International Journal of Management and Human Science (IJMHS), Volume 2, Issue 1, Pages 1-8, 2018
eISSN: 2590-3748
URL: http://www.ijmhs.org/index.aspx

PERCEIVED VALUE AS A MODERATOR VARIABLE IN MOBILE BANKING CONTEXT: AN EXTENSION OF TECHNOLOGY ACCEPTANCE MODEL (TAM)

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ABSTRACT: The combination of wireless technology and mobile devices through wireless infrastructure has reshaped the delivery and both the use and delivery of financial services as mobile banking rapidly spreads worldwide. Although most of the Yemeni banks provide mobile banking services, the adoption rate of the services among their mobile phone holder clients is still way behind from the respective other Arab countries. Low usage will lead to low performance, low productivity, and less return on investment. As the focus of this research will be on clients of Yemeni banks. This conceptual article extends the Technology acceptance model (TAM) to create a comprehensive model that comprises three main factors as independent variables (namely perceived usefulness, perceived ease of use, and perceived risk) with perceived value as moderating variable, and intention to use mobile banking services as a dependent variable. The anticipated findings will provide a guideline for both policy makers and university management. The theoretical and practical implications are also discussed.

Keywords: Mobile banking; Perceived Risk; TAM; Perceived Value; Moderating; Yemen

INTRODUCTION

Although most of the Yemeni banks provide mobile banking services, the adoption rate of the services among their mobile phone holder clients is still way behind from the respective other Arab countries (E-Commerce, 2013). Low usage will lead to low performance, low productivity, and less return on investment (Goodhue & Thompson, 1995; Isaac, Abdullah, Ramayah, & Mutahar, 2017; Norzaidi, 2008; Norzaidi, Chong, Murali, & Salwani, 2007). Bearing in mind the huge investments banks have made in Mobile Banking systems development, it is crucial they ensure that their clients will use them. However, there is a limited understanding of the factors influencing client acceptance of Mobile Banking in Yemen. Only by understanding how individual differences and customer perceptions influence the adoption of Mobile Banking services will allow banks be able to create solutions and strategic plans to attract customers to use the service. In Yemen, there is a need for a study of this nature because very little research has been undertaken on factors influencing the clients' behavioural intention and adoption of Mobile Banking in this country.

Many theories and models have been proposed and developed in th
e information systems (IS) context in order to predict and
explain user behavior with technology. including Diffusion of Innovation Theory (DOI) (Rogers, 1995), Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), Theory of Planned Behavior (TPB), (Ajzen, 1985), and Unified Theory of Acceptance and Use of Technology (UTAUT). Among all, Technology Acceptance Model (TAM) (F. D. Davis, 1989) seems to be the most broadly accepted and used theory among IS researches for studying users' system adoption and behavioral intention (Liu & Yuan, 2005; Oliveira, Martins, & Lisboa, 2011).This research employs TAM as an underpinning theory. Although many

researchers such as Amin, Supinah, Aris, and Baba, (2012), Wessels and Drennan, (2010), Daud et al., (2011), Shen et al., (2010), Alalwan et al. (2017), H. Lee et al. (2015), and Mehrad & Mohammadi (2016) have conducted studies in various countries throughout the world, but, none have focused on the factors affecting mobile banking adoption among Yemeni banks clients (Zolait, 2010). This lack of scholarly research indicates the need for empirical studies and in-depth investigation to provide some insights on the mobile banking low usage by examining the factors affecting consumers' intention of adoption in the Republic of Yemen. On the other hand, the research in Information Technology to date has tended to focus on innovation attributes and user characteristics rather than on the customer's value–driven qualities and its relative importance to adopt e-services (Alsheikh & Bojei, 2012; Zhou, Lu, & Wang, 2010). However, majority of the studies was conducted in the conventional context by adopting that value is the key element to predict customer purchase decision making (Gupta & Kim, 2010).

Some previous studies which employed the TAM have reported mixed results in terms of the effect of perceived usefulness (PU) and perceived ease of use (PEOU). Some studies have the significance relationship between PU, PEOU and intention (Anisur, Qi, & Islam, 2016; B. G. Kim, Park, & Lee, 2007; Koenig-Lewis, Palmer, & Moll, 2010; Krogstie, 2012; Norzaidi et al., 2011), and others reported an insignificant relationship of these variables with the behavioral intention (Faqih, 2016; Faraliza, Noor, Azmi, & Ramalingam, 2014). The inconsistent results may indicate that other factors can moderates the relationship depending on the context and the application under examination. That is, in order for usefulness, ease of use, and perceived risk variables influence to be strengthen or weaken on the intention to use mobile banking services,

Studies which applied TAM ignore the role of any essential factor that may predict, moderate or mediate the relationship between variables with regard to adopting and accepting mobile banking services. Beyond the adoption and usage of mobile banking, there is a challenge to produce an environment that engages more clients in utilizing mobile banking services that will consequently improve the productivity, performance, return on investment, and income per capita. One of the intrinsic factors that have been proposed is cognitive concept that is perceived value, which is defined Perceived value is defined as "the consumer's overall assessment of the utility of a product or service based on perceptions of what is received and what is given." (Zeithaml, 1988). Gupta and Kim (2010) concluded that the factors that influence value are also components of value. Even though many factors have been suggested as important antecedents to understand mobile banking adoption, scarce attention has been given in the literature to the influence of perceived value as a moderator in mobile banking context. Kim, Chan, & Gupta (2007), and Zhou et al. (2010) have called for further studies on customer value perceptions to examine its importance in driving customer adoption intention in a mobile banking context

Understanding clients' value perception is one of the essential requisites of service development. The growing spread of mobile phones, especially devices that can utilise the internet, has made the banking applications transforming to mobile devices a logical progress in e-banking services (Pousttchi & Schurig, 2004). Certainly, the emergence of mobile banking is a wireless service delivery channel that is time and place free, and increases the value provided for banks' clients. Understanding perceived value as a moderating variable is obviously important. In TAM studies, perceived value was mostly considered an antecedent of PU, PEOU, or intention. However, when perceived value (PV) is modeled as an antecedent of PU, it is assumed that PU and PV are related, whereas they are independent of one another. Therefore, we expected that PV would modify the effects of PU, PEOU, and perceived risk on intention. The relationships between PU, PEOU, and perceived risk and intention would be strengthen or weaken through perceived value effect. This study will examine the moderating effect of perceived value on TAM model, alongside the direct effect on the intention of the core factors of the theory, perceived ease of use (PEOU) and perceived usefulness (PU). In addition to the perceived risk.

2. LITERATURE REVIEW

2.1 Perceived Ease of Use

Davis (1989) has defined the PEOU as the degree of the user's belief that the usage for a particular system will be out of effort. enormous researches has been conducted over the past years provides empirical proof of the important effect of PEOU on behavioural intention, either directly or indirectly through its effect on perceived usefulness (Akturan & Tezcan, 2012; Amin, Rizal, Hamid, Lada, & Anis, 2008; Gu, Lee, & Suh, 2009; Hanafizadeh, Behboudi, Abedini Koshksaray, & Jalilvand Shirkhani Tabar, 2012; Koenig-Lewis et al., 2010; Z. Liu & Min, 2009; Mawona & Mpogole, 2013; Norzaidi et al., 2011; Tan, Leby, Tan,

& Lau, 2016; Yu, 2012). Mobile banking system need to be easy to learn and easy to use to avoid the "under-used" useful system problem. When IT applications are easy to use, clients will be less intimidated to use it (Moon & Kim, 2001). This indicates that perceived ease of use construct is likely to have a positive influence on users' perception of usefulness in their interaction with the mobile banking systems. In addition to its direct influence on the intention to use mobile banking services. Consequently, the following hypotheses is proposed:

H1. Perceived Ease of Use has a positive effect on Perceived Usefulness.

H2. Perceived Ease of Use has a positive effect on the Intention to use mobile banking services.

2.2 Perceived Usefulness

Perceived usefulness is defined by Davis (1989) as "the extent to which a person believes that using a particular system will enhance his or her job performance". There is a broad researches in the IS community that give evidence of the substantial effect of perceived usefulness on the adoption intention (Bhatiasevi & Yoopetch, 2015; Fred D Davis, 1989; Lian, 2015; Martins, Oliveira, & Popovič, 2014; Park & Kim, 2014; Raman et al., 2014; Rana, Dwivedi, Williams, & Weerakkody, 2014; Venkatesh & Davis, 1996; Venkatesh And Davis, 2000; Venkatesh Viswanath & Morris, 2000). The critical reason behind people exploit e-banking systems, is that they find them useful to their banking transactions. Consequently, the following hypotheses is proposed:

H3. Perceived Usefulness has a positive effect on the Intention to use mobile banking services.

2.3 Perceived Risk

Featherman & Pavlou (2003) defined the perceived risk as "the potential for loss in the pursuit of a desired outcome of using an e-service". Different facets of risk were identified: performance risk, psychological risk, financial risk, privacy risk, time risk, social risk, security risk, and overall risk. Chen (2013), reported that perceived risk reduces the intention to use mobile banking services in Taiwan. Similarly, Martins, Oliveira, & Popovič (2014) confirmed the perceived risk as a negative predictor of using mobile banking. In other words, clients perceive the risk as a deterrent to using mobile banking as they fear to lose money, time, comfort, or information. Featherman & Pavlou (2003) has studied the moderating effect of perceived risk on the core constructs of TAM (PEOU and PU), perceived risk changes the effects of PU and PEU on intention. Users who perceive a higher risk about adopting the technology will be affected by how easy it can be used. In this study, perceived risk will be tested as a moderator between PU, PEOU and intention to use mobile banking. Consequently, the following hypotheses is proposed:

H4. Perceived Risk has a negative effect on the Intention to use mobile banking services..

2.4 Perceived Value

Gupta and Kim (2010) operationalized perceived value can be as "A comparison between benefits and sacrifices and yet measure the antecedents of value perception." They concluded that the factors that influence value are also components of value. Customer perceived value is considered as one of the most imperative factors in the study of customer adoption intention. In this respect, perceived value is a robust predictor in attracting new customer and retaining current ones and should, therefore, perception of value should be important by e-services marketers. Creating customer value is one of the important consideration for firms that pursue to promote competitive advantage.

Through the systematic relevant empirical studies on the perceived value, different applications have been studied and tested the perceived value effect on the intention to accept and use different technology application in different cultural settings. In Thailand, Bhatiasevi and Yoopetch (2015a) has conducted a research on the E-booking services suggested that perceived value notably influence the intention to use such services. Similarly, health services using smartphones has been studied in Thailand as well by Boontarig et al. (2012), who revealed that PV is a significant antecedent of the intention to use the smartphones in health services. In Taiwan, Wang (2008), E-commerce usage was the core of the study, and results revealed the notable relationship between PV and Intention. In contrast, Alwahaishi and Snášel (2013) have done a research in Saudi Arabia on the acceptance and usage of mobile internet among Saudi population. Results revealed, suggest that perceived value is an unimportant predictor of the intention to use mobile internet.

Thus, some of the studies have claimed that the influence of customer perceived value acting on adoption intention of their service is mediated through customer satisfaction levels (Fonell, Michael, Eugene, Cha, & Everitt, 1996). Few other studies have considered the perceived value to be a cognitive concept showing a direct impact on behavioral outcomes (Dodds, Monroe, & Grewal, 1991). This aspect has been subjected to empirical testing in several studies for instance: Eggert and Ulaga (2002) and Toften and Olsen (2004). Especially in the mobile technology services domain, a narrower conceptualization of perceived value was shown to have a moderating effect on the intention to adopt the services. Consequently, the following hypotheses are proposed:

H5: Perceived value moderates the relation between perceived usefulness and intention.

H6: Perceived value moderates the relation between perceived ease of use and intention.

H7: Perceived value moderates the relation between perceived risk and intention

2.5 Behavioral Intention

Intention to use is a variable which refers to the intention of an end-user to use new technology (Seymour, Makanya, & Berrangé, 2007). In other words, it is the probability of using a particular system. Davis (1989) and Davis et al. (1989) in the TAM, proposed that behavioral intention affects and causes actual behaviour when using a new system. Likewise, Aversano (2005) study using TPB (Theory of Planed Behaviour) asserted that the intention of a certain behaviour determines the actual usage. Thus, the intention to use a technology determines the actual use of the system. Later studies state that intention to use technology is merely a mediating factor (e.g. Venkatesh And Davis (2000) and Yalcinkaya, 2007). However since this current study focuses on non-users of mobile banking, intention to use mobile banking services will be the core construct, measuring it through three dimensions, namely intention to use, desire, and preference (Al-Haderi, 2012; Nasri & Charfeddine, 2012; Venkatesh & Davis, 2000).

3. RESEARCH METHOD

This study is extending the technology acceptance model (TAM) (Davis, 1989) by incorporating perceived risk (Chen, 2013; Martins et al., 2014). In addition, perceived vlaue plays a moderator role on perceived ease of use, perceived usefulness, and perceived risk.. (See Figure 1).

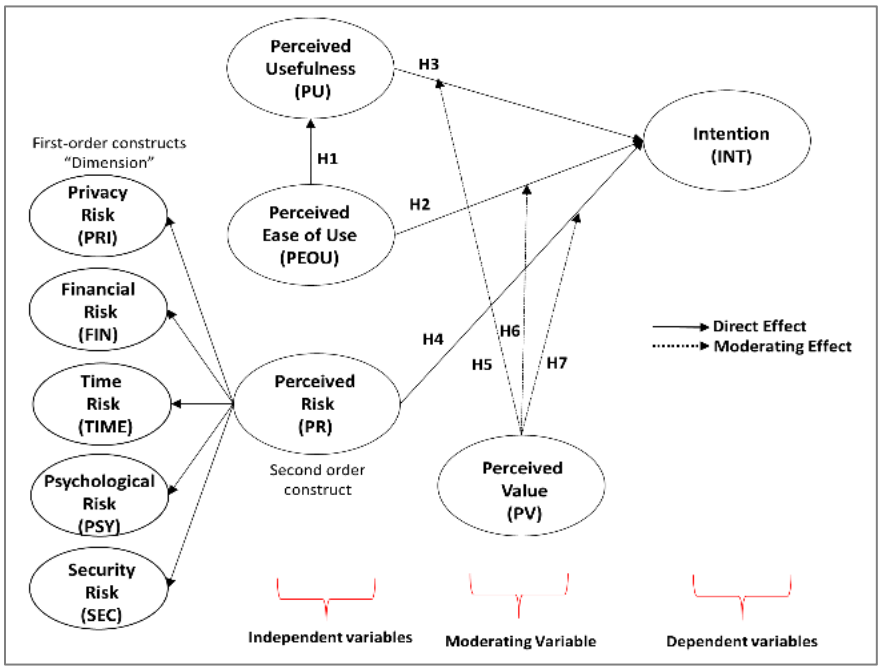

Figure 1: Proposed research model

4. IMPLICATIONS

Mobile banking is an obvious information technology investment priority among all digital banking channels. It is making momentous strides in several countries. Somehow, we're witnessing a paradigm shift, it is a technological innovation that may be more obvious and certainly more significant in some developing countries than in the developed ones. It is anticipated that the data resulting from this study will serve as a guideline for policymakers to develop efficient and effective plans to improve their performance and get their clients to use mobile banking service and attract more clients.

There is a robust correlation between mobile banking platform and the technological aspects with respect to acceptance and usage of the service offering. Developers of mobile banking platform and the bank together must put a lot of resources and effort to create effective mobile banking applications that are easy and useful that will increase the chance of customer's uptake of mobile banking services.

The findings of the current research will have remarkable implications that will be very helpful for the banking sector and also beneficial for the governmental-related authorities, since they should have awareness of the relatively important elements that should be borne in mind to formulate suitable strategies to promote mobile banking. Therefore, benefits from mobile banking will be obtained.

Furthermore, the present study has taken the perceived value construct into the electronic context, which was previously unexplored territory. The results of the current research can be added to the body of literature for researchers on mobile banking and perceived value. Previous studies may have missed including a significant source of influence in pre-adoption behavior by ignoring the role of perceived risk, and moderating role of perceived value in IS.

5. LIMITATION AND SUGGESTIONS

This study will be embedded in the context of mobile banking and no other electronic banking services. So, it is suggested to include other e-banking services to measure the acceptance among clients. Second, not a lot of literature was researched and revealed on the value perception, and the results that will be obtained from this study is expected to add to the body of literature on perceived value as a moderator.

6. CONCLUSION

Technological advancements have led financial services providers to look for new channels to deliver banking services to their clients. The very nature of buying and selling of these services have changed, and the use of mobile devices is one the banking industry's newest channels of service delivery. This evolution is moving clients from traditional service encounters to technology-based self-service, something which is beneficial to both bank and client, as it decreases transaction cost, and increases convenience. Mobile banking can present a reliable solution for the weak infrastructure faced by Yemen and utilize high mobile penetration. This research will propose an extension to the technology acceptance model (TAM) by including perceived risk to predict intention to use mobile banking service. In addition to the suggestion of the moderating effect of perceived value that is expected to strengthen the impact of the independent variables (namely: perceived ease of use, perceived usefulness, and perceived risk) on the intention to use mobile banking services. The findings will be of great benefit to Yemeni policy makers, banks and the country as a whole.

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