

Evaluating User Acceptance of Online Banking Information Systems: An Empirical Case of Pakistan

Paper 18

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ABSTRACT

Pakistan banking sector has gone through tremendous technological changes and launched Online banking Information System (OBIS). However, the literature reports that users are uncertain and indecisive to accept and use the system. Therefore, it generates interest for further research to explore the factors behind users' reluctance to accept and use OBIS. The literature suggests that there is limited research in developing economy such as Pakistan. The purpose of this research is to extend knowledge regarding factors that influence users' acceptance of online banking information system in the light of Technology Acceptance Model (TAM).

To explore the factors that influence users' acceptance of online banking information systems, quantitative research in the form of questionnaire survey will be conducted to meet the objectives of the research. The sample of survey will be customers and users of online banking system. This research anticipates contributing to literature on electronic banking in the context of Pakistan; a model of factors that influence users' acceptance of OBIS.

Key words: User Acceptance, Online Banking, IS/IT, TAM model, Pakistan.

Introduction

Pakistan banking sector has gone through tremendous technological changes and has invested enormous amount of funds in development of information systems, and has launched internet-based online banking information systems (OBIS) to improve their operations and to reduce cost. These online banking systems are beneficial both for banks as well as for users. Banks can benefit from much lower operating costs by offering online banking service to the customers, as these services require less staff and fewer physical branches. For users online banking service provides convenience, speed, and anywhere anytime availability. Besides, the use of, and investment in, online banking information systems in banking sector will continue to increase, as today's financial organizations are rapidly undergoing changes due to globalizations of capital market, socio-political changes and advancements in technology. Thus creating a tough competitive environment, therefore, organizations for their survival should take measures to increase their productivity, quality of service and competitive abilities.

Although in recent years almost all major banks provide online banking service in Pakistan. However, literature reports that customers are reluctant and indecisive to accept and use the service. It has been reported that only a total of 0.134 million people have ever visited and used the online banking systems (sbp, 2006). This figure represents 0.144% of total internet population in Pakistan (Internet world statistic, 2006). Therefore, it generates interest for further research to explore the factors behind users' reluctance to accept and use OBIS. Moreover, understanding this reluctance of users to accept the online banking system is particularly important issue for the banking industry because, if banks are to make a return from their IT investment, the new systems must be utilized effectively (Burton-Jones & Hubona, 2006). In addition, banks require a better understanding of why users are reluctant to use the systems, in order to alter the nature of the system and the process by they are implemented. By doing so, banks can ultimately influence user's acceptance in positive way. Further, the more users use online banking systems, the more they contribute in improving banks performance. Although customer's acceptance is a key driver determining the rate of change in financial sectors Sathye (1999). However, author could not find any published study regarding user acceptance of online banking

in the developing economy such as Pakistan. This research intends to fill this important gap.

The primary purpose of this research is to analyze and extend knowledge regarding influential factors that affect users to accept online banking information systems, in the light of technology acceptance model (TAM), and to develop a model that can be used to analyze user acceptance in the context of developing economy such as Pakistan. Furthermore, this research anticipates contributing to the literature on online banking information systems; a model of factors that influence users' acceptance of OBIS.

Literature Review

To predict, explain and increase user acceptance, organizations need to better understand why people accept or reject IS/IT (Davis et al, 1986). In this regard, researchers have developed and used various models to understand acceptance of users of IS. Among the different models proposed the Technology Acceptance Model (TAM) (Davis 1989; Davis et al. 1989), adapted from the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975), appears to be the most widely accepted among the information system researchers (Venkatesh & Davis, 2000; Wang et al. 2003; Gefen et al. 2003; Cheng et al. 2005).

The primary goal of TAM is to predict information system acceptance and diagnose design problems before user have experience with the new system. TAM suggests that when user encounter new IS technologies the two main factors influences how and when they will use the system. These two main constructs of TAM are perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is defined as “the degree to which person believes that using a particular system would enhance his or her job performance” (Davis 1989). Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free from efforts” (Davis 1989). TAM proposes that two particular constructs, that are of primary significance for IS/IT acceptance, perceived usefulness (PU) and perceived ease of use (PEOU) affect user's' attitude towards using the information system. Attitude directly relates to user's intention, which will in turn determine usage of the system. TAM has many strengths, including its specific focus on IS usage, the validity and reliability of instruments, and its parsimony (Mathieson et al 2001).

While basic constructs of TAM, PU and PEOU, have been considered primary determinants of individual's acceptance and use of technology. IS researchers have investigated and replicated these two constructs and agreed that they are valid in predicting user's acceptance of various IT/IS systems (Straub et al 1999; Al-Ghatani 2001; Venkatesh et al 2003). However, involvement of students as the empirical sample, examining office automation software or system development applications, and self-reported usage were found limitation of the pervious TAM research (Legris et al. 2003). As, Gefen et al. (2003) in research study found that trust is as important construct as the widely accepted TAM use-antecedents, perceived usefulness and perceived ease of use. While studying the influence of trust on internet banking acceptance, Khalil and Pearson (2007) made the same conclusion. They found that trust was significant factor affecting internet banking acceptance. Therefore, theoretical validity and empirical applicability of the model needs to be extended to incorporate different technologies, users, and organizational contexts (Chau and Lai, 2003). It can be argued that basic constructs of TAM, perceived usefulness and perceived ease of use, may not fully determine users' acceptance of online banking systems, which therefore brings in the need to search for additional factors that may better predict and enhance the user acceptance of online banking information systems. Another point that has not been explored well in TAM research is the role of system characteristics as external variables. Davis et al. (1989) did not include other factors explicitly into the TAM model that are expected to impact intentions and usage through PU and PEOU. These external variables could be system characteristics, organizational structure, training, and the like (Davis et al., 1989). According to Fishbein and Ajzen (1975), external stimuli influence a person's attitude toward behaviour indirectly by influencing his/her salient beliefs about the consequences of performing the behaviour. Since system characteristics are external stimuli, they should influence beliefs (PU & PEOU) about using a system (Davis, 1991).

Recently, Sabherwal et al (2004) in a research study related to the dimension of IS success suggested that system quality (i.e. information and system quality) affects perceived usefulness, user satisfaction and system usage. Further, Wixom and Todd (2005) developed an integrated model based on technology acceptance and user satisfaction literature. The model was tested using a sample of 465 users from seven different organizations regarding their use of data warehousing software. Findings showed that information and system characteristics explained 75% variance for

system and information quality. They found that there was significant affect of information and system quality on PU and PEOU. Moreover, they suggested investigating the effects of the IT artifacts itself as an antecedent to ease of use and usefulness, and other related factors. Furthermore, Davis (1989) himself noted that future technology acceptance research needs to address how variables affect usefulness, ease of use, and user acceptance.

Besides, most of these empirical studies using TAM were conducted in developed countries and in industrialized world (Al-Ghatani 2001). Very few studies related to internet banking were carried out to test the applicability of the model outside these regions. Wang et al. (2003) conducted an empirical study on determinants of user acceptance of Internet banking in Taiwan. Pikkarainen et al. (2004) study in Finland, Cheng et al. (2005) conducted research in Hong Kong. Therefore, it would be erroneous to assume that IT/IS acceptance theories and models predict equally well in other cultural settings, especially in developing countries. The robustness of the models may vary across different cultures and thus need to be empirically tested (Mao and Palvia, 2006).

Research model and hypotheses

According to Wixom and Todd (2005), TAM provides limited guidance about how to influence usage through design and implementation. They further elaborated that as PU and PEOU are abstract concepts and provide general information to the designers. Therefore designers are unable to receive actionable feedback about the important aspects of the IT artifacts itself. They identified information and system quality significant constructs which can affect IS usage. Furthermore, Trust also has been identified as important factor as PU and PEOU of TAM, where financial transactions are involved. Besides these factors, it is also identified that organizational factor are considered important that may affect acceptance of online banking systems. Based on the literature review a model of factors that influence users' acceptance of online banking information system (OBIS) has been proposed. The model consists of system characteristics (Information and System quality), Trust, Perceived Usefulness, Perceived Ease of Use, and Awareness, that author posits will have an effect on online baking acceptance in the context of Pakistan. Figure 1 presents the proposed model.

Information Quality

Information quality is related to the quality of information that the online banking information system delivers to its users, and is measured in terms of accuracy, currency, completeness, and format (Nelson et al.; 2005). Information quality determines the success of a website design (Shih, 2003). As today's online banking web-based systems provide users means to access information systems directly by performing transactions. Therefore, banks web sites can be viewed as information systems. Previous studies used information quality to measure IS success (Iivari, 2005), measuring e-commerce success (DeLone and McLean, 2004), and e-shopping acceptance (Shih, 2003). Shih (2003) postulated that perceived information quality positively affect PEOU, PU, attitude, and user acceptance of e-shopping. Therefore, based on theoretical and empirical support from IS literature, it is assumed that information quality positively effects PU, PEOU, and user acceptance of online banking information system.

H1a. Information quality will have positive effect on perceived usefulness of the online banking information system.

H1b. Information quality will have positive effect on perceived ease of use of the online banking information system.

H1c. Information quality will have positive effect on trust of the online banking information system.

H1d. Information quality will have positive effect on user acceptance of the online banking information system.

System Quality

System quality is related to the quality of system that produces information output, which can be measured in terms of reliability, accessibility, integration, and response time (Nelson et al.; 2005). Davis (1989) did not include system characteristics into TAM model, but he suggested including judicious system characteristics. According to DeLone and McLean (1992) technology characteristics singularly or jointly affect

subsequent use and user satisfaction. Hence, it is assumed that system quality directly or indirectly through PU and PEOU, positively effects user acceptance of online banking information system. Author tests following hypotheses:

H2a. System quality will have positive effect on perceived usefulness of the online banking information system.

H2b. System quality will have positive effect on perceived ease of use of the online banking information system.

H2c. System quality will have positive effect on trust of the online banking information system.

H2d. System quality will have positive effect on user acceptance of the online banking information system.

Perceived Usefulness (PU)

Perceived usefulness defined as “the degree to which a person believes that using a particular system would enhance his/her job performance” (Davis, 1989). According to TAM PU is a significant factor that effects user acceptance of information system (Davis, 1989; Davis et al., 1989). Several researchers provide evidence of significant effect of PU on IS acceptance and usage (Davis, 1989; Pikkariainen et al., 2003; Wang et al., 2003). Hence online banking systems that users think are useful are more likely to be accepted by the users. Therefore, in the context of online banking author tests following hypotheses:

H3. Perceived usefulness will have positive effect on user acceptance of the online banking information system.

Perceived Ease of Use (PEOU)

Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of efforts” (Davis, 1989). TAM posits that PEOU is important factor that effect IS acceptance, either directly or indirectly through perceived usefulness (Davis et al., 1989). Venkatesh and Davis (2000) found that PEOU have positive direct effect on user acceptance of IS. Thus, if online banking

systems are easy to use they are more likely to be accepted by the intended users. Therefore, author tests following hypotheses:

H4a. Perceived ease of use will have positive effect on perceived usefulness of the online banking information system.

H4b. Perceived ease of use will have positive effect on user acceptance of the online banking information system.

Trust

Trust plays an important role when financial transactions are involved. Users fear providing sensitive information such as financial details on the net (Suh and Han 2002). In surveying consumers' adoption of internet banking, Sathye (1999) found that 70% of customers expressed their concerns on security. Cheng et al. (2005) found that web security was significant determinants of customer's intentions to use internet banking. According to Rotchanakitumnuai and Speece (2003) customers frequently do not trust internet technology for three reasons: security of the system, distrust of service providers, and worries about the reliability of the service. The more users are confident about the banks and about technology the more they will be willing to use online banking information system. Banks can increase users' confidence by including undertaking that they indemnify the losses incurred through unauthorized use (Sathye, 1999). Such actions can build users' trust on banks.

Trust is multidimensional construct and needs further explanation. However, in this research author focuses on two aspects about which customers are more concerned. First aspect is customer/users trust on bank and second is trust on technology. Hence it is assumed that trust effects positively on user acceptance of online banking information system.

H5. Trust will have positive effect on user acceptance of the online banking information system.

Awareness

Banks are information intensive by their nature; banks use various channels to inform customers about their products and services. Pikkarainen et al. (2004) conducted research in Finland to investigate the consumers' acceptance of online banking. The found that information on online banking was very influential factors explaining the use of online banking service in Finland. Sathye (1999) found that lack of awareness and benefits of internet banking were standing out the major barriers to the adoption of internet banking. In an empirical study regarding consumers' adoption of internet banking in Australia, Sathye (1999) elaborated that information on various aspects including security can help ease customers concerns and can build their confidence. Hence author in the context of online banking information system tests following hypotheses:

H6a. Awareness will have positive effect on trust of the online banking information system.

H6b. Awareness will have positive effect on user acceptance of the online banking information system.

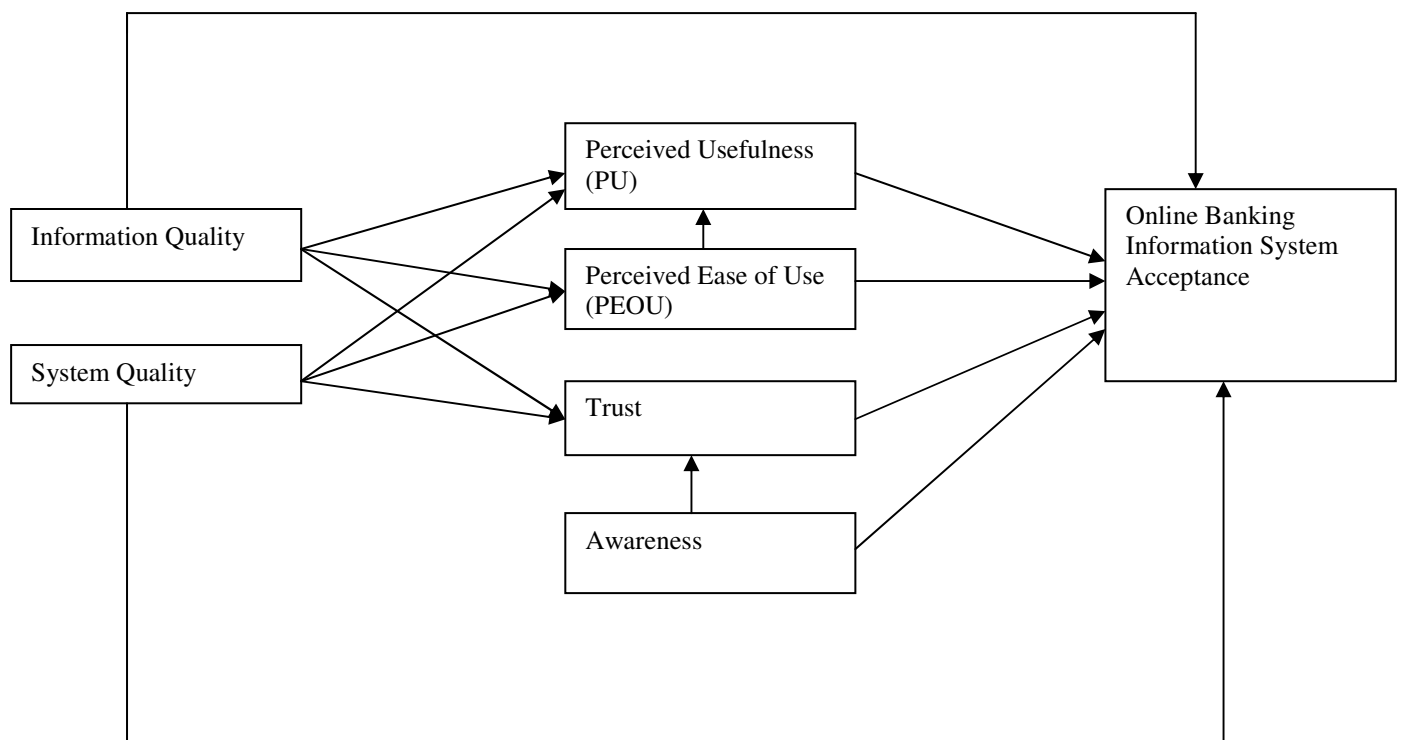


Figure 1: Proposed model of OBIS acceptance

Methodology and Data Collection

To meet the research objectives, the researcher will use quantitative research in the form questionnaire survey to collect data. The survey participants will be users of online banking systems from Pakistan. The questionnaire will be administered to the users personally as well as will be sent them by mail, accompanied by covering letter from the researchers, stating the goals and significance of research. The participant who receive questionnaire by mail will asked to return questionnaire by post in the prepaid envelopes.

Prior to distributing questionnaire to the sample, a pilot study will be conducted to identify or discover any ambiguities, errors, inadequate answers or highlight any confusing questions. The original questionnaire will be developed in English; however, it will also be translated in the native language of users. The researcher will use statistical software packages to analyse the collected data.

Conclusion

As there is growing use of new information systems in organizational and personnel contexts; it appears that the issue of user acceptance should continue to be of great importance. To understand user acceptance of online banking information systems, this research extended well known technology acceptance model. Four factors have been added to the TAM. These factors are information quality, system quality, trust and awareness. These factors have been identified having significant affect on user acceptance of technology in IS literature. The research intends to empirically test the proposed model in developing economy such as Pakistan.

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