



FACTORS INFLUENCING ON CUSTOMER USAGE OF ONLINE BANKING: FROM THE PERSPECTIVE OF TECHNOLOGY ACCEPTANCE AND THEORY OF REASONED ACTION MODELS

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ABSTRACT

This study aims to examine the factors influencing the customer usage of online banking of commercial banks in Batticaloa district. As per deduction approach, Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA) was used to carry out the study. Self-administered questionnaires were distributed among 180 online banking users to collect information. A quota sampling technique was performed in order to collect the data. The demographic variables were measured using descriptive statistics. Correlation and multiple regression analysis were applied to recognize the influencing factors on online banking. Results revealed that there was a strong positive correlation between usage of online banking and independent variables viz Usefulness, Ease of Use, Security, Compatibility and Information Quality. The findings of simple linear regression showed that the significant impact between online banking usage and independent variables such as Usefulness, Ease of use, Security, Compatibility and Information Quality. Multiple Regression Analysis revealed that the overall model applied is significantly good enough in predicting the usage of online banking. Further, results depicted out of five variables, Usefulness, Ease of use, Compatibility, and Information quality, were highly significant with the usage of online banking. However, security is not contributing much to the model. The model exhibited an adjusted R square value of 0.89, which shows around 89% of the variation of the dependent variable of online banking usage is explained by independent variables. The results concluded that the Usefulness was the best predictor of online banking usage of commercial banks in Batticaloa district, followed by Ease of use, Information Quality, and Compatibility. Findings help bank managers and system analysts, and customers for making better decisions.

Keywords: Online Banking, Technology Acceptance Model, Theory of Reasoned Action



1. Background of the study

Banking environment is more dynamic and competitive due to continuous and rapidly changing business environment and dramatic innovation in the information technology (Ternullo, 1997). The tremendous advances in technology and the aggressive infusion of modern banking services have brought in a paradigm shift in banking operations. Many banks have developed internet-based service models to ease customer transactions. As a result, banks have to adjust their strategies to meet the current economic conditions and manage risk efficiently (Suraweera et al., 2011).

Nowadays, people are so busy in their work lives that they do not even have time to go to the bank for conducting their banking transactions. All banks provide online banking facilities to their customers as an added advantage (Karjauloto, Koivumaki & Salo, 2003). Online banking enables people to carry out most of their banking transactions using a safe website, which is operated by their respective banks.

Online banking involves consumers using the internet to access their bank account to undertake banking transactions. It involves provision of facilities such as accessing of accounts, fund transfers, utility bill payments and credit card payment (Mubarak, 2019). Online banking constitutes a fusion of conventional banking and web technology. Injection of IT facilities like online banking has led to improve service quality and superior service delivery within the banking sector (Karjauloto et al., 2003). It also helps banks to reduce costs.

Sadeghi and Hanzee (2010) emphasized that the majority of transactions can be done without going to the bank, such as utility bill payment, balance inquiry, fund transfers. Zhou (2011) emphasized cost effectiveness and greater speed tend to increase online banking usage. From the bank's perspective, efficient use of online banking can improve the customer base more than using other distribution media (Pikkarainen, Pikkarainen, Karjaluoto & Pahnla, 2004). Sadeghi & Hanzee (2010) emphasized the rapid spread of technology has made online banking the best channel to provide banking services and products to its customers.

Zhou (2011) provided further evidence that trust affects online banking adoption in the context of low-income countries. Thus, banks must find a way to create online banking strategies to improve service quality even further. This can reduce the perceived risk that the customers accept and increase trust in order to affect behavioral intentions to use internet banking in the future.

Online banking was first introduced in the early 1980s in New York, United States. Almost simultaneously with the United States, online banking arrived in the United Kingdom. The UK's first home online banking services known as Home link was set up by the Bank of Scotland for customers of the Nottingham Building Society (NBS) in 1983. Subsequently, developed nations such as USA (Kolodinsky, Hogarth & Hilgert, 2004), Australia (Sathye, 1999), Estonia (Eriksson, Kerem & Nilsson, 2005), and others in Europe (Pikkarainen et al., 2004) have implemented online banking. Zhou (2011) indicated a growing trend of online banking adoption by developing countries as well. Meuter, Bitner, Amy, Ostrom and Stephen (2005) emphasized that Europe has been and still is the leader in online banking usage.



Online banking in Sri Lanka was introduced in 1998s. Initially, only five local banks offered online banking facilities. After the spreading of online banking, state banks also offer online banking to compete with rivals. Today state and private banks provide online banking services in a wider range. Accordingly, it is the key to enhance online banking usage. Amarasinghe (2014) stated that Online banking has revolutionized customer convenience by enabling the customer not just to access the bank with ease but also to become a business partner.

Theagarajah (2011) reported that “bank enlarged the Internet customer base up to 23,000 and 300% increase in the number of transactions and 55% increase in the number of users”. Further, Suraweera et al. (2011), portrayed that the banks allocate large budgets towards developing online banking services as the online banking benefits are significant. According to Amarasinghe (2014), “due to the broadband services and reduced cost, internet usage in Sri Lanka increased rapidly during the last 5 years, from 8.3% of the population in 2010 to 19.9% in 2014”.

Moreover, Zhou (2011) found that usage of the internet and internet technology had a steady growth in Sri Lanka. Digitalization is rapidly changing the way personal financial services are being designed and delivered. Currently, Private and State Banks in Sri Lanka are trying to introduce new ideas in the online banking system to improve their operations and reduce costs. Banks spend a considerable amount of money to improve and update their online banking system. The main objectives of the banks to establish the online banking are to make their customers happy, do their banking transactions anywhere, no need to wait in queues rather than profit.

Even though online banking has several benefits, many problems need to be dealt with before extensively adoption by customers. However, the tendency of banking customers in Sri Lanka to use online banking facilities is minimal. Virtual banking activity is lower than acceptable level in Sri Lanka. Only less than 1% of customers generally use online banking and other payment gateways, which significantly differs from the developed world. Not only ordinary people but the educated peoples also hesitate to use online banking. There are several issues concerning online banking in Sri Lanka, such as web usability, security, information quality, trust, service quality, and accessibility. Therefore, it is essential to investigate what factors impact on the usage of online banking.

The banks as well as other regulatory institution should identify the reasons behind the lack of customer engagement in online banking services. In order to create and maintain online banking customers or to stay competitive, it is vital to provide them the best services by understanding their needs. In this regard, banks need to reconsider their IT strategies concerning banking services (Tan and Teo, 2000).

The research on online banking usage would help to acquire a better knowledge of the benefits of online banking, the factors that affect the usage of online banking and steps are being taken to improve online banking services in future. By understanding these factors, banks can make their policies and improve their services that would eventually help them to attract customers. Despite many advantages from online banking, Sri Lankan banking customers are reluctant to use online banking. Therefore, the study focused to examine the influencing factors



on the customer usage of online banking in the Batticaloa district. The objectives of the study are as follows.

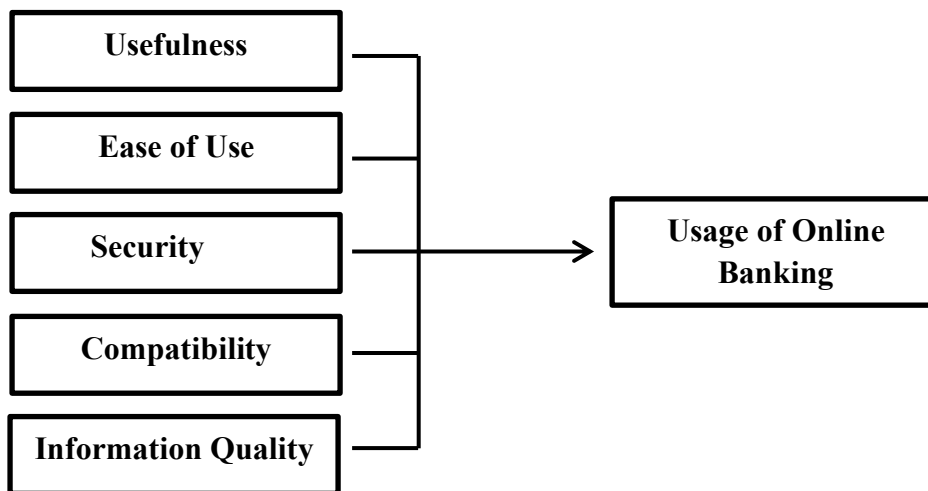
1. To identify the level of Usefulness, Ease of use, Security, Compatibility, and Information quality on the usage of online banking in Batticaloa district.
2. To examine the impact of Usefulness, Ease of use, Security, Compatibility, and Information quality on the usage of online banking.

2. Theoretical Perspectives for Online banking

Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use a technology. Usage of computer depends on attitude of the person to use (Davis, 1989). 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. 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. Many research scholars have used Technology Acceptance Model (TAM) to examine the acceptance and adoption of online banking usage. Technology Acceptance Model has been proved to predict technology adoption behaviour of customers. Usefulness and ease of use are derived from the TAM (Chaouali et al., 2016; Mital et al., 2018).

The theory of reasoned action (TRA) describes "the relationship between attitudes and behaviors within human action. It is mainly used to predict how individuals will behave based on their pre-existing attitudes and behavioral intentions". (Fishbein & Ajzen, 1975). The TRA assumes that individuals are usually rational and will consider the implications of their actions prior to deciding whether to perform a given behavior. The theory covers following dimensions, Convenience, Privacy, Cost, Ease of use, Personalization and Customization (Ayo, et al., 2016; Chiu, et al., 2016; Amin, 2016).

Ganguli and Roy (2011) found the following factors, namely reliability, responsiveness, competence, ease of use, security as the most significant factors which affect online banking service usage. Besides these, other factors identified as affecting online banking service usage are accuracy, feedback management, queue management, accessibility, personalization customization and customer service (Sadeghi & Hanzae, 2010). By considering TAM, TRA and findings of Ganguli and Roy (2011), conceptual model of the study is formulated which is given in Figure 1.



Source: Pikkarainen et al. (2004); Hasim and Salman (2010)

Figure 1: Conceptual Framework

By considering TAM, TRA and previous researches, online banking usage depends on five independent variables, namely Usefulness, Ease of use, Security, Compatibility and Information quality. These are explained in detail in the succeeding sections.

Usefulness

Technological Acceptance Model posits that online banking usefulness is a significant factor affecting acceptance of information system (Davis, 1993). Pikkarainen et al. (2004, p. 227) defined online banking usefulness as “the degree to which a person believes that using particular system would enhance his or her job performance”. Mattila, Karjaluoto & Pento (2003) epitomize that while online banking services are a reasonably new experience to many people, low awareness of usefulness pertaining to online banking is a major factor in causing people not to adopt online banking. Hence an application perceived to be more useful to the user than another process is more likely to be accepted by users.

Ease of Use

Online banking ease of use is a major factor that affects acceptance of information system (Davis, 1993). According to Pikkarainen et al. (2004), “an application perceived to be easier to use than another is more likely to be accepted by users”. This factor is consistent with findings of Kim, Xu, & Koh (2004) and Hernandez, Jiménez & Martín (2011) in their studies of consumer search behavior and online usage, respectively.

Security

As the number of products and services offered via the online banking growing rapidly, consumers are more and more concerned about the security issues. The importance of security to the acceptance and usage of online banking has been noted in many banking studies (Sadeghi & Hanzee, 2010; Ganguli & Roy, 2011). According to Pikkarainen et al. (2004) online banking



security is a more concerning trigger and another factor which is more likely to affect online banking usage. Security is found as more significant obstacle to the online banking usage (Bhattacharjee & Premakumar, 2004).

Compatibility

Jayawardhena and Foley (2000) define compatibility as “providing custom-made solutions, allowing users to customize preferences, and enabling the bank to provide bespoke solutions on-line for users who have provided personal information”. Meuter et al. (2005) stated that compatibility is a major contributing factor which affects the usage of online banking and also increases consumer readiness. Previous research findings epitomize the effect of perceived compatibility and contemporary financial industry findings also recognize compatibility as a significant factor affecting online banking usage.

Information Quality

Consumers have the amount of information about online banking has been identified as major factor impacting the online banking usage. According to Zhou (2011); online banking information quality affects online banking usage significantly. For example, if online banking is asynchronous with other modes of banking, information quality may also affect perceived utility of online banking. Users need quality information to conduct transactions, which improves their living and working performance and effectiveness (Kim et al., 2004).

3. Methodology

The study was undertaken with the ontological assumption of objectivism as the reality was existing external to the researchers. Epistemological perspective of the study was positivism. Quantitative method was used to understand the online banking usage. Deduction approach was applied to carry out the study.

Study design

The study is a cross sectional surveying study. The study population consists of online banking customers at commercial banks in Batticaloa district. However, as per the regulations of banking sector, banks are reluctant to provide their confidential information for the research purposes. Therefore, it is difficult to get the information regarding exact population. So that non probability sampling was performed to collect information regarding research. In order to collect the data, quota sampling technique was performed. Around 180 samples were used for the analysis. The required samples were collected from thirty customers of each six major banks in Batticaloa district such as Bank of Ceylon, People’s Bank, Commercial Bank, Hatton National Bank, Sampath Bank and Seylan Bank. Self-administered questionnaires were used to get the information from the online banking customers. The variables on the key objectives of the study were measured in five-point Likert scale to determine respondent’s agreement with the concepts under investigation.



Data Analysis

Descriptive and Inferential statistics were used to analyze the data. The collected data were analyzed with the aid of SPSS 24 version. The descriptive statistics such as mean and standard deviation were used to analyze the collected data through the questionnaire.

The mean value(X) ranges and decision attributes are as follows

- 1.0 ≤ X ≤ 2.5 Lower level online banking usage
- 2.5 < X ≤ 3.5 Moderate level online banking usage
- 3.5 < X ≤ 5.0 Higher level online banking usage

Under the inferential statistic correlation, simple linear regression and multiple linear regression were performed to find the relationship between dependent and independent variable.

4. Results

Demographic Profile

This section deals with an overview of demographic characteristics and personal information of the respondents who access online banking services provided by Commercial Banks in Batticaloa district. This frequency analysis used to test the frequency level of gender, age, monthly income, education and employment of respondents.

Table 1 shows among 180 respondents 62.8% are male and 37.2% are female. It indicates males are representing higher proportion of the sample. It indicates the highest percentage of respondents (38.9%) fall between the age 31 to 43 and 34.4% between the age of 18-30. This result reflects nearly 73.3% of the respondents who use online banking services are below the age of 44. It is noted that 6.1% are above 57 years of age and it gives evidence that the people who are above 57 years are still reluctant to use the online banking services. According to the Table given below, around 48.3% of users are having monthly income range between Rs 30,000/- to Rs 59,000/- and 26.1% of the respondents are earning below Rs 30,000/-monthly. Only 6.1% of the respondents are earning more than Rs 90,000/-. This study stated that 40.6% of the online banking users are employed at private sector while 38.3% of the users are government employees. Moreover, considerable percentages of students are using an online banking service which is 8.9%.

Table 1: Demographic Profile

| | | Frequency | Percentage (%) |
|--------|-----------------|-----------|----------------|
| Gender | Female | 67 | 37.2 |
| | Male | 113 | 62.8 |
| Age | 18-30 | 62 | 34.4 |
| | 31-43 | 70 | 38.9 |
| | 44-56 | 37 | 20.6 |
| | 57 and above | 11 | 6.1 |
| | Less than 30000 | 47 | 26.1 |



| | | | |
|------------------------|---------------------|----|------|
| Monthly Income (Rs) | Between 30000-59000 | 87 | 48.3 |
| | between 60000-89000 | 35 | 19.4 |
| | Above 90000 | 11 | 6.1 |
| Employment | Government | 69 | 38.3 |
| | Semi-Government | 15 | 8.3 |
| | Private | 73 | 40.6 |
| | Self-employed | 7 | 3.9 |
| | Student | 16 | 8.9 |

Online banking

Table 2 reveals most of the respondents (67.78%) are getting information from bank staffs. It is noted that bank staff play major role in promoting online banking services. Only 12.22% and 13.33% of the respondents got information through social media and self-interest respectively. Reason for choosing online banking

Among the respondent, 45% of the users stated that they are choosing online banking for the better services whereas Brand name influences to 42.78% of the respondents. It is noted that better service and brand name plays a major role in choosing online banking services.

Table 2: Online banking

| | | Frequency | Percentage (%) |
|---------------------------------------|--------------------------|-----------|----------------|
| Where did you get information | Bank staff | 122 | 67.78 |
| | Friend/Relative | 27 | 15 |
| | Self Interest | 24 | 13.33 |
| | Social Media | 22 | 12.22 |
| Reason for choosing online banking | Brand Name | 77 | 42.78 |
| | Better Service | 81 | 45 |
| | Less formality | 20 | 11.11 |
| | Traditional bank account | 22 | 12.22 |

Descriptive statistic for research variables

Table 3 explains the reported mean value and standard deviation for independent and dependent variables. The overall mean value of all independent and dependent variable lies within the range of $3.5 < X \leq 5.0$, explains the independent variables highly influence on the usage of online banking.

Table 3: Descriptive statistic for independent and dependent variables

| Variables | Mean | Std. Deviation |
|-------------|------|----------------|
| Usefulness | 4.17 | 0.73 |
| Ease of Use | 4.13 | 0.72 |
| Security | 3.89 | 0.77 |



| | | |
|-------------------------|------|------|
| Compatibility | 4.00 | 0.71 |
| Information quality | 4.47 | 0.79 |
| Usage of online banking | 4.45 | 0.65 |

Correlation Analysis

As per the correlation described in Table 4, the significance value 0.000 is portraying that usage of online banking and customer perceptions in online banking i.e. Usefulness, Ease of use, Security, Compatibility, Information Quality has a significant relationship at the level of 0.01.

As per the findings, correlation between usefulness and online banking usage is 0.93. Therefore, it can be concluded there is a strong positive correlation between usefulness and usage of online banking ($r > 0.5$, $p < 0.05$) and this variable is the most influential variable to usage of online banking.

Ease of use has a significance relationship with usage of online banking at the significant level of 0.01. The Pearson correlation value 0.78 is higher than 0.7 depicting that Ease of use and usage of online banking has a strong positive linear relationship. Similarly, Security, Compatibility and Information Quality have strong positive significant linear correlation in respect of usage of online banking.

Table 4. Correlation Analysis

| Independent Variables | Usage of online banking N=180 | |
|-----------------------|-------------------------------|-----------------|
| | Pearson Correlation | Sig. (2-tailed) |
| Usefulness | 0.93** | 0.000 |
| Ease of use | 0.78** | 0.000 |
| Security | 0.68** | 0.000 |
| Compatibility | 0.69** | 0.000 |
| Information Quality | 0.65** | 0.000 |

** . Correlation is significant at the 0.01 level.

Regression Analysis

Simple regression

Table 5: OLS estimate of Factors influencing on Online Banking Usage (N=180)

| Independent Variables | Dependent variable: Online Banking Usage | | | | | |
|-----------------------|--|----------------------------|------------------------------|------------------------------|--------------------------------|---------------------------|
| | Separate Regression | | | | | Multiple Regression |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| β_0 | 11.732 (0.000) [2.296] | 28.07 (0.000) [3.68] | 45.73** (0.000) [3.55] | 38.68** (0.000) [3.90] | 47.031** (0.000) [3.744] | 7.47 (0.001) [2.15] |
| Usefulness | 0.928** | | | | | 0.8** |



| | | | | | | |
|-------------------------|-----------|----------|---------|---------|-----------|----------|
| | (0.000) | | | | | (0.000) |
| | [0.027] | | | | | [0.04] |
| Ease of Use | | 0.74** | | | | 0.17** |
| | | (0.000) | | | | (0.000) |
| | | [0.04] | | | | [0.04] |
| Security | | | 0.557 | | | -0.04 |
| | | | (0.000) | | | (0.215) |
| | | | [0.045] | | | [0.03] |
| Compatibility | | | | 0.63 | | -0.07* |
| | | | | (0.000) | | (0.048) |
| | | | | [0.05] | | [0.04] |
| Information quality | | | | | 0.47 | 0.11** |
| | | | | | (0.000) | (0.000) |
| | | | | | [0.041] | [0.02] |
| F | 1152.72** | 279.98** | 152.588 | 170.24 | 129.350** | 301.41** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| R | 0.93 | 0.78 | 0.68 | 0.69 | 0.65 | 0.95 |
| R ² | 0.87 | 0.61 | 0.46 | 0.49 | 0.42 | 0.90 |
| Adjusted R ² | 0.86 | 0.61 | 0.45 | 0.48 | 0.41 | 0.89 |

P-values are shown in parentheses and standard errors are reported in square brackets. Significance levels are indicated by *, ** for 5% and 1%, respectively.

According to Table 5 (Model 1), the coefficient of usefulness is 0.928 with the significance value of 0.000 is indicating that there is a significant positive relationship between the usefulness and online banking usage. It means when usefulness is increased by one-unit online banking usage is increased by 0.98. F value is also significant to explain how best the model is fit for the study. As indicated by Adjusted R Square, 86% of the variation of online banking usage is explained by usefulness.

Table 5 (Model 2) reveals that significance value generated for Ease of use and usage of online banking is 0.000 indicating that statistically significant because the significance value is less than 0.05. Therefore, it can be proved that there is a significant relationship between Ease of use and usage of online banking. The adjusted R square value for Ease of use is 0.61, which is 61%. It depicts that 61.0% of the variation of online banking usage is explained by Ease of use.

Model 3 shows that there is a significant positive relationship between security and online banking usage as the significance value is less than 0.05. Adjusted R Square denotes that 45.0% of the variation of online banking is explained by Security.

Table 5 (Model 4) shows there is a significant positive relationship between compatibility and usage of online banking. Adjusted R square value in the Table is 48.0%. This suggests that compatibility has significantly explained 48.0% of the variation of online banking usage. As the P- value is $0.000 < 0.05$, therefore the independent variable is a useful predictor of dependent variable.

As per the above Table 5 (Model 5) the Adjusted R square for information quality is 0.41. It is 41.0%. This model explains the effect of information quality on the dependent



variable when other things are being constant. The significance value 0.000 less than 0.05 indicating the significance relationship between information quality and online banking usage.

Multiple Regression Analysis

Multiple Regression was performed to check the independent variables to predict usage of online banking. Table 5 (Model 6) reports that F value is appropriate to identify the overall assumption of the conceptual model. As the P value is $0.000 < 0.05$, the independent variable is a useful predictor of dependent variable. The results indicate that overall model applied is significantly good enough in predicting the outcome variable of online banking usage.

Based on the Table 5 (Model 6), the coefficient of correlation value (R), which is equal to 0.95 expressing a strong positive relationship between the independent variables (Ease of use, Usefulness, Security, Compatibility and Information quality) and the dependent variable of usage of online banking.

The value of 'Adjusted R square' equals to 0.89 explains that based on the selected sample of the survey, around 89% of variation of the dependent variable of usage of online banking is explained by independent variables (Ease of use, Usefulness, Security, Compatibility and Information quality).

According to the table Usefulness, Ease of use, Compatibility and information quality are having significant value below 0.05. This indicates that Usefulness, Ease of use, Compatibility and information quality significantly related with usage of online banking. The variables in the model have great impact on online banking usage as indicated by coefficient value.

However, p value of Security exceeds the significant level 0.05. This indicates that security is not contributing much to the model. It shows that security does not have a significant impact on the usage of online banking. Among these five variables, usefulness of online banking has the highest B value ($B = .0.80, p < .01$). Accordingly, this indicates that usefulness of the existence of online banking is the most significant predictor of the usage of online banking in the present.

5. Conclusion

The results revealed that the mean value of usefulness, ease of use, security, compatibility and information quality towards the usage of online banking lies between $3.5 < X \leq 5.0$ and high level of expression. Further, it is noted that there is a strong positive correlation between usefulness, Ease of use, Security, Compatibility, Information Quality and usage of online banking ($r > 0.5, p < 0.05$). The findings of multiple regression analysis reveals that the users perceived usage of online banking is determined by mainly four factors. These factors are usefulness, ease of use, compatibility and information quality. It is concluded that the "usefulness" is the best predictor of online banking usage of commercial banks in Batticaloa District followed by "Ease of use", "Information quality" and "Compatibility". The least important factor when predicting the online banking usage was "Security". Findings indicated that priority should be given to upgrade the Usefulness, Ease of use, Information quality and Compatibility.



6. Policy implication

Results help to bank managers for making good decision pertaining to online banking. the bank should take more concern on the ease of use, usefulness, compatibility and information quality of online banking platform as these are highly impact on usage of online banking and always maintain high standards in order to increase the number of customers.

7. Future research

The study was conducted to identify the online banking usage through questionnaire in Batticaloa. Therefore, the future research is needed to extend the Eastern province as well as whole country to identify the actual trend of online banking usage for enhancing the understanding of online banking. Secondly, qualitative study could be conducted to gain more knowledge of users and non-users of online banking.

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