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Technology Acceptance and Adoption: The Case of Internet Banking

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Abstract

Technology is advancing swiftly, acceptance and adoption of such advancements by the society is blurred. This study examines technology acceptance and adoption of internet banking by medical officers in North Central Province in Sri Lanka. The study was primarily grounded on technology acceptance model and empirical data collected from the 124 respondents. Data analysis comprised statistical tools including correlation and regression analysis. The result reveals that perceived usefulness, perceived ease of use, security and privacy have a significant influence on acceptance and adoption of the internet banking. The acceptance and adoption of new technologies could be encouraged by building better awareness among the potential users.

Keywords: *Internet banking, perceived ease of use, perceived usefulness, security and privacy.*

Introduction

Information and Communication Technology (ICT) plays a vital role in sophisticated livelihood in the world. As a result, many commercial and non-commercial activities heavily rely on novel and advanced technologies. The Internet, on the other hand, has made an immense influence on people's day to day activities. In fact, it changes the way that business is conducted in almost all the industries. Mohamed (2010) has highlighted that with the growth of the Internet organizations in many industries have become more literate electronically than the past, in particular the industry of banking and other financial services. Among those businesses, banking sector uses new computer based technologies to provide a highly personalized service at a higher level of customer satisfaction. In this regard, banks have developed a range of products attributed with new technology of computer network communications. According to Suraweera et al. (2011), banks in Sri Lanka are evident that advanced technologies are heavily applied for their services. However the majority of customers use ATM services, only a very few users utilizes other services attached the Internet banking. This scenario is different in the developed counties and substantial number of customers uses the online banking services. Suraweera et al. (2011) stated that "*majority of Sri Lankans are not technology savvy the banks tend to adopt a wait and see attitude. Is this is a plausible argument from the banking point of view? If so why do the banks make high investments on IT driven banking services?*"

Adoption of technology is the key component of the use of Information and Communication Technology (ICT). Technology Acceptance Model (TAM) has widely been used in many empirical studies that focused the people's tendency to accept and adopt new technologies. According to the TAM model, beliefs, perceived usefulness and perceived ease of use, and trust are to be two sets of underlying antecedents in determining behavioral intention to use technology and effectively attract customers (Baraghani, 2007). However, the TAM traditionally focuses on the aspect of system features and thus, is insufficient in capturing the roles individuals in the Internet-based system usage, in particular internet banking. Suraweera et al. (2011) have stated that use of online banking services in Sri Lanka is extremely low. Respondents for their study have reported that lack of awareness, difficult to adopt, security and technical difficulties are major constraints not to use internet banking facilities.

Even though the overall technological acceptance has a fine growth in business industries positive results, progress of online banking are very slow in Sri Lanka. According to the preliminary study carried out using selected Medical officers, it was mentioned that their awareness about the Internet banking usage is less and have fewer confidence. This is evident in the recent study of Mohamed (2010) and he states that banks in Sri Lanka do not conduct awareness programmes that improve the knowledge of customers on the secured aspect of the Internet banking facilities and other privacy concern. This study aims to examine the Internet banking experience among the medical officers' in North Central Province in Sri Lanka. The rest of the paper is organized as follows. Next section reviews the literature that relates the present inquiry. Methodology used in study including data collection and analysis procedures are briefly presented in third section. Final section concludes the study along with the implications of the study.

Statement of Problem

Adoption of technology is the key component of the use of Information and Communication Technology field. Many researchers has analyzed and commented on the Technology Acceptance Model (TAM) model in regarding acceptance of technology. According to Baraghani (2007), the model TAM beliefs, perceived usefulness and perceived ease of use, and trust are to be two sets of underlying antecedents in determining behavioral intention to use technology and effectively attract customers. But, traditionally, TAM focuses on the aspect of system features and thus, is insufficient in capturing the roles individuals in the Internet-based system usage, in particular, internet banking. Also, this study focuses of the awareness is vital for in the adoption stage. Suraweera et. al. (2011) highlighted that use of online banking services in Sri Lanka are extremely low. Also in the study some customers mentioned that the reasons for not using the services are lack of awareness, difficult to adopt, security and technical difficulties.

Therefore, the research problem is to identify what are the factors influencing adoption of Internet Banking among the Medical Officers in the North Central Province. Also, it

Objectives of the Study

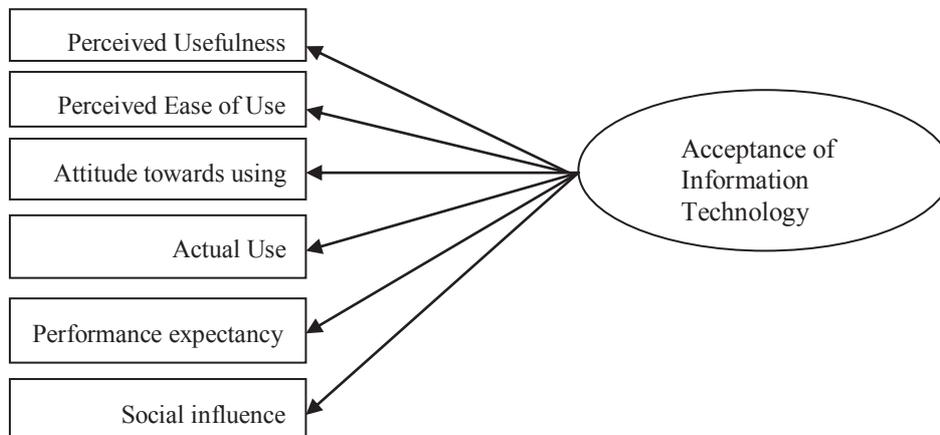
Hence, objectives of the study are to investigate the adoption and use of technology such as the Internet and other telecommunication for banking transactions by Medical officers in Sri Lanka. Further, it examines how perceived usefulness, perceived ease of use, security and privacy are important on adoption of the Internet banking.

Review of Literature

Today, the changing entity of the business organization is the rapid advancement of their ICT and adoption of the information systems. As a result, banks gradually transform their services in to e-mode in order to provide faster and convenient services to their customers. According to the Jayamaha (2008), Sri Lanka banking sector began to provide IT services in the late 1980s with the introduction of the first ATM by HSBC Bank in 1986. The arrival of private banks moves towards the latest technological adoption and provide more services through the Internet such as Internet banking etc. Margaret and Thompson (2000) have mentioned that Internet banking allows customers to perform a wide range of banking transactions electronically via the bank's Web site. Their study further found that attitudinal factors such as Internet experience, and need etc. have significant influence on the intention to use internet banking. However, the successful adoption of Internet Banking systems is yet in preliminary stage due to lesser number of customers having online banking accounts. The model of success of information system was discussed initially by DeLone and McLean in 1992 and later several research studies mentioned new implications and revised the model. According to the DeLone and McLean study, measures of the success of information system fall into six categories, such as system quality, information quality, use, user satisfaction, individual impact and organizational impact.

Technology acceptance plays a vital role in implementing Internet Banking services. Davis (1986) has introduced the Technology Acceptance Model, and it has been used in many ICT related studies. Al-Qeisi (2009) has referred the above model and two technology acceptance measures Perceived usefulness and Perceived ease of use. These have been discussed and defined as the "Perceived usefulness referring to the degree to which a person believes that using a particular system would enhance his/her job performance; and Perceived ease of use referring to the degree to which a person believes that using a particular system would be free from effort". More, Ayo et al. (2010) study reveal that perceived ease of use and perceived usefulness are not only antecedent to e-banking acceptance, they are also factors to retain customers to the use of e-banking system such as organizational reputation, perceived risk and trust. Mitra et al. (2013) have developed a comprehensive model for Information Technology Acceptance of their case study survey (Figure 1)

Figure 1: Comprehensive Model of IT acceptance



Source: Adopted from Mitra et al., 2013.

Internet services developed with growth of the Internet and conventional financial services have also been changed. Most of the banks in Sri Lanka have introduced banking services that provide facility to make account transactions anywhere at any time. Mohamed (2010) has defined Internet Banking as the use of the Internet as a remote delivery channel for banking services. Such services include opening an account or transferring funds among different accounts, and new banking services, such as electronic bill payments, etc. Baraghani (2007) has verified that an additional belief, trust, is one of important determinants of customer acceptance of Internet banking. Further, the study recognized that technological and trust-trust based issues are important in increasing customer’s behavioral intention to use Internet banking and also, awareness of internet banking services is essential in the early adoption stages.

Table 1: Factors used in Internet Banking Research

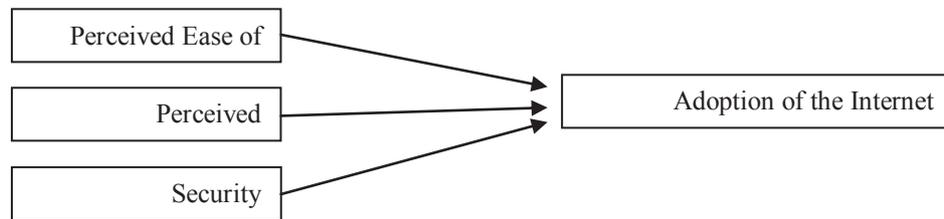
Authors	Research Location	Factors
Zhao et al.(2010)	China	Security
Gerrard et al. (2006)	Singapore	Security, No Necessity, No Benefits, No Interest, No Knowledge, NO Human Touch & Computer Fatigue
Sathye (1999)	Australia	Security, No Knowledge, Price & No necessity
Laukkanen et. al.	Finland	Security, No Benefits
Rotchanakitumnuai & Speece (2003)	Thailand	Security
Daniel (1999)	UK & Ireland	Security
Singh (2004)	South Africa	Security, No Knowledge and Time consuming
Gerrard & Cunningham (20003)	Singapore	Security
Jaruwachirathanakul & Fink (2005)	Thailand	Benefits
Eriksson et. al.	Estonia	Security

Source: Adopted from Mohamed, 2010.

When building e banking solutions, Ayo et al. (2010) recommend, several implications such as put more attention to trust-building actions, suggest incorporating trust-building measures into online customer relationships. Greater improvement on trust such as secured processing and transmission of highly confidential information can be helpful steps in increasing electronic customer retention. Further, Mohamed (2010) has strongly pointed out that security is highly concerned by the customers for the adoption of e-banking and has shown many researchers intention of the internet banking (see Table 1).

The brief literature cited above suggests that Perceived Ease of Use, Perceived Usefulness and Security are highly significant and have an important influence on the technology adoption, in particular the adoption of the Internet banking. Thus, following conceptual model frames the present study.

Figure 2: Model of Adoption of the Internet Banking



Methodology

The study uses a quantitative approach to address the problem of present study. A structured questionnaire was specially designed for the study and employed in data collection. Empirical studies in similar context were employed in identifying key constructs for the research variables and constructing the questionnaire. The questionnaire consists of two major parts out of which the first part is reserved for collecting the demographics of the respondents and the second part for the gathering of data relating to three independent research variables, perceived ease of use, perceived usefulness, security and the dependent variable of adoption of the Internet banking. All the questions relating to the research variables were set in five-point Likert scale and the demographics data were collected through close ending questions.

To ensure the reliability and the validity of the research instrument, it was piloted and adjusted accordingly with correct wording and logical ordering of the questions. In the data analysis, descriptive statistics, correlation and regression analysis were performed. Data preparation and analysis were carried out with SPSS 21.

Results and Discussion

The sample comprised of 124 respondents and among them, there were 80 male (64.5%) and 44 female (35.5%) medical officers. With respect to the age, the majority of respondents (62.9%) belong to the age group of 23-32 and others were in 33-43 age group. To ensure the internal consistency of the constructs that were used to measure study variables, reliability test was performed. All constructs recorded Cronbach's

Alpha values well over 0.7 which is considered as the general cutoff in this type of study. Thus, reliability of each construct is accepted for the present study.

Table 1 presents descriptive statistics and results of t-test for the key study variables on gender of the respondents. The mean values for all independent variables reveal that perceived ease of use, perceived usefulness and security and privacy are highly significant for the selected group. Further, results of t-test indicate that gender has a significant influence on these factors that are supposed to have an impact on adoption. The mean value of 3.63 for adoption implies that use of internet banking among the selected group is moderately high and male respondents tend to use this facility than that of female respondents ($t = 2.322$, $p = 0.024$).

Table1: Descriptive statistics and results of t- test

Variable	Mean		Standard Deviation		t-test	
	Male	Femal e	Male	Femal e	t	p
Perceived Ease of Use (PEoU)	4.02	3.67	0.486	0.212	4.533	0.000
Perceived Usefulness (PU)	4.02	3.75	0.660	0.621	1.784	0.080
Security and Privacy (SP)	3.71	3.48	0.531	0.378	2.271	0.026
Adoption (A)	3.63	3.21	0.751	0.776	2.322	0.024

Table 2 shows the bi-variate correlation between the variables. The correlation between perceived usefulness and adoption is 0.186 and it is significant at 0.01. Thus, perceived usefulness positively correlates with adoption. Similarly, correlation coefficient between perceived usefulness and adoption (0.845, $p < 0.01$) reveals that these two variables are highly correlated and very significant. Further, security and privacy highly correlate with the adoption ($r = 0.66$, $p < 0.01$). These results clearly depict that perceived usefulness, perceived ease of use, security and privacy are significant factors in making technology in use.

Table 2 –Relationship of the research variables

Variable	A	B	C	Mean
Perceived Usefulness (PU)	-			3.902
Perceived Ease of Use (PEoU)	0.274**	-		3.931
Security and Privacy (SP)	0.465**	0.675**	-	3.634
Adoption (A)	0.186**	0.845**	0.660**	3.488

** The correlation is significant at the 0.01 level

Regression analysis was further employed to examine the predictive power of independent variables toward the technology adoption and to validate the results of correlation. The relevant results are reproduced in Table 3.

Table 3 Result of the Regression

Variable	Coefficient	Std. Error	t	p
Perceived Usefulness (PU)	0.206	0.085	2.424	0.016
Perceived Ease of Use (PEoU)	0.862	0.093	9.26	0.000
Security and Privacy (SP)	0.356	0.134	2.647	0.010
R ² = 0.73 F = 74.09 Sig F = 0.000				

R² value of 0.73 and F-value (F = 74.09) that is significant at 0.05 indicate that adoption of technology are significantly influenced by the selected predictor variables. In fact, all predictor variables have received positive coefficients that are significant at 0.05. Thus, these results further confirm that perceived usefulness, perceived ease of use and security and privacy have a significant positive influence on technology adoption.

Conclusions

The central issue behind the Internet Banking is the customer acceptance of the products that are offered by a particular bank. Literature shows that although Internet banking services in Sri Lanka are growing gradually, only technology know-how customers use the Internet banking. There are several variables that influence accepting and adopting technology. Perceived Ease of Use, Perceived Usefulness and Security have widely been cited and used in empirical studies. Result of present study confirms and validates the findings of the previous studies that found positive influence of perceived usefulness, perceived ease of use and security and privacy on technology adoption. Study further found that most of the medical officers do not have enough time to personally visit the bank to get new internet banking facilities. Therefore, promoting of internet banking among the customers is driven by the awareness programs that are provided by the banks concerned. As this study considered only Medical Officers in the North Central Province, implication of the results to general context is limited. Thus, future study may validate result of this study with research in similar and different context.

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