



## **Antecedents of Continuous Usage Intention of Mobile Banking Services from the Perspective of DeLone and McLean Model of Information System Success**

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### **ABSTRACT**

Mobile banking (M-banking) has been attested to play an important role in customer satisfaction therefore retention and inclination of the customers to decide and sustainable usage of the banking services. Presumably, relative advantage, post-use-trust influence and attitudinal loyalty plays important role in the decision of the continuous usage of M-banking. In addition to the specific factors, there are other important factors, which are required to be identified and modeled in evaluating the tendencies and intentions of continuous usage of M-banking. To discuss these and similar other factors affecting the customers post-use-trust, this study extends the key framework of DeLone and McLean (2003) by assessing the efficacy of the determinants of the post-adoption satisfaction and intention of continuous usage. Expected modification includes the identification of the effects of the relative advantage, post-use-trust influence and attitudinal loyalty. A key expectation of this study is to review the aspects of retention models in literature and hence propose a generalized approach towards identification and assessing determinants of overall satisfaction of M-banking customers generally and specifically of the intention of post-adoption and continuous usage and post-use-trust. It is expected that evidence of such modification and extension of the framework will lead to conclusion and findings towards key factors of post-adoption satisfaction and customer inclination and intention towards continuous usage of M-banking and hence will be beneficial for the banking sector researchers.

**Keywords:** Mobile Banking, Customer Satisfaction, Customer Retention, Post-Use Trust, DeLone and McLean Model

**JEL Classification:** M000

### **1. INTRODUCTION**

Mobile banking (M-banking) is a newly introduced banking service for providing different monetary services via information and communication technologies and mobile devices, which facilitates the use of electronic banking in less-developed countries (Hanafizadeh et al., 2014; Shah et al., 2013). Accordingly, M-banking implies usage of mobile terminals such as smart phones to access banking networks via the wireless application protocol (Zhou et al., 2010a). The advantages of M-banking are not limited to users of this service; it can be considerably profitable to the service providers and the society as well, particularly in

less-developed countries. In fact, M-banking provides banks with reduction in costs and improvement in non-interest income, as well as the efficiency across interactions with customers (Kundu and Datta, 2012). More importantly, M-banking can also serve the society via offering the services to people living in remote locations.

Similar to other innovation diffusion contexts in which the technology adoption phenomenon is divided into two levels of adoption including initial adoption and post-adoption (e.g., Ghobakhloo et al., 2011; Karahanna et al., 1999; Thong, 1999), M-banking adoption can also be studied at two

levels: Initial M-banking adoption and post M-banking adoption (Kang et al., 2012). In the initial adoption process, an individual forms the attitude toward M-banking and further decides whether to adopt it or not. In post-adoption process, an individual who has already adopted M-banking forms the attitudes toward continuing using it or not.

Contrary to the initial adoption of M-banking which is well-studied (e.g., Akturan and Tezcan, 2012; Hanafizadeh et al., 2014; Lin, 2011; Lin, 2013; Luo et al., 2010; Riquelme and Rios, 2010; Zhou, 2011a; Zhou et al., 2010b), the existing knowledge of the way current M-banking users are retained and persuaded to use this service continuously is yet very limited. Since M-banking by means of bank applications and mobile communication networks is a relatively new technological innovation, majority of previous studies has addressed the initial adoption stage in which non-users of M-banking decide to whether adopt this new banking service. The existing evidence within marketing literature suggests that similar to other service industries, lack of understating on determinants of customer retention can be costly to banks which have made considerable amount of investments to provide M-banking services (Mittal and Lassar, 1998; Rust and Zahorik, 1993; Nazir et al., 2014).

The marketing literature signifies that retaining existing customers and making them loyal to the service providers is one the most important ways of attaining long-term profitability (Bansal et al., 2004). The marketing literature have also reported that attracting a new customer costs up to five times more than the cost of retaining an existing customer (Mittal and Lassar, 1998). Consistently, it is important to bank (which provide M-banking services) to devise effective strategies and retain existing users of their M-banking services to be able to enjoy the long term benefits of having loyal customers. One possible remedy for this issue is to extend the findings of previous post-adoption studies from comparison of similar technology acceptance contexts (e.g. Cho et al., 2009; Wang, 2008) with M-banking context. Although it can be a good start for understanding the determinants of post-adoption usage behavior of M-banking, however, previous finding cannot be simply generalized to the M-banking context due to key limitations. The difficulty is that previous studies have not been successful in providing a one-size-fit-all model of post-adoption usage behavior and there are indeed many inconsistencies associated with their findings, which limit the generalizability of these finding to the context of M-banking post-adoption usage behavior.

Considering the above-mentioned gaps, this study intended to fill the existing lack of a research model that can explain various methodologies through which existing users of a particular M-banking service can be retained. This study therefore aimed to address the great need for understanding the phenomenon of M-banking customer retention in the form of studying antecedents of intention to use M-banking services continuously by existing users.

## 2. THEORETICAL BACKGROUND

Various streams of research exist within this broad area of research. In the simplest form, two particular streams of research

on information system (IS) widespread can be recognized. One stream of IS studies investigates the individual technology acceptance by postulating intention to use or usage behavior as the key dependent variable (Ajzen, 1991; Davis, 1989; Venkatesh et al., 2003). Majority of prior IS implementation studies fall into this research stream. Diffusion of innovation (DOI) theory (Rogers, 1983); Technology Acceptance Model (TAM) (Davis, 1989); Task-Technology Fit (TTF) perspective (Goodhue and Thompson, 1995); Theory of Planned Behavior (TPB) (Ajzen, 1991); Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975); and United Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) are examples of well-established and proven theories and perspectives widely used by prior IS scholars in this stream. Alternatively, another stream, which originates from discrepancy-based satisfaction background, focus on IS post-adoption stage and primarily focus on the role of user satisfaction as the key factor leading to IS implementation and continued usage (Khan et al., 2014a). Expectation Confirmation Theory (ECT) proposed by Oliver (1980); Bhattacharjee's (2001) ECT-based post-acceptance model; and DeLone and McLean's (1992) taxonomy of IS success are some major contributions in this stream.

DeLone and McLean conducted a detailed review of the both conceptual and empirical studies published within the period 1981-1987 based on which they proposed a comprehensive taxonomy of IS success. Their taxonomy of IS success, which was further named as Original DeLone and McLean IS success model consists of six key dimensions of IS success, namely system quality, information quality, user satisfaction, system use, individual impact and organizational impact. Right after publishing DeLone and McLean original IS success model, numerous scholars used this model within their IS success studies. DeLone and McLean (1992) noted that "this success model clearly needs further development and validation before it could serve as a basis for the selection of appropriate IS measures." Following the DeLone and McLean's (1992) call for further validation and development of the DeLone and McLean original IS success model, many IS scholars (e.g., Rai et al., 2002; Seddon, 1997; Seddon and Kiew, 1996; Pitt et al., 1995; Jiang et al., 2002; Wang, 2008; Gable et al., 2008; Wixom and Todd, 2005; Ghobakhloo et al., 2013; Bernroider, 2008; Urbach et al., 2010; Lin, 2007; Wu and Wang, 2006; Khan et al., 2014b) offered modifications to this success model, critically analyzed the meaning of four of the constructs (system quality, information quality, user satisfaction and system use) of original DeLone and McLean IS success model, and the interrelationships between them.

DeLone and McLean (2003) noted that since more than 300 research papers used original DeLone and McLean IS success model, therefore, their taxonomy of IS success was indeed a comprehensive framework that managed to effectively integrate existing findings on IS success. Despite the robustness of original DeLone and McLean IS success model, DeLone and McLean (2003) reviewed more than 100 articles that used original DeLone and McLean IS success model and further updated the IS success taxonomy based on intense changes in IS practice they observed. Accordingly, DeLone and McLean (2003) proposed their

updated success model (known as Updated DeLone and McLean IS Success Model).

DeLone and McLean themselves extended their work to the electronic commerce (EC) context by proposing the DeLone and McLean EC Success Model (DeLone and McLean, 2004). The DeLone and McLean EC success model offers success dimensions and their interrelationships identical to those of the updated DeLone and McLean IS success model, however, with EC related measurement properties. DeLone and McLean (2004) exemplified the use of their EC success model by two empirical cases and concluded that “the six dimensions of the updated DeLone and McLean model comprise a parsimonious framework for organizing the various EC success metrics identified in the literature” (DeLone and McLean, 2004).

The review of IS success background also suggests that DeLone and McLean taxonomy of IS success has been a popular basis for the study of mobile commerce (M-commerce). Cheong and Park (2005) merged TAM (Davis, 1989) and DeLone and McLean taxonomy of IS success to study the acceptance of mobile internet in Korea. Chung and Kwon (2009) drew on DeLone and McLean IS success taxonomy to study potential determinates of M-banking satisfaction. To understand the determinants of the mobile social networking service users’ loyalty, Zhou et al. (2010b) integrated the DeLone and McLean IS success taxonomy with IT background (such as theories of TAM, DOI, and TTF). Consistent with other M-commerce context, DeLone and McLean IS success taxonomy has also been popular among studies focusing on M-banking. In a study on determinants of behavioral intention in the context M-banking, Gu et al. (2009) integrated the well-established theories in technology acceptance background such as TAM, TRA and TPB with the DeLone and McLean taxonomy of IS success.

While the DeLone and McLean model taxonomy (DeLone and McLean, 2003) is a useful, robust and parsimony framework for understanding key dimensions of EC and IS service usage behavior and their interrelationships, however, many IS scholars argue that there is a need to incorporate cognitive factors and beliefs as potential determinants of EC and IS service usage behavior (e.g., Gable et al., 2008; Sabherwal et al., 2006). Majority of previous studies in M-banking context which drew on the DeLone and McLean Model taxonomy also proposed significant extensions to include different cognitive factors and beliefs such as attitude, trust and perceived usefulness. These extensions however, cannot be regarded as a disadvantage diminishing its robustness since DeLone and McLean (2003) noted that “for each research endeavor, the selection of IS success dimensions and measures should be contingent on the objectives and context of the empirical investigation ...” Therefore, these extensions of the DeLone and McLean IS success taxonomy were indeed expected and requested. It was observed that majority of the extensions to the DeLone and McLean IS success taxonomy were done via integrating the dimensions of IS success offered by this taxonomy with well-established perceptual-cognitive variables and beliefs identified within technology acceptance background. The most common practice is to integrate DeLone and McLean EC/IS success with well-known acceptance theories such as DOI

(Rogers, 1983), TAM (Davis, 1989), TPB (Ajzen, 1991), TRA (Fishbein and Ajzen 1975), and UTAUT (Venkatesh et al., 2003). In majority of previous researches, DeLone and McLean EC/IS success model was considered as the main basis and were extended by adding some other system characteristics or personal beliefs (e.g., Lee and Chung, 2009; Zhou, 2011b).

Keeping the objective in mind, this research also has taken the DeLone and McLean EC success model as theoretical basis and proposed a modified model to identify the antecedents of continuous usage intention of the context of M-banking and study their interrelationships.

### 3. CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

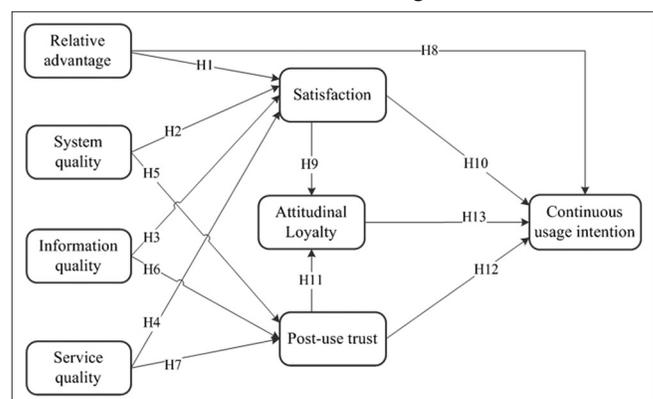
This study proposed a research model that explains the determinants of M-banking user retention and the existing interrelationships. M-banking retention means continuous usage of the M-banking. Therefore, a retained user who already has adopted M-banking will continue to using it. Thus, from IS acceptance perspective, M-banking retention is a post-adoption phenomenon and the basic theory for developing the research model should offer a deep understanding of determinants of IS continuous usage intention. This study proposed a single and universally applicable, yet comprehensive model essentially encompassing descriptive as well as relational studies to ascertain M-banking user retention in post-adoption context. The proposed conceptual model is presented in Figure 1. The dimensions and their hypothesized interrelationships are elaborated in following subsections.

#### 3.1. Conceptualization of Dimensions

##### 3.1.1. Relative advantage

Relative advantage, which is known as net benefits in DeLone and Mclean IS success taxonomy refers to the extent to which IS contributes “to the success of individuals, groups, organizations, industries, and nations” (Petter et al., 2008). Perceived usefulness is the most frequently used measure of IS relative advantage, particularly at the individual level of analysis (e.g., Kang et al., 2012). However, IS studies at organizational level of analysis mainly focused at financial metrics as the measures of relative advantage (e.g., Tang and Ghobakhloo et al., 2013;

**Figure 1:** Conceptual framework of antecedents of continuous usage intention of mobile banking services



Rai et al., 2002). Consistent with majority of prior IS studies which focused on the individual level of analysis, relative advantage in proposed model refers to the extent to which M-banking service has been beneficial to a user, as experienced by him/her.

### 3.1.2. System quality

System quality in IS background is conceptualized as desirable characteristics of an IS (Petter et al., 2008). Among different desirable characteristics, perceived ease of use is the most commonly employed measure of system quality (Davis, 1989; Davis et al., 1989; Davis, 1993). Alternatively, some other scholars argued that perceived ease of use cannot fully capture all the desirable characteristics of an IS, therefore proposed more comprehensive instrument of system quality (e.g., Wixom and Todd, 2005). The system quality instrument proposed by Rivard et al. (1997) is among the most comprehensive instruments which includes many characteristics of an IS such as effectiveness, user-friendliness and portability. DeLone and McLean (2004) proposed that characteristics such as ease of use, usefulness, usability, responsiveness, reliability and flexibility can be used to measure EC system quality. Consistent with the IS and EC background, M-banking system quality in the suggested model is conceptualized as desirable characteristics of M-banking application (the software installed on smartphones).

### 3.1.3. Information quality

Information quality within IS literature generally refers to the desirable characteristics of the IS outputs (Petter et al., 2008). DeLone and McLean (2004) proposed that accuracy, relevance, completeness, currency and dynamic content are examples of characteristics of desirable content. It is generally accepted that the measurement instrument of information quality should be developed according to the type of IS under study (Petter et al., 2008; Wixom and Todd, 2005). The proposed model follows the DeLone and McLean IS success taxonomy and conceptualizes M-banking information quality as the desirable characteristics of outputs of M-banking applications.

### 3.1.4. Service quality

IS literature defines service quality as “the quality of the support that system users receive from the IS department and IT support personnel” (Petter et al., 2008). DeLone and McLean (2004) explained it in EC context as supports offered to users/customers through help desks, hotlines, service centres, or the like. DeLone and McLean (2004) also acknowledged that there is no specific well-established measure of service quality in EC context, and suggested that a reliable measure of service quality should include measures such as responsiveness and technical competence. In the proposed model, service quality is conceptualized as the quality of support that M-banking users receive from banks (as service providers) through different service channels (e.g., hotlines, help desks or etc.).

### 3.1.5. Satisfaction

IS literature explains that satisfaction refers to the users’ level of satisfaction with the system itself, and with the output of the system (Petter et al., 2008). Although majority of studies did not differentiate the satisfaction with system from satisfaction

with information, however, few studies proposed that system satisfaction and information satisfaction are different constructs (e.g., Ghobakhloo et al., 2013; Wixom and Todd, 2005). In EC context, a user’s satisfaction can be defined as “the reaction or feeling of a customer in relation to his/her experience with all aspects of an EC system” (Molla and Licker, 2001). This definition shows that user satisfaction is a unified construct which should include the users’ satisfaction with all the aspect of EC including system, information and service. The proposed model conceptualizes satisfaction as the reaction or feeling of M-banking users in relation to their experience with all aspects of M-banking services.

### 3.1.6. Post-use-trust

Keen et al. (1999) postulated that “the trust factor opens up or closes down the pace and nature of EC growth .... Trust is so multifaceted. What exactly is trust? It’s so easy to talk about, so hard to pin down.” Trust has traditionally been problematic to define and conceptualize, and prior studies provided a number of different conceptualization and operationalization of the trust construct (Chaudhuri and Holbrook, 2001; Gefen et al., 2003; McKnight et al., 1998; McKnight et al., 2002). The existing background on trust largely acknowledges that initial trust evolves to post-use trust when users have already experienced a technology (e.g., Gefen, 2000; McKnight et al., 1998). Hernández-Ortega (2011) explains that “pre-use trust is based on beliefs and expectations while post-use trust is based on users’ perceptions derived from their own experiences with the technology.” Therefore, post-use trust in proposed model is conceptualized as the trust of the user in the correct and accurate functioning of the M-banking services.

### 3.1.7. Attitudinal loyalty and continuous usage intention

Marketing scholars proposed that loyalty is indeed composed of two distinct constructs of attitudinal loyalty and behavioral loyalty, and attitudinal loyalty is an antecedent determinant to behavioral loyalty (Oliver, 1980; Bandyopadhyay and Martell, 2007; Chaudhuri and Holbrook, 2001). In conceptualizing attitudinal loyalty and behavioral loyalty, this study primarily followed the Chaudhuri and Holbrook’s (2001) conceptualization of loyalty in which “Behavioral or purchase loyalty is defined as the willingness of the average consumer to repurchase the brand. Attitudinal loyalty is the level of commitment of the average consumer toward the brand.” Therefore, the proposed model conceptualized attitudinal loyalty as the level of commitment of the M-banking users toward a particular bank (as the M-banking service provider), and behavioral loyalty as willingness of current users of a particular M-banking service to continue using it (continuous usage intention).

## 3.2. Research Hypotheses

### 3.2.1. Determinants of satisfaction

Bhattacharya and Ravikumar (2001) proposed that perceived usefulness (relative advantage) (as a cognitive belief) determines attitude (as a pre-acceptance user affect), perceived usefulness can also determine user satisfaction (as a post-acceptance user affect). Bhattacharya and Ravikumar (2001) further supported this relationship between perceived usefulness and satisfaction

empirically. Updated DeLone and McLean IS success model also proposed that perceived usefulness is a potential direct determinant of satisfaction. Many other studies provided empirical support that at the individual level of analysis, perceived usefulness determines satisfaction (e.g., Kulkarni et al., 2006; Rai et al., 2002; Leclercq, 2007; Wang, 2008). Consistently, the proposed model hypothesized that when users of M-banking believe that the service has provided them with expected advantages, these users will become satisfied with that particular M-banking service.

Hypothesis 1: There is a significant positive relationship between relative advantage and satisfaction.

Original DeLone and McLean IS success model proposed that system quality and information quality are antecedent determinants of satisfaction with IS (DeLone and McLean, 1992). Majority of IS success studies which drew on original DeLone and McLean success model provided support for these relationships (e.g., Rai et al., 2002). Many IS scholars also found that for many general IS applications, system quality is significantly related to the satisfaction with the system (e.g., Hsieh and Wang, 2007; Rai et al., 2002). Previous studies also demonstrated that there is strong evidence for the direct relationship between system quality and satisfaction in EC context (Wang, 2008) and even in M-banking context (Chung and Kwon, 2009; Lee and Chung, 2009). Following these evidences, this study proposed that when the M-banking services provide a high system quality, for example when the mobile application is easy to use and offer a beautiful and attractive interface, M-banking users will be satisfied with them.

Hypothesis 2: There is a significant positive relationship between system quality and satisfaction.

Previous IS studies also provided strong evidence for the relationship between information quality and user satisfaction (Petter et al., 2008; Rai et al., 2002; Wixom and Todd, 2005). Kim et al. (2002) and Palmer (2002) showed that when websites provide high quality information such as accurate content, users of these websites tend to be more satisfied. Wang (2008) also showed that when EC provides up-to-date information, EC users would be more satisfied. Ghobakhloo et al. (2013) also demonstrated that when M-commerce provides users with accurate, well-formatted and up-to-date information, these users form information satisfaction. Previous M-banking studies also demonstrated that there is strong evidence for the direct relationship between information quality and satisfaction (Chung and Kwon, 2009; Lee and Chung, 2009). Following past studies, the present research proposed that since banking information quality (e.g., in terms of accurateness, timeliness and completeness) are of prime importance to M-banking users, M-banking services capable of providing high quality banking information will satisfy their users.

Hypothesis 3: There is a significant positive relationship between information quality and satisfaction.

Although the direct relationship between information/system quality and satisfaction is unquestionable, some studies which examined the relationship between service quality and satisfaction

provided mixed support for it (Jiang et al., 2012; Petter et al., 2008). For example, although some studies (e.g., Halawi et al., 2008; Urbach et al., 2010) found a weak relationship between service quality and satisfaction with the system, Leclercq (2007) and Wang (2008) provided significant support for this relationship. To the best of the authors' knowledge, it is rare to find published studies on acceptance of M-banking service investigated the relationship between M-banking service quality and satisfaction with M-banking with regards to user retention in post-adoption context. Following DeLone and McLean (2003 and 2004) and Wang (2008), this present study proposed that when users of a particular M-banking service receive timely, professional and sincere supports from the bank regarding their issues and concerns with M-banking, they would be more satisfied with that M-banking service.

Hypothesis 4: There is a significant positive relationship between service quality and satisfaction.

### 3.2.2. *Determinants of post-use-trust*

Although the construct of trust is not included within the DeLone and McLean success taxonomy, however, many EC/IS acceptance studies has acknowledged the important role of trust in determining usage behavior of users. Zhou (2011a) in his study of usage intention (pre-adoption) of M-banking proposed that system quality and information quality directly determine initial trust toward M-banking. Zhou (2012) further demonstrated that in addition to system quality and information quality, service quality also directly determines initial trust toward M-banking. Although initial trust is a determinant of initial adoption of a new technology, however, marketing literature suggests that post-use trust is the key determinant of continuity intentions (McKnight et al., 2002; Rousseau et al., 1998). In pre-use trust (initial trust) potential users have not yet experienced the new technology and thus build the initial trust based their assumptions. Existing users of a technology however, have already experienced its characteristics and built post-use trust according to their own perceptions, which may confirm or contradict their initial trust (Hernández-Ortega, 2011).

Extending the works of Zhou (2011b) and Zhou (2012) to the post-acceptance stage of M-banking, and building on the concept of post-use trust (Hernández-Ortega, 2011), the authors assume that existing users of M-banking service have already experienced all the quality properties of that service. Therefore, when users perceive that the M-banking service is of high quality, their experienced-based trust would be enhanced. This proposition indeed follows the Gefen et al.'s (2003) study that demonstrated that EC quality (defined as perceived ease of use) directly determines post-use trust of EC users. Consistently, this proposition is also consistent with the findings of Lee and Chung (2009) showing that in M-banking context, after-use trust, in broad term, is directly determined by system quality and information quality.

Hypothesis 5: There is a significant positive relationship between system quality and post-use trust.

Hypothesis 6: There is a significant positive relationship between information quality and post-use trust.

Hypothesis 7: There is a significant positive relationship between service quality and post-use trust.

### 3.2.3. Determinants of attitudinal loyalty and M-banking continuous usage intention

Perceived usefulness (relative advantage) is a key determinant of both pre and post-adoption usage behavior (Bhattacharjee, 2001; Davis et al., 1989; DeLone and McLean, 1992; Luarn and Lin, 2005; Igbaria and Tan, 1997; Khalifa and Liu, 2007; Lin and Wang, 2006; Petter et al., 2008; Wang, 2008; Wixom and Todd, 2005). Kang et al. (2012) also demonstrated that when existing users of M-banking perceive that the service is valuable to them, they will continue using it. These evidences led this study to hypothesize that when users of a particular M-banking service perceive that the service has been beneficial to them, they will continue using this particular M-banking service.

Hypothesis 8: There is a significant positive relationship between relative advantage and continuous usage intention.

Marketing literature largely acknowledges that user satisfaction with a product/service significantly determines attitudinal and behavioral loyalty (Andreassen and Lindestad, 1998; Anderson and Srinivasan, 2003; Hallowell, 1996). Anderson and Srinivasan (2003), for example, explained that in EC context, a dissatisfied customer will be less loyal to a product or service and will attempt to search for alternatives, resist to retention attempts by current service provider, and take steps to reduce dependence on that service provider. Extending the ECT to the IS context, Bhattacharjee (2001) demonstrated that when expectations of existing users of IS are satisfied, they will be more intended to continue using that IS. Several other research studies reported similar findings in different applications such as mobile and telecommunications service (Lee et al., 2001; Seo et al., 2008); online-shopping (Khalifa and Liu, 2007).

Though there is not much M-banking study showing that satisfaction with M-banking is related to loyalty, however, Lin and Wang (2006) demonstrated that satisfaction is the key determinant of customer loyalty in M-commerce context. Extending the findings of previous marketing and IS studies to the M-banking context, the study proposes that M-banking users those who are satisfied with a M-banking service first develop dispositional commitment toward the bank providing that particular M-banking service, and then perform the repeated use of it.

Hypothesis 9: There is a significant positive relationship between satisfaction and attitudinal loyalty.

Hypothesis 10: There is a significant relationship between satisfaction and continuous usage intention.

Marketing literature signified that loyalty is determined by the construct of trust (Chaudhuri and Holbrook, 2001; Sirdeshmukh et al., 2002). In EC context, Gefen et al. (2003) showed that trust is significantly influential to customers' loyalty because there are no particular and proven guarantees that e-vendor/e-service providers will not engage in harmful

opportunistic behaviors such as unfair pricing and violation of privacy. Consistent with Gefen et al.'s (2003) notion and drawing on the McKnight et al.'s (2002) concept of trust in EC context, Lin and Wang (2006) demonstrated that M-commerce users' trusting beliefs (defined as the perceptions of specific mobile vendor attributes) directly determine both attitudinal and behavioral loyalty of M-commerce users. Hong and Cho (2011) also confirmed that in B2C context, overall trust is directly and significantly related to both attitudinal and behavioral loyalty. Concerning M-banking, Gu et al. (2009) demonstrated that when users of M-banking perceive it as to be trustworthy, they will be more behaviorally loyal to M-banking. Keeping these marketing and EC/IS studies and their findings in view, the present study proposed that M-banking users those who trust a particular M-banking service first develop dispositional commitment toward the bank and the particular M-banking service it is offering, and then perform the continued use of M-banking service.

Hypothesis 11: There is a significant positive relationship between post-use trust and attitudinal loyalty.

Hypothesis 12: There is a significant positive relationship between post-use trust and continuous usage intention.

Finally, the suggested research model proposed that attitudinal loyalty is a potential direct determinant of intention to use M-banking continuously (behavioral loyalty toward M-banking). As noted earlier, there have been two different schools of thought within the marketing literature when it comes to conceptualizing and operationalizing the construct of brand loyalty (Bandyopadhyay and Fraccastoro, 2007). One stream of marketing study considers brand loyalty firmly from the behavioral perspective. Another stream of marketing which follows the perspective of Dick and Basu (1994) and proposes that loyalty should be defined in the presence of both a favorable attitude and repeat purchase behavior (Chaudhuri and Holbrook, 2001). Bandyopadhyay and Fraccastoro (2007) demonstrated that attitudinal loyalty indeed influences behavioral loyalty. Hong and Cho (2011) empirically reported that attitudinal loyalty is indeed the most important determinant of intention to repurchase from an e-marketplace. Following these evidences, this study distinguished between attitudinal loyalty and behavioral loyalty and proposed that satisfied users of a particular M-banking service first develop positive dispositional beliefs toward it and next this attitudinal readiness is transformed into readiness to act in the form of continued use of that M-banking service.

Hypothesis 13: There is a significant positive relationship between

## 4. CONCLUDING REMARKS

This study proposed a comprehensive research model, further building upon DeLone and McLean taxonomy (DeLone and McLean, 2003) with specific regards to M-banking user retention post-adoption context. The proposed model addressed the gaps in current literature as well as the great need for understanding phenomenon of M-banking customer retention in the form of studying antecedents of intention to use M-banking services

continuously by existing users. The modification of DeLone and McLean taxonomy included identification and inclusion of effects of relative advantage, post-use-trust influence and attitudinal loyalty in framework.

The authors expect that the proposed modification and extension of the framework will lead to conclusions and findings towards key factors of post-adoption satisfaction and customer inclination and intention towards continuous usage of M-banking and hence will be beneficial for the banking sector investigators and scholars.

The authors have recently embarked on empirical research to test the model developed in this study and the factors believed to influence intentions of continuous usage of M-banking. Findings will be reported in future publications.

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