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A Model of Factors Influencing Consumer's Intention To Use E-Payment System in Indonesia

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Abstract

In the recent years, electronic commerce (e-commerce) in Indonesia has growing rapidly. E-commerce became an opportunity for company to increase their selling. Electronic payment (e-payment) was developed to facilitate e-commerce transactions beetwen consumer and seller. In this study, we will investigate consumer's intention to use e-payment. The proposed research model was developed by extending the unified theory of acceptance and use of technology (UTAUT) with culture and perceived security into the model, in order to determine the significance factors that influence acceptance of e-payment technology. Through this model, researchers can have a more accurate explanation of the consumer behavior not only in terms of acceptance of the technology, but other factors considered influential on consumers such as culture and perceived security in the origin country. This model will be used to examine consumer's behaviour in Indonesia.

Keywords: E-Business, E-Commerce, E-Payment, Consumer's Intention

1. Introduction

The Internet users has been growing rapidly today. Along with the increase of internet users, e-commerce is growing. The development of e-commerce in Indonesia is quite significant. The potential of e-commerce market in Indonesia, has attracted many companies both existing and start-up companies to this field. The companies compete in making e-commerce website to increase their sales. Based on a survey conducted by W & S research[1], the most popular e-commerce websites in Indonesia in 2014 are Lazada, OLX, Berniaga, FJB Kaskus, Zalora, Q0010, Tokopedia, Rakuten, Bhinneka and Blibli.

With the increasing number of e-commerce company in Indonesia, the business competition between companies are becoming stringent. The e-commerce company in particular, the reputation of the seller is a very important

factor for both sellers and buyers are not face to face directly[2]. In addition, the role of social media as a promotional tool is also important because it can affect the willingness of consumers to shop[3]. In the case of e-commerce site's content, products sold also affect the willingness of consumers to shop. One of the reasons consumers make purchases online because the desired product is not available in traditional stores[4].

Then the appropriate e-commerce payment systems in one country with the other may be different and depend on the culture and infrastructure in the country. It is important to determine the factors that influence consumers to visit and conduct transactions on e-commerces by e-payment sytem. Thus, in this paper we propose a model of factors influencing consumer's intention to use e-payment system in Indonesia. The paper is structured in sections as follows: literature review, and proposed model; subsequently, future research; last section concludes our study.

2. Literature Review

This section, we explain literature review, especially related to the Electronic Payment (E-Payment), and the Unified Theory of Acceptance and Use of Technology (UTAUT).

2.1. ElectronicPayment (E-Payment)

In general, e-payments in the context of e-commerce refers to online transactions are conducted via the Internet, although there are many other forms of electronic payment[5]. E-payments can also be defined as the process of payment made without the use of paper instruments[14]. The e-payment systems consists of online credit card transaction, electronic wallet (e-wallet), electronic cash (e-cash), online stored value systems, digital accumulating balance systems, digital checking payment systems and wireless payment systems[6].

Transactions in e-commerce site using a credit card is common today. Process in the use of credit cards for online transactions over the Internet is not much different from offline transactions in traditional stores, just in online transactions do not require a physical credit card and signature. Currently there are a lot of internet payment service provider that process credit card payment, for instance Authorize.net and Veritrans.co.id.

Electronic wallets (e-wallets) just like a physical wallet, used to store information such as credit card numbers, e-cash, the identity of the owner, contact information, shipping or billing information including customer address and other information that is used at the time of checkout on e-commerce sites. Via e-wallets, consumers only need to enter the information once and can be used on any site to transact. Thus, the use of e-wallets will improve efficiency in the shop. Today, there are many companies that have developed and provide the e-wallets, including major companies such as Microsoft and Yahoo. In Indonesia, there are also several companies that provide services including e-wallet such as Doku (DokuWallet), BerryPay and iPaymu.

Electronic cash (e-cash) is a term used to describe the stored value and can be exchanged through the system created by the entity (not the government) without the use of paper documents or coins, but can be used in lieu of currency issued by the government[7]. The basic concept of e-cash is a payment processing via the internet through a unique token that has been authenticated that represents money from the consumer to the merchant. Consumers will make a deposit a sum of money or a credit card, then the bank will give tokens (unique number encrypted) in some denominations of money to be used for shopping at the merchant site. Merchant will exchange the token back to the bank to get the actual money[6]. Digicash is a pioneer company in the development of e-cash and there are some companies that still developing the idea of digital cash, such as GoldMoney, Bitcoin, etc.

Online stored value is the system that allows consumers to make online payments instantly to merchants and other individuals based on the value stored in the online account. One of the very popular online stored value system is Paypal. The system called peer-to-peer (P2P), because the payment is made between one individual to another within the same entity[7]. In Indonesia there are online stored value system which is quite popular in online payments including Doku and iPayMu.

Digital accumulating balance system is a payment system that makes it easy for consumers to shop on e-commerce sites. The balance of expenditure will accumulate and billed to the customer at the end of the month as well as phone bills. Accumulated balance digital system suitable for use in a micropayment transaction that the transaction value is small, such as buying a particular song, articles and ringtones and games. This payment system is widely adopted by telecommunications companies, for example, is a system of accumulation balances used

Valista's PaymentsPlus Vodafone, Tiscali and T-Online. Another example of a digital accumulation system is the use BillMeLater owned by eBay.

Digital checking payment systems is the development of an existing check account to be used as means of payment when shopping online. One example of digital check payment system developed by ITI Internet service is PayByCheck. When the consumer will pay the merchant our site, will perform a digital form that has the same shape with a sheet of paper checks. Consumers are asked to fill out a check account information including a valid check number, bank name and bank account number in question. Then the system will validate and authorize payment by checking the customer account information such as name, address and bank account status to the consumer. After that, the system will provide the electronic checks to merchants that will be used as a medium of exchange merchant with the issuing bank[6].

Wireless or mobile payment systems is a payment system that utilizes a mobile device or smartphone in a transaction that includes bank instruments such as the value of cash, debit or credit account and the stored value account (SVA) such as transport cards, gift cards and mobile wallet[8]. Based on data wearesocial.org (2014), Indonesia has a level of use of mobile devices is very high at 112% of Indonesia's population or about 280 million units. Average carrying Indonesian population use mobile devices around 2.5 (two and a half) hours per day to access information via the Internet. The high rate of mobile devices usage in Indonesia make many companies take advantage of this device as a media in electronic payment transactions. In general, the use of mobile devices to facilitate consumer payments to merchants in e-commerce transactions are using the concept of e-wallet and known as a mobile wallet. Telecom companies such as Telkomsel collaboration with BNI developing mobile wallet product called T-Cash. In addition to Telkomsel, Indosat also developing mobile wallet named Dompetku and XL named XL-Tunai.

2.2. The Unified Theory of Acceptance and Use of Technology (UTAUT)

The research model has been developed to determine the user acceptance of the technology information. Technology acceptance model (TAM) was first introduced by Davis in 1986 to determine the behavior of computer usage. The model uses to the construct perceived usefulness (PU) and perceived ease of use (PEOU) to predict behavioral intention attitude, and users of information technology[9].

In addition to TAM, the unified theory of acceptance and use of technology or UTAUT used to identifying motivation use of technology that developed by Venkatesh et al. (2003). UTAUT theory was developed through a comprehensive synthesis and an integration of the theory of reasoned action (TRA), the Technology Acceptance Model (TAM), motivational models (MM), theory of planned behavior (TPB), combined TAM and TPB (C-TAM-TPB), the model of the PC utilization (MPCU), innovation diffusion theory (IDT) and social cognitive theory (SCT). UTAUT has four constructs namely performance expectancy, effort expectancy, social influence, and facilitating conditions that affect the intention and use of technology.

- Performance expectancy refers to how consumers feel that the use of electronic payment systems will help and give an advantage in conducting online transactions such as in terms of speed, security and convenience of transacting[10,11]
- Effort expectancy is defined as the level of perceived ease of consumers when using electronic payment systems in online transactions on e-commerce sites. It also relates to a system that is easy to understand and use without any particular skill[10,11]
- Social influnce is the perceived influence of important others who encourage consumers to use electronic payment systems in the transaction. The important Others are intended to families, couples and organizations[10,11]
- Facilitating conditions refer to the consumer perception on the resources and support the use of technology[10].

Based on the UTAUT, performance expectancy, effort expectancy and social influence affects the behavioral intention to use the technology, while the behavioral intention and facilitating conditions determining the use of technology.

2.3. The Previous Study

E-payment system used in online transaction provides several advantages including increased efficiency through cost savings, provide convenience for consumers in making payments without place or time limitation, and flexibility in making payments[12]. Although the electronic payment system offers numerous benefits, but the level of use of this payment system is still less desirable by customer. Thus, many studies exploring the e-payment with various approaches and purposes. Table 1. show summary of approaches and purposes by researchers in e-payment.

**Tabel 1**. Summary of approaches and purposes by researchers in e-payment

Reserches	Study	Purposes	Approaches
Huang, Encho & Chang[13]	Online Security Cues and E-Payment Continuance Intention	Examine the relationship between perceived benefits, legal protection, risk avoidance, and satisfaction of the e-payment, continuance intention	Perceived risk, perceived legal protection, confirmation, perceived benefits, satisfaction and continuance intention
Gholami et al.[11]	Factors Affecting e-Payment Adoption in Nigeria	Examine the factors that influence the adoption of e-payment in Nigeria, using extended UTAUT model	Awareness, trust, performance expectancy, effort expectancy, social influence, facilitating condition and e-payment adoption intention
He & Mykytyn, 2007[12]	Decision Factors for the Adoption of an Online Payment System by Customers	Examine the influence of perceived risk, perceived benefits, the vendor's and customer's system features characteristic of the intention in using online payment system	Perceived characteristics of the online payment system, system characteristics, customer's characteristics and adoption of online payment system
Tella & Olasina[14]	Predicting User's Continuance Intention Toward E-payment System : An Extension of the Technology Acceptance Model	Predicting user's intention in the use of e-payment systems in a sustainable manner by using synthesis theory of technology acceptance model (TAM)	Perceived usefulness, perceived easy of use, enjoyment, speed, perceived benefits, attitude, perceived satisfaction, actual use and continuance intention

3. Proposed Model

We propose the model of factors influencing consumer's intention to use e-payment system in Indonesia (see Fig. 1). The proposed model is based on UTAUT to investigate customer's intention to use e-payment technology in Indonesia. Much research has been developed and modified based on UTAUT model to get variables that correspond to the context of their research. In this proposed model, there are 2 (two) external variables added to UTAUT model. The external variables are culture and perceived security. Culture and perceived security are added in this study because it is an important factor in the study of electronic payment systems and e-commerce [15,16,17,18,19,20].

Cultural factors such as level of education and experience of the technology is very important in the adoption of new technologies[20]. Culture between one region to another might have a difference. According Keramati et al.[19], consisting of several cultural factors that affect things such as knowledge of computer, internet access, use of the Internet, mobile phones, region of residence and travel habits. In a study conducted by Keramati et al.[19], the level of knowledge and use of the Internet affect the adoption of electronic payments. Meanwhile, according to He & Mykytyn[12], gender, age, level of education, computer experience and often transact securities significant effect on the desire to use the online payment system.

Security is a set of procedures, mechanisms and computer programs to authenticate the source of information and ensure the integrity and privacy to avoid the problems of the data and the network[13]. Security relates to how the electronic payment system can protect consumer transactions[18]. Perception of security is influenced by several factors, among others, statements that security is easily found by consumers and technical protection of consumer privacy concerns against outsiders[17]. In addition, security is also associated with regulatory and legal protection perceived by consumers[13,21].
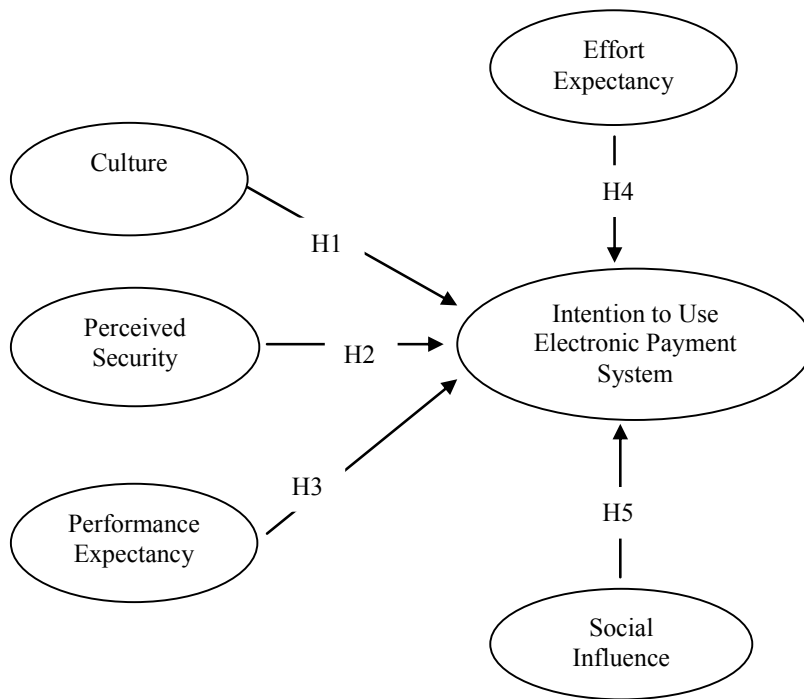
Fig. 1. A model of factors influencing consumer's intention to use e-payment system

Then research hypotheses to support the model of factors influencing consumer's intention to use e-payment system, consists of H1, H2, H3, H4, and H5. H1 is culture has a positive effect on intention to use electronic payment system. H2 is perceived security has a positive effect on intention to use electronic payment system. H3 is performance expectancy has a positive effect on intention to use electronic payment system. H4 is effort expectancy has a positive effect on intention to use electronic payment system. H5 is social influnce has a positive effect on intention to use electronic payment system. Hence the hypotheses in this model needs to be proven in next study.

In order to prove these hypotheses, we also proposed measures which can be used to support a model of factors influencing consumer's intention to use e-payment system. Tabel show measures based on factors to prove these hypotheses (H1...H5).

Tabel 2. Measures based on factors influencing consumer's intention to use e-payment system

Factors	Measures	
Culture (CU)[19,12]	CU1	Internet Access[19]
	CU2	Experience in using computer[19,12]
	CU3	Level of education[19,12]

Perceived Security (PS)[15,16, 18]	PS1	Technical protection[17]
	PS2	Security statements[17]
	PS3	Government and central bank regulations[13,21]
Performance Expectancy (PE)[10]	PE1	Productivity in the transaction[9,10]
	PE2	Convenient in the transaction[11,10]
	PE3	Speed in the transaction[10]
Effort expectancy (EP)[10]	EP1	Easy of use e-payment system[10,11]
	EP2	Flexibility in the transaction[9,10]
	EP3	Easy to learn e-payment system[10,11,22]
Social influence (SI)[10]	SI1	The important people (family/ relatives/ friends) recommends e-payment[10,11]
	SI2	The important people (family/ relatives/ friends) use e-payment system[10,11]
	SI3	The important people (family/ relatives/ friends) support the use of e-payment[10]
Intention to use electronic payment system (IU)	IU1	Willing to use e-payment system in the future[10,11]
	IU2	Recommend others to use e-payment system[10,11]
	IU3	Using e-payment is fun[9,10]

4. Future Research

Our future research is to implement the the of factors influencing consumer's intention to use e-payment system. The analysis technique will using the Structural Equation Modeling (SEM). Analysis using SEM methods generally through two stages, namely Measurement Model and Structural Model. Measurement Model or measurement model aims to obtain constructs or latent variables that fit so it can be analyzed further. In getting fit variables used Confirmatory test Factor Analysis (CFA). While Structural analysis model or a structural model aims to obtain a structural model of the fittest or feasible through the test Goodness of Fit (GOF).

To determine the suitability of a model as a whole, there are several methods that can be taken include statistical test Chi-Squares (X^2 Test), Root Mean Squares Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI) and Root Mean Squares Residual (RMSR). The Test of validity in SEM is done with regard to the value of each indicator a standard loading factor or dimension. If the standard value of factor loading ≥ 0.5 then declared valid. while realibitas measurement using AMOS applications where reliability measuring method in SEM is a composite measure of reliability. A construct will be deemed to have good reliability when the value of the construct reliability (CR) ≥ 0.70.

Then, the data used will collect through questionnaire method. The questionnaire will be distributed to the respondents either directly or through tools such as Google docs surveys, forums and social media. The questionnaire used in collecting consists of two parts. The first part contains the respondent demographic data such as gender, age, occupation and domicile. The second part consists of 18 questions as an indicator of factors including the performance expectancy, effort expectancy, social influence, culture and perceived security[10,12,15,16 17,18,19]. The questionnaire will be distributed to prospective respondents who are consumers in several e-commerce sites that are currently popular and facilitate the use of e-payment systems such as Lazada, Q0010, Rakuten, Bhinneka and Blibli.

5. Conclusion

The proposed model in this study will be use to examine consumer's intention to use e-payment system in Indonesia. It is based on UTAUT to investigate customer's intention to use e-payment technology in Indonesia. There are 2 (two) external variables added to UTAUT model. The external variables are culture and perceived security. Culture will be used to explain more details about consumers habits while perceived security will explain

how secure e-payment system that consumers feel accordance with the conditions of Indonesian society today. Then in order to prove these hypotheses, we also proposed measures which can be used to support a model of factors influencing consumer's intention to use e-payment system, and provide an overview of the future study. Thus be expected, the model can be used as reference in related studies.

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