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## The effect of attitude and its decomposed, perceived behavioral control and its decomposed and awareness on intention to use e-money mobile in Indonesia

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**Abstract:** This study investigates intention on use e-money server in Indonesia. E-money server is electronic money payment system based on mobile platform. However, these are few studies discussed behavioral intention in this new area. It becomes strong gap to investigate in the consumers' intention to use e-Money Server in Indonesia. Consequently, this study employs the Decomposed of Theory Planned Behavior (DTPB) by examines attitude and its decomposed (complexity) and perceived behavioral control and its decomposed (self-confidence and resources facilitating conditions) and awareness on intention to use e-money server. A total of one thousand and three hundred respondents are selected using quantitative method as sources of data collection. The questionnaires are distributed using purposive sampling method in Medan, Indonesia. The software used for analysis is the SmartPLS 2.0 M3. This study concludes with conclusion and suggestion for future studies.

**Key words:** E-money mobile; Intention to use; DTPB; Medan; Micro payment

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### 1. Introduction

E-Cash is the first term for e-Money which was introduced in 1993 and eventually, it has become the basis of DigiCash for electronic payment system. It was founded by Dr. David Chaum as the pioneer of all of existing electronic payment systems (The History of Electronic Payments (Part 2), 2014). However, the United States was the first country to do online purchase in 1994 with American Mark Twain Bank. It was the first Bank in the world to issue "digital cash" according to DigiCash technology. The same data source revealed that U.S. Federal Reserve data found this payment system had been 90% of the total value of all transactions in electronic form in 1994. In the same year, this concept was adopted by Russia and Great Britain. In Russia, the first domestic chip card was Golden Crown system. Differently, a British company developed the world's first "electronic wallet". Consequently, the Bank for International Settlements (BIS) announced formal research on the electronic money market in 1996 regarding the idea of issuing electronic money by the central banks (The History of Electronic Payments (Part 2), 2013).

Unlike in the United States where e-money has been growing well with a balanced distribution among the users, such transactions with e-money still have a small share of users in Europe ([dbresearch](#), 2012). This is because the American people are more open with innovation on payment system than Britain. Other countries in Europe have also introduced virtual money using mobile phone for transaction at niche market spaces considering a

fast spread of the concept among the mass of potential users. In Asia, Singapore was the first country to use e-money in their payment system in 1997 which was only chip based and the first transaction using SET (Secure Electronic Transaction) was made by Visa International Association ([blog.money.com](http://blog.money.com), 2014). However, e-money mobile (product-server based) system has been recently introduced in November, 2010 which uses the interoperable mobile NFC infrastructure and payment services via a TTP (Trusted Third Party) model (Oak, 2011).

In Indonesia, e-money was introduced to the public in 2007 with two types of product options such as chip based and server (mobile) based (Bank Indonesia, 2013). However, chip based e-money product is not accepted within the entire country, where such transactions are more applied in the big city. Considering the geography of Indonesia with highest number of islands in the world, e-money product based server or e-Money on mobile phone is more appropriate to reach every individual equally for every side place in Indonesia. This can be supported by the fact that Indonesia has the second largest cellular mobile users in Asia and the fourth largest in the world (Central Intelligence Agency, 2012). The same data source revealed that the total user of cellular mobile in Indonesia is more than total population of the society. This condition favors a potential business that appears in the payment system where the online transaction has emerged as one of the sophisticated trends in business transaction in recent years. The payment system is essential and extremely important in business goods or services. Therefore, an easy and accessible

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payment system becomes one of the focuses in business transaction in Indonesia.

E-money mobile is mostly introduced as a new area in the previous studies without providing an extensive discussion. In Indonesia, it is licensed by Bank Indonesia, the central bank of Indonesia since 2007. Some interesting phenomena growth to the limited interconnection or interoperability between issuers bring complex procedures where the consumers need to register for more than one account or card (Bank Indonesia, 2013). As the result, the Indonesian customers have weak self-confidence and lack of resources facilitating condition to use e-money mobile. Besides, it affected the customers attitude reflected hard to access e-money mobile while some troubles exist in some transaction caused the limited company had made agreements with issuers (Bank Indonesia, 2013). Furthermore, a highlight data shown its transaction has the lowest frequency per year compare to ATM card (debit card) and Credit Card. Even though, the volume of e-money transaction is increasing but still remains below of ATM card (debit card) and Credit Card (Bank Indonesia, 2013). Limited knowledge on e-money mobile has led the consumers to have different perceptions about e-money generally. Besides, the integration of e-money mobile needs to develop while ATM card (debit card) and Credit Card have been earlier existed and accepted by consumers makes many consumers are still unaware of e-money mobile in terms of its function and transaction procedure (Bank Indonesia, 2014).

## 2. Literature review

The behavioral intention reflects the possibility of adopted action of an individual consumer to a specific objective (Ajzen & Driver, 1992; Sheeran & Orbell, 1999; Armitage & Corner, 2001; Ling et al., 2010). The specific objective measures how the consumers use the system in future, recommend to their relatives, promote it, and make contacts between two parties in the future transaction. Behavioral intentions describe how a person behaves in a specified way (McKnight et al., 2002; Casaló et al., 2010). Behavioral intention has been discussed in previous research regarding payment system and other technology acceptance, but the behavioral intention that has been discussed e-money mobile, is not found more in previous research. An adaptation from related area to the e-money mobile is used to investigate the consumers' intention to use e-money mobile in Indonesia. The two prior factors, introduced by Davis (1989) to measure consumers' intention to use, are perceived usefulness and perceived ease of use. These factors do not fully explain behavioral intention.

Ajzen (1991) defines that attitude toward the behavior reflects to the extent of people have favorable or unfavorable evaluation or assessment of the question's behavior. Attitude explored that the beliefs about certain behaviors to adopt an innovation comes from individual beliefs that adopt

innovations can lead to certain of consequences (Ajzen & Fishbein, 1980). This indicates a positive or negative evaluation of individuals of conduct behavior. Ajzen (1991) recommends that attitude is a kind of beliefs about the behavior and individual evaluation of the results generated from that behavior. Refers to the theory of planned behavior, individual has more favorable attitudes toward a particular behavior, he will more likely intend to perform his behavior (Ajzen and Fishbein, 1980). Unlikely, for unfavorable attitudes of individuals towards a particular behavior, he will not more likely intend to perform his behavior.

Intention to behavior's perform might occur if the individual has a positive evaluation of performance behavior. In other of hand, the more favorable attitude towards particular behavior, the stronger must be the intention of the individual to adopt behaviors. The influence of attitude on intention to use in the information technology has existed by many studies. A study on the acceptance for reception word processing program by Davis et al. (1989) showed the attitudes have a strong significant influence on behavioral intentions. Mathieson (1991) found the intention using a spreadsheet can be predicted by respondent's attitude towards it. In comparing the TRA, TPB and DTPB, Taylor and Todd (1995a) showed attitudes toward the center of computing resources to positively affect the user's intention to use it.

The issue of difficulties to access the e-money mobile brings the complexity is discussed in the framework. The complexity refers to the degree to which an innovation is considered relatively difficult to understand and use (Taylor & Todd, 1995). It is analogous to the consequences of perceived usefulness (Davis, 1989). Complexity is the corollary the "ease of use" variables in TAM (Taylor and Todd, 1995b; Davis, 1989). It represents that the degree to which an innovation is perceived to be difficult to understand, learn or operate. Besides, it also become an innovative technologies that are perceived to be easier to use and less complex have a higher possibility of acceptance and use by potential users. Therefore, the complexity would be expected to have negative relationship to attitude. Complexity (and its corollary, ease of use) has been found to be an important factor in the technology adoption decision (Davis et al., 1989). However, perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). Perceived ease of use describes how the users avoid a system considering the difficulty level and performance out of their effort while using the system. In perceived ease of use, a person's acceptance to use the systems is proved by the free of effort of the system (Davis et.al, 1989; Ventakesh, 2000). It has been proposed as one of the variables in technology acceptance model (TAM) that has been proved in many of the previous studies. Along with another variable, perceived usefulness, it has become key indicators affecting behavioral intention. Therefore, these two variables

may not be fully analyzed for the behavioral intention, especially in most of the previous research discussing on acceptance of internet Banking.

Perceived behavioral control reflects an individual perception and confidence to perform the behavior in question (Ajzen, 2006; Lee, 2009). It can influence the behavior directly or indirectly through behavioral intentions (Nasri & Charfeddine, 2009). The significant and positive influence of perceived behavioral control already exist in some previous research in the internet Banking (Al-Majali and Nik Mat, 2010; Jaruwachirathanakul & Fink, 2005; MdNor and Pearson, 2006), and also perception of volitional control or the perceived difficulty towards the behavior will affect intent (Chang, 1998). Unless control over a behavior exists, intentions will not be sufficient as the predictor of the behavior (Sahni, 1994). Factors such as skills, abilities, time, and requisite information play a significant role in predicting and performing the behavior. The significant and positive effect of perceived behavioral control on individuals' behavioral intention has been supported by many studies in the Internet banking domain (e.g., Al-Majali and Nik Mat, 2010; Jaruwachirathanakul and Fink, 2005; MdNor and Pearson, 2006).

Perceived behavioral control (PBC) refers to an individual's perceptions of their ability to perform a given behavior (Ajzen, 1991). It arises from the subjective degree of control over a behavior performance when a person assesses how easy or difficult it would be to carry out that behavior (Ajzen, 2002). Thus, PBC is the banking consumer's subjective perception of how easy or difficult conducting Internet banking from a bank's website would be. In general, PBC plays a vital role in IT adoption and the role of PBC on intention has been confirmed by early seminal work (Conner & Armitage, 1998; Taylor & Todd, 1995a, 1995b). In their meta-analysis review, Jeyaraj, Rottman, and Lacity (2006) found PBC was a significant predictor in IT adoption. Therefore, prior studies have suggested a positive link between PBC and the intention to adopt technologies. The current study expects the higher the perceived behavioral control in the context of Internet banking.

Perceived behavioral control can be reflected to the factors that may hold up to the performance of the behavior. This definition encompasses two components. The first component is self-efficacy and is defined as an individual's self-confidence in his or her ability to perform a behavior (Bandura, 1977, 1982). The second component is "facilitating conditions" and it reflects the availability of resources needed to engage in the behavior (Triandis, 1979). The previous studied had been conducted by Hill et al. (1986) found the self-efficacy predicts intentions to use a wide range of technologically advanced products. Thus, an individual confident in having the skills in using the computer and the Internet is more inclined to adopt Internet banking. This is because the individual is comfortable in using the innovation (Teo & Tan,

2000). Perceived behavioral control was positively associated with the purchase intentions of consumers on the Internet (Lim and Dubinsky, 2005). Besides, few studies found an insignificant relationship (Al-Muala, 2010; Pedersen & Nysveen, 2005) while some studies found a significant relationship between perceived behavioral control and actual behavior (Almajali & Nik Mat, 2010; Chen, 2009; Gopi & Ramayah, 2007; Lin, 2007; Fusilier & Durlabhji, 2005; Chu & Wu, 2005; George, 2004). Self-confidence is defined as "a trust or assertion in oneself, believing in one's aptitude, making a choice which maybe referring to a general context or to a specific event or doings" (Colman, 2002). Self-confidence is analogous with self-efficacy in generally (Bandura's (1977, 1982, 1999, 1994; Pavlou & Fygenson, 2006; Taylor & Todd, 1995a, 1995b) perceived self-efficacy defined as "an individual's beliefs about their capabilities to produce effects or designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994). There is important point need to be highlighted if a person has high self-efficacy, it means he is confident in their capabilities dealing with difficult tasks and attributes failure to insufficient effort or deficient knowledge and skills which are acquirable.

In contrast, a person with low self-efficacy views difficult tasks as personal threats and gives up quickly in situations involving difficulties (Bandura, 1994). Therefore, self-efficacy is considered an internal component and is expected to link to a person's perception of behavioral control. He had explored that in the context of Internet banking, a potential Internet banking customer faces many unknown variables including effort to learn how to operate bank provided software, problems when errors arise, or making phone calls for technical assistance. It becomes strong reason that the higher confidence, the stronger perceived behavioral control and person will have more intention to the adoption of technology. So, it becomes a key determinant of perceived behavior control (Ajzen, 1991, 2002). Self-confidence is an important factor in predicting individual behavior and performance across various settings (e.g. Bandura et al., 1980; Sadri and Robertson, 1993). For example, it is used to predict behavior such as information technology usage (Taylor and Todd, 1995a; Venkatesh et al., 2003), technology adoption behavior (Compeau and Higgins, 1995; Venkatesh and Davis, 1996), internet usage between socio economically advantaged and disadvantaged groups (Hsieh et al., 2008), and e-commerce adoption (Pavlou and Fygenson, 2006).

A resource facilitating condition is reflects to the degree of consumers trust that infrastructure of the organizational and it technical help them to use the system (Ventakesh et al., 2003). In this study, the consumers' intention to use e-money is generally accept the system that is produced by the issuer as organizational context. Facilitating conditions relates to how consumers access, cost of using the system and availability to use the system (Pan et al., 2010).

Facilitating conditions has been discussed in various studies with come out with inconsistent result, either significant or insignificant influence to the intention (Flannery and May, 2000; Bourgeois, 1981). It also have been discussed in organizational level (Nohria and Gulati, 1996; Cyert and March, 1963) suggested that organizational slack is an important facilitator of innovative behavior in organizations. Availability of additional resources, the theory of planned behavior researchers have often studied as an important factor of perceived behavioral control individuals (Flannery and May, 2000; Pavlou and Fygenson, 2006; Song and Zahedi, 2005; Taylor and Todd, 1995a, 1995b, 1995c). Therefore, it is expected that the availability of resources the organization will influence the perception of control over the behavior of a top manager support information technology projects.

In another discussion, it reflects the conditions facilitating technical support which helps to department information system with difficulty and availability of network support systems (i.e., knowledgeable colleagues, superiors, and support personnel) (Huang and Chuang, 2007). Facilitating conditions is a concept originally proposed by Triandis (1977) in theory of interpersonal behavior. Facilitating conditions in Internet Banking embodies all the physical (time and money) and technical resources needed to establish an internet connection and realize the Internet Banking service (Hernandez and Mason, 2006).

In a different study, which is considered to facilitate conditions, a concept similar to that perceived behavioral control, San Martín and Herrero (2012) found that they failed to predict the intention to book a room online. Conditions facilitating both have a significant positive effect on the perception of behavioral control, including facilitating conditions have a stronger effect (To et al., 2008). Facilitating conditions reflect the availability of resources needed to engage in behavior (Triandis, 1979). This refers to the ease of access to technology resources and infrastructure. Goh (1995) shows that, as the supporting infrastructure becomes easy and available technology, internet commerce applications such as banking services will also become more feasible. As a result, Internet users will be expected to be more inclined to adopt Internet banking. In Singapore, has been well documented that the local government is the main driving force in the diffusion of information technology (Gurbaxani et al., 1990; Jussawalla et al., 1992; Tan, 1998; Toh and Low, 1993).

Awareness is the critical step for adopting new technology because it needs the consumers understanding to explore about product or service with their knowledge to avoid lack of information (Kotler et. al., 2004). It is the first step for consumer to adopt or reject of an innovation (Rogers and Shoemaker, 1971 in Sathye, 1991). The awareness reflects to the individual satisfying on associating the product or service from problems that comes because less information relating them (Walter,

1998). So, it is needed the consumers know about product or service that is offered to them (Aminudin, 1999) because the process to make the consumers close to the information about product or service is beneficial for futures competitive of the company. It can be from advertising, promotion and uniqueness (Shimp (1997), or some ways can be from recommendation, mass media (Asseal, 1995). For example, awareness of banking customers about products or services is very important to increase benefit of industry and it can be from some alternative that the industry offering to them (Sharon, 1999).

Another setting can be seen in the telecommunications industry where awareness on mobile devices is such an opportunity to make customers get more knowledge (Pousttchi, 2006; Nysveen et al., 2005; Norris, 2007) for example from promotion (Lewison, 1996). Awareness had been tested in various backgrounds of studies. However, there is limited previous studied that tested awareness on consumers intention to use e-money product server based is mediated by perceived usefulness. Safeena et al. (2010) found the consumer awareness on student in the university shown positive impact on the intention to adopt internet banking. Some previous studies had discussed awareness of service in various setting. Sathye (1999) had proposed awareness of service for Internet banking (IB) adoption in Australia that argued awareness of service and its benefits has significantly influence to the intention of Internet banking (IB). Besides, he emphasized that the most relevant customer in the rapid of development in market of Internet Banking (IB) are the young, educated, and wealthy groups of customers. Some previous studies also discussed in different countries such Tukey and Malaysia.

According to Polatoglu and Ekin (2001), the awareness level among consumers are the greater factor for more banks in Turkey that offer for Internet banking service that had been the higher number in Internet banking adoption. However in Malaysia, the actual use of consumers were only 23% have had some Internet banking experience even though the awareness level is high. As the result, Banks is necessary to create an advertising to attract the consumers on usefulness and ease of use on website of Internet banking so that, they have an awareness on the products (Ramayah et al., 2003). Furthermore, there is surprising degree of lack of awareness among these customers in UK with just few users want to open their Internet accounts. The reason comes on surprising statistic on Banks that just only found 12 banks that offering on Internet banking service where this is less than 10 per cent of banks that exist in the UK (Jayawardhena & Foley, 2000).

## 2.1. Proposed model and hypotheses

The complexity is expected to have a negative relationship with attitude. Complexity defined as

"the extent to which an innovation regarded as relatively difficult to understand and use" (Rogers, 1983). Thus, the complexity (and its consequences, ease of use) has been found to be an important factor considered to be easier to use and less complex has higher likelihood of acceptance and use by potential users. The effect of complexity (its corollary of perceived ease of use) on attitude has been established by various studies (e.g. Bhattacharjee, 2000; Karahanna et al., 1999; Khalil & Pearson, 2008; Lau, 2002; Morris & Dhillon, 1997; Shih & Fang, 2004; Taylor & Todd, 1995a).

Shin et al. (2009) in determining the users' acceptance of Multimedia Messaging Services (MMS) also state that perceived ease of use has positive influence on attitude towards MMS use intention. The significant and positive relationship between complexity and attitude has been verified in a number of mobile related studies (Cheong & Park, 2005; Hong et al., 2008; Kuo & Yen, 2009; Park & Chen, 2007; Schierz et al., 2010; Tsai, 2010).

Therefore, this study proposes the following hypothesis:

H<sub>1</sub>: Complexity negatively affects the attitude towards intention to use e-money mobile

Self-confidence (analogous self-efficacy in generally) reflects to an individual's conviction in his or her ability to perform a behavior (Taylor & Todd, 1995). Consistent with the original definition of perceived behavioral control, prior research investigating technology usage behavior has shown self-efficacy, resource facilitating conditions, and technology facilitating conditions to be determinants of the perceived behavioral control (Taylor & Todd, 1995a).

Numerous studies have confirmed the effect of self-efficacy, resource facilitating conditions and technology facilitating conditions on perceived behavioral control. A study by Taylor and Todd (1995a) has revealed that self-efficacy and resource-based facilitating conditions (i.e. time and cost related measures) are significant determinants of perceived behavioral control. In another study of intention to use VCR-Plus +™ by Taylor and Todd (1995b) have also discovered similar results, self-efficacy and facilitating conditions are significant determinants of perceived behavioral control.

Bhattacharjee (2000) has conducted a study on intention to use e-brokerage has also found that the control factors (Self-efficacy and resource facilitating conditions) significantly effect on perceived behavioral control. Lau (2002) has proved that resource facilitating condition and technology facilitating condition have positively affected perceived behavioral control. The significant role of self-efficacy on adoption of the technology can also be found in other studies (e.g. Shih & Fang, 2004; Vijayasathy, 2004; Wang et al., 2003). It has proved similar result, that is, self-efficacy has a positive effect on perceived behavioral control (Hsu et al., 2006).

A study by Khalil and Pearson (2008) has found that self-efficacy and resource facilitating conditions

have positively affected perceived behavioral control. Their study concludes that efficacy or confidence to use Internet banking might affect an individual's perception of behavioral control and in turn would affect the intention to use the technology. Their study also suggests that external factors which are availability of resources can also affect an individual's perception of the ease or difficulty on intention to use Internet banking. Shin et al. (2009) conducted a study on acceptance of multimedia messaging services (MMS) and proved the relationship between self-efficacy, technology facilitating condition and perceived behavioral control. Their study has confirmed that self-efficacy and technology facilitating conditions have significant effects on perceived behavioral control.

As noted by Taylor and Todd (1995b), key facilitating conditions are the money, time and technology that are needed to make use of the innovation. Essentially, the absence of any of these facilitating conditions represents barriers to adoption and may hinder the formation of intention. In view of previous studies, this present study also hypothesizes that self-efficacy, resource facilitating condition and technology facilitating condition will affect perceived behavioral control. Therefore, the following hypotheses are proposed:

H<sub>2</sub>: Self-confidence positively affects the perceived behavioral control towards intention to use e-money mobile

H<sub>3</sub>: Resources facilitating conditions positively affects the perceived behavioral control towards intention to use e-money mobile

Awareness is limited discussed in e-money mobile. A previous study conducted by Sathye (1999) while the use of online banking services is a fairly new experience for many people, low awareness of online banking is a major factor in causing people do not adopt online banking. Ramsey et al. (1992) showed that awareness is a key determinant in helping people to act more environmentally friendly. In an empirical study of Australian consumers, Sathye (1999) found that consumers are not aware of the possibilities, advantages/ disadvantages involved with online banking. Therefore, Pikkarainen (2004) have reported the amount of information the customer has about Internet banking and its benefits may have a critical impact on the adoption of internet banking.

Basically, users want to control the type of data collected, for what purpose, how long the data will be recorded, how and for what purpose the data are processed (Kobsa, 2001; Kobsa, 2002). Additionally, Howcroft et al. (2002) found that lack of awareness of Internet banking services and benefits found reason consumer reluctance to use internet banking services. It states that the most important factor in encouraging the use of online banking is lower cost and the increased level of service, that service is free of errors.

There is another studies showed low level of awareness of such services in China. Trappey and Trappey (2001) found that in the Chinese e-

commerce, that there is a lack of influence of the market. The awareness and attitude to change is found to influence the adoption of Internet banking such in Malaysia (Suganthi et al., 2001). However, the consumers are not willing to accept that they do not have full control over their own behavior. They want to control their own actions and to determine the causes and consequences of their own actions and others (Baronas and Louis, 1988) but collecting and recording user data are without consumer awareness of their concerns (DePallo, 2000; Kobsa, 2001, 2002). Therefore, we propose the following hypothesis:

H<sub>4</sub>. Awareness positively affects the intention to use e-money mobile

Refers to the positive or negative evaluation of individuals about a particular behavior, the consequence of adopting innovations (behavioral beliefs) and evaluation of the consequences are generated by the significant individual beliefs by attitudes toward adopting an innovation. In this study, the attitude towards intention to use e-money mobile is defined as positive or negative consumer evaluations. Individuals will have more intention to perform certain behaviors if they have a more positive evaluation of such behavior. It could be argued that if the individual has a positive evaluation of the specific behavior, the greater an individual to perform certain behaviors. Previous research discussed in the online shopping arrangement shows a positive relationship between attitude and intention of online shopping (Tan et al, 2010; Lee & Chen, 2010; Amoroso & Hunsinger, 2008; Lin, 2007). It improved by Hapensang lao (2009) that found there is not significant effect of attitudes towards online shopping intentions.

In this line, if the consumer has a positive evaluation of intention to use e-money mobile, there is greater than consumer intention to use e-money mobile. The influence of attitude on intention to use have been demonstrated by numerous studies as in the field of information systems (Chang & Cheung, 2001; Chau & Hu, 2001; Davis et al., 1989, Harrison et al., 1997; Mathieson, 1991; Shim et al., 2001; Taylor & Todd, 1995a) and in area of Internet banking (Bhattacharjee, 2000; Khalil & Pearson, 2008; Liao et al., 1999; Shih and Fang, 2004; Suh & Han, 2002).

A positive attitude about internet banking should be done before the technology can be accepted (Khalil and Pearson, 2008). If an individual form positive attitudes towards e-money mobile, they will have a strong intention to use e-money mobile. Therefore, they are more likely to use it. Another study by Lu et al. (2009) explored that there is a positive attitude affects behavioral intention to use instant messaging services.

Previous research has shown that the effects of attitudes toward behavioral intention, which in turn will affect the behavior. Especially, related to the field of e-money mobile is limited discussed and more discussed in mobile services. For example, these are some studies have been conducted and

verified the relationship between attitude and behavioral intention to use in mobile services (e.g. Bauer et al., 2005; Bruner and Kumar, 2005; Hong et al., 2008; Hsu et al., 2006; Nysveen et al., 2005). It also verified that the attitude has been positively influenced behavioral intention to use (Rohm & Sultan, 2005; Kuo & Yen, 2009; Norizan, 2011; Schierz et al., 2010; Hsu et al., 2006; Khalil & Pearson, 2008; Lu et al., 2009; Nysveen, 2005; Rohm & Sultan, 2006; Scharl et al., 2004). Therefore, this study hypothesized that:

H<sub>5</sub>. Attitude positively affects the intention to use e-money mobile

Perceived behavioral control is the extent to which a person believes that he / she has been controlled for personal or external factors that may facilitate or hinder the performance of the behavior (Ajzen, 1991). Perceived behavioral control refers to an individual's perception of the presence or absence of the necessary resources, or opportunities necessary to perform a behavior (Ajzen and Madden, 1986). Perceived behavioral control describes users' perceptions if they have the necessary resources such as time and money (external factors), capabilities such as the ability, confidence and self-efficacy (internal factors) to successfully perform the behavior.

Some previous studies have been discussed that there are no consistent findings regarding this relationship in which some studies have found a positive and significant effect (Jamil 2012; Tan et al., 2010; Lee & Ngoc, 2010; Amoroso & Hunsinger, 2009; Lin, 2007). Another study found there is no significant relationship between perceived behavioral control and intention of online shopping (Suntompithug & Khamalah, 2010; laohapensang, 2009; Nik Mat & Sentosa, 2008). Many previous studies discussed in many countries; Malaysia, China, Kuwait, Jordan etc. are focused on internet banking or e-banking (Khalil & Pearson, 2008; Ramayah et al., 2009a, 2009b; Al-Majali 2011, Abu Shanab & Pearson, 2007).

There are limited studies conducted in Indonesia settings e-money mobile higher levels of perceived control online purchasing behavior should lead to a higher level of trust and intention to buy (Suntornpithug and Khamalab, 2010). Some empirical studies have found an association between PCB and intentions (e.g. Chau & Hu, 2001; Lau, 2002; Shih and Fang, 2004). Other studies also show that perceived behavioral control is positively related to behavioral intentions (Harrison et al., 1997; Jasman et al., 2005; Khalil & Pearson, 2008; Lu et al., 2009; Mathieson, 1991; Taylor & Todd, 1995a, 1995b; Truong, 2009). In the context of mobile services, the study also verifies that perceived behavioral control positively influence behavioral intentions (Hsu et al., 2006; Lee, 2010; Pedersen, 2005; Quan et al., 2010; Shin et al., 2009). Therefore, the second hypothesis for this study can be summarized as:

H<sub>6</sub>. Perceived behavioral control positively affects the intention to use e-money mobile. The model of the study is proposed as below (Fig. 1).

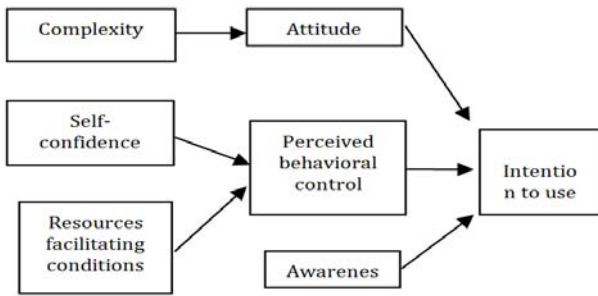


Fig. 1: Proposed Model

### 3. Methodology

#### 3.1. Respondents of the study

In this study, the questionnaires were distributed among 1300 respondents of this sample to get more accurate prediction about consumers' intentions to use e-Money in Indonesia. However, there is no list of consumers who have intention to use e-Money in Indonesia and the sample is used in large scale social surveys as it is difficult to find the proper sampling frame. Therefore, this research decides to conduct mall-intercept as a method to collect data by personal interviews where the questionnaire is administrated to several areas (Bush & Hair, 1985). The population is defined as "researcher specifies the unit being sampled, the geographical location, and the temporal boundaries of the population" (Neuman & Kreuger, 2003). A sample determines a representative portion of the target population which can consist of people, events or records with desire information and answer questions for measurement (Cooper & Schindler, 2011). The questionnaires might be returned completely is around 30% from distributed (Montgomery, 1989). Therefore, to anticipate lack of response, the total numbers of questionnaires were distributed among

1300 people, which is larger than the recommended sample size. Techniques sampling uses multi cluster stage and systematic random sampling (Babbie, 2011). It takes some data of district area in Medan city. The respondents are selected with technique random in some urban villages around shopping complex. Thus, every 641 shopping complex from listing is selected to be sample (833562/1300).

The procedure that is adopted in this study is based on "mall-intercept", where the data is collected from the respondents around shopping complex. This method is used to avoid using convenience sampling (Hossain & Prybutok, 2008; Ramayah & Ma'ruf, 2002; Kazi, 2013), where it called as a bit dirty and cheap method when doing research, because it is difficult to specific and bias, Robson (1993), difficult to achieve the criteria clearly, and appears similar and more subjective (Farrokhi & Mahmoudi-Hamidabad, 2012). Data that is collected has to be tested and evaluated to prove the theoretical framework and its hypothesis by using SPSS-statistical software (Version 18 and SmartPLS 2.0 M3), because they are more flexible.

#### 3.2. Research instruments

The questionnaire is used as an instrument of the study that examines all of variables used a seven-point scale (from strongly agree to strongly disagree). The construct was already followed by many authors to investigate the behavioral intention in many aspects or areas of decomposed theory of planned behavioral. Besides, each instrument is reliable and accepts the coefficient alpha (Nunnally, 1978).

Table 1: Description of the questions in questionnaire

Variable	Authors	Questions
Complexity	Tan & Teo, 2000; Laukkanen & Cruz; 2009, Taylor and Todd, 1995b; Fred D. Davis, 1989	1. Learning to operate e-Money in mobile phone would be easy for me 2. I would find it easy to get e-Money in mobile phone to do what I want it to do 3. My interaction with e-Money in mobile phone would be clear and understandable 4. I would find e-Money in mobile phone to be flexible to interact with 5. It would be easy for me to become skillful at using e-Money in mobile phone 6. I would find e-Money in mobile phone easy to use
Attitude	Karjaluoto et al., 2002; Sandland, 2000; Suganthi et al., 2001; Ajzen, 1991; Davis et, 1989 as cited in Al-Debei et al, 2013	1. I have positive opinion in electronic money on mobile phone 2. I think continuance usage electronic money on mobile phone is good for me 3. I think continuance usage electronic money on mobile phone is appropriate for me
Self-confidence	Taylor & Todd, 1995; Miller, 2005	1. I am confident of using electronic money in mobile phone even if there is no one around to show me how to use it 2. I am confident of using electronic money on mobile phone even if I have never used it before 3. I am confident of using electronic money on mobile phone if I have only the online instructions for reference
Resources facilitating conditions	Taylor & Todd, 1995; Tan & Teo, 2000	1. The resources needed to use electronic money in mobile phone are available to me 2. I could easily get access to the resources that are needed to use electronic money in mobile phone 3. I have sufficient resources to use electronic money in mobile phone



Perceived behavioral control	Tan & Teo, 2000; Chen, 2007; Kang et al., 2006; Miller, 2005; Armitage et al, 1999 as cited in Al-Debei et al, 2013	<ol style="list-style-type: none"> <li>1. I will be able to use the e-money in my mobile so well when in payment transaction</li> <li>2. Using e-money in mobile is entirely within my control</li> <li>3. I have the resources, knowledge, and ability to use e-money in my mobile</li> </ol>
Awareness	Safeena, Date, Kammani, and Hundewale, 2012; Lin, 2010; Rogers, 1999; 2003; Sathye, 1999	<ol style="list-style-type: none"> <li>1. I receive enough information about electronic money in mobile phone</li> <li>2. I receive enough information about the benefits electronic money in mobile phone</li> <li>3. I receive enough information of using electronic money in mobile phone</li> <li>4. I never received information about electronic money on mobile phone from issuers</li> </ol>
Intention to use	Ja-Chul Gu, Sang-Chul Lee & Yung-Ho Suh, 2009; Carolina Lopez-Nicola's,	<ol style="list-style-type: none"> <li>1. I intend to use e-Money in mobile phone continuously in the future</li> <li>2. I will recommend others to use e-Money based in mobile phone</li> <li>3. I will frequently use e-Money in mobile phone in the future</li> </ol>
Intention to use	Francisco J. Molina-Castillo, Harry Bouwman, 2008; Ja-Chul Gu, Sang-Chul Lee & Yung-Ho Suh, 22009)	<ol style="list-style-type: none"> <li>4. I will definitively keep using advanced mobile services on e-money transaction payment.</li> <li>5. I expect to be using advanced mobile services on e-money transaction payment in the future as well</li> <li>6. I expect that advanced mobile services on e-money transaction payment will make everything easier in the future</li> <li>7. I think other should use advanced mobile services as well on e-money transaction payment</li> </ol>

#### 4. Findings of the study

##### 4.1. Descriptive statistics

A total of 1300 questionnaires were distributed to mobile user in shopping Centre. Out of 1300 questionnaires, 760 questionnaires were returned. Of this, 540 responses were found to be non-usable. Specifically, 181 questionnaires were incomplete. These are no cases for outliers. As suggested by Coakes and Steed (2003) proposed the sample size should be 20 times more or at least 5 times more than variables. Hair et al. (2010) also suggested that the minimum sample size for SEM analysis approach is about 200 respondents. Hence, the sample size of 579 appears to be adequate for statistical analysis compare to 13 variables used in this study. The response rate obtained was also comparable to several studies using mall intercepts method which distributed to user mobile around shopping Centre as the study sample.

**Table 2:** Questionnaire distribution and decisions

Item	Frequency	Percentage %
Distributed questionnaires	1300	100
Returned questionnaires	760	59
Rejected questionnaires	540	41
Retained questionnaires	579	76

The respondents who respond to this study from male are 256 which represent 44.2%, and female are

323 with 55.8%. The respondents who respond to this study from age 18-25 are 399 which represent 68.9%, age 26-30 are 46 which represent 7.9%, age 31-35 are 54 which represent 9.3%, age 36-40 are 35 which represent 6%, age 41-45 are 17 which represent 2.9%, age 46-50 are 15 which represent 2.6%, age 51-55 are 12 which represent 2.1%, and age >56 are 1 which represent 0.1%.

**Table 3:** Profile of respondents (N = 579)

Item	N	Percentage (%)
Gender		
Male	256	44.2
Female	323	55.8
Age		
18- 25	399	68.9
26 - 30	46	7.9
31 - 35	54	9.3
36 - 40	35	6.0
41- 45	17	2.9
46 - 50	15	2.6
Item	N	Percentage (%)
51 - 55	12	2.1
>56	1	0.2

##### 4.2. Inferential statistics

To find whether the variables are used in this study supported or rejected, the results of the structural model are presented in Table 4 as follows.

**Table 4:** The Results of Structural Model

Variables	Path	Standard Error (STERR)	T-Value	P-Value	Decision
AT -> ITU	0.408674***	0.050188	8.143	0.00	Supported
AW -> ITU	0.056609**	0.036333	1.558	0.06	Rejected
C -> AT	-0.264894***	0.06614	4.096	0.00	Supported
PBC -> ITU	0.083795**	0.047346	1.770	0.04	Supported
RF -> PBC	0.383271***	0.053035	7.227	0.00	Supported
SC -> PBC	0.417375***	0.048325	8.637	0.00	Supported

\*, p>0.1; \*\*, p>0.05; \*\*\*, p>0.01

#### 5. Discussion

The complexity: "The degree to which an innovation is considered relatively difficult to



understand and use (Taylor & Todd, 1995). Some innovations or new idea may be complex or being difficult for adopters or potential adopters to use (Rogers, 1995). The result of this study also supports hypothesis 10 that complexity ( $\beta = -0.681569^{***}$ ,  $t=21.742$ ,  $p>0.01$ ) has a significant negative to attitude. The complexity is considered in aspects of efficiency of data transformation, interface design, and system support function, while wireless trust environment is considered in terms of security and privacy (Lu et al., 2003). A study in Yeman indicated complexity was negative significantly correlated with attitude. Complexity was negative significantly correlated with attitude of using the online trading system (Zolait & Sulaiman, 2008; Lau, 2002). Complexity was negative significantly related to attitude on behavioral intention (Taylor and Todd (1995b).

Attitude describes an individual's positive or negative evaluation about performing a particular behavior. Positive attitude towards consumers' behavior refers to how they develop an intention to carry out that behavior (Ajzen, 1991). In this study, consumers' attitude towards using e-money mobile refers to individual's evaluation positive or negative towards intention to use e-money mobile. Attitude has long been shown to influence behavioral intentions (Ajzen & Fishbein, 1980). As expected, attitude ( $\beta = 0.408^{***}$ ,  $t= 8.143$ ,  $p>0.01$ ) was found to have a significant positive effect on the intention to use e-money mobile. The result of this study found that the individuals have positive attitude about behavior, the more intention for them to perform that behavior (Taylor & Todd, 1995a). Therefore, the greater consumers have positive attitude using e-money mobile, the higher their intention to use e-money mobile. So, the more negative the attitude, the weaker the behavioral intention to use e-money mobile. This finding is consistent with previous empirical studies (Schierz et al., 2010; Norazah, 2011; Khalil & Pearson, 2008; Chang & Cheung, 2001; Bauer et al., 2005; Tsai, 2010; Bruner and Kumar, 2005; Hong et al., 2008; Hsu et al., 2006; Suh & Han, 2002).

This study hypothesized Self-confidence positively affects perceived behavioral control. As hypothesized, Self-confidence ( $\beta = 0.417375^{***}$ ,  $t=8.637$ ,  $p < 0.01$ ) have a positive significant effect on perceived behavioral control. Therefore, the result of this study supports the hypothesis 13. The significant result of this study is consistent with the results from previous studies (e.g. Bhattacharjee, 2000; Hsu et al., 2006; Shin et al., 2009; Taylor & Todd, 1995a, 1995b). The result of this study signifies that self-confidence or efficacy to use e-money mobile might affect an individual's perception of behavioral control and later affect intention to use the technology which in turn will influence use of e-money mobile. The finding reported in this study supports Khalil and Pearson (2008) finding that individuals with high self-confidence reported higher control about intention to use the technology. The result also verifies the

finding by Shih and Fang (2004) which claimed that self-confidence as an important determinant of perceived behavioral control. The significant result of both self-confidence reveals that individuals with high level of self-confidence can enhance their inclination to use the technologies due to they have no fear of challenges and manage to overcome difficulty, hence they can easily use the technology (Chong et al., 2010).

Another possible reason of this significant result is because of the respondents of this study is relatively young users which have more exposure to the development of e-money mobile technologies and fast learner groups of the technologies. This can lead to increase their self-confidence towards using mobile marketing services. This is due to self-confidence is a set of self-belief which the users believe on their own capability to do something effectively (Chong et al., 2010). The finding of this study proposes that e-money mobile might focus their marketing effort to improve individual's self-confidence towards using e-money mobile. The individuals' that have higher self-confidence might have higher control towards using the technology. The significant result of self-confidence implies that the users of e-money mobile will have a higher confidence level if they have guidance towards using e-money mobile. Hence, in enhancing the customers' confidence, the issuers should provide opportunities for customers to try the e-money mobile. Some customers might experience lack of confidence in using e-money mobile especially for unfamiliar product or services. Therefore, in order to increase the customers' confidence, issuers should demonstrate to customers and offer the easiest way and be more user friendly for them to try out the e-money mobile.

Facilitating conditions refer to beliefs about the availability of facilities or resources that are needed to engage in a specific behavior (Triandis, 1980). It refers to the amount of resource or opportunity that a person possesses or obstacles that the consumer has or faces in using e-money mobile (Lau, 2002). In this study, it refers to beliefs on the availability of resources (i.e. money, information, skill and time) which are needed in e-money mobile activities. In the case of e-money mobile, such resources include access to e-money mobile. As hypothesized, the results indicate that facilitating conditions ( $\beta = 0.383271^{***}$ ,  $t=7.227$ ,  $p < 0.01$ ) have a positive significant effect on perceived behavioral control. Hence, hypothesis 14 is supported. This finding has also been supported in other studies (e.g. Bhattacharjee, 2000; Khalil & Pearson, 2008; Lau, 2002; Taylor & Todd, 1995a, 1995b). The result of this study proposes that the influence of facilitating condition, could impact an individual's perception of the ease or difficulty of engaging in e-money mobile. Moreover, the facilitating conditions is one of the concerning factors in conducting online transactions (Lau, 2002). It can be said that individuals perceive that they can easily engage in e-money mobile

activities if the resources to use the technology are readily available.

Perceived behavioral control refers to the individual perception of how easy or difficult to perform the technology (Ajzen, 1991; Ajzen & Madden, 1986). It reflects one's beliefs regarding access to the internal (self-confidence) and external factors that might hinder performance of the behavior (facilitating condition). As expected, the result of this study also supports hypothesis 3 that perceived behavioral control ( $\beta = 0.083795^{**}$ ,  $t=1.770$ ,  $p>0.05$ ) has significant positively affected the intention to use e-money mobile. Consistent with a number of previous studies (e.g. Bhattacharjee, 2000; Harrison et al., 1997; Hu et al., 1999; Lau, 2002; Khalil & Pearson, 2008; Liao et al., 1999; Lu et al., 2009; Taylor & Todd, 1995a), perceived behavioral control is found to have a significant positive direct effect on behavioral intention.

Rogers (1983) defined awareness of innovation as: innovation exists and gains some understanding of how function. While Sathye (1999) has defined awareness of innovation as: understanding whether the customer is aware or not aware of service itself and its benefits. He also shows that low level of IBS awareness is a critical factor in causing customers not to adopt online banking. The result of this study also supports hypothesis 4 that awareness ( $\beta = 0.056609^{**}$ ,  $t=1.558$ ,  $p>0.05$ ) has positive and not significant influence to the intention to use e-money mobile. The result was opposite to some previous studies of information related literature (Safeena et al., 2011). However, in that result is found that individuals are still reluctant to adopt the system because of without a proper knowledge of the system; individuals are not interested to test the system. It was improved with findings by Al-Fahim (2012) that awareness were found to have positive and not significant influence on Internet banking adoption. Most of respondents use online banking occasionally and many respondents have a little knowledge about the e-banking services because of they do not have much money in their bank' account. It seems gone in this study that awareness is not significant happened because of the costumers had not receive enough information about e-money mobile, also information about benefit and using e-money mobile and information from issuers.

Consumers go through "a process of knowledge, persuasion, decision and confirmation" before they are ready to adopt a product or service (According to (Sathye, 1991; Rogers and Shoemaker, 1971). The adoption or rejection of an innovation begins when "the consumer becomes aware of the product". Consumers will seek out services which offer the best value for money. Hence, for adoption of mobile banking, it is necessary that the banks offering this service make the consumers aware about the availability of such a product and explain how it adds value relative to other products of its own or that of the competitors.

## 6. Conclusion

In understanding the nature of the customers' intention to use, this study is expected to contribute to the e-money mobile knowledge in several ways. The information expects to helpful in explaining the theory underlying e-money and consumer behavior. Firstly, this study give contributions it enhances the specific theory DTPB by relating it to the intention to use e-money mobile which is still limited in Indonesia, since most explanations involve general theory such as E-commerce, e-Banking, and other social networking. Besides, this study also contributes to literature review relates to consumers' intention to use and e-money mobile transactions in Indonesia. The current study is significant because it adding new information to the literature review and by developing a new version of DTPB as a comprehensive model to investigate a set of antecedents that have an influence on intention to use e-money mobile. Besides, it improves the perceived security theory as a critical factor in electronic transactions in term of authentication, usability, and safety.

Secondly, the newly developed model has not been applied in Indonesia in particular. Moreover, there is little prior research that uses a DTPB model to discuss the intention to use (Shih & Fang, 2004). Thus, the model generated from this research may be a useful for academics to understand these antecedents in the future. Additionally, this study helps academicians who are interested in the intention to use topic, since there are only a few similar studies that tackle this particular issuer (AlSukkar & Hasan, 2005; AbuShanab & Pearson, 2007).

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