IT Driven Banking Services in Sri Lanka: Customer Acceptance and Service Quality

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Abstract
This research investigates the factors associated with the customer acceptance of information technology driven banking services (ITDBS) in Sri Lanka. Structured and unstructured interviews with over 180 customers and 23 bank managers and a questionnaire survey were employed as primary data collection methods in this study. The results indicate that although ATM services are extensively used, the usage of other IT driven services such as online banking, mobile banking, internet payment gateway and telephone banking is almost insignificant. Although this study was initially conceptualized with the view to developing a model that explains the customer adoption of ITDBS, the aim of research was later altered to examine the factors behind non-acceptance of these services (apart from the ATMs). Accordingly a comprehensive model that identifies the factors behind the customer reluctance to use ITDBS in Sri Lanka is developed. This customer reluctance model demonstrates that there are number of significant factors for Sri Lankan customers to refrain from using such ITDBS. Some of them can be attributed to customer behaviour ad perception, on one side, and to the banks as the service provider, on the other. However, the service providers have the ultimate responsibility to get the support of customers to adopt a service that they initiate.

This model may be an eye opener for banking professionals who design, develop and market new IT driven banking services. Researchers can use the model to further investigate and understand issues related to adoption of these very important IT applications in Sri Lanka.

Key words: Customer Acceptance of IT, IS success, IT driven banking services (ITDBS), Service Quality
1.0 Introduction

Information Technology (IT) plays a vital role in all sectors in businesses today. This is mainly due to its high organisational impact and rapid expansion of IT applications in the recent past. This is particularly true in the information intensive industries, such as banking. It is well known that commercial banks increasingly use IT to gain competitive advantage. IT driven banking services (ITDBS) is one such promising IT application in the banking sector. Automated Teller Machines (ATM), online banking, mobile banking, telephone banking and internet payment gateway are such IT driven baking services, to name a few.

Successful adoption of ITDBS may transform the consumer experience of banking services. Furthermore, ITDBS provide several distinct advantages to customers on one side, and for the banking institutions on the other. Saving time, cost and human effort are major benefits to the banking institutions. Customers are benefited by way of saving their personnel time; they can attend to their banking transactions all day-every day at a lower cost. Although the benefits are significant and the banks allocate large budgets towards developing such services, Sri Lankan banking customers appear to be reluctant to use them. For example, ATM services are extensively used by banking customers in Sri Lanka where as the preliminary investigations revealed that the usage of other ITDBS are extremely poor.

It was found that only less than 1% of bank customers\(^1\) in general, use online banking, mobile banking, telephone banking and internet payment gateway. This is not the case in the developed world. Why such a lower rate of adoption of IT based banking services in Sri Lanka?

This research explores the factors behind the acceptance, rather non acceptance, of ITDBS of the customers in Sri Lankan commercial banks. Past research in the area of IT applications in banking services, especially in the west, focus on adoption or acceptance, of such services. (e.g. Pyun, et al., 2002) Internet Banking in the U.S, Japan and Europe; Gurau, C. (2002), E-banking in Transition Economies in Romania; Luarn and Lin (2005) –Toward Understanding of the Behavioural Intention to Use Mobile Banking; Shaoyi, et al. (1999) –The Adoption of Virtual Banking: an Empirical Study). However, taking into consideration the current status of ITDBS usage in Sri Lankan banks, the focus of this research is shifted to exploring the factors behind non-acceptance of such services. In particular, this study derives a model that explains factors behind reluctance of customer usage of ITDBS. These findings are useful to professionals in the banking sector, especially for developers of such information systems

\(^1\) The percentage of ITDBS users over the total number of customers in a bank
and the strategy makers, towards taking the banking services to a level commonly applicable in the developed world today.

This being an exploratory study aimed at theory building, the emphasis was on qualitative research methods including document revision, structured and unstructured in-depth interviews and panel discussions with customers and banking professionals. Over 180 customers of different commercial banks were interviewed with the help of a semi-structured questionnaire. The findings of the interview process were further revived with over 100 bank customers using a survey questionnaire. In order to examine the significance of the factors brought about by the interview findings, a card sorting exercise has been employed with over 100 customers—both users and non-users of ITDBS. Cognitive maps have been used as a tool for data analysis to arrive at patterns of customer behaviour.

This paper reports the findings of the first phase of a comprehensive research aimed at understanding of acceptance (non-acceptance) of ITDBS in Sri Lanka. Hence a parsimonious model that depicts the reluctance to ITDBS usage with two primary factors, namely, customer centric and institutional centric is presented. Customer centric factors include technology phobia, resistance to change, confidence in face to face dealings and averse to use high technology. Technology barriers and poor service quality are identified under institutional centric factors.

This paper comprises six sections including the introduction. The next section presents the literature review detailing with past research findings related to ITDBS and customer acceptance models. Section three presents objectives of the research and the section four elaborates research methodology. The section five and six deal with results and the conclusions respectively.

2.0 Literature Review

This literature review consists of mainly two parts. First section introduces the IT driven banking services. Secondly, the past literature related the research area is briefly reviewed.

2.1 IT Driven Banking Services

A general understanding of the common IT driven banking services in Sri Lanka is useful to get a good grasp of this research. IT driven banking services refer to self service technologies which provide banking services without direct involvement of service provider. Extensive use of information and communication technologies as a vehicle of meeting customer expectations, including Internet, is an integral characteristic of these services. The ITDBS
commonly promoted by Sri Lankan banks are ATM services, online banking, mobile banking, telephone banking, online shopping through internet payment gateway and E-remittance. Next section provides brief introduction to each of these services.

- **ATM Services**: ATMs may be the most popular service used by Sri Lankan bank customers. ATM provides basic banking services, all day every day. Customers can deposit or withdraw cash, transfer funds from one account to another, inquire about account balance and request for cheque books and account statement using ATM. Bank executives report that ATM services are extensively used by their customers, and over 80% of customers possess ATM cards. There are instances, may not be frequent though, where the ATM machines are not working properly either due to reasons that can be easily controlled by the banks or due to reasons beyond their control.

- **Online Banking**: This is a very useful and powerful means which leads banking industry towards development, growth. It helps to enhance the competitiveness of institutions (Kamel, S., 2005). United Nations Conference on Trade and Development (UNCTAD) describes online, also termed as e-banking, as:

  “E-banking is form of banking, where funds are transferred through an exchange of electronic signals between financial institutions, rather than the exchange of cash, checks, or other negotiable instruments. The ownership of funds and transfers of funds between financial institutions are recorded on computer systems connected by telephone lines. Customer’s identification is by access code, such as a password or personal identification number (PIN), instead of a signature on a check or other physical document. E-banking involves individual and corporate clients, and includes bank transfers, payments and settlements, documentary collections and credits, corporate and household lending, card business and some others.”

- **Telephone Banking**: This form of banking allows customers to conduct transactions through telephones, the land lines in particular. The services can be divided into two types: operator-attended and automated. In the case of operator-attended services the sophisticated inquiries made by banking customers can be handled. However, since the operating cost is high, the operator assisted services do not provide 24 hour service. Fully automated phone banking systems are available the whole day, 24 X 7.
(Shaoyi, et al., 1999). With the current developments, the telephone banking services could provide most banking services that mobile and online banking could handle.

- **Internet Payment Gateway:** This service enables customers to purchase a variety of products and also settle their bills (outside the banking establishments) using internet. Customers can make payment by credit card or debit card. This cyber shopping facility offers a wide range of conveniences at a click of a button. The wider patronage of e-commerce is dependent on the availability of a secured and trusted e-payment system. Hayashi and Klee (2003) have conducted a study relating to technology adoption and consumer payments through internet payment gateway.

- **Mobile Banking:** Mobile banking is one of the first commercial applications of the mobile commerce according to Barnes and Corbitt (2003). Mobile banking can be defined as a channel through which customers interact with a bank through a mobile device (e.g. cell phone) (Scornavacca and Barnes, 2004). It may be noted that mobile banking caters through mobile devices. Some researches consider the mobile banking as one of the most value-adding and important mobile services available to consumers (Lee, et al., 2003).

Most Sri Lankan commercial banks claim that they provide the IT driven banking services as a competitive weapon, rather as a competitive necessity. The importance placed as a development strategy, investments in terms of effort, time and money may defer from bank to bank. Furthermore, certain banks have plans to further expand their portfolio of IT driven banking services.

### 2.2 Customer Acceptance of IT Driven Services

Davis, et al. (1989) developed the Technology Acceptance Model (TAM) to explain the behaviour of acceptance of new technologies within an organization. TAM identifies two major contributory factors towards adoption of new technologies, namely, perceived ease of use and perceived usefulness. Davis’s (1989) TAM model is based on Theory of Reasoned Action (TRA) (Davis, et al., 1989) has presented that behavioural intention is the major component of usage behaviour. Technology Acceptance Model (TAM) has been used as the basis by most researchers to determine the user acceptance of technology because it
categorically identifies various factors that assume the reason for individuals to adapt technology (e.g. Lichtenstein and Williamson: Consumer Adoption of Internet Banking, 2006). TAM has also been tested in various settings to predict the acceptance of online or mobile banking (e.g. Laforet and Li, 2005; Yaghoubi and Bahmani, 2010).

Past researchers revealed that the acceptance and adoption of these different ITDBS vary. Studies on customer adoption are primarily based on Theory of reasoned action by Ajzen and Fishbein (1975) and Theory of Planned Behaviour by Ajzen, I. (1991). The next section presents the relevant literature pertaining to adoption and acceptance of ITDBS.

It has been reported that perceived usefulness and amount of information provided by online banking are the most influencing factors associated with online banking usage (Pikkarainen, et al., 2004). Moreover, past researchers on ITDBS adoption have based their research on TAM to determine factors relating to customer acceptance (e.g. Deng, et al., 2007).

Going by DeLone and McLean model of information systems success (Delone and Mclean, 2003) “information quality” and “system quality” have been identified as the most important components that determines the success of information systems. In order for measuring the overall success of an information system, “service quality” may become the most important variable (Delone and Mclean, 2003).

Likewise, past research highlights that the service quality is also a one of the key factors that determines the popularity of newly introduced services. This study also examines the influence of service quality on the customer acceptance (or non-acceptance). The acceptance factors of information technology driven banking services have been of interest to several past researchers in different parts of the world. This has been demonstrated by the fact that over 20 research studies on this area have been published in the recent past. Geographically, these research studies have examined the issues related to the acceptance of ITDBS ranging from Europe to Africa to Middle East and to Asia. Due to space limitations only two models that examine the factors behind adoption of Internet Banking and Mobile Banking are cited in this paper (Please refer two models in Figure 1 and 2).
Although the researchers in the other parts of the world have extensively studied the phenomena associated with ITDBS, there is no (or very little) research on the Sri Lankan perspective. On the other hand, it is observed that the Sri Lankan banks are making large investments toward promoting ITDBS. As indicated earlier, the usage of ITDBS in Sri Lanka is quite minimal. These factors lead to our research objectives.

3.0 Research Objectives

Focus of this research is to investigate the factors behind acceptance, rather non-acceptance, of ITDBS by Sri Lankan banking customers. In order to investigate this phenomenon, firstly this research investigated status of usage of ITDBS by the respective customers in Sri Lankan commercial banks. Having established that the usage rate is extremely low of ITDBS, the second objective of this research is developed. That is to create a model that explains the reason behind the reluctance of customers to towards acceptance of ITDBS in Sri Lanka.

The Investigations into non-acceptance factors commenced with an open mind. The service quality is taken into consideration as one factor that may have an impact on the customer acceptance/non-acceptance of ITDBS. Furthermore, past literature findings associated with Technology Acceptance Model by Davis, et al. (1989), Information System Success Model by Delone and Mclean (2003), Pikkarainen, et al. (2004) and other relevant studies have been used in the conceptualization process of this research.

The objectives of this research can be summarized as follows:

- To understand the status of usage ITDBS in Sri Lankan banks.
- To explore factors behind the customer acceptance (or non-acceptance) of ITDBS with the view to developing a model that explain this phenomena.
4.0 Methodology

Since the objectives of this research are mainly of exploratory nature and the study mainly attempts to answer “why” and “how” questions rather than “what” questions, more emphasis was given to qualitative investigations. In order to examine the status and usage of ITDBS, the first objective, published statistics on usage of such services were examined. It was noted that certain commercial banks had difficulties in divulging hard data, may be due to organization policies. In those cases the managers were interviewed using a questionnaire survey to arrive at a just estimate. Face to face discussions were held with 23 bank managers that contributes a fair representation of the thirteen commercial banks in Sri Lanka. The key questions posed to such managers were to ascertain the rate of usage different ITDBS in the banks by their customers.

In order to explore the second objective (i.e. exploring the factors influencing customer acceptance), a number of approaches were adopted. Semi structured interviews conducted with the banking professionals was the primary strategy of data collection in this respect. The visiting customers to two commercial banks were interviewed for two days. The team of researchers literally sat nearby the lobby of the selected commercial banks, and randomly approached the visiting customers. In these interviews while two members had discussions with customers, other two took notes of the interview and made observations. The stories that customers narrated were recorded. The same interview process was repeated to gather data from customers arriving at ATM machines located in number of banks in Colombo district. Altogether 181 bank customers were contacted in this process.

In order to further examine the findings of the customer interviews, a questionnaire survey was administered with 134 people attached to two selected organizations. The two organizations were Sri Lanka Institute of Information Technology and Virtusa Private Ltd. Employees and others associated with these two companies are expected to be highly IT literate.

The aim was to examine how far the IT literate community react to IT driven banking services in Sri Lanka. In order to ascertain how far the employees of commercial banks use the ITDBS, interviews were held with six employees from three banks.

A card sorting exercise was used to get an understanding of the priority of factors influencing the acceptance (non-acceptance) by bank customers. The ‘titles’ of factors identified by the interviews were printed on ten cards (of the size of playing cards), one attribute in each. In this exercise, discussions were held with 120 bank customers and they were asked to sort the cards considering the priority to factors that might be most contributory.
The reliability and validity of research findings are expected to be high, since this study adopted a multi-method approach.

5.0 Analysis and Discussion of Results

This section presents the findings of the research under three sub sections. The first section addresses the first research objective, namely the investigations aimed at ascertaining the rate of usage of ITDBS. Section 5.2 deals with the analysis of interview data and the proposed model that explains the customer reluctance to use ITDBS is discussed in sub section 3.

5.1 Status of Usage of ITDBS

Data gathered from three commercial banks with respect to usage of ITDBS are given in table 1.

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total No. of Customers</th>
<th>No. of Online Banking Users (%)</th>
<th>No. of Mobile Banking Users (%)</th>
<th>No. of Phone Banking Users (%)</th>
<th>No. of IPG Users (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4,000,000</td>
<td>19424 (0.48%)</td>
<td>16051 (0.4%)</td>
<td>10000 (0.25%)</td>
<td>4800 (0.12%)</td>
</tr>
<tr>
<td>B</td>
<td>3,000,000</td>
<td>15020 (0.5%)</td>
<td>10034 (0.33%)</td>
<td>516 (0.01%)</td>
<td>500 (0.01%)</td>
</tr>
<tr>
<td>C</td>
<td>6500,000</td>
<td>9000 (0.13%)</td>
<td>12980 (0.19%)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1: Status of Usage of ITDBS in Commercial Banks

It can be seen that the percentage usage of ITDBS in these banks are much lower than 1 %.

A sample of answers given by the managers attached to commercial banks that had difficulties in getting the usage statistics are given below:

Manager 1: “To my knowledge… although over 80% of our customers use ATM, but online banking is used only by less than 1% of our customers”

Manager 2: “More than 75% of the customers use ATM”

Manager 3: “Less than 5% use online banking and mobile banking”

Manager 4: “I can’t exactly say the statistics, but usage is very low and may be less than 6%”

The replies of almost all bank manages follow this trend. However, one manager argued that the Internet penetration in Sri Lanka\(^2\) is close to 6%, and about half of them use online

banking services. He asserts that accordingly the percentage of internet banking users is high. Even, if his argument is true, and assumes that all internet users are bank customers, the rate of usage of internet can be only about 4%. Accordingly, it can be concluded that the usage of ITDBS in Sri Lanka is extremely low.

5.2 Analysis of Interview Data
Cognitive maps have been used as a tool for data analysis and to explore customer behaviour patterns associated with reluctance to use ITDBS. The cognitive map (see figure 3). The cognitive map points to five major factors (bubbles 1 though 5), namely, customer perception, customer conduct, technological barriers, poor marketing and promotion, security concerns and poor service quality, that contribute towards customer non-acceptance of (or reluctance to use) ITDBS.
Each of these major factors is further expanded in the cognitive map in figure 3. These factors are derived on the basis of discussion outcomes as described in the research methodology section. A sample of customer responses is given in table 2.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Customer Responses</th>
</tr>
</thead>
</table>
| 2.3. Close proximity | • “Easy to visit the bank from home”  
• “I am a field coordinator. So, it is easier for me to visit the bank while travelling rather than login onto a computer.” |
| 3. Technological barriers | • “I do not have internet to do online transactions”  
• “It take a lot of time for me to understand the instructions, for as first timer; it is really difficult”  
• “Sometime, this Internet connection disappears; it is slow”  
• “Our phones do not have facilities to do mobile banking” |
| 4. Poor promotion campaigns | • “Do ………bank has telephone banking? I thought it’s only in foreign countries. …. In Sri Lanka?”  
• “Never heard of internet payment gateway” |
| 5.2. Reliability concerns | • “How can I know what has happened? Do not know whether moony has gone to the right place; even the book does not get updated”  
• “Not like taking cash into hand”; “not even a receipt” |
| 5.1 Security concerns | • “I am even sacred of using online banking; I have heard many online scams”  
• “Not enough security; I do not believe that there is a good security in these services”; “There are security problems” |

Table 2: Interview Data
This cognitive map was further influenced by the results of the card sorting exercise. Ten attributes were presented to the customers in this manner and they seem to believe that security and reliability are major problems in ITDBS. Not having access to computers, internet and other gadgets is also a key concern. Another significant fact revealed in this exercise is that most customers do not have the right awareness of such services. The information gathered in this manner is transformed onto a framework that summarises the factors behind the customer reluctance to use ITDBS (see figure 4).

5.3 The Proposed Model
The reluctance to use ITDBS has been attributed to two major factors, namely, “customer centric” and “institutional centric”, according the model derived in this research. The “customer centric factors” are further elaborated under two sub factors, namely, “customer perception” and “customer conduct”. The factors related to service quality and technology, are the key attributes of institutional centric factors.
Figure 3: Cognitive Map
Each of these sub factors is further elaborated into number of issues that contributes to customer reluctance to use ITDBS. It is observed that some of these can be controlled by the banks and others not.

Accordingly, five controllable variables and twelve odd uncontrollable variables can be identified. However, most of these uncontrollable variables, such as perceived risk, faith on manual cash tractions and averse to high technology cloud be controlled, at least to a great extent, if the banks resort to an effective marketing campaign.

The institutional centric factors can be understood in terms of technology related factors and service quality related factors. For example, the user interfaces of some of these services are complex; the online guidelines are not easily understood. Security concerns play major role in this respect and some of these are found to be real threats.

It can be seen that the factors identified in this model are very much in conformity with the findings of past research. In fact, since this research presents a model that explain the customer reluctance to use, most factors of TAM and IS success model have been reversed.

One major problem identified is that the Sri Lankan customers have not been properly informed of the availability and importance of ITDBS.

6.0 Conclusions and Suggestions for Future Research

The first conclusion is that the usage of IT driven banking services by Sri Lankan customers are extremely poor, except for ATM services. This situation has been accepted by most banking professionals. Although the banking professionals interviewed by the researchers themselves are not pleased with this situation, they appear to be contented with the status quo. Since the majority of Sri Lankans are not technology savvy the banks tend to adopt a wait and see attitude. Is this a plausible argument from the banking point of view? If so why do the banks make high investments on IT driven banking services?

Other conclusions of this research are mainly related to the proposed model that explains the reluctance to use ITDBS by Sri Lanka customers. There are number of controllable factors that can be addressed by banks themselves, if they wish to look at this problem in a customer oriented marketing perspective. Accordingly, almost all service quality related factors could be successfully handled by the IT systems developers of the banking sector. Even the technological complexity could be eased to a great extent if the system developers clearly understand the real customer profile. On the other hand, a rigorous marketing campaign could overcome most factors related to unwarranted negative customer perceptions.
This may be the first time a research on the usage of IT driven banking services derive a framework that explains the reluctance to use such services in Sri Lanka. Being a parsimonious model the next step of this research is the validation of this model using a wider population of bank customers and a similar sample of bank officials. Since research focus on individual customers, significance of the research outcome could be strengthen by extending the study to the corporate customers as well. The model could be further extended by considering factors presented by past researches such as information quality and system quality. This model can be used productively by banking professionals and by the IT experts in making improvements to exiting and developing necessary policy initiatives; to enhance the customer acceptance of ITDBS.
Figure 4: The Proposed Model
The cultural habits and perceptions also play a major role in customer decision to use IT driven banking services. The issues with overall maturity of national level IT infrastructure and poor information technology literacy also plays major role in the popularisation of IT driven banking services.

The major underlying issues for the problems associated with reluctance to use ITDBS by Sri Lankan customers are yet to be determined. This research highlights that fact that the decision makers and IT professionals in the banking sector are not adequately market oriented. Are we in Sri Lanka too early to introduce the banking services that rely on advanced technologies, or, the IT systems designers and strategy makers of Sri Lankan banking sector are not adequately market oriented?

References


