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Mobile Banking Adoption among the Metropolitan Community: An Overview

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Abstract: *Technology has become an increasingly vigorous element in the competitive landscape of the financial services industry. Recent revolutions in telecommunications have enabled the launch of new access methods for banking services; one of these is mobile banking; whereby a customer interacts with a bank via mobile phone. In service use, mobile phones are no longer used as they have typically been used before. Talking and text messaging (SMS) will persist, but extensive service use is likely to grow. Mobile Bank is a service provided by the bank that enables the user to receive information on the accounts and make monetary payments based on orders sent via mobile phone and SMS. It allows its customers to receive information on: account balances of the customer; transactions on the customer's accounts and currency exchange rates. The opportunity to use advanced technologies in service delivery have created challenges to developers of financial services; competitive advantage can be gained in form of costs reduction or customer satisfaction increase or lost investing in wrong technologies. In order to upswing to the challenges, service providers are even more interested to enhance their understanding of consumer behavior patterns. This paper attempts to study the mobile banking overview, its issues and challenges.*

1. INTRODUCTION

Today, the mobile banking is based on dedicated services offered by the telecommunication operators. Some systems are using SMS messages exchange but others involve smartcards that store the details of the accounts that are used. The security of these transactions is one of the most complicated challenges that need to be addressed [1]. The service can be requested anytime by a user located anywhere. Customers do not need to go to the bank office and also there is no need to access a computer having an Internet connection in order to perform the banking transactions. Other applications of mobile banking are connected with different financial services like online brokers, online banks, wealth managers, stock trading and so on. Of course, the mobile banking has some limitations. Customers cannot access accounts that are not assigned with their smartcards and they cannot pay at the supermarket by using the phone, for example. The number of user accessing the mobile banking is growing faster from one year to another. The use of the 3G mobile networks will generate the development of more sophisticated services involving multimedia [1,9]. In the last years, the banks invested a lot of money to develop Internet banking systems. Now, they need to adapt to the market and to offer to the users mobile banking solutions in the shortest possible time. By creating applications that are able to join online banking with EFT ones, the mobile banking will become very attractive for big retailers (like hypermarkets and

supermarkets) because they will not need to invest so much money in the infrastructure (wires, cables, dedicated lines and so on). The customers will be able to pay by the credit cards using mobile devices (PDAs) located at the payment points and connected with a dedicated bank server by using the Internet [1]. All the requests by this type will be processed by specialized bank servers. If the expansion of the mobile banking will grow faster, the banks will have huge problems in processing the incoming requests generated by the mobile systems. The dedicated servers will need to complete very fast a huge number of the transactions but in a secure manner. In order to achieve very good response times, the servers could dispatch the transactions in the bank Intranet by implementing a grid network of workstations [1]. The use of a grid network is an economical and convenient solution because it is based on existing resources (computers located in the Intranet of the bank) that are not 100% used during the day. Their idle times could be used to process bank transactions generated by the mobile devices [9]. Once a transaction is processed by a workstation, an answer is sent back to the server and the mobile device will receive a message containing the result of the transaction processing. Also, the parallel processing of the transactions will guarantee very quick and accurate responses even if the number of concurrent requests has a very large value. This is why grid processing can definitively contribute to the expansion of the mobile banking [1]. The future of mobile banking could be

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represented by applications that support mobile, Internet banking and *EFT (Electronic Funds Transfer)* transactions in a single user interface. In such a way, the mobile banking will be able to cover all the types of applications demanded at the market level. The *EFT*

transactions are basically performed by using a dedicated device that is able to read a bank card. The user enters the *PIN* code by using a secured *PINPAD*. The *EFT* terminals are permanently connected to the bank by using dedicated wired phone lines [1].

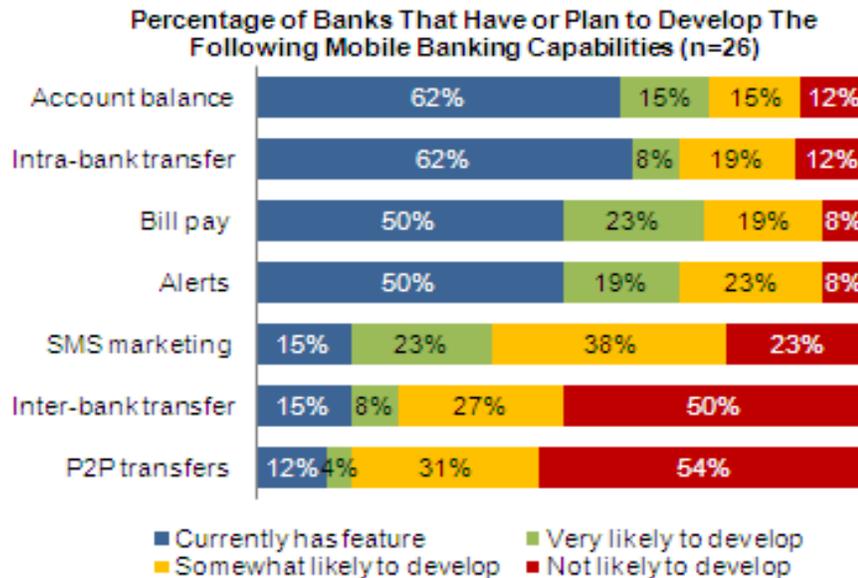


Figure 1: Mobile Banking Deployment among Large Banks [2]

When Aite Group surveyed large banks and credit unions in late 2009/early 2010 about their mobile banking deployments and plans, we found that more than six in 10 large banks had implemented some level of mobile banking capability (Figure 1). Among credit unions, six in 10 had not yet offered mobile banking to their members (Figure 2) [2].

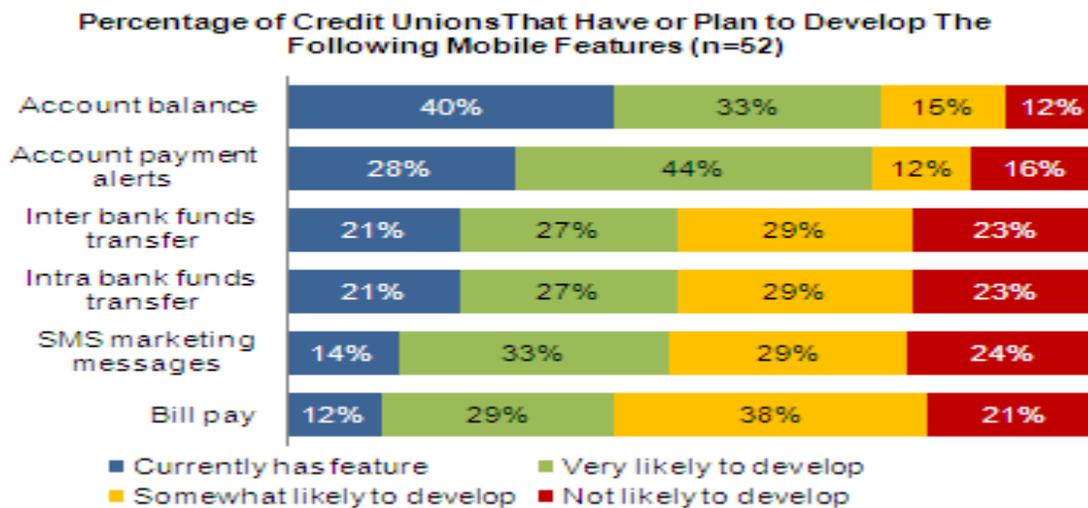


Figure 2: Mobile Banking Deployment among Credit Unions [2]

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2. RELATED WORKS

Dr. Hossien Rezaeidolatabadiet. Al [3] states that With the convergence of banking services and mobile technologies, users are able to conduct banking services at any place and at any time through mobile banking (Gu, Lee and Suh, 2009). The term "Mobile Banking" refers to application of cell phone as a channel to provide and deliver the bank services which include both traditional services such as cash transferring and new services such as online or electronic payments. Mobile Banking services got a growing trend ahead so that economic experts predict that by 2013, 300 billion transactions worth over 860 billion dollars will be done through mobile banking (Rogers, 1983). The current exploratory study is an attempt to investigate the factors that influence Isfahanian' intention to adopt mobile banking by extending the renowned framework of Technology Acceptance Model (TAM) by additionally examining the effects of compatibility, trust and perceived risk on behavioral intention. A self-administrated questionnaire had been developed and distributed in Isfahan city. Out of 400 questionnaires that have been distributed, 315 are returned (78.0%). Of these, five responses had to be discarded due to invalid or incomplete data entries. Thus the sample comprising of a total of 310 respondents was used for analysis. The data was analyzed by AMOS software. In the survey, factors that may affect Isfahanian mobile phone users' to adopt mobile banking services were examined. Factors such as perceived usefulness (PU), perceived ease of use (PEOU) and compatibility were found positively related with the intention to adopt mobile banking services. Compatibility not only had a strong direct effect but was also identified as an important antecedent for perceived ease of use and perceived usefulness. However, trust was the only factor found insignificant. As expected, perceived risk (PR) was negatively associated with the mobile banking adoption. The research findings provide several important implications for banks, service developers, and software engineer with better strategic insights to design and implement mobile banking services to yield higher consumer acceptance towards mobile banking in Isfahan city.

Vlad Miranda-Petronella [4] states that E-banking is the first of those banking services that really economize time, because it allows to the user to accomplish frombehind the computer many operations in the bank account, represents the computational solution that allows to the holder tohave access at distance at the capitals from his account, purposing to obtain information about his account situation and thesituation of the effected operations, of the payment and of the capitals transfers over a beneficiary, by a computationalapplication, of a authentication method

and of a communicational average, the e-banking is absolutely necessary in theintegration conditions.

Felician ALECU[1] states that The future of mobile banking will be represented by such applications that support mobile, Internet banking and EFT (Electronic Funds Transfer) transactions in a single user interface. In such a way, the mobile banking will be able to cover all the types of applications demanded at the market level. The parallel processing of credit card bank transactions could be performed with the help of a grid network. Excluding some limitations, the grid processing offers huge opportunities to exploit the parallelism. For this reason, a lot of applications of waiting queues in grid processing were developed in the last years. Grid networks represent a distinctive and very modern field of the parallel and distributed processing.

Faisal Iddris [6] states that the purpose of this research is to investigate the perceived barriers to adoption of mobile banking among consumers, and to assess whether the usage of M-Banking is constraint on the basis of different demographic characteristics such as age, income level, mobile phone usage "experience" and marital status. Data were collected using convenient sampling via self-administered questionnaire in a large university in the Ashanti region of Ghana. A total of usable 189 responses were collected from non-users of mobile banking and retained for analysis using SPSS version 16. The main reasons for rejecting M-Banking were explored using simple descriptive analysis, while chi-square tests were used to assess differences between socio-demographic variables and the rejection factors. The result indicates that majority of respondents do not use any kind of mobile banking service. The four main reasons for rejecting M-Banking were: M-banking requires knowledge and learning; M-banking attracts additional banking charges; poor telecommunication network; consumer preference for traditional means of banking instead of mobile enabled banking services. The practical implications of this research is the revealing of the main barriers to Mobile banking adoption and suggesting of appropriate marketing strategies to overcome the obstacles to mobile banking adoption.

Dr. Asmahan Altaher [7] states that Mobile commerce supports automated banking services. However, the implementation of m-commerce services systems has become increasingly important in today's dynamic banking environment. This research studied the relationships between technology acceptance model and m- commerce services. The results of the survey on 249 respondents in several Jordan banks revealed that technology acceptance model had a significant impact on m-commerce services. The results led to the recommendation that the technology acceptance model

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is a success model for support using new services for electronic commerce. In addition, managers play a significant role in influencing the mobile services in banks through social interaction. Managers should focus on relative advantage, usefulness, and ease of use, in order to develop the mobile commerce services implementation.

Samaneh Barati [8] states that during the last ten years technological development has reshaped the banking industry, which has become one of the leading sectors in utilizing new technology on consumer markets. Today, mobile communication technologies offer vast additional value for consumers' banking transactions due to their always-on functionality and the option to access banks anytime and anywhere. Various alternative approaches have used in analyzing customer's acceptance of new technologies. In this paper, factors affect acceptance of Mobile Banking are explored and presented as a New Model.

3. M-BANKING BUSINESS MODELS

Business models for the M-banking classified into three categories namely [5].

1. *Virtual Banking Model*

Under the virtual banking model, the customers to purchase goods and services through their own mobile instruments and payment are debited into the mobile prepaid card. Customers also used their balance as per virtual currency, whereby users can purchase; this model suffers from legal weakness that in India.

2. *Bank on Mobile Model*

Under the Bank on mobile model, MSP (Mobile Service Provide) enter into business with a bank to offer m-banking services to the customer. Customers used these types of banking services through getting password and PIN confirmed as per MSP and Bank security infrastructure. Bank provide Software installation to the customers, user operate their account through this software easily [5].

3. *Alternative Banking Model*

Under this model, customers can use their own mobile instruments for banking activities; it is easy to use just get internet connection into the mobile and customers' needs to register his mobile number, mobile instruments with the bank. The mobile operator role in this service is limited.

4. *M-Banking issues*

New techniques bring with it some legal issues, if these issues are resolved effectively then technology can prove big boom for that located area. M-banking, covering most of areas like urban, rural, semi urban, semi-rural and metro city etc., M-banking, wide spread over the country so its scope became large, M-

banking services is transparent so user can easily check her or his status regularly.

5. *Security Mechanism*

The Mobile GSM network has some security mechanism to prevent activities like SIM cloning and stop illegally used handsets.

4. GSM AUTHENTICATION CENTER

The GSM authentication center is used to authenticate each SIM card that attempts to connect to the GSM network. The SIM card authentication takes place when a mobile station initially attempts to connect to the network.

5. AUTHENTICATION PROCEDURE

The authentication of the SIM depends on a shared secret key between SIM card and the AUC called Ki. This secret key is embedded into the SIM card during manufacture and it is also securely replicated into the AUC. The mobile returns the International Mobile Equipment Identity number; this number is forwarded to the EIR (Equipment Identity Register). The EIR authorizes the subscriber and responds back to the SIM with the status, if the mobile is authorized the SGSN informs the HLR and PDP Context activation begins [5].

6. STRATEGIES FOR M-BANKING BECAME MORE POPULAR

M-Banking is fast growing sector in India, so it is a necessary that more people aware for Mobile related banking services.

1. Bank should provide system architecture to the customer, how the M-banking works.
2. Bank should provide demo version of services.
3. Bank should convince to customer of service identified.
4. Bank should provide account operation booklet.
5. Bank should provide 24x7 customer care help service.
6. Bank should provide accurate trainee staff for customer help.
7. Bank try to provide banking facilities in almost rural area because most of Indian population resides in rural area.

7. RBI GUIDELINES FOR OPERATIVE ACCOUNT

RBI issued operative guidelines under section 18 of the Payment and Settlement System Act., 2007 in October 2008 and they have been modified in December 2009, which permit banks to provide mobile banking

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transactions. The guidelines also permit banks to extend this facility through their business correspondents. Complaints arising out of mobile banking facility are also covered under the Banking Ombudsman Scheme of RBI. The mobile banking guidelines were further relaxed in May, 2011 to permit mobile banking transactions without end to end encryption up to Rs. 5000/- and in December, 2011 to remove the transaction limit of Rs. 50,000/- per customer per day 10.

The brief summary of these guidelines are given below:-

1. Only such banks which are licensed and supervised in India have a permitted to offer mobile payments services to residents of India.
2. The services should be restricted for KYC/AML compliant. Bank should provide this service based on Indian rupees.
3. M-banking user customer can followed time to time KYC/AML guidelines issued by the RBI.
4. Banks should offer mobile banking service to their own customers.
5. Banks should have a system of registration before commencing mobile based payment service to a customer.
6. There can be two levels of mobile based banking service –The first or basic level in the nature of information like balance enquiry, SMS alert, balance status of last five transactions and other account related information.
7. The second level in the nature of financial transactions such as payments, transfers and stop payments.

8. TRAI ISSUES NEW GUIDELINES FOR MOBILE BANKING

The Telecom Regulatory Authority of India (TRAI) has issued new guidelines for mobile phone banking to make banking through mobile phones faster and safer. Under the Mobile Banking Regulations Act., 2012, the telecom operators will have to give banks and customers option to use SMSes, Interactive Voice Response (IVR) and unstructured supplementary services data (USSD) for transactions. The regulator also wants service providers to facilitate the bank to use WAP or SIM Application Tool Kit. The TRAI notes that the operators have already been using these platforms therefore they do not need to make additional investments. The TRAI says its new regulations will ensure mobile operators offer good services to banks that launch mobile banking services. “Mobile banking consists of banking transactions and the use of mobile networks for communicating through mobile phones by the customer for such transactions. The entire transaction depends on the capability of the

mobile network to deliver a fast, reliable and cost-effective method of communication,” the regulatory body said. As per new guidelines, the response time for delivery of message during mobile banking generated by either customer or the bank will be within the stipulated time frame of up to 10 seconds for SMS, IVR, WAP and STK and up to 2 seconds for USSD. The regulator has also directed that transactions such as cash deposit, cash with drawl, money transfer and balance enquiry should be completed in not more than two stages.

9. MOBILE DENSITY

Mobile densities described are as under as per TRAI and CAGR reports [5, 11]:-

1. Cell phone tell density is still very low in India at around 6%, In comparison to China's cell phone density is at around 35%.
2. In the past two years, the number of people using mobiles has increased three times
3. Indian cellular services market is projected to reach \$24 billion by the end of 2009, a CAGR (Controller auditor general report) of 35.6%, comparison to Japan region in 2004 with a CAGR of 67%.
4. As on April 30, 2012, there were 921.02 million mobile subscribers in India, according to data provided by the TRAI. Fixed Phone users already lag behind by 31.89 million.
5. Mobile Number Portability requests increased from 41.88 million subscribers at the end of March 2012 to 45.89 million at the end of April 2012.
6. Active wireless subscribers on the date of Peak VLR in April 2012 are 686.58 Million, 74.55% of the total subscribers.
7. Broadband subscription reached 13.95 Million in April 2012 from 13.79 Million in March 2012.

10. CUSTOMER SERVICES

The customer protection issues assume a special significance in view of the fact that the delivery of banking services through mobile phones is relatively new. Some of the key issues in this regard and the legal aspects pertaining to them are given below:-

1. Bank must identify their customer related with integrity and reputation of the perspective customers.
2. Bank must identify the mandatory disclosure of risks, the disclosure template indicates in banks website with printed material.
3. Banks may consider covering the risks arising out of fraudulent transactions through appropriate insurance scheme
4. The jurisdiction area of legal settlement would be within India.

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11. CONCLUSIONS

By making a comparative analysis, on concrete situations, we can note that the problems opened by e-banking, are: - the risk of fraudulent attacks; - comfort in using the application; - the customers' option behind the multitude of e-banking applications and the criteria that lie at the bedrock of the choice of one application; - the commissions and the taxes that banks perceive for these applications; - the diversity of the operations offered by the application; - the rapidity in the information transfer from the payer over the bank; - the transfer rapidity between the banks; - the rapidity to actualize the information after having finished the transfers; - correction possibility in the case of the introduction of some incorrect information or some possible mistakes; - the compatibility with financial-bookkeeping systems, those that belong to the banks and also those that belong to the companies; - the way in which this kind of operations answer or fold on the customers' needs.

Consequently, we consider these problems resolution supposes first of all a marketing study on the banking market and a comparative analysis of the banking offers, so that the decision for one version can be the best and folds on the beneficiary demands.

Starting by the e-banking definition, given by the ORDER no. 389 from 27 June 2007, as a payment instrument with access at distance, represents the computational solution that allows to the holder to have access at distance at the capitals from his account, purposing to obtain information about his account situation and the situation of the effected operations, of the payment and of the capitals transfers over a beneficiary, by a computational application,

of a authentication method and of a communicational average, the e-banking is absolutely necessary in the integration conditions. The analysis of the computational commerce indicates us an ascending evolution from the view point of the clients, but also from the view point of market transactions until October 2009, date after which, because of the economical crisis, the situation will change: the value volume on the first trimester of 2009 diminish in comparison with the same period of the year 2008, but the transactions number in the same period grows up. We consider these problems resolution supposes first of all a marketing study on the banking market and a comparative analysis of the banking offers, so that the decision for one version can be the best and folds on the beneficiary demands.

REFERENCES

- [1] Felician ALECU, "Applications of Parallel Processing in Mobile Banking", *Revista Informatica Economica*, nr. 3 (43)/2007.
- [2] Ron Shevlin, Gwenn Bezar, Judith Fishman, "The Impact of Mobile Banking: A Case for Mobile Marketing" April 2011.
- [3] Dr. Hossien Rezaeidolatabadi, Nastaran Kabiry, Mohammad Hossein Forghani, "Factors Affecting Isfahanian Mobile Banking Adoption Based on the Technology Acceptance Model", *International Journal of Academic Research in Business and Social Sciences* May 2013, Vol. 3, No. 5
- [4] Vlad Miranda-Petronella E-BANKING-MODERN BANKING SERVICES "Dimitrie Cantemir" Christian University Bucharest Faculty of Economic Sciences of Cluj-Napoca
- [5] Sunil Lohiya, "Mobile banking Trends" *Golden Research Thoughts* Volume 2, Issue. 2, Aug 2012.
- [6] Faisal Iddris, "Barriers to Adoption of Mobile banking: Evidence from Ghana" *International Journal of Academic Research in Business and Social Sciences*, Vol. 3, No. 7 July 2013.
- [7] Dr. Asmahan Altaher, "M-Commerce service systems implementation" (IJACSA) *International Journal of Advanced Computer Science and Applications*, Vol. 3, No. 8, 2012
- [8] Samaneh Barati, Shahriar Mohammadi, "An Efficient Model to Improve Customer Acceptance of Mobile Banking" *Proceedings of the World Congress on Engineering and Computer Science 2009 Vol II WCECS 2009*, October 20-22, 2009, San Francisco, USA.
- [9] Alawneh, A., and Hattab, E. (2008b). "E-business Value Creation Jordanian Banking Services Industry: An Empirical Analysis of Key Factors". *International Arab Conference on e-technology*. Arab Open University, Amman-Jordan. October 15-10, 2010.
- [10] http://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=1365
- [11] trafai.gov.in/WriteReadData/WhatsNew/Documents/mobile17042012.pdf
- [12] [http://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=1365 annexure-III](http://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=1365%20annexure-III)
- [13] http://www.trafai.gov.in/NewsDetails.aspx?NEW_ACT_ID=683&pg=0