An Efficient Model to Improve Customer Acceptance of Mobile Banking

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Abstract— **During the last ten years technological development has reshaped the banking industry, which has become one of the leading sectors in utilizing new technology on consumer markets. Today, mobile communication technologies offer vast additional value for consumers' banking transactions due to their always-on functionality and the option to access banks anytime and anywhere. Various alternative approaches have used in analyzing customer's acceptance of new technologies. In this paper, factors affect acceptance of Mobile Banking are explored and presented as a New Model.**

Index Terms— Mobile Commerce; Mobile Banking; Customer Acceptance; Consumer Resistance to Innovation;

I. INTRODUCTION

The Internet has created an incredible market space. In parallel with the Internet, another technology stream has emerged to play an increasingly important role in business and society: mobile communications [1]. As the number of mobile phone users is growing, purchasing products and services using mobile phones and other mobile devices are also increasing [2].

Researchers have adopted a broad definition of m-commerce to explore its potential benefits. Most often m-commerce is understood as mobile e-commerce, namely the use of wireless technology, particularly handheld mobile devices and mobile Internet, to facilitate transaction, information search and user task performance in consumer, business-to-business, and intra-enterprise communications [1].

There are some major differences between e-commerce and m-commerce, such as that the interaction style is unique due to the constraints of terminal devices, the usage patterns differ from those of traditional desktop computers [1]. Furthermore, the nearly ubiquitous availability of m-commerce enables information access for many new business functions in real time that were previously unsupported and also can be easily personalized to match individual situations. So it has been recognized that m-commerce is more than an extension of e-commerce [1].

The adoption patterns for new technology such as mobile services are essential to understand for developing them further. Hence, it is important to study how willing people are to try new mobile services and do variables, which facilitate the use of the services have an effect on the consumers' perceptions of the services and their adoption readiness [3].

Today, mobile communication technologies offer vast additional value for consumers' banking transactions due to their always-on functionality and the option to access banks anytime and anywhere [4].

II. MOBILE BANKING

Due to its inherent features like ubiquity, personalization, flexibility and dissemination, M-Commerce in general promises businesses unprecedented market potential, productivity and profitability [4]. In the increasingly competitive markets of financial services Mobile Banking can be seen as an attempt to provide the needed added value for customers by offering more opportunities for conducting different banking actions. Mobile Banking is defined as the "type of execution of financial services which the customer uses mobile communication techniques in conjunction with mobile devices" [5]. Moreover, it is defined as "a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone or personal digital assistant" [6, 7].

Mobile Banking adds the elements of ubiquity, flexibility and mobility to those electronic banking services offered over fixed networks [4]. Mobile Banking services enable consumers, for example, to request their account balance and the latest transactions in their accounts, to transfer funds between accounts, to make buy and sell orders, for the stock exchange and to receive portfolio and price information. In that sense, electronic banking can be seen as a concept covering all the electronic modes of conducting banking actions, and Mobile Banking as a subset of electronic banking [4].

There are two factors hindering the growth of online and Mobile Banking. These are lack of influence from the market place and government restrictions that limit the ability of private firms and, individuals to contribute to internet infrastructure [8].

As far as Mobile Banking is concerned, it is still in its development phase in most countries, where small markets with few users have been reported for these markets [9]. This is due to lack of consumer acceptance and the slow process of the service.

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III. RELATED WORKS

Various alternative approaches have used in analyzing consumers' acceptance of new technologies. In this section some of major acceptance models are explained and by using important points in these models and some extra points, a new model is presented in next section.

Among the different models that have been proposed, the Technology Acceptance Model appears to be the most widely accepted among information systems researchers. The TAM posits that a user's adoption of a new information system is determined by that user's intention to use the system, which in turn is determined by the user's beliefs about the system. The TAM further suggests that two beliefs – perceived usefulness and perceived ease of use – are instrumental in explaining the variance in users' intentions. Perceived usefulness is defined as the extent to which a person believes that using a particular system will enhance his or her job performance, while perceived ease of use is defined as the extent to which a person believes that using a particular system will be free of effort. Among these beliefs, perceived ease of use is hypothesized as a predictor of perceived usefulness [10].

One of the more recent theories, the unified theory of acceptance and use of technology (UTAUT) by Venkatesh et al. [11]. UTAUT contains four core determinants of intention and usage-performance expectancy, effort expectancy, social influence and facilitating conditions [3, 11]. Performance expectancy is closely related to perceived usefulness, while effort expectancy reflects the perceived ease of use. Both usefulness and ease of use have been found as important factors in explaining technology acceptance [3]. One of the strengths of the UTAUT model is that it considers the role of several moderating variables, namely gender, age, experience and voluntariness of use provides a comprehensive framework for technology adoption analysis [3]. The effect on familiarization of mobile phones can be seen as a special character of the facilitating condition [11]. Also, the usage time and the technology use related skills could also be considered as facilitating conditions, as they both can be expected to influence the perceptions of individuals towards new technologies and technology related services.

T.Koivumaki et al. in their research examine how different variables that facilitate the use of mobile services, the time of usage, familiarity of the mobile device and users' technology skills, effect users' perceptions of performance expectancy (usefulness) of the services, effort expectancy (ease of use), social influence, attitude towards the services and the intention to use the services. Their results give rise to some important implications. Firstly, the fact that increased user skills generate more positive perceptions towards mobile services and increase the likelihood of continuous service use stresses the importance of enhancing the technology skills of general public and potential mobile service users [3].

Laukkanen [12] argue that high level of education and income, good profession, long Internet banking usage experience and high Internet banking usage frequency determine potential for Mobile Banking adoption.

Banks could take better marketing measures and inform their customers of the benefits of Mobile Banking in order to induce these potential customers to try out Mobile Banking services [4].

A. Consumer Resistance To Innovations

One of the major causes for market failure of innovations is the resistance they meet among consumers [4]. While a majority of studies have focused on the success of innovations and reasons to adopt, the theory of innovation resistance aims to explain why customers resist innovations. Ram and Sheth [13] suggest functional and psychological barriers to innovation adoption. They divide functional barriers into usage, value and risk barriers, while psychological barriers include tradition and image barriers.

The usage barrier comes into play when an innovation is not compatible with existing workflows, practices or habits, and this is probably the most common cause for consumer resistance to innovations [4, 13]. Kuisma et al. found that some of the non-users consider Internet banking to be difficult, inconvenient and slow to use [14].

The value barrier, for its part, is based on the monetary value of an innovation referring to an idea that if the innovation does not offer a strong performance-to-price compared to its substitutes, it is not worthwhile for consumers to change their ways of performing their tasks [4, 13]. Mobile Banking might be perceived by consumers to be too expensive. However, in their qualitative Mobile Banking study Laukkanen and Lauronen [15] found that some of the Mobile Banking services increase customers' feeling of control over their financial affairs.

The risk barrier refers to the degree of risks an innovation entails [4, 13]. Uncertainty is inherent in innovations, and therefore they always entail at least some degree of perceived risk. According to [4] risk may be (a) physical and cause harm to a person or his property, (b) economic, representing a wrong decision to adopt an innovation instead of waiting for a better or more inexpensive version, (c) functional, referring to the performance and ability to function properly, and finally (d) social, referring to social ostracism and fear of being seen in a negative light by others. Consequently, it is important to note that "risk is a perception of the consumer, not a characteristic of the product" [16]. Online transactions, in general, raise security and privacy concerns among consumers. Security is more related to the fear of financial loss, whereas privacy is connected to the ethical treatment of the personal information of the customer. Privacy risk in online transactions is explained as the possibility of theft of private information [4]. In Mobile Banking especially the data input and output mechanisms are argued to impede the banking process creating feelings of insecurity [4].

Among psychological barriers, the tradition barrier mainly implies the change an innovation may cause in daily routines. If the routines are important to a consumer, the tradition barrier will most likely be high. Moreover, behavior that is contrary to a consumer's social and family values and social norms will cause the barrier [4, 13]. The tradition barrier in the electronic banking context may arise, for example, as electronic modes of conducting banking

actions are not the way consumers are accustomed to paying bills [4].

The image barrier, for its part, arises since innovations attain a certain identity from their origins like the product category to which they belong, the country of origin or brand. Thus the image barrier originates from stereotyped thinking and may hamper the adoption of an innovation [4, 13]. The image barrier in electronic banking emerges from the negative "hard-to-use" image of computers in general and the Internet channel in particular [4].

IV. THE PROPOSED MODEL

Based on issues in previous sections, in this paper factors affect acceptance of Mobile Banking as a New Model are presented (figure 1). This model integrates TAM with innovation resistance theory with an additional variable name as “social and cultural factor”. Also in Proposed Model some conditions such as the usage time, familiarity of the mobile device, technology use skills, etc., that based on UTAUT facilitate acceptance of Mobile Banking, are considered.

There are various factors that are effecting on acceptance of Mobile Banking. Factors R1 until R9 are most important factors that are explored in this article. These factors and their relationships are shown in figure 1.

A. Perceived Ease of Use and Perceived Usefulness

Because the Mobile Banking is a new technology, TAM factors are useable for it. Perceived Usefulness concerns the degree to which a person believes that using a particular system would enhance his or her job performance; while Perceived Ease of Use is defined as the degree to which a person believes that using a particular system would be free of effort. These factors and their relationships based on that was explained in previous sections, is presented as R1 to R4 in below:

R1: Perceived ease of use will have a positive effect on behavioral intention to use Mobile Banking.

R2: Perceived usefulness will have a positive effect on behavioral intention to use Mobile Banking.

R3: Perceived ease of use will have a positive effect on perceived usefulness of Mobile Banking.

R4: Behavioral intention to use will have a positive effect on actual use of Mobile Banking.

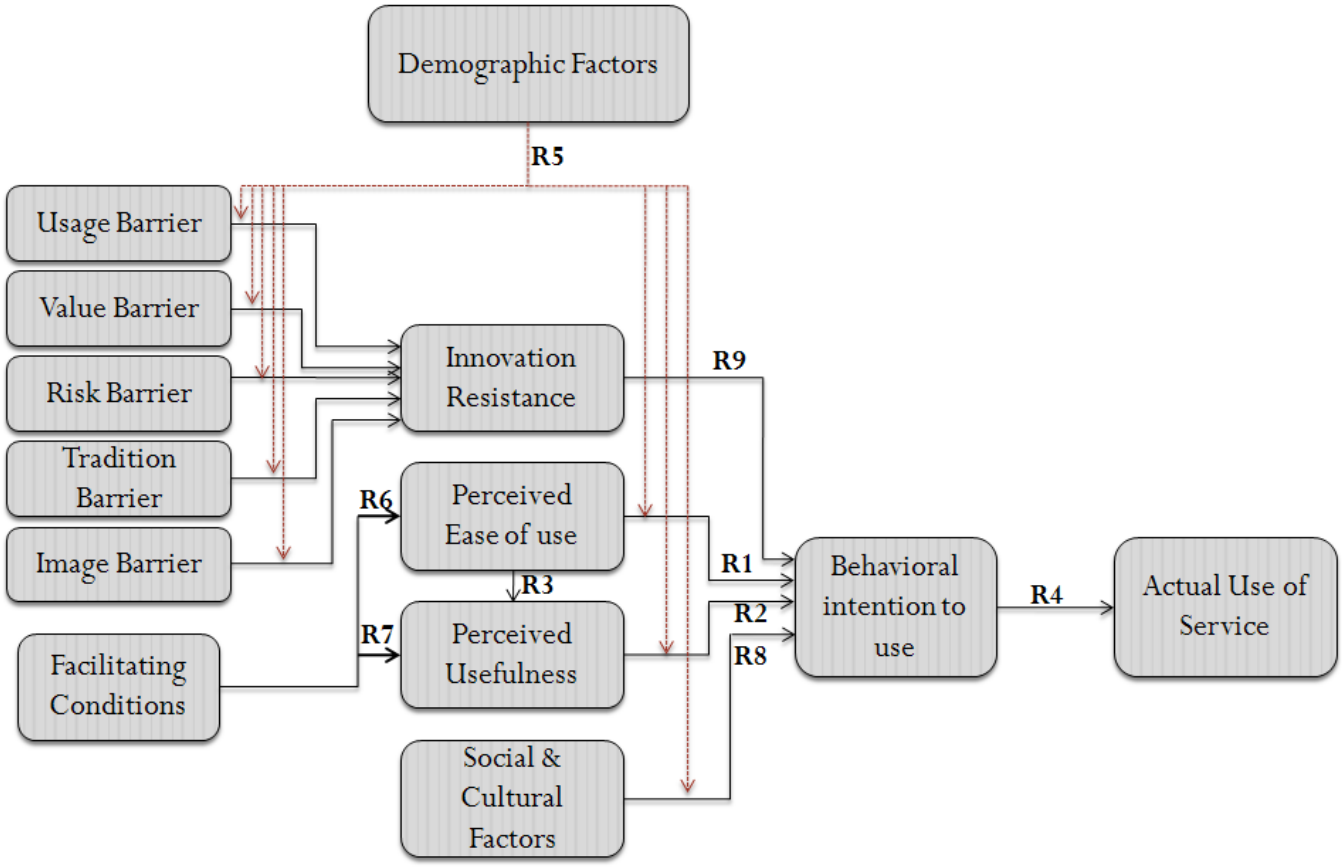

Figure 1: The Proposed model

B. *Demographics characteristic*

The review of the literature concerning demographic characteristic like age, gender, experience and voluntariness of use provides a comprehensive impact on technology adoption analysis. According to explore factors that affected customer acceptance of Mobile Banking, these factors can be considered.

R5: Demographic factor is a background that effected on some of the major factors.

C. *Facilitating Conditions*

According to results that extracted from previous researches, role of facilitating conditions in acceptance of mobile services is very important. Mobile Banking is a type of mobile services and this fact is true for it. Factors like the time of usage, familiarity of the mobile device and users' technology skills, effect users' perceptions of performance expectancy (usefulness) and effort expectancy (ease of use) of the services.

R6: Facilitating Conditions will have a positive effect on ease of use of Mobile Banking.

R7: Facilitating Conditions will have a positive effect on usefulness of Mobile Banking.

D. *Social and Cultural factors*

According to previous context, there is another factor that influences customer acceptance of Mobile Banking: social and cultural status. Culture of customers and conditions of society are important in acceptance of Mobile Banking. Widespread use of new technology affect on acceptance of that.

R8: Social and cultural factors that harmonized with mobile baking will have positive effect on behavioral intention to use Mobile Banking and vice versa

E. *Innovation Resistance*

The theory of innovation resistance aims to explain why customers resist innovations. Based on [13] functional and psychological barriers to innovation adoption, are divided into usage, value and risk tradition and image barriers.

Mobile services are innovation and each innovation comes with resistance of consumers. Factors that cause to this innovation must be considered before the acceptance model was built. If resistance to Mobile Banking increased, intention to use this service is decreased.

R9: Innovation resistance will have a negative effect on behavioral intention to use Mobile Banking.

V. CONCLUSIONS

Mobile technology offers a new business opportunity to enterprises and customers, but before the opportunity become as an actual business, some barriers need to be overcome. In this work we consider some barriers as innovation resistance that will have a negative effect on final acceptance of Mobile Banking. Furthermore, a set of factors can potentially positively affect the success of Mobile Banking and should be taken into account by banks while adopting mobile technology.

In this paper we present a New Model for customer acceptance of Mobile Banking. This model is a new model that has advantages of previous ones and most complete than them. We hope this research help bankers to evaluate customer acceptance of their services better than before.

The use of Mobile Banking is still in initial stages and more research in this field is needed. In this paper factors that affect acceptance of Mobile Banking are explored and presented as a New Model. This model is still in theoretical phase and can be evaluated in future researches.

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