



Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation



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ABSTRACT

Mobile banking (m-banking) has emerged dynamically over the years due to consumers' increased use of mobile technologies, their ever-growing lifestyle choices and also the several different economic factors. This paper proposes a new research model by extending the DeLone & McLean information systems (D&M IS) success model to understand users' actual usage of m-banking. The research model was tested and validated using data collected by survey from 227 Omani residents. This study employed a two-staged analytical approach by combining structural equation modeling and neural network analysis. The results divulge that satisfaction and intention to use stand as two important precedents of actual usage, and the satisfaction also mediates the relationship between service quality, information quality and trust with intention to use m-banking and negates with that of system quality. We have provided the theoretical as well as practical implications of the findings.

1. Introduction

The recent decade has witnessed one of the most imperative technological breakthroughs in the form of m-banking leading to the rapid public usage of mobile phones for various personal and professional activities apart from regular conventional usage of the device (Alalwan, Dwivedi, Rana, & Williams, 2016; Lee, Harindranath, Oh, & Kim, 2015). Mobile phones have certainly changed the conventional channels of communication between customers and companies. Researchers have widely captured this phenomenon and sensed that the widespread penetration of mobile payment (MP) systems would radically change the methods of purchase and deliver the unique value to both consumers and service providers by offering the first ubiquitous payment solution (De Kerviler, Demoulin, & Zidda, 2016; Mallat, 2007; Slade, Dwivedi, Piercy, & Williams, 2015). The customers would enjoy the fast and convenient services and the service providers will gain customer loyalty with the added advantage of a reduction in the transaction costs (Johnson, Kiser, Washington, & Torres, 2018; Slade, Williams, & Dwivedi, 2013). In this context, a mobile payment via mobile banking is a much-advanced versatile application that includes elements of mobile transactions (Liebana-Cabanillas, Sanchez-Fernandez, & Munoz-Leiva, 2014) and therefore, mobile banking is seen as one of the most revolutionary mobile technology breakthrough in the banking sector as it enables the customers to independently bring financial transactions

through their mobile devices (Alalwan, Dwivedi, & Rana, 2017; Laukkanen, 2016) and these developments unfold lucrative opportunities to merchants and service providers (Iman, 2018). Banks, thereby not only seem to be gearing up to incorporate the mobile banking channels in their logistical structure to provide their customers better service but also enhance their effectiveness and efficacy (Alalwan et al., 2017; Lin, 2013). On the other hand, even though mobile payment alternatives such as mobile banking have been emerging as the favored choice for many years, it remains a niche product. Nonetheless, there has been an increasing popularity for MPs over the years and it took a major leap from the year 2016 onwards (Laukkanen, 2016) as the year 2015–16 saw the maximum innovations by most of the mobile payments players such as Samsung pay, Apple pay, and Android pay (Meola, 2016).

In the same context, the Timetric research recently projected the value of MP transactions in the Asia Pacific (APAC) region to touch approximately \$301 trillion by 2020. The Juniper Research (KPMG Analysis, 2015) predicted that 1.8 billion people will be using mobile banking worldwide by 2019. The mobile banking usage directly depends on dissemination rate of a smartphone in everyday usage. For that record, the report published in Statista (2018) details that the mobile users' population stands at 3.7 billion as of January 2018 across the globe. Although Asia and Africa lead the pack in terms of existing users but America records the highest penetration rate of mobile

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subscribers at around 78.2 percent followed by Europe at 76.6 percent. Apart from the increasing trend in the Mobile banking acceptability in the APAC region and European countries, the other regions of the globe have also depicted the growing possibilities for the m-banking usage. While, in the case of Middle East, the number of mobile connection has reached 263 million by the year 2016 culminating into over 70% adoption rate in Kuwait, Israel and Oman (GSMA, 2016). More specifically in Oman, the total mobile phone subscriptions have been recorded as 150% of total Omani residents (www.yStats.com, 2016).

With the encouraging trend of increasing mobile phone subscription worldwide, there is no denying the fact that mobile users might show an inclination of switching from the other forms of cashless transactions such as credit cards and online payment options towards the mobile banking. However, challenges lie in the retaining existing and attracting potential m-banking users as they may face several hurdles like technical specifications, the emergence of competing brands, education of consumers, security concerns and synchronization between enabling entities, to name a few. In spite of these concerns, all the stakeholders must recognize that millions of users around the globe are dependent on their sophisticated mobile devices. Thereby, it is important to bridge the gap to facilitate and enhance the m-payment usage with the efficient and effective mobile banking.

Dwivedi, Shareef, Simintiras, Lal, and Weerakkody, (2016) suggested that mobile service system should reflect a country's cultural attributes. A few studies have been conducted in Oman in order to observe the use of m-services from various dimensions. One such study by Belwal and Belwal (2009) studied consumers employing the mobile services for traditional uses such as making calls, exchanging SMSs, navigating through GPS systems. Researchers (Riffai, Grant, & Edgar, 2012; Sharma, 2017) focused on m-banking with reference to the determination of behavioral intention. In addition, those studies focused on m-services being used for paying parking fee via SMS and students receiving grades etc. However, none of these studies has paid attention to the user intention of continuing the mobile services and the factors contributing thereafter on account of the low usage rate (Riffai et al., 2012; Sharma, 2017) for m-banking services in Oman. Service providers, therefore, need to address key reasons influencing the behavior of users and integrate strategic actions in order to bring satisfaction and hence promote the further use of mobile banking.

This research therefore is an attempt towards bridging the gap in the extant literature by extending the DeLone & McLean (Pitt, Watson, & Kavan, 2013) IS success model in order to understand users' intention for the decision to accept m-banking and to derive satisfaction in the reference of this work. Firstly, the proposed work extends the D&M IS model by adding trust as another important variable in the context of Oman, a Middle Eastern country. Secondly, this research focuses on the conversion into actual usage of m-banking via intention to use and satisfaction of m-banking usage. Finally, a two staged analytic approach was implemented for the testing and validation of the model proposed. Structural equation modeling (SEM) was employed to test the proposed research model and establish key hypothesized predictors with the help of goodness of fit model and then those key variables derived from SEM analysis were further passed into the input layers of the neural network structure to compute the ranking of predictors and thereby predict the actual usage of m-banking adoption. The sequential multi-method research design derives its rationalization from the fact that consumers tend to judge alternatives based on only a few attributes and therefore the process of evaluation may not always be compensatory (Chiang, Zhang, & Zhou, 2006; Johnson, Meyer, & Ghose, 1989). Thereby the use of neural network model will bring the reliability in the validation of the constructs even for the non-compensatory decision of the users.

The paper is further organized as follows. The Section 2 reviews the literature related to the constructs of m-banking and describes the theoretical base of this study and presents proposed hypotheses and subsequent research model. Section 3 presents research methodology and Section 4 summarizes data analysis and subsequent results. In

Section 5, we present discussion with implications for theory and practice of the results thus obtained. Finally, Section 6 concludes the work with some limitations and explores the further research dimension in this area.

2. Literature review

2.1. Mobile banking in Oman: The current scenario

The Government of Oman has been among the first to give attention to the growth of mobile technology by, setting up the IT task force, introducing the e.oman strategy, forming the ITA (Information Technology Authority) Portal and advancing internet payment gateway as a move towards digital society (ICT sustainable development report, 2015; Riffai et al., 2012). The MpClear system was launched in Oman in July 2017. This system promises interoperability and an integrated clearing and switching service between mobile banking systems. With this launch, Oman is credited to be the first country among the GCC countries to execute such a system (Oman Economic Review, 2017). Given the ubiquity of the mobile, Omani government aims to address financial inclusion with the introduction of the mobile based payment systems. These initiatives show the positive intention on the part of Government to escalate and promote the implementation of m-services among the consumers in Oman as many of them are still not verse with the mobile payment services and subsequent benefits.

2.2. Theoretical development and formation of hypotheses

The D&M model has widely been used to study user adoption of numerous information systems (Zhou, 2013). The original D&M model (De Kerviler et al., 2016) established “six factors for the success of IS, as system quality, information quality, system use, user satisfaction, individual impact and organizational impact”. Based on the observation of Pitt et al. (1995), the original D&M success model got updated with the inclusion of service quality along with the existing system quality and information quality to measure the effect on IS use as well as user satisfaction (DeLone & McLean, 1992). Since then a substantial work has been carried out in the IS domain based on D&M IS success model. The researchers have subsequently combined the D&M model with the other models such as task technology fit (TTF) to measure individual performance in the context of mobile banking (Tam & Oliveira, 2016); the integration of trust with D&M IS success model to estimate repurchase intention using e-services (Hsu, Chang, Chu, & Lee, 2014); D & M with the users' perceived benefits (Gao & Bai, 2014; Gao & Waechter, 2017); D&M predicting user intention to carry out online shopping (Chen & Cheng, 2009); D&M with the satisfaction for mobile banking (Lee & Chung, 2009). Some prominent studies have explained users' behavioral intention and satisfaction with another commonly used models such as a unified theory of acceptance and usage of technology (UTAUT), revised UTAUT among others in IS studies (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2017; Rana, Dwivedi, Williams, & Weerakkody, 2016; Rana, Dwivedi, Lal, Williams, & Clement, 2017).

This research, however attempts to extend the DeLone & McLean (Petter, DeLone, & McLean, 2013) IS success model to understand users' intention to adopt m-banking and also derive satisfaction in the reference of this work. The current study after due consideration and observation with Omanis proposes to add one more dimension to D&M model as Trust. It has been observed that natives of GCC countries share a strong bond of trust with the Government initiatives and schemes. For that matter, the initiative of mobile banking, which has recently been introduced in Oman, may perplex the prospective users regarding the privacy and security dimensions. Hossain and Dwivedi (2014) also emphasized that the agencies should also publish and provide a detailed privacy statement while collecting data which may develop the trust among users. While, many researchers (Wu, Chen, Chen, & Cheng, 2014; Zhou, 2014) have already established user trust as a significant

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