



# Consumer adoption of mobile banking services: An empirical examination of factors according to adoption stages

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## ABSTRACT

Many seminal studies have explored consumers' attitude and perception to adopt mobile banking as a general and unique service channel. However, no empirical studies have so far addressed consumers' intentions to select mobile banking service delivery channel from behavioral, technological, social, cultural, and organizational perspectives for the three distinct stages like static, interaction, and transaction service. This quantitative study investigates consumers' behavioral intentions to adopt mobile banking at the three distinct service stages. It is designed to examine this behavioral pattern based on the theoretical concept of GAM model. In this regard, an extensive empirical study was conducted among mobile banking service receivers in Bangladesh. The results reveal that driving factors of consumers' behavioral intentions to adopt mobile banking at the static, interaction, and transaction service phases are significantly different, providing important theoretical and practical contributions.

## 1. Introduction

The concept of mobile banking – for example, type of service, association of different stakeholders, and scope and boundaries of the service – has been explored by many researchers (e.g. Al-Ghazali et al., 2015; Alafeef et al., 2011; Deb and Lomo-David, 2014; Laukkanen and Lauronen, 2005; Luo et al., 2010; Maroofi and Nazari-pour, 2013; McNeish, 2015; Mortimer et al., 2015; Rosmain et al., 2013; Shaikh et al., 2015; Wang et al., 2015; Yu and Fang, 2009; Zhou, 2012). Researchers have also attempted to distinguish this mobile service delivery channel from the generic virtual banking service, i.e., Internet banking, by explicitly setting the periphery of this financial service (Chikomo et al., 2006; Laukkanen and Lauronen, 2005). Combining several discourses (Ashraf, 2012; Chikomo et al., 2006; Laukkanen and Lauronen, 2005), we can summarize the concept of mobile banking as a specific type, as well as an extension of certain functional features, of Internet banking where consumers can seek different kinds of financial services from banks through the use of a mobile device under the wireless application protocol (WAP). Mobile banking is offered through short message service (SMS) of mobile phone, direct telephone call,

mobile phone Internet application, and certain specifically designed 'Apps' in mobile data application systems (Ashraf, 2012; Chikomo et al., 2006; Laukkanen and Lauronen, 2005).

While accessibility is an advantage of mobile banking, susceptibility to security risks may considerably inhibit its success (Chikomo et al., 2006; Saxena and Chaudhari, 2013). Like other information and communication technology (ICT) embedded services, such as electronic-government and electronic-commerce, mobile banking is highly and widely under threat from technological, managerial, and behavioral risks (Chikomo et al., 2006; Saxena and Chaudhari, 2013). These risks include lack of confidentiality between banks and customers for privacy, lack of integrity for originality of communicated information, lack of authenticity for trusted and reliable identification between banks and users, and lack of availability of service due to external interruption during flow of information through connected networks (Chikomo et al., 2006). These risks can arise from many subcomponents and design features of mobile banking, such as users, mobile devices, application software and data, mobile operators, and financial service providers (Ashraf, 2012). Studies (e.g. Adetiloye, 2014; Daramola et al., 2014; Pousttchi and Schurig, 2004) have illustrated that consumer

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awareness for mobile banking is rooted in the appropriate design of the technology through the protection of security and privacy of consumers. However, the problem is, still the service providers of mobile banking such as financial institutions do not have comprehensive idea about consumers behavioral pattern to accept, use, and be satisfied with mobile banking (Maroofi and Nazaripour, 2013; McNeish, 2015; Mortimer et al., 2015; Wang et al., 2015). Practitioners and existing literature also do not have explicit perception about mobile banking users' requirements at different phases of this virtual service (Dass and Muttukrishnan, 2011; Govindarajan et al., 2014; Masrek et al., 2012; Mishra and Singh, 2015; Natarajan et al., 2010; Wang et al., 2015).

Technology and marketing researchers have explored consumers' behavioral intentions to adopt mobile banking scattered way (e.g. Alemu et al., 2015; Laukkanen, 2015; Mojtahed et al., 2013; Shareef et al., In Press). The salient studies related to the consumer perspective have utilized a number of behavioral theories such as the Technology Adoption Model (TAM) (Davis, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003; Dwivedi et al., 2017a, 2017b; Rana et al., 2016, 2017), Task Technology Fit model (TTF) (Goodhue and Thompson, 1995), and Diffusion of Innovation theory (DOI) (Kapoor et al., 2014a, 2014b; Rogers, 1995). Some seminal studies are particularly engaged in addressing, exploring, and streamlining consumers' initial trust of mobile banking and its sequential impact on the widespread proliferation of mobile banking through different trust related constructs and models such as McKnight et al. (1998) Initial Trust Model (ITM). However, these attempts to reveal consumers' behavioral intentions based on different behavioral theories and technology adoption models have not comprehensively considered the essential features of any virtual medium where communication is established through Internet and mobile phone. Researchers from ICT and human behavior examined these issues of mobile banking and design and present different application services from a solely engineering perspective to recommend better banking services based on consumers' usability requirements. Security features are considered by some seminal research studies (e.g. Chikomo et al., 2006; Elkhodr et al., 2012; Islam, 2014; Kadušić et al., 2011); however, these studies are severely lacking in behavioral features. Consumers' personality traits, compatibility with mobile banking, and awareness of this service are not deliberated over by many researchers. Synergistic combination of technological, behavioral, social, organizational, and cultural issues to set the epistemological paradigms of selection criteria of adopting mobile banking is currently absent in the extant literature. Additionally, many mobile banking studies have collected data from a sample of university students only (e.g. Al-Jabri and Sohail, 2012; Lu et al., 2014; Mojtahed et al., 2013; Pavithran et al., 2014; Wang et al., 2006), with the implication of limited generalizability of results.

The most significant short-coming of existing mobile banking adoption research is with reference to service phases. There are three stages of mobile banking service: static stage, consisting of checking account balance, and viewing account and investment related information; interaction stage, consisting of two-way communication for any enquiries; and transactional stage, consisting of money transfer from one account to another (Mishra and Singh, 2015; Natarajan et al., 2010; Wati et al., 2009). For different types of services, technological integration and requirements are significantly different. So, different usability is essential from the application software to perform different services having unique functional characteristics. However, no research studies have so far addressed consumers' intentions to select this emerging mobile service from behavioral, technological, social, cultural, and organizational perspective for the aforementioned three stages separately. Academicians and practitioners need to conceptualize and prepare recommendations to formulate consumers' behavior for these three different phases of services separately. Service providers' attempts to design and initiate diffusion strategies for this newly invented service delivery channel depend substantially on the findings of

consumers' requirements, attitudes, and perceptions that shape their behaviors at the three service phases. Consequently, this current research is engaged in addressing this potential research gap and identifies and conceptualizes consumers' behavior by revealing their selection criteria of the mentioned three phases separately. The findings of this research can provide potential benefits to the service providers like Banks, government policy makers, and ultimately consumers who are interested to use mobile banking system.

The remainder of this paper is structured as follows. The next section explains the theoretical framework for investigating consumers' behavior for the three phases of mobile banking operation. Following this, there is a section outlining the research methodology and data collection. Then the analysis section is presented proceeded by a discussion of the results. Finally, the paper is concluded, limitations are identified, and avenues for future research are outlined.

## 2. Theoretical framework

In the present market economy, financial services need to be dynamic, consumer centric, widely available, and compatible with consumers' and merchants' mobile life pattern (Aderonke and Charles, 2010; Atulkar and Kesar, 2017; Laukkanen and Lauronen, 2005). Nowadays, financial services like credit cards, money transfer facilities, and bill payments are widely offered by many retail stores, mobile operators, and some other credit companies (Yu and Fang, 2009), increasing competition for financial service providers. Hence, the banking sector must try to ensure consumers' satisfaction with unique services (Gu et al., 2009; Kim et al., 2009). Internet banking and mobile banking have emerged to minimize operational costs, serve customers with competitive advantage, and meet customers' versatile requirements to satisfy them with distinctive value (Agarwal et al., 2009; Ashraf, 2012; Chaouali et al., 2017, 2016; Fonseca, 2014; Littler and Melanthiou, 2006). The overarching initiation and implementation of mobile banking is mandated to explicitly fulfill operational, financial, and behavioral requirements of both service providers, e.g. banks, and service users, e.g. consumers. It is clearly evidenced that mobile banking can minimize banks' operational costs significantly in contrast to physical retail banking with the presence of customer service (Ashraf, 2012). Additionally, customers are unrestricted to opening hours or availability of customer service advisors to complete daily banking functions.

Studies (Lu et al., 2015; Masrek et al., 2012; Mojtahed et al., 2013; Natarajan et al., 2010; Negash, 2011; Nisara and Prabhakar, 2017; Oliveira et al., 2014; Shaikh et al., 2015; Wang et al., 2015) have attempted to analyze consumers' trust formation behavior, risks related to hampering of trust, and the effect of trust with the cognitive and affective behavioral acceptance of mobile banking. Numerous researchers (Dass and Muttukrishnan, 2011; Govindarajan et al., 2014; Masrek et al., 2012; Mishra and Singh, 2015; Natarajan et al., 2010; Wang et al., 2015) have identified that trust has a more important role in transaction behavior than behavior for static banking. Exploring effects of different categories of trust on behavioral intention for mobile banking, a few studies found that institutional trust is the primary driving agent for positive intention to adopt mobile banking. However, consumers behavioral pattern, attitudes, and perceptions of risks and trust at different phases of mobile banking is not explored and examined in a single study. Practitioners do not have clear idea if the consumers behavior can vary at different levels of service delivery like, viewing mobile banking information, interacting with the domains, and transacting in the same system.

In the channel structure for mobile banking service delivery two key stakeholders are the users, i.e., customers, and the service providers, i.e., banks. As the intermediary in this channel, the supporting role is played by mobile communication operators. This is purely a service delivery channel where service is provided through mobile communication networks to consumers who want to accept this mobile channel

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