Challenges and security issues adopted by Mobile banking– An overview

Mrs. N. Vinodha

Assistant Professor,
Department of Commerce
Dr. Umayal Ramanathan College for Women, Karaikudi

Abstract:

E-banking or electronic banking is a major innovation in the field of banking. Information revolution led to the evolution of internet led to the evolution of E-commerce & E-commerce led to the evolution of E-banking. Mobile Banking is very significant today in the age of high technology. In various fields Computer Technology is playing important role. Mobile banking is a branch of the technology banking. Mobile Banking is used with the help of Computer technologies like Interactive Voice Response (IVR), Short Messaging Service (SMS), Wireless Access Protocol (WAP), Standalone Mobile Application Clients (SMAC), SIM Based Applications (SAT), Java 2 Platform, Micro Edition (JAVA/J2ME) etc. **In this paper attempt to study the challenges and security issues adopted by Mobile banking.**

Keywords:

Mobile banking, Security issues, E-banking, Technology

1.1 Introduction:

Mobile banking is one developing high dynamic technology which is used in the commercial areas. It has combined two applications: one is information technology and second is commerce applications together. Since Mobile banking was introduced, customers have been able to use it to obtain all mobile banking services whole day without having to visit the traditional bank branch for personal transactions. Mobile Banking provides various banking services depending upon the banking regulations such like Account Balance Enquiry, Account Statement Enquiry, Credit/Debit Alerts, Bill Payment Alerts, Minimum Balance Alerts, Cheque Book Requisition, Transaction history and details, Fund Transfer Facilities etc. The Mobile site of a bank is specifically designed to be easy to read and navigate on a smart phone screen. The Mobile site carries all of the same content as the online site and gives customers access to online banking functions such as viewing balances, transferring funds and paying bills. Mobile Banking gives the

various benefits to customers, bank employees and banking industries. Mobile Banking helps to reduce the cost of various transaction services providing by the banks. For the banking organizations, the banks can communicate to the defined group of customers by use of Mobile Banking. The banking industry can go ahead even at a lower cost by customized offers. Banks can easily sell their highly financial products to the specific set of customers by their selling strategies of Credit Cards, Home Loans and Personal Loans etc. The service providers can also extend their business by providing the Mobile Banking services to their clients.

1.2   Review of Literature:

Sivanand, V (2010) [1]investigated the moderating effect of gender in the adoption of mobile banking. This study seeks to test the factors that can influence adoption of mobile banking among current users of internet banking in Singapore and gender as a moderating variable. Findings of this study show that usefulness, social norms and social risk are respectively the factors that influence the intention to adopt mobile banking services the most. Ease of use has a stronger influence on female respondents than males, whereas relative advantage has a stronger effect on the perception of usefulness on male respondents. Social norms (or the importance of others in the decision) also influence adoption more strongly among female respondents than males.

Sripalawat et al. (2010)[2] the factors affecting rejection or acceptance of an emerging IT artifact such as mobile banking have piqued interest among IS researchers and remain unknown due in part to consumers' trust and risk perceptions in the wireless platform. This study extends this line of research by conjointly examining multi-dimensional trust and multi-faceted risk perceptions in the initial adoption stage of the wireless Internet platform. Results of this study indicate that risk perception, derived from eight different facets, is a salient antecedent to innovative technology acceptance. Beyond prior studies, the results also provide empirical support for employing personal trait factors in analyzing acceptance of emerging IT artifacts.

Zhou (2011)[3] investigated the effect of trust on the adoption of M-banking. He concluded that fundamental guarantee and information quality are key factors influencing the initial trust, while information quality and system quality significantly affect perceived use. He also concluded that trust affects perceived use and both factors exert influence upon the intention of use of M-banking

1.3   Objectives of the study:

The main objective of the study is to know the challenges and security issues adopted by Mobile banking.

1.4   Need for the study:

Banks through internet has emerged as a strategic resource for achieving higher efficiency. More recently in India, the mobile banking service is carried out in an efficient way to highly satisfy the customers in this sophisticated world. This study analyzes the various mobile banking services provided to its customers.

1.5 Statement of the Problem

When the mobile banking system was introduced, it was though that system would make the work easy for the banks especially that most of the transactions were to be done through mobile phones. This meant that no more lines for the customers and less cost to the public sector banks as well as increased market share for them. However, it is unbelievable that public sector banks are having a hard time to cope with the fast growing mobile banking that they initially embraced so much, which is the reason as to why the researcher has taken much interest in analyzing the opinion of customers of mobile banking on activities of public sector banks such that possible solutions could be offered to help public sector banks and to follow suit with the trend of mobile banking

1.6 Challenges with Adoption of Mobile Banking

[1] Economic Challenges: The rural population in India is spread across 600,000 villages, each with a low transaction value. Profitability can only be achieved by large volumes, requiring significant initiative from financial institutions. Unlike the very successful M-PESA of South Africa, whose model has been very successful due to the lack of alternative payments in South Africa, India does possess some infrastructure in the forms of postal payments, reasonable transport and local governments. Therefore, any mobile banking must be inexpensive enough to be attractive for the end-customer over existing methods.

[2] Regulatory Challenges: Although the RBI is supportive of mobile banking in India, there are many regulations that are being put into place:

    i)   **Restricted to Financial Institutions:** The guidelines state that only existing financial institutions and banks are allowed to offer mobile banking. Although the guidelines cover Microfinance Institutions (MFIs), significant economies of

scale cannot be achieved by these due to existing large fixed costs. For a very inexpensive solution, it would have been more effective to allow non-profit organizations or evangelical organizations to build their own MFI without being encumbered by large existing infrastructure.

ii) **Rupee Transactions:** All transactions must be done only in India's national currency, the rupee. While this may not be a threat in the beginning, this may pose a constraint for interoperability between Indian mobile payments and the world. Also, it excludes providers from the lucrative remittance market in India and limits areas from which mobile operators can be profitable.

iii) **Existing Account Holders:** The guidelines also state that only those having a valid bank account would be allowed mobile banking. This limits the full potential of mobile banking to extend micro-credit and bring banking to the large number of unbanked customers in India.

[3] Demographic Challenges: India has 18 official languages which are spoken across the country. The state governments also are dictated to correspond in their regional language for official purposes. Additionally, two-thirds of the population in India is illiterate, creating difficulties in deployment of mobile banking solutions. For a pan-Indian mobile banking solution, this will be cumbersome to overcome.

1.7 Security Issues in Mobile Banking:

Mobile banking has two zones, one is the handset held by the user and the other is the bank zone. Literature shows that possibility of security threat exists for transaction of payment using mobile device.

Mobile banking and Security issues with WAP (Wireless Application Protocol)

WAP is used for communication between devices like digital mobile phones, internet, PDA etc. Through WAP customer can realize more functionality of internet banking. Encryption process is currently used for secure data transmission between bank and users but the problem is that this encryption process is not good enough for the protection of sensitive data between bank and customer. The reason is that security methods require more powerful computing and high storage capacity. If we take internet banking it is realized that there are powerful computer systems and well defined complex encryption process to ensure the security. Mobile device have low computational capacity and hence we are unable to apply complex cryptographic system.

Due to advancement in technology, it is now necessary to provide end-to-end security. It means that if user uses his/her mobile device for mobile banking then the data transacted are secure at the bank end and not at the user end, thus leaving the data vulnerable to attacks. It was noted that it is difficult to provide end to end security through WAP. The reason is that the data is not encrypted at gateway during the switching of protocol process, which leads to security concern for mobile banking in WAP.

In China, mobile communication group introduced the ―China Mobile Communication and Information Re s our c e s s t a t i on entities a n d Internet short Message G a t e way Inter face Protocol. It was noted that security is the susceptibility in WAP and that it is safe for the information to be delivered from the gateway to end user but due to accessibility of information for short time on gateway it may be possible for the attacker to access the information

It is identified that users are not usually satisfied from mobile commerce over WAP. The reason is that, problems occur for reasons like low speed, unreliable connection, and high cost. A research on adaption of WAP services especially for mobile commerce market is in progress in countries like Hong Kong, China, Taiwan i.e. China economic region.

In South Africa, there are two technologies used for mobile banking namely WAP and WIG (Wireless Internet Gateway).

WIG is a short message service. For South Africa, security and cost are the most important issues in providing the service.

Security threads for mobile banking

Risks identification related to Mobile banking	
Security issues	Mobile banking and security issues with Wireless Application protocol(WAP)
	Password for identification
	Password for identification third party enrollment in mobile banking application
	SMS based mobile banking

Authentication Risks and Issues

One of the authentication method used in mobile banking is the login method. However PINS authentication method is an old method and many security issues such as

password and id theft were discovered in this method. In such cases, the secret may be revealed and this results in customer's distrust on the security service company. Bank follows some security mechanisms in mobile banking. While the customers and the banks are bound to each other. This security mechanism is done by identifying the customer's phone number, SIM card number, pin number etc. Customer likes to use the mobile banking technology because of its mobility as they can access the bank anywhere and in any situation. They can transfer their money from one account to another account faster in a user-friendly environment. And also they can check the current status of their account. But all customers of the bank are not ready to use this service because of some security issues. They are not ready to adopt the mobile banking systems as it brings inconvenience to the users assuming that it cannot prevent direct or indirect attacks.

The security mechanism adopted by the banks face many security issues like being attacked by unauthorized users which is of highest priority in terms of security. If the device gets stolen then the hackers or unauthorized persons may find the password from the log files or saved draft files. Many customers save their password in their mobile or they may keep the password under auto fill settings of the form, this loophole can be easily used by the unauthorized person. Uneducated people are less aware of these issues and thus leading to loss of trust by customers.

Authentication Model:

There are two types of services provided to the customer which are as follows:

i.   The bank provides the service directly to the customer

ii.   Banks share their facility to 3 rd party service provider.

1.8 Conclusion:

The Mobile Payment Forum of India (MPFI) has been formed with Institute for Development and Research in Banking Technology (IDRBT) and Rural Technology Business Incubator (RTBI), IIT Madras taking the lead role. It has members and representatives from the telecommunications industry, financial institutions (banks and microfinance institutions) as well members from the Reserve Bank of India. Three sub-committees have been formed – on technology, on business models and on regulatory issues. The first meeting of MPFI was held in Hyderabad on the 15th of September 2007. The subcommittees are expected to go over their particular concerns in depth and submit a report shortly. Lots of challenges are to be overcome for a successful implementation of

mobile payments to be widely accepted as a mode of payment. Businesses, merchants and consumers have to come forward and make value-producing investments. A regulatory framework and widely accepted standards will be the pillars on which mobile payment applications will be built. Research so far has outlined a diversity of thinking and innovation that exists in the m- payments arena. Numerous solutions have been tried and failed but the future is promising with potential new technology innovations.

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