more than 0.70 except FC, which has a value of 0.659 [22]. Therefore, the model passed the reliability analysis.

Each construct is evaluated for convergent validity using the outer loading and Average Variance Extracted (AVE) values. The outer loading should be at least 0.70, and the AVE’s cutoff should exceed 0.5 [22,26]. Consequently, the outer loading and AVE of the relevant constructs in this study meet the minimal requirement for convergent validity, excluding the Facilitating Conditions.

We assess the model’s discriminant validity using the Fornell-Larcker coefficient [27] and the Heterotrait-Monotrait (HTMT) ratio [28]. The Fornell-Larcker metric can be used to determine whether a construct is distinct from others in the structural model. Table 5 illustrates the correlation metric, which compares the square root of the AVE values to the correlation of each component. If the square root of each construct’s AVE is greater than its highest correlation, discriminant validity is established, corresponding to our case. Furthermore, Table 5 also shows the value of HTMT. The HTMT values of our model are less than the threshold of 1 [28]. Hence, the discrimination validity of our model is passed.

TABLE 2. Research instruments

Constructs		Questions	Ref.
Performance Expectancy	PE1	1) It is useful to use banking through social networks.	[10]
	PE2	2) Using social media banking allows me to make financial transactions faster.	
	PE3	3) Using social media banking increases the potential of my financial transactions.	
Effort Expectancy	EE1	4) It is easy for me to learn to use social media banking.	[13]
	EE2	5) Interaction with banks through social networks is easy to understand.	
	EE3	6) I think banking through social networks is easy.	
Social Influence	SI1	7) People who are important to me think I should use social media banking.	[10]
	SI2	8) People who influence my behavior think I should use social media banking.	
Facilitating Conditions	FC1	9) I have the necessary resources such as the Internet to access social media banking.	[10]
	FC2	10) I have the necessary knowledge to use social media banking.	
	FC3	11) I can get help from other people when I have problems using social media banking.	
Perceived Convenience	PC1	12) I can access banking through social networks at any time.	[20]
	PC2	13) I can access banking through social networks everywhere	
	PC3	14) Banking through social networks offers a wide range of financial transaction services.	
Intention	INT1	25) I intend to use this social media banking in the future.	[10,13]
	INT2	26) I guess I will use this social media banking in the future.	
	INT3	27) I plan to use this social media banking in the future.	
Actual Use	ACT1	28) I will use social media banking for my financial transactions.	[10,13]
	ACT2	29) I am satisfied with using social media banking for my financial transactions.	

TABLE 3. Descriptive statistics of the instruments

Variables	Mean	Std. Deviation	Kurtosis	Skewness
Performance Expectancy	3.79	0.75	0.132	-0.309
Effort Expectancy	3.79	0.74	-0.395	-0.274
Social Influence	3.48	0.99	-0.347	-0.328
Facilitating Conditions	3.77	0.75	-0.463	-0.272
Perceived Convenience	3.99	0.79	-0.456	-0.534
Intention	3.48	0.96	-0.166	-0.392
Actual Use	2.80	1.09	-0.430	-0.558

**4.2. Hypothesis testing results.** The model was tested using Standardized Root Mean Squared Residual (SRMR), which is an absolute measure of the model's fit. The value of SRMR less than 0.08 is considered a good fit [22,26]. The SRMR value of our study is 0.076. Hence, the model fit is passed. In addition, the bootstrapping algorithm is employed to determine the  $t$ -statistic and  $p$ -value for testing the significance of the relationship

TABLE 4. Evaluation of measurement model

Factors	Items	Factor loading	Cronbach's alpha	Rho_A	Composite reliability	AVE
Performance Expectancy	PE1	0.816	0.825	0.827	0.825	0.611
	PE2	0.790				
	PE3	0.737				
Effort Expectancy	EE1	0.840	0.783	0.793	0.783	0.548
	EE2	0.884				
	EE3	0.785				
Social Influence	SI1	0.925	0.848	0.862	0.853	0.745
	SI2	0.796				
Facilitating Conditions	FC1	0.655	0.700	0.674	0.659	0.396
	FC2	0.504				
	FC3	0.712				
Perceived Convenience	PC1	0.802	0.792	0.801	0.791	0.561
	PC2	0.738				
	PC3	0.795				
Intention	INT1	0.903	0.892	0.896	0.892	0.734
	INT2	0.784				
	INT3	0.878				
Actual Use	ACT1	0.777	0.746	0.781	0.759	0.616
	ACT2	0.879				

TABLE 5. The Fornell-Larcker metric and Heterotrait-monotrait ratio metric

	ACT		FC		INT		PC		PE		EE		SI	
	FLM	HTMT	FLM	HTMT	FLM	HTMT	FLM	HTMT	FLM	HTMT	FLM	HTMT	FLM	HTMT
ACT	<b>0.785</b>	1.000												
FC	0.492	0.524	<b>0.630</b>	1.000										
INT	0.739	0.740	0.637	0.638	<b>0.857</b>	1.000								
PC	0.409	0.394	0.804	0.817	0.705	0.707	<b>0.749</b>	1.000						
PE	0.582	0.585	0.715	0.727	0.612	0.615	0.770	0.775	<b>0.782</b>	1.000				
EE	0.462	0.459	<b>0.880</b>	0.903	0.471	0.472	0.776	0.780	0.712	0.713	<b>0.740</b>	1.000		
SI	0.618	0.633	0.749	0.763	0.679	0.682	0.753	0.751	0.627	0.634	0.704	0.707	<b>0.863</b>	1.000

\*FLM = Fornell-Larcker, HTMT = Heterotrait-monotrait

TABLE 6. Hypotheses testing results

Hypothesis	Relationship	$\beta$ coefficients	t-statistics	p-values	Results	$f^2$	VIF
H1	PE→INT	0.202	2.254	< 0.05	Confirmed	0.043	2.696
H2	EE→INT	-0.665	2.261	< 0.05	Confirmed	0.258	4.837
H3	SI→INT	0.745	4.287	< 0.001	Confirmed	0.124	2.679
H4	FC→INT	0.396	1.798	<b>Not sig</b>	Rejected	0.117	5.647
H5	PC→INT	0.561	3.089	< 0.005	Confirmed	0.119	4.150
H6	INT→ACT	0.739	13.225	< 0.001	Confirmed	1.205	1.000

between variables [22,26]. Table 6 summarizes the findings of the hypotheses testing using the Bootstrap approach. In order to determine collinearity, the Variance Inflation Factor (VIF) was applied. The VIF value should be less than 5 to indicate that there is no collinearity issue. Unfortunately, only Hypothesis 4 has a VIF of 5.647, which has a minor collinearity issue.

The value of  $f^2$  is also presented in Table 6. It explains the predictor's effect size. The  $f^2$  values of 0.02, 0.15, and 0.35 correspond to small, medium, and significant effects, respectively [29]. Additionally,  $f^2$  values less than 0.02 indicate that no influence exists.

Due to the non-significance of the  $p$ -value and the high value of the VIF, the result indicated that H4 (FC→INT) is rejected. The only factor that negatively affects INT is the EE. SI has the strongest predictive toward INT.

$R^2$  is a crucial criterion in PLS-SEM because it is used to explain the variance of the variables. The  $R^2$  number is between 0 and 1. The level of predictive relevance could be measured using  $Q^2$  from the blindfolding algorithm. The  $Q^2$  value must be greater than 0. The higher  $R^2$  and  $Q^2$  values, the more accurate the prediction and relevance, respectively. Figure 2 shows the results of the proposed model along with  $R^2$  and  $Q^2$ . Overall, the results indicated that the predictors (PE, EE, SI, FC, and PC) could explain 64.6% of the intention to use social media banking variance. Moreover, the other  $R^2$  values are between 0.50 and 0.75, considered moderate and substantial. The intention to use social media banking can explain 54.7% of the variance when predicting the actual use of social media banking. The  $Q^2$  values between 0.25 and 0.5 represent the medium and high relevances of the path model [22].

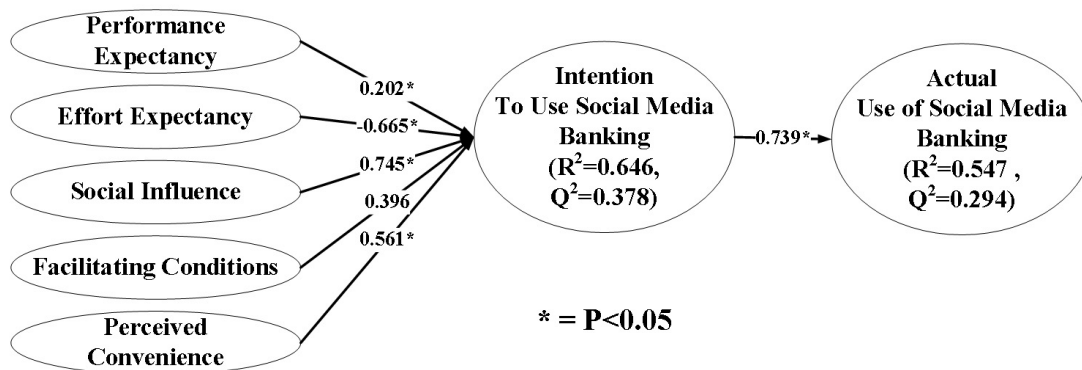


FIGURE 2. Results from PLS

## 5. Conclusions.

**5.1. Conclusion.** The objectives of this study are to identify the factors that influence teenagers' intention to use social media banking in Northeast Thailand and provide a recommendation to stakeholders to increase social media banking usage. The proposed integrated model was based on UTAUT and perceived convenience. The results indicate that the model is a good fit.

The most obvious result is that intention to use social media banking has a significant positive effect on the actual use of social media banking ( $\beta = 0.739$ ). These findings align with most technology acceptance theories, such as Venkatesh et al. [10] and Davis [13]. The PE ( $\beta = 0.202$ ), SI ( $\beta = 0.745$ ), and PC ( $\beta = 0.561$ ) are the factors that significantly affect the intention to use social media banking. The result of PC also corroborated the findings of previous studies by Bhatiasevi [8] and Chang et al. [20], which concluded that PC has a positive effect on mobile banking and mobile technology learning adoption.

The Facilitating Conditions are the sole predictor that is not statistically significant. These conclusions are supported by Bhatiasevi [8]. While describing the adoption of mobile banking, the author discovered that the Facilitating Conditions did not affect the adoption. The reason may be that teenagers are already familiar with social media. They believe that no effort is required to understand how to use social media banking. Furthermore, generally speaking, teenagers have a limited amount of disposable money, which may affect their intention to use social media banking.



**5.2. Implications.** This work unravelled and shed light on the understanding of factors affecting teenagers in Northeast Thailand on the usage of social media banking. The contribution to existing knowledge and research is a set of recommendations for increasing the adoption of social media banking among teenagers. First, Social Influence has the strongest impact on the intention to use social media banking. Therefore, teenagers will adopt social media banking at a higher rate if influential individuals around them believe that they should do so. Therefore, users should be able to invite their friends to join the social media banking platform. Secondly, Perceived Convenience also has a strong effect on the intention. Hence, the developer should make social media banking as convenient as possible, for example, the transactional banking processes (send/receive money), micro-lending, and product purchasing. Thirdly, participants will adopt social media banking if it helps improve their performance and effectiveness. Therefore, the stakeholders of social media banks must demonstrate that their services can improve customers' professional and personal performance.

Finally, the transactional banking service on social media is still newsworthy. There is only one financial institution in Thailand that provides this service. Nonetheless, the results indicate that teenagers strongly intend to adopt social media banking.

**5.3. Limitation and future works.** Further research should address these limitations. The participants in this study may remain financially illiterate. The majority of them still have no income or salary. As a result, they may not comprehend how social media banking works. Additionally, social media banking in Thailand is still in its early stages. Few competitors exist in this market. Further research could be conducted to compare the various forms of social media banking. Our planned future research will focus on the adoption of further disrupted financial products, including cryptocurrency, decentralized financial instruments, and Non-Fungible Tokens (NFT).

## REFERENCES

- [1] S. Zuhdi, A. Daud, R. Hanif, P. T. Nguyen and K. Shankar, Role of social media marketing in the successful implementation of business management, *International Journal of Recent Technology and Engineering*, vol.8, no.2S11, pp.3841-3844, DOI: 10.35940/ijrte.B1507.0982S1119, 2019.
- [2] S. Parusheva, Social media banking models: A case study of a practical implementation in banking sector, *Social Media in Business and Education – Innovative Models, Opportunities and Challenges*, vol.26, no.3, pp.125-141, 2017.
- [3] K. Chavali and A. Kumar, Adoption of mobile banking and perceived risk in GCC, *Banks and Bank Systems*, vol.13, no.1, pp.72-79, DOI: 10.21511/bbs.13(1).2018.07, 2018.
- [4] J. M. Hansen, G. Saridakis and V. Benson, Risk, trust, and the interaction of perceived ease of use and behavioral control in predicting consumers' use of social media for transactions, *Computers in Human Behavior*, vol.80, pp.197-206, DOI: 10.1016/j.chb.2017.11.010, 2018.
- [5] D. Majekodunmi and L. Harris, Consumers' attitudes towards social media banking, in *Social Media: The Good, the Bad, and the Ugly. I3E 2016. Lecture Notes in Computer Science*, Y. K. Dwivedi, M. Mäntymäki, M. N. Ravishankar et al. (eds.), Cham, Springer, 2018.
- [6] Z. Ahmed, A. Kader, M. Rashid, H. Ur and M. Nurunnabi, User perception of mobile banking adoption: An integrated TTF-UTAUT model, *Journal of Internet Banking and Commerce*, vol.22, no.3, pp.1-19, 2017.
- [7] T. R. Thomas, P. K. Singh and S. Aulia, Acceptance and use of social media banking in Sultanate of Oman, *International Journal of Managerial Studies and Research*, vol.5, no.11, pp.90-96, DOI: 10.20431/2349-0349.0511010, 2017.
- [8] V. Bhatiasevi, An extended UTAUT model to explain the adoption of mobile banking, *Information Development*, vol.32, no.4, pp.799-814, DOI: 10.1177/0266666915570764, 2016.
- [9] Line BK, *KBank LINE Join Forces to Establish 'KASIKORN LINE Co., Ltd.'*, <https://www.linebk.com/th/news/detail/KBank-LINE-join-forces/>, 2019.
- [10] V. Venkatesh, M. G. Morris, G. B. Davis and F. D. Davis, User acceptance of information technology: Toward a unified view, *MIS Quarterly*, vol.27, no.3, pp.425-478, DOI: 10.2307/30036540, 2003.
- [11] E. Purwanto and J. Loisa, The intention and use behaviour of the mobile banking system in Indonesia: UTAUT model, *Technology Reports of Kansai University*, vol.62, no.6, pp.2757-2767, 2020.

- [12] I. U. Khan, Z. Hameed, S. N. Khan, S. U. Khan and M. T. Khan, Exploring the effects of culture on acceptance of online banking: A comparative study of Pakistan and Turkey by using the extended UTAUT model, *Journal of Internet Commerce*, pp.1-34, DOI: 10.1080/15332861.2021.1882749, 2021.
- [13] F. D. Davis, Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, vol.13, no.3, pp.319-340, DOI: 10.2307/249008, 1989.
- [14] M. K. Gharaibeh, M. R. M. Arshad and N. K. Gharaibh, Using the UTAUT2 model to determine factors affecting adoption of mobile banking services: A qualitative approach, *International Journal of Interactive Mobile Technologies*, vol.12, no.4, pp.123-134, DOI: 10.3991/ijim.v12i4.8525, 2018.
- [15] Z. Liao and M. T. Cheung, Internet-based e-banking and consumer attitudes: An empirical study, *Information and Management*, vol.39, pp.283-295, DOI: 10.1016/s0378-7206(01)00097-0, 2002.
- [16] J. F. Hair, M. Sarstedt, L. Hopkins and V. G. Kuppelwieser, Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research, *European Business Review*, vol.26, no.2, pp.106-121, DOI: 10.1108/EBR-10-2013-0128, 2014.
- [17] K. K.-K. Wong, Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS, *Marketing Bulletin*, vol.24, no.1, pp.1-32, 2013.
- [18] R. H. Hoyle, *Structural Equation Modeling: Concepts, Issues, and Applications*, SAGE Publications, 1995.
- [19] C. Z. Mooney, C. F. Mooney, C. L. Mooney, R. D. Duval and R. Duvall, *Bootstrapping: A Nonparametric Approach to Statistical Inference*, SAGE Publications, 1993.
- [20] C.-C. Chang, C.-F. Yan and J.-S. Tseng, Perceived convenience in an extended technology acceptance model: Mobile technology and English learning for college students, *Australasian Journal of Educational Technology*, vol.28, no.5, DOI: 10.14742/ajet.818, 2012.
- [21] C. M. Ringle, S. Wende and J.-M. Becker, *SmartPLS 3*, SmartPLS GmbH, Boenningstedt, 2015.
- [22] J. Hair, G. T. M. Hult, C. M. Ringle and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd Edition, SAGE Publications, Thousand Oaks, CA, 2016.
- [23] D. George and P. Mallery, *IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference*, 16th Edition, Routledge, London, England, 2019.
- [24] L. J. Cronbach, Coefficient alpha and the internal structure of tests, *Psychometrika*, vol.16, no.3, pp.297-334, DOI: 10.1007/bf02310555, 1951.
- [25] T. K. Dijkstra and J. Henseler, Consistent and asymptotically normal PLS estimators for linear structural equations, *Computational Statistics and Data Analysis*, vol.81, pp.10-23, DOI: 10.1016/j.csda.2014.07.008 2015.
- [26] J. F. Hair, J. J. Risher, M. Sarstedt and C. M. Ringle, When to use and how to report the results of PLS-SEM, *European Business Review*, vol.31, no.1, pp.2-24, DOI: 10.1108/eb-11-2018-0203, 2019.
- [27] C. Fornell and D. F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, vol.18, no.1, pp.39-50, DOI: 10.1177/002224378101800104, 1981.
- [28] J. Henseler, C. M. Ringle and M. Sarstedt, A new criterion for assessing discriminant validity in variance-based structural equation modeling, *Journal of the Academy of Marketing Science*, vol.43, no.1, pp.115-135, DOI: 10.1007/s11747-014-0403-8, 2014.
- [29] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, Routledge, DOI: 10.4324/9780203771587, 2013.