Factors Influencing e-payment Loyalty in Thailand

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***Abstract*— Essentially, e-commerce involves trading of goods and services by electronic means. Due to the popularity of e-commerce many electronic payment or e-payment services have been emerged to enable consumers to easier and faster make payment for products and services. In Thailand, the government is trying to push the National e-payment program to provide Thai people with a standardized electronic payment system. In this research in-progress article, the researchers reviewed the literature on e-commerce and e-payment loyalty aiming to identify important factors influencing e-payment adoption in Thailand. We are able to come up with a research model comprising of key factors such as privacy risk, acceptability, consumers' liability, perceived usefulness and confirmation. The model will be used to frame our data collection and analysis in our future research.**

Keywords—e-payment, e-commerce, loyalty

I. INTRODUCTION

Nowadays, Internet technology plays a key role in our daily life. The organizations are aware of the importance and the advantage of the internet technology that is used as a channel to broaden the scope of business. One of the channels is "Electronic Commerce (e-commerce)" [1]. The key component of e-commerce is to provide a method for paying for products and services electronically (Electronic Payment or e-payment). E-payment is a vital part of electronic commerce since a good payment system can help firms reduce their operation costs of goods trading [2]. In addition, the growth of e-payment systems also has a positive impact on economies in more than 70 countries. According to a report by Let's Talk Payments in 2011-2015, e-payment systems generated over $296 billion in revenue, resulting in a surge of GDP (Gross Domestic Product) or "gross national product" in 70 countries in the 5-years period. [3][4]

In Thailand, the government is trying to push for the National e-payment program to provide people with the standardized electronic payment system that is consistent with its key policy involving the use of technology (the Internet and mobile phones in particular) to drive Thai economy. The Ministry of Finance has started the National e-payment concept since December in 2015. The cabinet approved the National Electronic Payment System Infrastructure and assigned the relevant agencies to proceed with the strategic plan.

Currently, the use of electronic payment (e-payment) is prevalent in Thailand. During 2012 – 2015 period, on average, the amount of online spending has increase by 19%. Moreover, the number of e-payment transactions was around 3,215.3 million transactions.

In today's cashless society, the use of Mobile Payment (m-payment) has become more and more popular with the development of innovative financial services. Selling products and services via the smart phone application is very common these days. This phenomenon is made possible and accessible by everyone by fast and secure online payment services [5].

Nevertheless, it can be found that consumers still concern about providing personal information including the identification card number, telephone number, e-wallet ID, bank account number or e-mail address [6]. Moreover, the diffusion rate of e-payment adoption in Thailand seem to lag behind other countries even though the government is pushing for the National e-payment program with PromptPay. Nevertheless, the number of e-payment transactions in Thailand is still far behind those in digitally more developed countries. There are, for example, 71 transactions/person/year in Malaysia, 369 transactions/person/year in South Korea and 698 transactions/person/year in Singapore, whereas only 39 transactions/person/year in Thailand [7].

Based on what we have discussed, we therefore review previous studies on factor affecting e-commerce as well as e-payment loyalty aiming to identify important factors influencing e-Payment adoption and re-use and develop a framework for e-Payment loyalty in Thailand. The current article is organized as follows. In the next section, prior research on related topics is described and hypotheses are proposed. The third section explains our data collection and analysis approaches that we will take to verify the proposed hypotheses and research framework. Finally, we conclude.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

A. e-Payment loyalty

Loyalty is a profound obligation to consistently repurchase or foster satisfied products or services. The nature of the purchase to repeatedly buy products or services from the same brand. Such a change of behavior is usually influenced by marketing efforts. [9] According to Ron Garland and Philip Gendall. [10], the term loyalty can be defined as "the direct relationship between the individual's attitudes (individual's relative attitude) and repetition".

Customer loyalty is not only about repeat behaviors in purchasing products or services but also includes attitudes and long-term relationship. However, one's repeat purchase behavior does not always reflect one's loyalty to a brand. The repurchase behavior could come from many factors, such as location, familiarity, low price, competitor's mistakes and past experiences etc. [11]

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Heys E. Bob [12] has proposed an index to measure loyalty (see Fig. 1) in three ways as follows:

1) The Retention Loyalty Index (RLI) focuses on current customers who have yet to defect to competitors. The measurement should measure opinions or intentions to switch to the competition, which could be used to forecast churn rate.

2) Advocacy Loyalty Index (ALI) measures the degree to which customers feel positively toward advocating a product, service or brand. Questionnaire should contain questions like overall satisfaction, recommendation likeliness, and repurchase intention.

3) Purchasing Loyalty Index (PLI) concerns how likely customers will increase their purchasing behavior. Information about buying additional products should be collected. This indicator can be used to forecast average revenue per customer.

Based on [12], we define e-payment loyalty as "a level of consumer experience that positively influences the use of electronic payment services", which can be measured from two perspectives [13]. First, an entrepreneurial perspective focusing on organization-level performance baselines which reflect customers' loyalty, such as number of customers who extend their subscription, sales revenue from e-payment, number of new customers, etc. The second perspective concerns the customers. Measures are customer satisfaction, intention to use e-payment again, likeliness of recommendation, etc.

Since our objective is to develop a research framework of e-payment loyalty, we reviewed the literature on loyalty and reuse intention in e-commerce and e-payment. Three key antecedents have been identified. They are trust, satisfaction and attitude. Previous works related the three factors are described next.

B. The expection confirmation model

According to Bhattacherjee, A. et.al. [28] convincingly that Expectation Confirmation Theory (ECT) is "used in the marketing domain to gauge consumer satisfaction and post-purchase behavior" in accordance with the repurchase objective. In the beginning of this process is based on the service or commodity and perceptions are formed concerning the performance of the commodities and service, comparing with the intention. Additionally, Halilovic and Cicic [52] claims that the level of contentment is determined by the performance of the commodities and service. In the process of repurchasing objective, the products are discontinued from the dissatisfied consumers because of the fundamental of the satisfaction in the product.

Bhattacherjee, A. et.al. [28] proves in her article that ECT is in relation to ECM in particular "IS users' continuance decision to that of consumers' repurchase decision" as follows; Firstly, purchase understanding. Secondly, the utilization of commodities or service, and Lastly, the continuation or cancelling of using in the initial decision. Interestingly, the continuation of using the intention is led by the utilization and satisfaction of perceive. Prior to use the satisfaction, the perceived usefulness is effected to the advantage of confirmation in the expectation.

Furthermore, the three assumptions of the ECM is as follows; firstly, the structure of the confirmation and satisfaction are captured by the influence of pre-acceptance variable. Secondly, pre-consumption expectation (ex-ante) is emphasized on rather than post-consumption (ex-post) expectation in this theory. Finally, the perceived usefulness in this notion is served as the (ex-post) expectation.

C. Factors affecting the use of e-payment

1) Trust

Trust is a crucial factor in online business in general and e-payment in particular. This is because the lack of human interaction nature of online transactions; and there are also many issues that are not in the control of the users such as data privacy, internet security, etc. Concerns over these issues could lead to a low level of trust and, consequently, negative impact on reuse intention and bad word-of-mouth. Therefore, building trust is very important to e-payment adoption. However, the most effective way of building trust is to let customers experience and get comfortable with the service. However, it is very difficult to get users to start using the service trust is low [13] [14].

Furthermore, trust involves desires to take risk in purchasing products or services online. The likelihood of a customer to take such a risk depends on this/her perception of the vendor's benevolent, integrity, engagement, and predictability [15]. Trust is even more important in online commerce than in brick and mortar context. When trust has been gained in the online context, the risk and costs of inspection and monitoring can be reduced. As a result, time and transportation costs that the customers can reduced could outweigh the risks and efforts [14] [16]. For these reasons, we argue that trust is a very important antecedent of e-payment loyalty due to the high level of perceived risks and privacy concerns related to online payment transactions. An e-payment system with the cutting-edge protection technologies may fail if customers do not trust in the system. We argue that more trust leads to more use which, ultimately, leads to repeated use and loyalty due to the convenience and cost reduction that an e-payment system brings. Therefore, our fist hypothesis is:

H1: Trust positively influences e-payment loyalty.

2) Attitude

Attitude stems from belief and perception of a system's ease of use and usefulness [17]. It is an important concept in the fields of psychology and communication. From our review of the literature, various definitions of attitude are provided. For example, Allport and G. W. [18] defines attitude as "a mental and neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 810). According to Schiffman, L.G., Kanuk and L.L. [19] attitude refers to the consistent tendency of consumers to behave, favorably or unfavorably, with regards to a specific product or brand.

To sum up, attitude includes thoughts, feelings, pleasures about a product, a brand or a person, etc. which usually lead to actions or intention to take actions. In the e-payment context, when a user possesses a positive attitude toward an e-payment

system, he/she is likely to make a payment on the system. Together with trust and satisfaction, the level customer loyalty can be elevated. Furthermore, when a consumer has an attitude or beliefs about an e-payment system that the system is easy to use and is perceived as useful, there is a high possibility that he/she will change his/her habit from cash to online payment. A study by Waseso Segoro et, al. [27] found that an e-commerce site with a right pricing strategy, fast and convenient payment system attracts customers to repurchase products or services in the website again. In addition, Chen, S. and C. [30] consistently suggest that e-commerce sites that have an e-payment system, good system quality, high information quality are likely to create positive user's attitude and, as a result, repurchasing. Thus, this study's second hypothesis is:

H2: Attitude positively affects e-payment loyalty.

3) Satisfaction

Prior works have provided several definitions of satisfaction. For example, Oliver and Richard L. [21] defines satisfaction is the result of a comparison between expectations and perceptions of purchased goods or services. Satisfaction usually occurs after the customers evaluate the products or services. Gustafsson et al. [22] proposes that satisfaction is the different between one's expectation and the actual outcomes that one perceives. Therefore, if a customer receives a product or service that meet his/her expectation, his/her satisfaction will be increase. A high level of satisfaction often leads word of mouth and repurchase intension. to with the customer satisfaction that is caused by the difference between the customer expectations and what customers get. In other words, the customers get what they want that will be resulted in the customer satisfaction. To gain the customer loyalty, it will lead the word of mouth and the purchase intention for the consumer. For this study, satisfaction refers to the feeling of being content that the outcomes of using e-payment services meet the initial expectation.

Expectancy Confirmation Theory (ECT) [21] [23] [24] suggests that there are three types of satisfaction based on the different between results and expectation; which are (1) positive disconfirmation – the results are better than expected; (2) simple confirmation – the results are as expected; and (3) negative disconfirmation refers to the results are worse than expected. The model proposes that, when a customer evaluates the performance of purchased products or services and found that they meet their expectation, both positive attitude and satisfaction will emerge. Both positive attitude and satisfaction then influence an intention to repurchase or reuse, which ultimately leads to a loyal customer.

Several studies have found a relationship between satisfaction and customer loyalty [20] [22]. We propose that:

H3: Satisfaction positively impacts e-payment loyalty.

4) Confirmation

According to Bhattahcerjee, A et.al. [28], confirmation can be defined as "the user's perception of the congruence between expectation of IS use and its actual performance. Both perceived usefulness and confirmation influence the user's satisfaction. Satisfaction, indifference or negative feeling (dissatisfaction)".

Expectation and perception of a product/service's performance mutually affect satisfaction through confirmation or disconfirmation. For e-commerce websites in particular, the confirmation/disconfirmation process begins with a consumer sets an expectation on the performance of a product or the quality of a service due. The expectation is founded upon the relevant information received from friends, the Internet, advertising, etc. After, the consumer has bought and used the product or service, he/she will evaluate the perceived outcomes comparing with the initial expectation. Consequently, the customer will either confirm or disconfirm his/her experience of using the product/service [26]. The levels of confirmation is related to the levels of satisfaction.

H4: Confirmation positively affects satisfaction.

E-Payment benefits users by allowing them to shop online more conveniently and save time. Although there are some privacy concerns, we argue that when they try and discover that the advantages, such as convenience, time saving, real-time information; and experience good and honest services from online sellers. They would confirm that the actual performance meets their expectation and, consequently, perceive the usefulness of the e-payment service.

Previous studies have suggested that confirmation is related to perceived usefulness. For example, Chin-Lung Hsu, His-Peng Lu and Huei-Hsia Hsu. [31] study mobile application adoption and found a positive relationship between confirmation and perceive usefulness. These two factors are usually based on First impression or experience of the first use of an application. Moreover, in online banking context, Bhattahcherjee, A. et.al. [28] surveyed online banking users and found that the first impression of the service affect users' confirmation. They then perceive the convenience and benefits of online banking which leads to satisfaction and repeat use of the service. Therefore our fifth hypothesis is:

H5: Confirmation positively affects perceive usefulness

5) Perceived Usefulness

In online context, perceived usefulness is a process of information gathering that occurs before one decides to make a purchase or an online payment. There are two approaches to information gathering process [25]:

1) Utilitarian shopping value is a way of perceiving value for those who search for information with a goal in mind. Therefore, their search behavior is usually direct and pre-planned. They are very focus and do not want to spend too much time for information searching. Brideges, E. and Florsheim, R. [29] have studied utilitarian shopping value in e-payment services and found that shoppers with utilitarian shopping value search for information about e-payment services before they decide whether to use any of the services. They also found that this process often leads to reuse of the service.

2) Hedonic shopping value is a value perceiving approach of people who search for information in an exploratory manner. They may not have a specific goal in mind when they search for products or services. The search has no focus and not been planned. The type of shoppers often "browse" the web for entertainment or relaxing from their daily work. Kuan, H. H.

et al. [26] studied Hedonic shopping value in e-payment and discovered that such an exploratory search behavior positively affects user satisfaction and, consequently, repurchasing.

Based on the information that we have discussed earlier, the consumers can be divided into two groups as follows;

1) The Utilitarian shopping value refers to the way of perceiving value for those who search for information before purchasing the commodities and services. (Goal-oriented search)

2) The Hedonic shopping value is a value perceiving approach of people who search for information in an exploratory manner before deciding to purchase the commodities and services.

Therefore, the perception is the significant factor that the intention is to purchase the commodities and services until the consumer will decide to purchase at the end. Brideges, E. and Florsheim, R. [29] studied the perceived usefulness and found that if the consumers are aware of the value of utilizing electronic payment services that is convenient, rapid and reduce the cost in the transaction. Similarly, the consumers positively affects user satisfaction and repurchasing in the e-payment service. It is consistent with the sixth hypothesis **H6** : The Perceived usefulness has a positive effect on satisfaction. and seventh hypothesis – **H7** : Perceived usefulness is beneficial to the attitude.

6) Concern for information privacy (CFIP)

Concerns [32] refers to stress in certain situations that cause anxiety, confusion, stressful. In online payment context, Zhou, T. [33] found that concern for information privacy (CFIP) reflects a person's attitude toward disclosing personal information such as ID card number, mobile number, bank account number, etc. when completing online transactions. The researchers have identified three main dimensions of CFIP:

1) Privacy risk – Hang Xu, Hock-Hai Teo, and Bernard C. Y. Tan. [34] stated that perceived risk can have a negative impact on intention to perform the risky behavior. Perceived risks include six types of risks – financial risk, performance risk, privacy risk, psychological risk, social risk, and time risk [35] [36]. It was found that perceived risk negatively impacts intention to use e-payment services. The main concern involves data privacy since making online payments often require users to surrender their personal information such as ID card number, mobile phone number, credit card number, email address, etc. This leads to unwillingness to use e-Payment [37][38].

Nevertheless, researchers have recommended ways to alleviate users' perceived risk for online transactions. For example, stricter laws and guarantees from third parties [19]. For the current paper, we mainly focus on privacy risk because, in out opinion, it is on of the most important obstacles to e-payment adoption [39].

2) Risk acceptability means an inform decision to take a particular risk. At present, risk of online transactions has increased concerning lack of privacy as consumers need to provide their personal information to financial institutions and they must make changes to the new e-payment technologies [40]. There are 2 categories of the risk acceptability: (1) the acceptance of risk prior to the use or (2) the acceptance of risk while using e-payment services. The acceptance of acceptable risk must also be monitored and reviewed to lower the risks (e.g., money transfer mistake, information leakage and other unexpected problems) to a level that consumers are willing to take when using e-payment services.

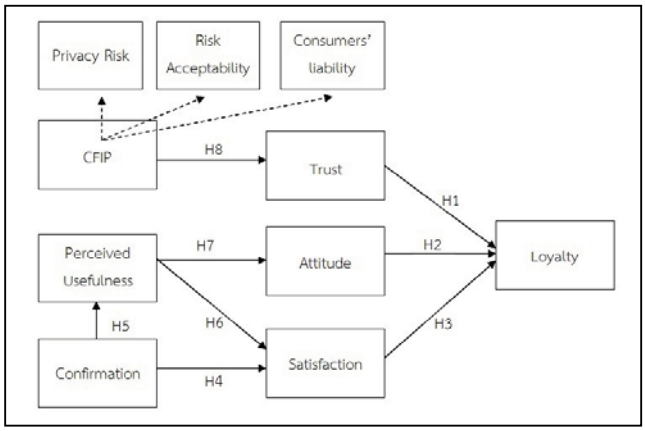
Consequently, the acceptance of risk is one of the critical factors affecting consumers' concern both before and after their decision of electronic payment usage. It is until consumers trust that the system is useful and safe. The financial institutions and the government will need to launch measures to manage such risks which are acceptable for the consumers.

3) Consumers' liability means that when problems or mistakes related to an e-Payment system occur, there must someone to take responsibility Eric WK See-To and Kevin K.W. Ho. [41]. According to a report in 2016, the majority of consumers in Thailand who use e-payment services lacks understanding and knowledge on the responsibility that financial institutions or payment service providers have. This causes the consumers to worry and have a low level of confidence in online payment services [8]. We therefore propose that, to lower CFIP, consumers' liability reduction mechanisms or necessary policy needed to be in place.

To conclude, CFIP in e-payment should be measured on three main aspects, namely, privacy risk, acceptability and consumers' liability. To build trust in the system, e-payment service providers should have measures that lower the users' CFIP levels. When trust is built, loyalty and reuse will follow Eid, M. I. [42] eighth hypothesis – **H**8 : Concern for information privacy (CFIP) positively impacts Trust.

Based on the literature review, we have developed a research model consisting of key factors that influence loyalty on e-payment services as shown in Figure 1.

Fig. 1. Research Model



III. RESEARCH METHODLODY

To verify the proposed research model, we are going to conduct a large-scale survey. A questionnaire will be used to collect both demographic data and the proposed constructs. To measure the constructs, existing scales from prior studies will

be used (Table 1). We target e-Payment users who use PromptPay service. The questionnaires will be randomly distributed to banks in Bangkok area for the banks' customers. The data collection period will be approximately 3 months from October to December 2018. The collected data will be described using descriptive statistics, such mean, standard deviation, etc. To statistically prove the eight proposed research hypotheses, partial least squares (PLS), which is a components-based technique, will be used as such a technique is more robust to violations of normality, can handle small sample sizes, and is suitable for estimating formative constructs Hair. J. F. et.al. [43]

TABLE I. QUESTIONNAIRE

Measurement items	Sources
1.Tust 1.1 This e-payment system is trustworthy 1.2 I believe in the information that this e-payment firm provides.	Sanghyun Kim and Hyunsun Park. [44]
2. Attitude 2.1 This service is bad-good 2.2 I dislike-like this service 2.3 I react unfavorably-favorably toward this service 2.4 I have negative-positive feelings toward this service 2.5 This service is unattractive-attractive	Ebrahim Nazaheri, Marie-Odile Richard, and Michel Laroche. [45]
3. Satisfaction 3.1 My choice to use mobile social commerce was a wise one. 3.2 I am happy that I use mobile social commerce. 3.3 Using mobile social commerce makes me feel very satisfied. Using mobile social commerce makes me feel very delighted.	Lim, H., Widdows, R. and Park, J. [46] Chin Lung, Hsu and Judy Chuan Chuan Lind. [47]
4. Confirmation 4.1 My experience with using mobile social commerce was better than what I expected. 4.2 The service level of mobile social commerce provider was better than what I expected. 4.3 Overall, most of my expectations from using mobile social commerce were confirmed.	Bhattacherjee, A et. al. [28]
5. Perceived Usefulness 5.1 Using mobile social commerce makes my life easier. 5.2 I find mobile social commerce useful in my life.Using mobile social commerce for purchasing would enable me to discover the right product at the right price. 5.3 Using mobile social commerce for purchasing would improve my performance in finding the right product at the right price.	Chong, A. [48] Sharma, S., and Crossler, R. E. [49]
6. Privacy Risk 6.1 I feel that as a result of my using mobile apps, information about me is out there that, if used, will invade my privacy. 6.2 I believe that as a result of my using mobile apps, information about me that I consider private is now more readily available to others than I would want. 6.3 I feel that as a result of my using mobile apps, information about me is out there that, if used, will invade my privacy.	Heng Xu [50]
7. Acceptability 7.1 You accept the risk.When you pay e-payment to buy books online. 7.2 You accept the risk. If your information may be lost from the system. 7.3 You accept the risk of payment method. When you use e-payment service.	Kawarin Laeaddeenun [51]
8. Consumers' liability 8.1 Continuous customer service 8.2 Have a policy to disseminate customer information.	Kawarin Laeaddeenun [51]

IV. CONCLUSIION

In this study, the researchers have developed a research model based on an extensive review of the literature. Six key antecedents of e-payment loyalty are proposed. They are trust, satisfaction, attitude, satisfaction, perception, and CFIP. Firstly, this study bases its framework on the ECM theory which identifies significant antecedents of loyalty, for instance, confirmation, satisfaction, and perceived usefulness. The ECM theory is well-proven and widely used in the previous studies. In addition, we believe that trust and attitude contribute to the loyalty of e-payments.

However, based on our review, factors related to concern for information privacy (CFIP) has not been studied as much as it should be in previous research, especially in the context of e-payment. Consequently, this study is a contemporary and intriguing research. The second contribution of this research is to provide an insight into e-payment adoption in Thailand. The construction and verification of our proposed research model could provide guidance for Thai government's efforts in advocating the use of e-payment system. Furthermore, a success adoption of e-payment in Thailand will strengthen the country's capability compete in the current digital economy.

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