

## **FACTORS INFLUENCE ON CUSTOMERS' BEHAVIORAL INTENTION TO USE MOBILE BANKING APPLICATION IN SRI LANKA**

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### **ABSTRACT**

In this modern technological era, with the improvement of telecommunication and technology, banking has become a radically transformational industry in the world. There are a lot of new products, players and channels introducing daily to the banking industry. Therefore providing pioneering facilities is an essential factor for attractiveness of the banking sector. Mobile banking application is such an innovative service which enables all customers to make banking activities more quickly and conveniently than traditional banking. Anyhow the most consumers do not use this innovative service. Therefore this study focuses on examining the factors influencing on customers' behavioral intention to use mobile banking application in Sri Lanka. Four antecedents as Perceived risk, trust, convenience, and relative advantage are incorporated in to the proposed model. Advanced Multivariate Analysis as Exploratory Factor Analysis, Confirmatory Factor Analysis, Correlation and Multiple Linear Regression Analysis was used to test the research hypotheses. The findings revealed that there is a positive relationship between perceived risk, trust, convenience and relative advantage on intention to use mobile banking application. This study has suggested government, banking authority and software making companies to improve on mobile banking usage and increase consumer's self-confidence to use mobile banking.

**Keywords:** *Applications, Banking, Intention, Mobile Banking, Self Confidence*

### **1 INTRODUCTION**

With the improvement of telecommunication and information technology, banking has become a radically transformational industry in the world. There are a lot of new products, players and channels introducing daily to the banking industry. There are numerous ways to do banking. Typically most of the people do their banking transactions by physically visiting the bank and it

causes for a lot of issues (Kapuge, 2017). Banking industry first began to revise the banks' distribution channels in 1970 with the introduction of Automated Teller Machine (ATMs). However, it requires the customer presence. Telephone banking was introduced in 1980 and internet banking was introduced in 1990 (Mullan, Bradley, & Loane, 2017). Users must have Local Area Network or WI-FI connections and personal computer to do internet banking. Thus the banks have identified that there is still a clear need for a most flexible and convenient way to do banking. With the ever-growing spread of internet-enabled mobile phones made the possibility to do banking via telecommunication devices as a logical development of electronic banking. Electronic banking offers "anytime access" while mobile banking offers "anytime anywhere access". Mobile banking means an interaction in which a customer is connected to a bank via a mobile device. Mobile banking started with short message system and banking activities were done through the mobile text messages and alerts. Then gradually mobile web was introduced and here mobile banking was offered via Wireless Application Protocol (WAP). WAP was restricted to a specific set of handsets and because of that Unstructured Supplementary Services Data (USSD) came into the practice. Nowadays with the heavy usage of smart mobile phones, mobile banking has developed with the usage of special client programs called mobile applications (apps) (Dandeniya, 2014). According to the Central Bank Report Sri Lanka (2018), there are 26 licensed commercial banks in Sri Lanka, both domestic and foreign banks, operating with 6185 branches throughout the country and nearly all the commercial banks provide mobile banking applications. Mobile banking has loads of advantages. It saves human effort, time and money and provides environmental benefits as well.

### **1.1 Research Problem**

It is documented that even if mobile banking is associated with massive advantages, there has been a major challenge of having a limited usage of mobile banking in Sri Lanka (Seneviratne, 2016). To use a mobile banking app, users must download the app from the Google play store on the internet. It can be seen that there are only 0.7%, 0.6% and 3.3% downloads on Google Play store of BOC "B" app, Peoples "Wave" app and Commercial "Com bank" app from their customer base respectively in the mid of 2019. In Sri Lanka, cellular mobile telephone subscriptions have been increased in the past 20 years. Total population of Sri Lanka in 2009 is 20,905,335 and mobile telephone subscriptions are 14,264,442. In 2017 it has been doubled with 27,157,647 of mobile subscribers. Mobile broadband service was introduced in 2009 and it has only 91,359 users in the initial year and it has significantly increased as 5,228,734 users in the middle of 2018. (Telecommunication Regulatory Commission of Sri Lanka, Department of census and statistics, 2018). Therefore widespread adoption of cellular phone and mobile broadband subscriptions

has not affected to the usage of mobile banking. Moreover, the cost of mobile devices has been decreased and analysis of mobile device pricing in Sri Lanka suggests that smartphones are becoming more affordable for average Sri Lankans. Further, it is estimated that a smartphone can be purchased at less than Rs. 10, 000. When considering demographics across Sri Lanka, consumers born in the 1980s and 1990s known as 'Millennial' and they always look for the technology, innovations, trendy brands, modern lifestyles and convenience (Dandeniya, 2014). Thus it is clear that behavioral intention to use mobile banking application is still very low in Sri Lanka. The existing mobile banking application literature is also insufficient. Therefore, the purpose of this study is to fill this gap by doing a study to identify the factors influencing on customer's behavioral intention to use mobile banking application.

## **1.2 Research Objectives**

The major objective of the study is to determine the factors influencing on behavioral intention to use mobile banking application in Sri Lanka.

- To examine the influence of perceived risk on customer's behavioral intention to use mobile banking application.
- To examine the influence of trust on customer's behavioral intention to use mobile banking application.
- To examine the influence of convenience on customer's behavioral intention to use mobile banking application.
- To examine the influence of relative advantage on customer's behavioral intention to use mobile banking application.
- To examine the most influential factor on customer's behavioral intention to use mobile banking application.

## **1.3 Significance of the Study**

The present study contributes to the existing body of knowledge while some academic research has addressed behavioral intention to use mobile banking application in the variant context of the developing nations. In this study the Technology Acceptance Model was employed. The results from this study were consistent with the theory. The information gained through this study has shed some insight into the barriers and drivers of mobile banking. Working on the barriers and enhancing the drivers will be very beneficial for the banking industry in Sri Lanka. Such understanding will provide to government, banks, service developers and software engineers to better strategic insight to design and implement mobile banking services that yield higher consumer acceptance in Sri Lanka.

## **2 LITERATURE REVIEW**

### **2.1 Theoretical Background**

#### *2.1.1 Technology Acceptance Model (TAM)*

Behavioral intention to use mobile banking application literature mostly utilizes with TAM and extensions of it. Davis (1989) used TAM to clarify computer usage behavior. The aim of TAM is to explain the basic factors of computer acceptance that lead to explaining user adoption across end-user computing technology. This theory states that perceived usefulness and perceived ease of use as the major determinants of system adoption and usage (Venkatesh & Davis, 2015).

### **2.2 Empirical Background**

#### *2.2.1 Behavioral Intention to Use Mobile Banking Application*

Mobile banking is defined as "a channel whereby the consumer interacts with a bank via a mobile device, such as a mobile phone or personal digital assistant. In that sense, it can be seen as a subset of electronic banking and an extension of internet banking with its unique characteristics (Laukkanen & Pasanen, 2008). In the case of Sri Lankan customers' behavioral intention to use mobile banking application, there is a little known in the published works. Behavioral intention to use mobile banking application in Sri Lanka is still in the primitive stage. Sri Lanka is at the top level from the technology literacy. The youth of the country is very much interested in technology. But it is difficult to see that they are using mobile banking service.

#### *2.2.2 Perceived Risk*

Lee and Chung (2009) defined that perceived risk can be classified as five types of risks including performance risk, Security risk, time risk, social risk, and financial risk. Performance risk means all the losses occur by deficiencies or malfunctions of mobile banking servers. Security risk indicates that all the potential losses happen due to the fraud or a hacker negotiating the security of a mobile banking user. Time risk represents all the losses of time and any inconvenience incur due to the delays of receiving payments or the difficulty of navigation. Social risk includes all the losses which arise when using mobile banking emerge results to disapproval by one's friends, family or workgroup while financial risk signifies all the potential monetary losses due to transaction errors or bank account misuse.

### *2.2.3 Trust*

According to Bhattacharjee (2002) there are three dimensions of trust namely ability, integrity and benevolence. Those three represent three perspectives as the bank, mobile network provider, and wireless infrastructure respectively. Ability is the consumer's perception of the competency and salient knowledge of the mobile banking service provider to deliver the expected service. Integrity means the users' perception about their service provider's fair, honest and reasonable conditions of the transactions while benevolence refers to the amount of service provider's receptivity and empathy towards the user.

### *2.3.4 Convenience*

Convenience is defined as the extent, which mobile banking service can accomplish its users' needs. It includes perceived usefulness and perceived ease of use (Kabir, 2013). Perceived usefulness is the degree in which a person believes that using a particular system or any related offering would enhance their job performances. It suggests that using technology in the workplace would increase user's productivity, improve job performance, and enhance job effectiveness and usefulness. Perceived ease of use is the degree in which a person believes that using a particular system would be free of effort.

### *2.3.5 Relative Advantage*

The comparative benefits that mobile banking users can experience and could not get from other traditional banking services consider as relative advantages. It includes perceived cost-saving and perceived time-saving. Perceived cost saving include that the transaction cost of conducting mobile banking transactions which is air time charges and banking charges. Perceived Time Saving means the time required to complete a transaction.

## **3 METHODOLOGY**

### **3.1 Research Philosophy**

The present study focused on the philosophy of positivism. In the philosophy of positivism, the researcher observes phenomena using credible data. To generate a research strategy, researcher collects data using existing theory to develop hypotheses. These hypotheses will be tested and confirmed for development of a theory which may be tested by further research.

### **3.2 Research Approach**

The present research has been used the deductive approach as the research approach because it is testing a theory using hypothesis and designs a research

strategy to test the hypothesis, and also deductive approach more owes to positivism.

### **3.3 Sources of Data**

The researcher used primary and secondary data sources. Primary data collected through questionnaires. Central bank report, Banks annual reports, census reports were the secondary data sources.

### **3.4 Population and Sample Selection**

The population of the study is total bank account holders in Sri Lanka who has the ability to use a mobile banking app with their mobile device. The researcher met chief officers in main banks to get the number of mobile bank users and all banks refuse to give any information because as in most countries due to the confidential reasons, revealing customer information is restricted by banking ACT no.30 of 1988. Most of the researches have been completed with non-users of mobile banking apps under convenience sampling, limited to undergraduates or limited to one particular bank or one specific area as above. Convenience sampling is used in the absence of a proper sampling frame when the population is unknown (Saunders, Lewis, & Thornhill, 2009). Where the population is unknown, the sample size can be derived as 384 (Sekaran, 2003). 384 mobile banking non users in age between 18-50 years draw as the sample. It consists with the banking customers who met at the main three bank car parks, university staff, executive level employees, graduates and undergraduates.

## **4 DATA ANALYSIS AND RESULTS**

This data collection process carried out for a period of nearly two months and 384 questionnaires were distributed and there were 260 questionnaires would be able to accept (Response rate 67.7%).

### **4.1 Sample Profile of the Study**

The sample consists of 152 (58.5%) males and 108 (41.5%) females. Among them, the majority from the age between 18-30 (37.7%) And age 31-40 was 31.9%. Moreover, age 41-50 respondents represented as 16.5% and 13.8% of respondents were between the ages of above 50. Graduate, Undergraduate or above contain 62.3% and 34.6% were people who have a professional qualification or diploma. 2.7% were up to GCE A/L and 0.4% respondents were up to GCE O/L category.

#### **4.2 Reliability of the Measures**

The Cronbach's Alpha values of the study reported as follows. Perceived risk=0.918, Trust=0.916, Convenience=0.900, Relative Advantage=0.898, Behavioral Intention to Use Mobile Banking Application=0.931. All the variables are above 0.8. Therefore all the above variables are reported as reliable (Field, 2009).

#### **4.3 The Validity of the Measures**

KMO and Bartlett's Value of all variables reported as follows. Perceived risk=0.878, Trust=0.882, Convenience=0.891, Relative Advantage=0.821, Behavioral Intention to Use Mobile Banking Application=0.767. All the Sig value of Bartlett's Test of Sphericity are 0.000 which is lower than 0.5. Therefore the internal validity of this study is high (Field, 2009).

#### **4.4 Multicollinearity**

All the VIF values are below the cutoff mark of 5 and all the tolerance values are above 0.2. Since all the tolerance values and VIF values are in proper range, multi-co-linearity is not violated in the current study.

#### **4.5 Descriptive Statistics**

Mean values of the analysis reported as follows. Perceived risk=3.441, Trust=3.576, Convenience=3.356, Relative Advantage=3.795, Behavioral Intention to Use Mobile Banking Application=3.641. Since the all variables are more than 3, it indicates that all variables are performing up to the standard level.

#### **4.6 Correlation Analysis**

Pearson's Correlation Coefficient of the all variables represent as follows. Perceived risk=0.442, Trust=0.404, Convenience=0.374, Relative Advantage=0.137. There is a low degree of a positive relationship between all independent variables towards the behavioral intention to use mobile banking application. The p-value of all variables reported as less than 0.05. It represents the data has a strong correlation, and it is significant.

#### **4.7 Multiple Regression Analysis**

R square value of the analysis is 0.547 and it can be concluded that 54% of the variation of behavioral intention to use mobile banking application is explained by the model. Only 46% of the variances are explained by other influencing factors which are not covered under the current study (Field, 2009).

#### 4.7.1 ANOVA Table

**Table 1. ANOVA Test**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	150.829	4	37.707	79.030	0.000
4 Residual	121.667	255	0.477		
Total	272.496	259			

According to the output (Table 1), ANOVA test p-value is 0.000. Hence it is concluded that the fitted model is significant (Field, 2009).

#### 4.7.2 Analysis of Coefficient

**Table 2 Coefficient Table in the Regression Analysis**

Model	Un-standardized		Standardized	T	Sig.
	B	Coeff. Std, Error	Coeff. Beta		
Constant	-1.105	0.313		-3.524	0.001
Perceived Risk	0.450	0.096	0.331	4.692	0.000
Trust	0.165	0.063	0.136	2.623	0.009
Convenience	0.413	0.082	0.266	5.038	0.000
Relative Advantage	0.310	0.079	0.245	3.944	0.000

According to the Table 2, Perceived risk can be identify as the most influential factor of the behavioral intention to use mobile banking application in Sri Lanka with highest positive beta value of 0.450 and 0.000 of P-value. Second most influential factor is convenience and relative advantage and trust is the third and fourth influential factors.

#### 4.8 Régression Equation

$$Y = -1.105 + 0.450PR + 0.165T + 0.413C + 0.310RA \quad (1)$$

The fitted regression equation model is shown in equation 1. Behavioral intention to use mobile banking application can be decreased by 1.105 units when there is no effect of any variables. It can be increased by 0.450 units, 0.165 units, 0.413 units and 0.310 units separately if perceived risk, trust, convenience, relative advantage is increased by 1 unit respectively while keeping the other factors as constant.

### 5 DISCUSSION OF THE FINDINGS

Kazi and Mannan, 2013, Jabri and Sohail (2012) revealed perceived risk has a negative significant effect while Chen (2013), Akturan and Tezcan (2012),



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Dineshwar and Stevan (2013), Ravichandran and Madana (2016) revealed a positive impact on perceived risk on behavioral intention to use mobile banking application. Based on the findings of the study, the researcher could find a positive impact of perceived risk on behavioral intention to use mobile banking application. Huili, Shanzhi, and Yinghui (2013), Kabir (2013) found trust has a positive impact on behavioral intention to use mobile banking application. Based on the findings of the study, the researcher could find a positive impact between trust and behavioral intention to use mobile banking application in Sri Lanka. Chavali and Kumar (2018), Ramdhony and Munien (2013), Cheah, Teo, Sim, Oon and Tan (2011) and Akturan and tezcan (2012) found that convenience positively impacts on behavioral intention to use mobile banking application. Based on the findings of the study, the researcher could find a positive impact between convenience and behavioral intention to use mobile banking application in Sri Lanka. Chen (2013), Moore and Benbast (1991), Doline and Solomon (2012), Jabri and Sohail (2012) has found a positive impact of relative advantage on mobile banking. Based on the findings of the study, the researcher could find a positive impact between relative advantage and behavioral intention to use mobile banking application in Sri Lanka. In this study the TAM was employed. TAM explains the basic factors of computer acceptance that lead to explaining user adoption across end-user computing technology. TAM proposed only perceived usefulness and perceived ease of use while this study has enhanced the original TAM by including additional variables of perceived risk, trust and relative advantage. This extension of TAM better explains the intention to use mobile banking app. This proposed model has never been used in the mobile banking app context in Sri Lanka and could be utilized to provide a solid theoretical foundation of the intention to use mobile banking app.

## **6 CONCLUSION AND CONTRIBUTIONS**

### **6.1 Conclusion**

The result of the study is indicated that all the dependent variables positively and significantly influence on Sri Lankan customer's behavioral intention to use mobile banking application. According to the survey results, perceived risk was identified as the most influential factor towards Sri Lankan customer's behavioral intention to use mobile banking application and convenience, relative advantage and trust was identified as the next highest influential variables respectively. This study suggests an extension of original TAM model by including additional variables of perceived risk, trust and relative advantage.

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## 6.2 Managerial Implications

Bankers can use the findings of this study to better be equipped with an understanding of customer priorities because banks invest a huge amount of money to introduce technology-based services and low intention is huge waste for them. Software engineers and app developers can create banking apps without risk regarding performances, security, social and financial. Further they need to increase the protection of mobile banking app with implemented electronic laws to avoid risk and can implement high secured passwords, verification codes, notifications. They should rely on the convenience of the application which they create. As a banking app, it should be user friendly. Furthermore, to increase the relative advantage banks can emphasize the more advantages of mobile banking app comparing with other conventional banking channels. Additionally to increase the trust and self-confidence to use mobile banking app, companies could provide more information regarding safety in the use of mobile banking to customers. This information would instruct and provide more knowledge to increase the self-confidence of the clients. Practically, this study has provided an avenue for Sri Lankan government and banking authority to instill and improve on customer adoption on mobile banking in Sri Lanka.

## 6.3 Future Research Directions

It would be worthwhile to analyzing different occupational contexts, different areas, the effect of different demographic variables and other drivers which were affected by behavioral intention to use mobile banking application to measure the significance of the model. If it can be used multiple methods to gather data, it may help to explore new knowledge.

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