" Current Trends in Mobile Banking Research Issues"

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Abstract:

Banking sector plays vital role in modern business. The advancements in the field of Electrical, Electronic and Computer Science Engineering has resulted in drastic changes including look and feel to customers of Bank. At one side technology is providing various banking facilities at finger tips using mobiles. But another side it has several research dimensions for providing effective, accurate and quality of banking services. This paper focus on the current trends in mobile banking research issues.

Keywords:

Network, Password, Security, Service, Transactions.

1. INTRODUCTION:

The spread of mobile phones across the developing world is one of the most remarkable technology stories of the past decade. Buoyed by prepay cards and inexpensive handsets, hundreds of millions of first-time telephone owners have made voice calls and text messages part of their daily lives. However, many of these same new mobile users live in informal and/or cash economies, without access to financial services that others take for granted. Indeed, across the developing world, there are probably more people with mobile handsets than with bank accounts Various initiatives use mobile phones to provide financial services to "the unbanked." These services take a variety of forms—including long-distance remittances, micropayments, and informal airtime bartering schemes—and go by various names, including mobile banking, mobile transfers, and mobile payments. Taken together, they are no longer merely pilots; in the Philippines, South Africa, Kenya, and elsewhere, these services are broadly available and increasingly popular. Scholarly research on the adoption and socioeconomic impacts of m-banking/m payments systems in the developing world is scarce Even less attention has been paid to the social, economic, and cultural contexts surrounding the use of these systems.

The m-banking case adds new wrinkles to broader discussions about technology and development, and about mobiles in society. M-Banking and M-Payments Systems in the Developing World.

The terms m-banking, m-payments, m-transfers, m-payments, and m-finance refer collectively to a set of applications that enable people to use their mobile telephones to manipulate their bank accounts, store value in an account linked to their handsets, transfer funds, or even access credit or insurance products.

Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct a range of financial transactions remotely using a mobile device such as a mobile phone or tablet, and using software, usually called an app, provided by the financial institution for the purpose. Mobile banking is usually available on a 24-hour basis. Some financial institutions have restrictions on which accounts may be accessed through mobile banking, as well as a limit on the amount that can be transacted.

The types of financial transactions which a customer may transact through mobile banking include obtaining account balances and list of latest transactions, electronic bill payments, and funds transfers between a customer's or another's accounts. Some also enable copies of statements to be downloaded and sometimes printed at the customer's premises; and some banks charge a fee for mailing hardcopies of bank statements.

From the bank's point of view, mobile banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch for non-cash withdrawal and deposit transactions. Transactions involving cash aren't handled using mobile banking, and a customer needs to visit an ATM or bank branch for cash withdrawals or deposits. Many apps now have a mobile cheque deposit option; using the device's camera to digitally transmit cheques to their financial institution.

2. LITERATURE REVIEW:

The earliest mobile banking services used SMS, a service known as SMS banking. With the introduction of smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers.[2]

Mobile banking before 2010 was most often performed via SMS or the mobile web. Apple's initial success with iPhone and the rapid growth of phones based on Google's Android (operating system) have led to increasing use of special mobile apps, downloaded to the mobile device. With that said, advancements in web technologies such as HTML5, CSS3 and JavaScript have seen more banks launching mobile web based services to complement native applications. A recent study (May 2012) by Mapa Research suggests that over a third of banks[3] have mobile device detection upon visiting the banks' main website. A number of things can happen on mobile detection such as redirecting to an app store, redirection to a mobile banking specific website or providing a menu of mobile banking options for the user to choose from.

This is a list of countries by mobile banking usage as measured by the percentage of people who had non-SMS mobile banking transactions in the previous three months. The data is sourced from Bain, Research Now and Bain along with GMI NPS surveys in 2012.[9][10]

Rank	Country/Territory	Usage in 2012
1	South Korea	47%
2	China	42%
3	Hong Kong	41%
4	Singapore	38%
5	India	37%
6	Spain	34%
7	United States	32%
8	Mexico	30%
9	Australia	27%
10	France	26%
11	United Kingdom	26%
12	Thailand	24%
13	Canada	22%
14	Germany	14

African nations such as Kenya would rank highly if SMS mobile banking were included in the above list. Kenya has 38% of the population as subscribers to M-Pesa as of 2011.[11]

Mobile banking is used in many parts of the world with little or no infrastructure, especially remote and rural areas. This aspect of mobile commerce is also popular in countries where most of their population is unbanked. In most of these places, banks can only be found in big cities, and customers have to travel hundreds of miles to the nearest bank.

In Iran, banks such as Parsian, Tejarat, Pasargad Bank, Mellat, Saderat, Sepah, Edbi, and Bankmelli offer the service. Banco Industrial provides the service in Guatemala. Citizens of Mexico can access mobile banking with Omnilife, Bancomer and MPower Venture. Kenya's Safaricom (part of the Vodafone Group) has the M-Pesa Service, which is mainly used to transfer limited amounts of money, but increasingly used to pay utility bills as well. In 2009, Zain launched their own mobile money transfer business, known as ZAP, in Kenya and other African countries. Several other players in Kenya such as Tangerine, MobiKash and Funtrench Limited also have network-independent

mobile money transfer. In Somalia, the many telecom companies provide mobile banking, the most prominent being Hormuud Telecom and its ZAAD service.

In a year of 2010, mobile banking users soared over 100 percent in Kenya, China, Brazil and United States with 200 percent, 150 percent, 110 percent and 100 percent respectively.

Dutch Bangla Bank launched the very first mobile banking service in Bangladesh on 31 March 2011. This service is launched with 'Agent' and 'Network' support from mobile operators, Banglalink and Citycell. Sybase 365, a subsidiary of Sybase, Inc. has provided software solution with their local partner Neurosoft Technologies Ltd. There are around 160 million people in Bangladesh, of which, only 13 per cent have bank accounts. With this solution, Dutch-Bangla Bank can now reach out to the rural and unbanked population, of which, 45 per cent are mobile phone users. Under the service, any mobile handset with subscription to any of the six existing mobile operators of Bangladesh would be able to utilize the service. Under the mobile banking services, bank-nominated 'Agents' perform banking activities on behalf of the banks, like opening mobile banking account, providing cash services (receipts and payments) and dealing with small credits. Cash withdrawal from a mobile account can also be done from an ATM validating each transaction by 'mobile phone & PIN' instead of 'card & PIN'. Other services that are being delivered through mobile banking system are person-to-person (e.g. fund transfer), person-to-business (e.g. merchant payment, utility bill payment), business-to-person (e.g. salary/commission disbursement), government-to-person (disbursement of government allowance) transactions.

In May 2012, Laxmi Bank Limited launched the very first mobile banking in Nepal with its product Mobile Khata. Mobile Khata currently runs on a third-party platform called Hello Paisa that is interoperable with all the telecoms in Nepal viz. Nepal Telecom, NCell, Smart Tel and UTL, and is also interoperable with various banks in the country. The initial joining members to the platform after Laxmi Bank Limited were Siddartha Bank, Bank of Kathmandu, Commerz and Trust Bank Nepal and International Leasing and Finance Company.Barclays offers a service called Barclays Pingit, and Hello Money offering services in Africa, allowing transfer of money from the United Kingdom to many parts of the world with a mobile phone. Pingit is owned by a consortium of banks. In April 2014, the UK Payments Council launched the Paym mobile payment system, allowing mobile payments between customers of several banks .

3. METHODOLOGY :

In model,[4] mobile banking is defined as:

Mobile Banking refers to provision and availment of banking- and financial services with the help of mobile telecommunication devices.The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information."

According to this model mobile banking can be said to consist of three inter-related concepts:

➞ Mobile accounting

➞ Mobile brokerage

➞ Mobile financial information services

Most services in the categories designated accounting and brokerage are transaction-based. The non-transaction-based services of an informational nature are however essential for conducting transactions - for instance, balance inquiries might be needed before committing a money remittance. The accounting and brokerage services are therefore offered invariably in combination with information services. Information services, on the other hand, may be offered as an independent module.Mobile banking may also be used to help in business situations as well as financial

4. RESEARCH DIMENSIONS OF MOBILE BANKING:

Research Dimensions in developing a sophisticated mobile banking application are :

4.1 Handset accessability

There are a large number of different mobile phone devices and it is a big challenge for banks to offer a mobile banking solution on any type of device. Some of these devices support Java ME and others support SIM Application Toolkit, a WAP browser, or only SMS.

4.2 Interoperability:

Initial interoperability issues however have been localized, with countries like India using portals like "R-World" to enable the limitations of low end java based phones, while focus on areas such as South Africa have defaulted a basis of communication achievable with any phone.

The desire for interoperability is largely dependent on the banks themselves, where installed applications(Java based or native) provide better security, are easier to use and allow development of more complex capabilities similar to those of internet banking while SMS can provide the basics but becomes difficult to operate with more complex transactions.

There is a myth that there is a challenge of interoperability between mobile banking applications due to perceived lack of common technology standards for mobile banking. In practice it is too early in the service lifecycle for interoperability to be addressed within an individual country, as very few countries have more than one mobile banking service provider. In practice, banking interfaces are well defined and money movements between banks follow the IS0-8583 standard. As mobile banking

matures, money movements between service providers will naturally adopt the same standards as in the banking world.

On January 2009, Mobile Marketing Association (MMA) Banking Sub-Committee, chaired by CellTrust and VeriSign Inc., published the Mobile Banking Overview for financial institutions in which it discussed the advantages and disadvantages of Mobile Channel Platforms such as Short Message Services (SMS), Mobile Web, Mobile Client Applications, SMS with Mobile Web and Secure SMS.[7]

As with most internet-connected devices, as well as mobile-telephony devices, cybercrime rates are escalating year-on-year. The types of cybercrimes which may affect mobile-banking might range from unauthorized use while the owner is using the toilet, to remote-hacking, or even jamming or interference via the internet or telephone network datastreams. In the banking world, currency rates may change by the millisecond.

4.3 Security:

Security of financial transactions, being executed from some remote location and transmission of financial information over the air, are the most complicated challenges that need to be addressed jointly by mobile application developers, wireless network service providers and the banks' IT departments.

The following aspects need to be addressed to offer a secure infrastructure for financial transaction over wireless network :

Physical part of the hand-held device. If the bank is offering smart-card based security, the physical security of the device is more important.

Security of any thick-client application running on the device. In case the device is stolen, the hacker should require at least an ID/Password to access the application.

Authentication of the device with service provider before initiating a transaction. This would ensure that unauthorized devices are not connected to perform financial transactions.

User ID / Password authentication of bank's customer.

Encryption of the data being transmitted over the air.

Encryption of the data that will be stored in device for later / off-line analysis by the customer.

One-time password (OTPs) are the latest tool used by financial and banking service providers in the fight against cyber fraud.[8] Instead of relying on traditional memorized passwords, OTPs are requested by consumers each time they want to perform transactions using the online or mobile banking interface. When the request is received the password is sent to the consumer's

4.4 Scalability and reliability**:**

Another challenge for the CIOs and CTOs of the banks is to scale-up the mobile banking infrastructure to handle exponential growth of the customer base. With mobile banking, the customer may be sitting in any part of the world (true anytime, anywhere banking) and hence banks need to ensure that the systems are up and running in a true 24 x 7 fashion. As customers will find mobile banking more and more useful, their expectations from the solution will increase. Banks unable to meet the performance and reliability expectations may lose customer confidence. There are systems such as Mobile Transaction Platform which allow quick and secure mobile enabling of various banking services. Recently in India there has been a phenomenal growth in the use of Mobile Banking applications, with leading banks adopting Mobile Transaction Platform and the Central Bank publishing guidelines for mobile banking operations.

4.5 Application distribution

Due to the nature of the connectivity between bank and its customers, it would be impractical to expect customers to regularly visit banks or connect to a web site for regular upgrade of their mobile banking application. It will be expected that the mobile application itself check the upgrades and updates and download necessary patches (so called "Over The Air" updates). However, there could be many issues to implement this approach such as upgrade / synchronization of other dependent components.

4.6 User adoption

It should be noted that studies have shown that a huge concerning factor of having mobil banking more widely used, is a banking customer's unwillingness to adapt. Many consumers, whether they are misinformed or not, do not want to begin using mobile banking for several reasons. These can include the learning curve associated with new technology, having fears about possible security compromises, just simply not wanting to start using technology, etc.

4.7 Personalization

It would be expected from the mobile application to support personalization such as :

Preferred Language

Date / Time format

Amount format

Default transactions

Standard Beneficiary list

Alerts

4.8 Modern Technology effects:

It has to cope up with various latest technology effects including following:

Multimedia [9]

Nanotechnology[15]

Neural Network[16]

Computing [11]

Software Engineering [12]

Robotics

Dataflow supercomputer [10]

Embedded systems [13]

Advanced Network Security[17]

Cloud computing [14]

Online trading [18]

5. CONCLUSIONS:

With the advent of technology and increasing use of smartphone and tablet based devices, the use of Mobile Banking functionality would enable customer connect across entire customer life cycle much comprehensively than before. With this scenario, current mobile banking objectives of say building relationships, reducing cost, achieving new revenue stream will transform to enable new objectives targeting higher level goals such as building brand of the banking organization. Emerging technology and functionalities would enable to create new ways of lead generation, prospecting as well as developing deep customer relationship and mobile banking world would achieve superior customer experience with bi-directional communications.

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