Influencing Factor in E-Wallet Acceptant and Use

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Abstract: E-Wallet is an application that facilitates users to make a payment via a mobile device instead of cash. The World's E-Wallet growth has increased dramatically since 2011. However, Thailand's E-Wallet growth is slower, less than 0.02% per year. This research aims to determine factors that cause slow E-Wallet growth in Thailand by investigating the factors involved in accepting and using E-Wallet technology. The information obtained from this study can assist E-Wallet providers in Thailand improve the design and marketing plans that fit the behavioural E-Wallet use of Thai. The model engaged in this study is the UTAUT model that focuses on four main factors that have affected behavioural intention and behavioural use of E-Wallet in Thailand. Performance expectancy, effort expectancy, social influence and facilitating condition are major's variables. Data collection has been conducted by surveying 400 people in metropolitan areas. The results show that behavioural intentions, the mediator variable of the proposed model, are highly affected by performance expectancy and effort expectancy with the regression weights 0.001 and 0.001, respectively. On the other hand, the mediator variable is low affected by social influence and facilitating condition with the regression weights .201 and 0.506. The proposed model yields the regression weight between behavioural use and behavioural intention as 0.001, which means that behavioural intention as a mediator variable affects behavioural use. This study proves that performance expectancy and effort expectancy is highly effective to behavioural intention use of E-wallet. The findings suggested that the government should push all government's facilities such as Bangkok mass transit, post office, and other services to support the E-wallet payment system. Then, people can be forced to use and gradually understand.

Keywords: E-wallet, Thailand, e-payment, customer, behavioral intention

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INTRODUCTION

Nowadays, spending money through internet and online banking of Thai people has increased According to bank of Thailand reported (Beller, 2018) since 2014, banking transaction based on mobile system has greatly increased comparing to one based on internet banking.

Recently, Thai government has conducted the Twelfth National Economic and Social Development Plan 2017-2021 (National Economic and Social Development Board, 2016) with the aim to develop digital era in Thailand, Ministry of Digital Economy and Society (MDES) develop this operational plan along with five major principles regard the digital security enhancement which is the foundation of digital economy. The five major principles are 1) enhance critical infrastructure, 2) encourage online transaction, 3) strengthen cyber law, 4) standardize data pool, 5) cyber risk management and (Ministry of Digital Economy and Society, 2016). According to the plan, the first project called Prompt Pay (Sujjapongse, 2016) is launched in year 15 July 2016, where the interbank fund transferring is simple and more convenience. Citizen ID number or mobile phone number is used to link with the bank account and free of fund transferring service charge.

In addition to PromptPay, smart purse is one of the popular payments in Thailand (Shopsmart Finance, 2018).

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Smart purse is developed on magnetic or IC-chip technology which allows user to add the money to the card from service kiosk and later purchase items or services from any stores that support smart card payment. However, adding the money to smart card requires kiosk to transfer cash into card. Most smart purse service in Thailand does not allow tying smart purse with the bank account. Therefore, the smart purse service providers should provide kiosks in many locations. Moreover, the shops must have the magnetic/IC-chip reader for making a payment via smart purse. The reader maintaining cost is quite high.
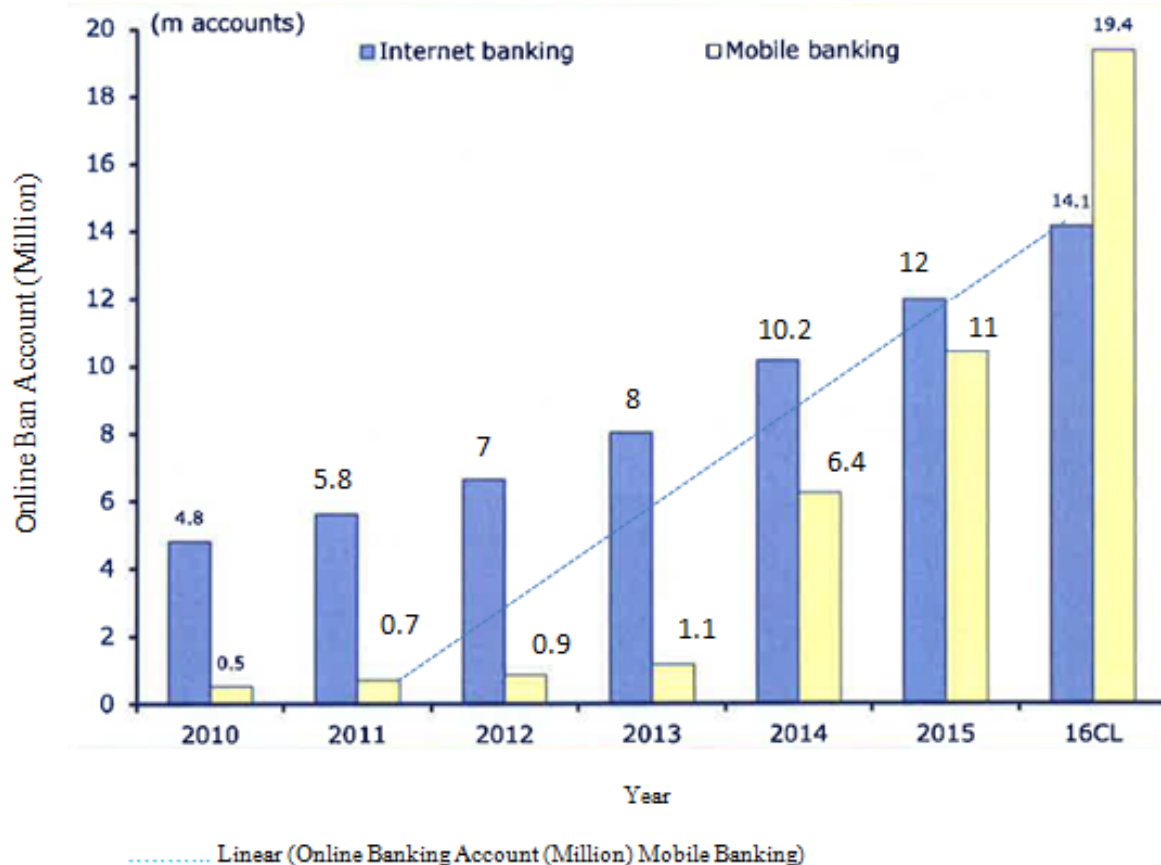

Figure 1 *Report Mobile Banking over Internet Banking (Beller, 2018)*

This is why smart purse is fading out. The new generation of smart purse is online smart purse. Online smart purse is a mobile application which allows user to perform the same as smart purse. Instead of using the magnetic/IC-chip reader, the shops need to read barcode/QR-code from customer screen. This application facilitates the store owners specially the small stores in customer's payment handling. This is part of evolution of payment technology before E-wallet era. E-wallet is new generation of payment technology for ones that are fascinated in mobile banking and looking for the more convenient method in daily basis. E-Wallet becomes an interesting payment tools that change offline transaction toward online transaction.

E-Wallet is a mobile application which allows user to make any payments instead of cash note. E-Wallet is functioning as mobile banking transfer method without knowing the receiving bank account before transfer. E-Wallet is connected virtual account and allow user to pay. Destination account will generate barcode/QR code for buyer to scan. In year 2016, Chinese people did payment through mobile wallet/E-Wallet around 74.6% via WeChat or Alipay. As report in Figure 2, the trend of E-Wallet is still highly growth. China is one of the large E-Wallet usage.

Anyway Thailand online banking has increased every year as well as mobile banking. However the E-Wallet usage in Thailand does not grow with same trend. In this research, we aim to find out what are influencing factors in E-wallet acceptance and use in Thailand. Here, the UTAUT model is employed and sent out survey around Bangkok and metropolis area.
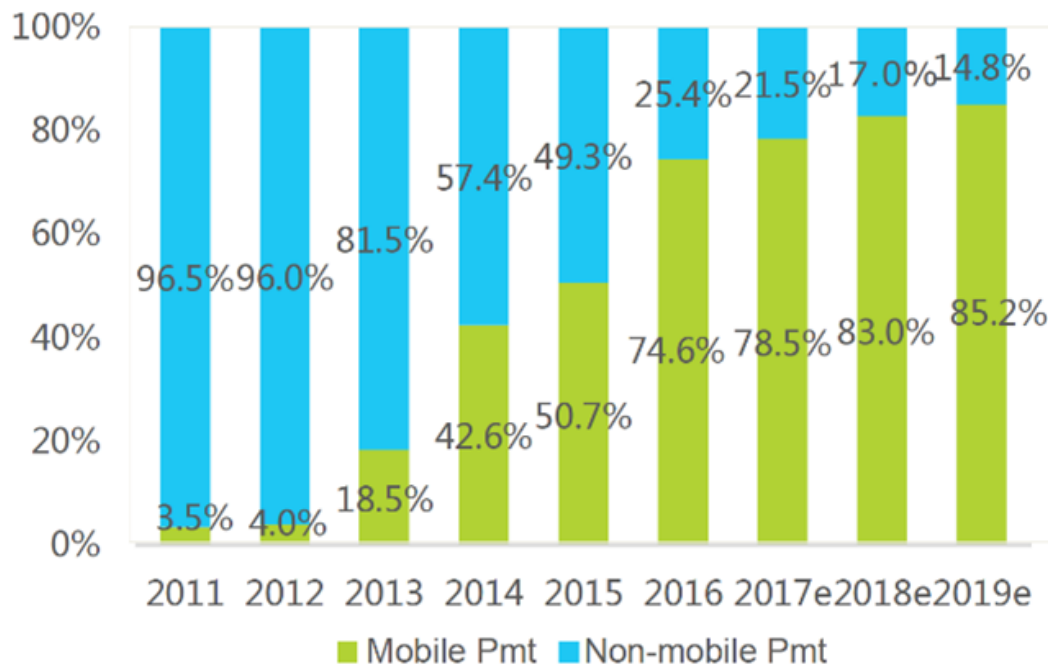
Figure 2 *2011-2019 E-Wallet vs Non E-Wallet Payment % Market Share in China (Tingyi, 2017)*

LITERATURE REVIEW

UTAUT-Unified Theory of Acceptance and Use of Technology

Accepting new technology need more factor to consider in the model, so model will give more accuracy in the result. Unified Theory of Acceptance and Use of Technology (UTAUT) present in 2003 by Venkatesh (Venkatesh, Morris, Davis, & Davis, 2003). UTAUT construct from 8 acceptance theories which are TRA, TPB, TAM, MPCU, DOI, MM SCT and C-TAM-TPB.

The Technology Acceptance Model or TAM introduced by Davis (1989) is one of the most frequently used models in acceptance of computer, applications and technology. The model explains adaptation from user's intention to use technology based on influence of their attitudes on the technology. It is very likely that the variability in these attitudinal and behavioral constructs depends on the user's perceptions. The user's perceptions include perceived usefulness and perceived ease of use. The perceived usefulness is the believes of using technology for enhancing user productivity. The perceived ease of use represents the degree of user acknowledgement of easiness of the technology.

The UTAUT model consists four main factors. First, the performance expectancy is the factor that help user to increase their activity performance. Second, the effort expectancy is the factor about easiness for user on technology. Third, the social influence is the factor from people influencing user to use technology. And forth, the facilitating condition is a tool to support user on the technology. The UTAUT is different from other theory since the model includes external factors which enhance the UTAUT model more predictive efficiency 70% than the TAM model (AL Khuja & Mohamed, 2016; Anwar & Talib, 2018; David & Rahim, 2012; David, Helou, & Rahim, 2012; Shin & Seo, 2017).

Figure 3 shows UTAUT model. UTAUT construct from 4 variants which is performance expectancy, effort expectancy, social influence and facilitating condition. Also, external variants which is gender, age, experience and voluntariness of use. All are effect to user behavior.
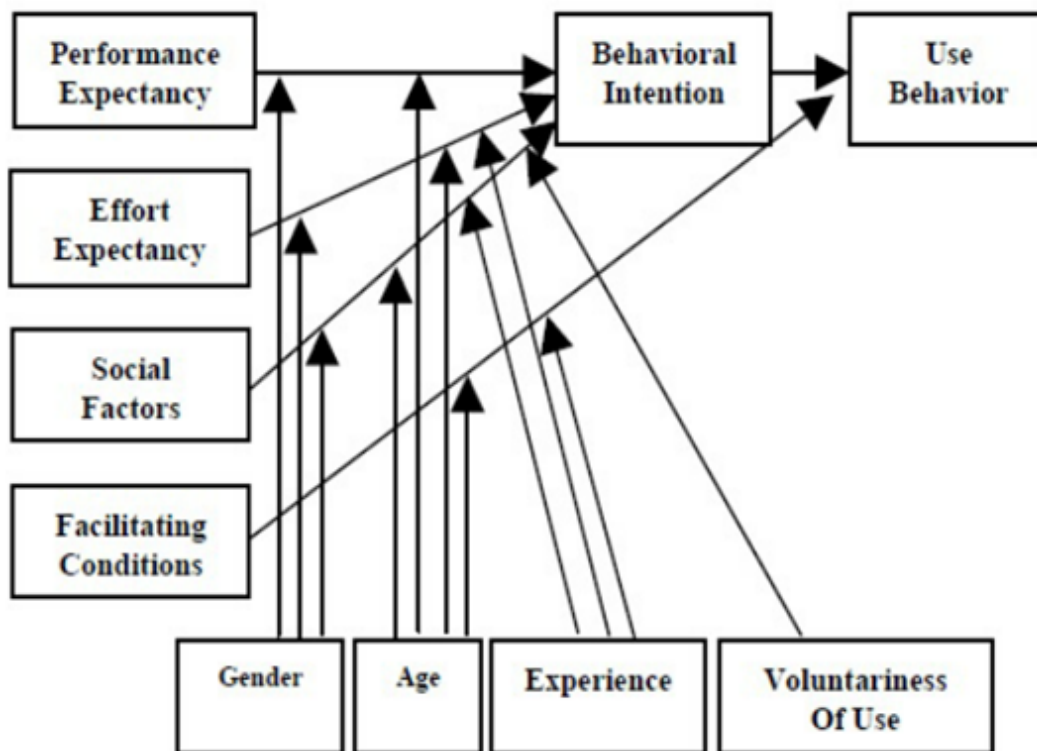
Figure 3 *UTAUT Model (Venkatesh, 2003)*

Structural Equation Modeling

Structural Equation Modeling (SEM) is a statistical technique with path analysis. SEM is invented by Wright (1921). It is combination between factor and regression. SEM basically create diagram's path. It created from rectangles and ellipse which all are connected with pointer. A rectangle box represent observes questionnaire and joined into eclipse as a latent factors. A one-way arrow or path are defining bonded connections in the model, a two-way arrow represents covariance or correlation without causal interpretation. The Confirmatory Factor Analysis (CFA) model in SEM represented statistical method are used to forecast the number of fundamental factors and the factor loading (Arbucle, 1997; Hox & Bechger, 1998)

METHODOLOGY

Study Target Group

The purpose of this study is to validate the influential factors for the results on E-wallet acceptance used. However E-wallet in Thailand is still not board and wide across country. Therefore the population is scoped down to E-wallet user in Bangkok and metropolitan area.

Questionnaire Design

An online questionnaires (Rating Scale) is constructed. The rating scale is set as 1-5, where 1 means very disagree and 5 means very agree. Data is collected randomly from E-wallet user in Bangkok and metropolitan area via online questionnaires.

The number of sampling has been calculated based on sampling formula for unknown ratio between respondents and total users (Yamane, 1964), resulting 400 samplings to be collected. Questionnaires were responding are 400 of these were completed and analyzed.

Research Hypotheses

This study is containing five hypothesizes.

H1: *User's performance expectancy has a positive effect on Behavioral Intention*

H2: *User's effort expectancy has a positive effect on Behavioral Intention*

H3: *User's social influence has a positive effect on Behavioral Intention*

H4: *User's facilitating conditions have a positive effect on E-Wallet acceptance and use*

H5: *User's Behavioral Intention have a positive effect on E-Wallet acceptance and use*

Figure 4 shows UTAUT structure model created by SEM application. Ovals represent variants while the rectangles represent survey questions. Questions in questionnaire are divided into 6 sections according to 6 variants:- 1) PE is performance expectation, 2) EP is effort expectancy, 3) SI is social influence, 4) FC is facilitating condition, 5) BI is behavioral intention and 6) UB is user behavior. Each variant cannot have its own value so that its questions are considered as factors of that particular variant.
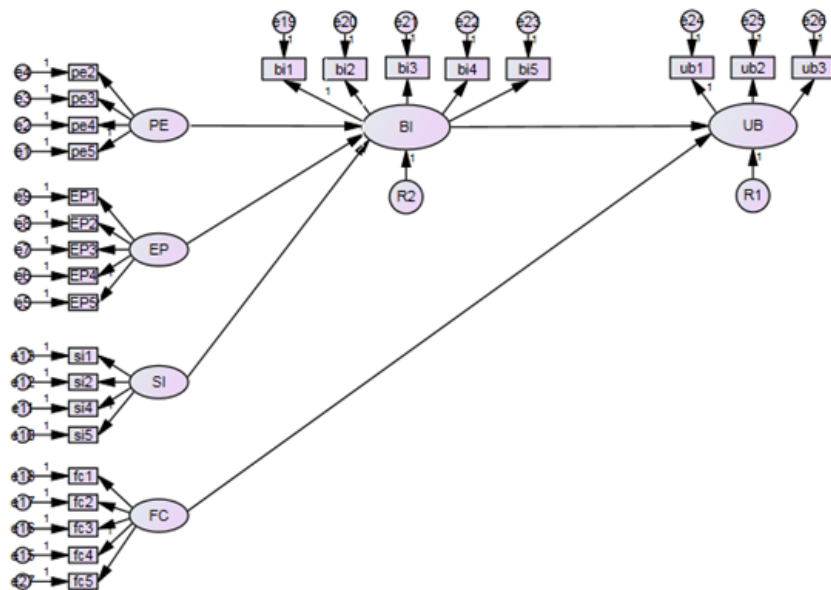

Figure 4 *Model of Influencing Factor*

RESULTS

This research analytic path was computed with SEM technique, where all models will be analyzed. Models and hypotheses must be test on survey questions Which represent all factor. The result of model after adjustment will show stable and observed data. Goodness-of-Fit indicators included a Chi-square value of 374.636 with 277 degrees of freedom; CMIN/DF = 1.452; SRMR = 0.046; GFI = 0.929; AGFI = 0.90; and RMSEA = 0.04.

The result of process's data, it can summarize that the result of the SEM analysis, had a good fit value as shown in Table 1.

Table 1 *MODEL FIT SUMMARY*

Goodness of Index	Recommend Level**	Result	Remark
CMIN/DF	<2.0	1.46	Accept
RMR	<0.05	.046	Accept
GFI	>0.90	.929	Accept
AGFI	>0.90	.910	Accept
CFI	>0.90	.780	Not Accept
RMSEA	<0.05	.031	Accept
HOELTER	>200	310	Accept

Table 2 *GOODNESS OF FIT INDEX CRITERIA*

Goodness of fit Index	Recommend Level**
CMIN/DF	<2.0
Root Mean Square Residual RMR	<0.05
Goodness-of-fit index GFI	>0.90
Adjusted Goodness-of-fit index AGFI	>0.90
Comparative Fit Index CFI	>0.90
Root Mean-Squared Error Approximation RMSEA	<0.05
HOELTER	>200

**Source: (Bentler, 1992; Doll, Xia, & Torkzadeh, 1994; Hair, Black, Babin, & Anderson, 2010)
(Medsker, Williams, & Holahan, 1994)

Table 2 summarizes the results of these tests. Empirical evidence in CFA is generally assessed using criteria, such as the Standardized Root Mean Square Residual (SRMR), Goodness-of-fit index (GFI), Adjusted Goodness-of-fit index (AGFI), Comparative Fit Index (CFI), Root Mean-Squared Error Approximation (RMSEA). As indicated by (David A. Kenny), Bentler (1995), Steiger and Lind (1980) and HOELTER's Hoelter, J.W. (1983) respectively. Accepting model fit, SRMR value must less than 0.05. The result is (0.46) which is good for model. GFI, AGFI value must exceeds 0.90. As a result, the GFI value (.929) and AGFI value (.910) revealed in Table 6 indicates as a good result. CFI value must over 0.90 as well as GFI. However result turn out only (.780 not accept. As for RMSEA, a value of about 0.05 or less. RMSEA for this factor is less the cutoff (0.31). It means model is good.

Measurement model are fit and good for any research. It need at least three to four indices are accepted. The model which has lower indices fit need to do extra analysis.

Performance Expectancy Factor

Performance Expectancy is analyzing E-wallet performance from user expectancy such speed, variety function, stability and security. A CFA is tested where factor can be identified structured stability and assigned sufficiently.

Table 3 *PERFORMANCE EXPECTANCY MODEL FIT SUMMARY*

Goodness of fit Index	Recommend Level	Result	Remark
CMIN/DF	<2.0	1.167	Accept
RMR	<0.05	.015	Accept
GFI	>0.90	.997	Accept
AGFI	>0.90	.985	Accept
CFI	>0.90	.988	Accept
RMSEA	<0.05	.021	Accept
HOELTER	>200	950	Accept

Effort Expectancy

CFA for the second independent variable (Effort Expectancy) is analyzed effort of user on using E-Wallet. Those are user interface, application support, and complexity of application. As revealed in table 4, RMR value (.000), GFI value (.998), AGFI value (.992), CFI value (1.00), RMSEA value (.010) and HORTLER value (2045) indicates for model fit and are acceptable for this study.

Thus, as described in summary for Table 4, the model has six accepted indices that indicate Effort Expectancy measurement model is suitable for this study.

Table 4 *EFFORT EXPECTANCY MODEL FIT SUMMARY*

Goodness of fit Index	Recommend Level	Result	Remark
CMIN/DF	<2.0	.66	Accept
RMR	<0.05	0.00	Accept
GFI	>0.90	.998	Accept
AGFI	>0.90	.992	Accept
CFI	>0.90	1.00	Accept
RMSEA	<0.05	.010	Accept
HOELTER	>200	2045	Accept

Social Influence

CFA for the third independent variable (Effort Expectancy) is performed to analyze how well the measured variables represent the number of constructs. As revealed in table 5 6 RMR value (.035), GFI value (.996), AGFI value (.981), CFI value (.917), RMSEA value (.036) and HORTLER value (748) Model fit and are acceptable for this study.

Table 5 *SOCIAL INFLUENCE*

Goodness of fit Index	Recommend Level	Result	Remark
CMIN/DF	<2.0	1.467	Accept
RMR	<0.05	.035	Accept
GFI	>0.90	.996	Accept
AGFI	>0.90	.981	Accept
CFI	>0.90	.917	Accept
RMSEA	<0.05	.036	Accept
HOELTER	>200	748	Accept

Facilitating Condition

CFA for the fourth independent variable (Facilitation Condition) is performed to analyze how well the measured variables represent the number of constructs. revealed in table 6 RMR value (.022), GFI value (.993), AGFI value (.978), CFI value (.931), RMSEA value (.032) and HORTLER value (585) indicates adequate model fit and are acceptable for this study.

Table 6 *FACILITATING CONDITION*

Goodness of fit Index	Recommend Level	Result	Remark
CMIN/DF	<2.0	1.386	Accept
RMR	<0.05	.022	Accept
GFI	>0.90	.993	Accept
AGFI	>0.90	.978	Accept
CFI	>0.90	.931	Accept
RMSEA	<0.05	.032	Accept
HOELTER	>200	585	Accept

Hypothesis Testing

SEM: SEM is a model to test relation of each module through software Analysis of Moment Structures (AMOS). The observed variables estimate value are explain how data fits into the model. In Table 7.

Table 7 *HYPOTHESIS*

Hypothesis	Estimate	S.E.	*p*
Behavioral Intention <– Performance Expectancy	.580	.175	***
Behavioral Intention <– Effort Expectancy	.486	.145	***
Behavioral Intention <– Social Influence	.426	.135	.201
E-Wallet acceptance and use <– Facilitation Condition	.078	.117	.506
E-Wallet acceptance and use <– Behavioral Intention	.868	.209	***

H1: *User's performance expectancy has a direct effect on behavioral intention (B = .001***, p ≤ .05) Thus, hypothesis H1 is established.*
H2: *User's effort expectancy has a direct effect on behavioral intention (B = .001***, p ≤ .05) Thus, hypothesis H2 is established.*
H3: *User's social influence has a no effect on behavioral intention (B = .201, p ≤ .05) Thus, hypothesis H3 is not established.*
H4: *User's facilitating conditions has no effect on E-Wallet acceptance and use (B = .506, p ≤ .05) Thus, hypothesis H is not established.*
H5: *User's Behavioral Intention have a positive effect on E-Wallet acceptance and use (B= .001***, p ≤ .05) Thus, hypothesis H5 is established.*

CONCLUSION

User's performance expectancy is significant effect to behavioral intention. From the survey answer, there are 280 people or 70% of samples expect their safety after use E-Wallet more than cash and E-Wallet allows user to carry any amount of money. In addition, the survey shows users are expecting to indicate the personal identification every time before access E-Wallet such as finger or retina scan that provides the second tier of protection the any payments from others.

Not only Also, User's performance expectancy is significant effect to behavioral intention but also User's effort expectancy. The survey results show that user is highly expecting the E-Wallet User Interface (UI) to be easy and simple. The UI should be quick response showing their account balance. Some fancy UI could slow down the response of E-Wallet and make the user concerned. Lastly, according to E-Wallet replaces cash system society, the target user could be all ages and gender. Not only the UI should be simple, but also the application behavior. The application cycle starts from top-up money from user's account to E-Wallet until the payment has done.

In contrast, User's social influence and facilitating conditions has no effect on E-Wallet acceptance and use. In China, more than 10 million people subscribe account with WeChat. WeChat is only messenger application but E-Wallet. They blend to application into one from E-wallet and messenger. WeChat create social influent to Chinese people by encourage people transfer/payment money directly from their messenger. WeChat become a cyber community that user can talk, post and sale/buy like reality world. Unlike China, E-Wallet in Thailand is separating from any social network which could be the reason why the social influence variant has no effect on E-Wallet acceptance and use.

The result of this study proves that performance expectancy and effort expectancy are highly effect to behavioral intention use of E-wallet. However, social influence, facilitation condition has no effect. As a result, social influence need to be improve from software developer, government and big company to encourage people using E-wallet because a huge advertising along research result are not able to compare with people viral. People is socialist system. When group of people believe and interested in something, it will spread out very quickly. Second, government should push all government's facility such as Bangkok mass transit, post office and other services to support E-wallet payment

system. Then, people can be forced to use and gradually understand.

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