

POSSIBILITIES AND CHALLENGES OF MOBILE BANKING: A CASE STUDY IN BANGLADESH

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Abstract- Mobile Financial Services (MFS) is an approach to offering financial services that combines banking with mobile wireless networks which enables for users to execute banking transaction. It is new term in Bangladesh and getting popularity rapidly. Most people of Bangladesh live in rural areas and almost every family use at least one mobile phone. So, mobile phone is an important device to provide service to them. Almost all banks are trying to provide financial service to maximum people through mobile phone and it's becoming familiar as mobile banking. Already several banks have implemented their mobile banking successfully. In this document, we have described the present condition of mobile banking in Bangladesh and technical architecture of mobile banking. We also showed prospects and limitations of mobile banking in Bangladesh.

Keywords: MFS, wireless network, mobile users, Bangladesh

I. INTRODUCTION

Mobile Banking (MB) is a mobile financial service through mobile phone. It refers to the use of a mobile phone or other cellular device to perform banking tasks while away from home computer, such as monitoring account balances, transferring funds between accounts, bill payment and locating an ATM. Keeping affiliation with the global technological changes, the banking sector of this country has been undergoing a remarkable change during the last couple of years. Reference [2] is finding prospects and problems of mobile banking using survey system. Electronic banking is the most luminous example of such change. Internet banking (earlier forms of e- banking) made the banking service easy for the customer and Mobile Banking (latest form of E- Banking) made it easier than before. Online banking acceptance in China is conducted by an experiment [3] that is affected by the perceived ease of use of website and the privacy policy provided by the online banking website. Banking services are no more confined to the bank, but in the hand of the people. Mobile banking is the way that made it possible to bring mass population under the banking services and reach the banking facilities at the doorstep of the people. Mobile banking is possible with simple mobile phone device and is available in both the developed and developing countries. Mobile banking has already availed the global acceptance due to its availability.

Bangladesh Bank [1] defines the Mobile financial Services as –“Mobile Financial Services (MFS) is an approach to offering financial services that combines banking with mobile wireless networks which enables for user to execute banking transactions. This means the ability to make deposits, withdraw, and to send or receive funds from a mobile

account. Often these services are enabled by the use of bank agents that allow mobile account holders to transact an independent agent location outside of bank branches. MFS is still new in Bangladesh and this paper aims to capture its early development and learn lessons.

- To study the technical and business model of mobile banking in Bangladesh
- To identify prospect of mobile banking in Bangladesh
- To detect problems of mobile banking in Bangladesh
- To compare services through mobile banking of different banks.
- To make suggestions on the basis of findings

II. BACKGROUNDS

There are 160 million people in Bangladesh at the time, of which, 87% didn't have a bank account and most are living in rural areas [1]. This represented a huge untapped market for commercial banks. However, establishing bank branches across rural Bangladesh is not an option because of the costs and of regulatory constraints as the central bank only grants new branch opening licenses for a maximum of 15 branches in a year.

According to market research conducted by Dutch-Bangla Bank Limited (DBBL)^[2] before it started its mobile banking initiative, just 13 percent of the 160 million people in Bangladesh had bank accounts. Yet within the unbanked 87 percent, which is more than 139 million people, 50 percent have mobile phones. Mobile operator agents are widely distributed, the devices themselves are affordable and service coverage is constantly expanding. Similar numbers are common in developing nations all over the world for the same reasons, which is why the

opportunity for banks to bring basic financial services to the unbanked via the mobile channel is so big. In mid-2011, DBBL launched a solution for customers to manage money with their mobile phones, depositing and withdrawing funds as well as conducting other financial transactions. In addition to making banking more convenient and accessible for customers, the mobile channel provides a low-cost methodology for DBBL.

“BRAC Bank Limited” is introduced mobile banking that is enabled millions of banked and unbanked people to deposit, withdraw and transfer money through mobile phones. bKash, a joint venture between BRAC Bank and US-based money in Motion, will provide mobile banking with a fully encrypted VISA technology platform for transactions through mobile phones. Any mobile user can register and open up a bKash account and then do transactions through their mobile phones in easy, convenient and reliable way.

Study on mobile banking for Indian consumer conducted by [4]. Technology has been increasingly employed in customer service quality and deliveries, reduces costs, and standardizes core service offerings [5], [6]. One of the first commercial applications of the mobile commerce was mobile banking (m-banking) [7], [8]. Mobile Banking has been gaining increasing popularity amongst various sections of the society for past few years [9]. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information [10]. Mobile business (m-business) is defined as the use of the mobile information technologies, including the wireless Internet, for organizational communication and coordination, and the management of the firm [11]. SMS Banking is a Mobile technology that allows you to request and receive banking information from your bank on your mobile phone via Short message service (SMS) [12]. Rapid technology advancements have introduced major changes in the worldwide economic and business atmosphere [13]. The adoption of electronic banking forces consumers to consider concerns about password integrity, privacy, data encryption, hacking, and the protection of personal information [14]. Consumers who use e-banking use it on an on-going basis and need to acquire a certain comfort level with the technology to keep using it [15]. The service-quality attributes that the Internet banks must offer to induce consumers to switch to online transactions and keep using them are perceived usefulness, ease of use, reliability, responsiveness, security, and continuous improvement [16]. Factors such as the speed of transactions or the cost of using the Internet have little impact on an individual’s final decision [17]. According to a study by WAP, GPRS and 3G features from mobile devices are of no significance or influence in the adoption of e-banking services [18].

There is some amount of research that looks specifically at mobile phone user interfaces for low-literacy users. Much of this work makes design recommendations - voice feedback, speech interfaces [19], fewer menus and dedicated buttons [20], which make sense for low-literate users. There is a fair amount of literature beginning to emerge in m-banking user experiences in the developing world. One study notes that since physically wrapping digital money is difficult, gift-giving rituals may not translate to mobile money transfers [21].

III. METHODOLOGY

Methodology is a system of broad principle or rule from which specific methods or procedures may be derived to interpret or solve different problems within the scope of a particular discipline. Methodology is not a formula but set of practices. The study was conducted to identify the problems and prospects of mobile banking in Bangladesh. Necessary data were collected from different ages of people and analyzed in terms of the objectives set for the study. This study was based on field level data. There are several methods of collecting this basic information. The data for this study were collected by the survey method. Survey is a research technique in which information is gathered from a sample of people by use of a questionnaire or interview. The word “survey” refers to a method of study in which an overall picture of a given universe is obtained by systematic collection of all available data on the subject.

It is a method of data collection based on communication with a representative sample of individuals. The main reasons why the survey method is preferred to cost:

- Survey through sacrificing a certain details, enables quick investigation of a large number case.
- Survey entails much less cost
- Surveys provide quick, less expensive, and efficient

Moreover, we have collected data from bank’s websites and leaflets; we also collected data from technical personnel of different banks.

A. Current Situation of Mobile Banking in Bangladesh

Currently total ten banks in Bangladesh are licensed to provide mobile bank. Up to July, 2012 [1], eight banks have already launched their mobile financial services. Mobile Accounts opened is 442269, Appointed Agents is 9093 and total value of transactions is BDT 2.007 billion.

The banks already deployed their MFS are:

1. Dutch Bangla-Bank Ltd.
2. BRAC Bank Ltd./bKash
3. Prime Bank Ltd.

4. Trust Bank Ltd.
5. One Bank Ltd.
6. Islami Bank Bangladesh Ltd (mCash).
7. Marchentile Bank Ltd (mPay).
8. Bangladesh Post Office (e-Pay).

banking with a lot of services such as customer registration, cash deposit, cash withdrawal, merchant payment, utility payment, salary disbursement, foreign remittance, air-time top-up, fund transfer (Person to Person, Business to Person, Person to Business, Government to Person, Person to Government), balance enquiry etc.

Other banks are going to lunch their mobile financial services very soon. They are offering mobile

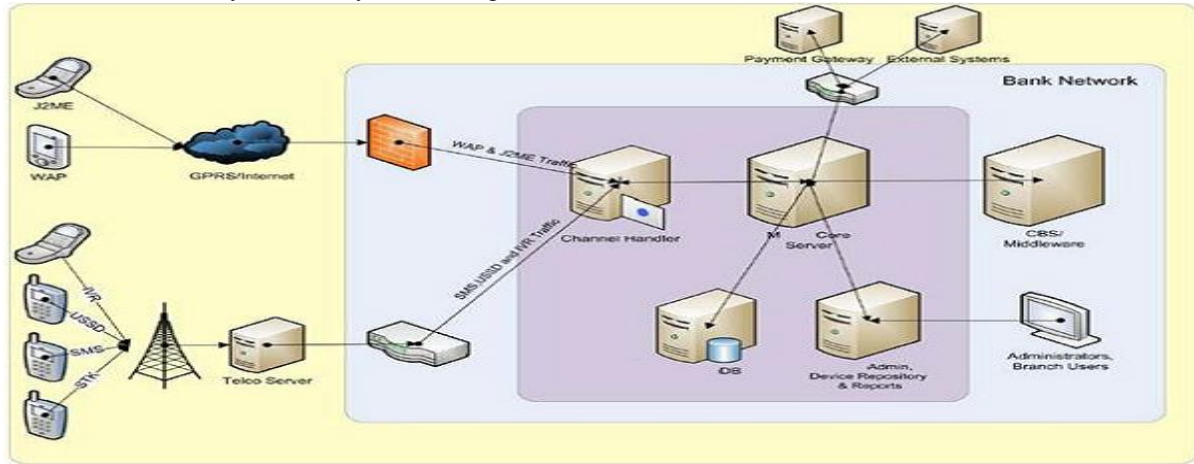


Figure 1 Network Architecture of mobile banking

Figure 1 and 2 are shown the networking architecture and operational model for mobile banking.

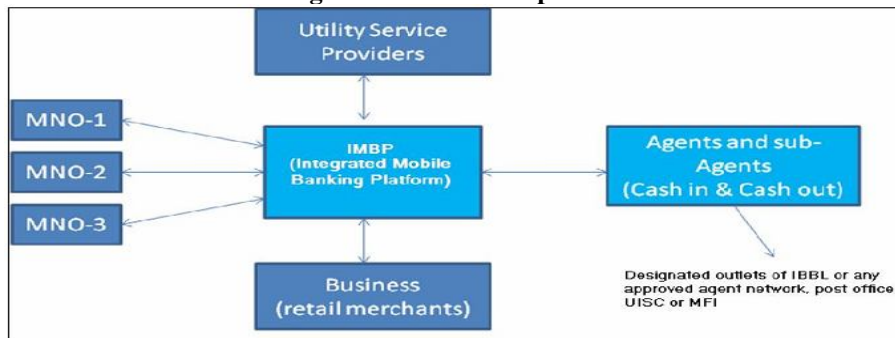


Figure 2 Operational Model of Mobile Banking

B. Transaction Limits for Different Services

There may be scarcity of cash at agent points. We want to serve as many customers as possible from each agent points.

On the other hand, it is required to minimize fraudulent loss, if any. Therefore, a transaction limit in terms of frequency and amount should be set as proposed below:

TABLE I TRANSACTION LIMIT FOR DIFFERENT SERVICES

Transaction		Cash In			Cash Out			Fund Transfer		
Type	Sub-type	DBBL	BKash	IBBL	DBBL	BKash	IBBL	DBBL	BKash	IBBL
Amount per Transaction	Minimum	N/M*	50	50	N/M	50.00	50	N/M	10.00	10
	Maximum	5,000	125,000	25,000	5,000	125,000	25,000	5,000.00	10,000	5,000
Daily limit (Maximum)	Frequency	5	N/M	5	5	N/M	5	N/M	N/M	10
	Amount	25,000	125,000	25,000	25,000	125,000	25,000	10,000.00	10,000	50,000
Monthly limit (Maximum)	Frequency	20	N/M	30	20	N/M	15	N/M	N/M	100
	Amount	25,000	250,000	300,000	25,000	250,000	150,000	25,000.00	25,000	100,000

*N/M-Not Mentioned.

(All amounts are in BDT)

TABLE II CHARGE COMPARISON

Service type	DBBL	BKash (of Brac Bank)	IBBL (proposed charges)																		
Registration Fee	Free	Free	Free for customer. Agent will get a commission from IBBL @Tk.5 per Account opened.																		
Cash-in	1% of the transaction amount or Tk.5/-, whichever is higher	Free	Free for customer. Agents will get commission from IBBL as per transaction slabs given below: <table border="1"> <thead> <tr> <th>From (Tk)</th> <th>To (Tk)</th> <th>Charges (Tk)</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>1000</td> <td>1.00</td> </tr> <tr> <td>1001</td> <td>5000</td> <td>2.00</td> </tr> <tr> <td>5001</td> <td>10000</td> <td>4.00</td> </tr> <tr> <td>10001</td> <td>15000</td> <td>8.00</td> </tr> <tr> <td>15001</td> <td>up to 25000</td> <td>10.00</td> </tr> </tbody> </table>	From (Tk)	To (Tk)	Charges (Tk)	50	1000	1.00	1001	5000	2.00	5001	10000	4.00	10001	15000	8.00	15001	up to 25000	10.00
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Cash-out	2% of the transaction amount or Tk.10/-, whichever is higher.	Slab based; starting from Tk.5.00 for 100TK to Tk.135.00 for 10,500TK. For bigger amount, charge is 1.25% of the amount.	<table border="1"> <thead> <tr> <th>From (Taka)</th> <th>To (Taka)</th> <th>Charges (Taka)</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>150</td> <td>4.00</td> </tr> <tr> <td>151</td> <td>500</td> <td>8.00</td> </tr> <tr> <td>501</td> <td>1000</td> <td>12.00</td> </tr> <tr> <td>1001</td> <td>10000</td> <td>@10.00/thousand</td> </tr> <tr> <td>Over 10000 up to 25000</td> <td></td> <td>1% of the amount</td> </tr> </tbody> </table>	From (Taka)	To (Taka)	Charges (Taka)	50	150	4.00	151	500	8.00	501	1000	12.00	1001	10000	@10.00/thousand	Over 10000 up to 25000		1% of the amount
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Fund Transfer (P2P)	Free	Tk. 2.00/Transaction	Tk. 2.00/Transaction																		
Merchant Payment (P2B)	Free for customer	Free	Free for customer. Merchant will pay 0.5% or Tk.5 whichever is higher as commission.																		
Mobile Top-up (P2B)	Free for customer	Not mentioned.	Free for customer. Telco will provide Commission as per agreement.																		
Salary Disbursement (B2P)	Free	Not mentioned.	Free for customer. Corporate house will provide commission as per agreement.																		
Allowance Disbursement (G2P)	Free	Not mentioned.	Free for customer. Government may provide commission as per rate, if any.																		
Remittance Disbursement	Free	Not mentioned.	Free for customer. IBBL will provide the Telco and agent charge.																		
Tax, levy payments (P2G)	Not mentioned.	Not mentioned.	As per Govt. set charges, if any																		

IV. CHALLENGES

There are some challenges in developing sophisticated mobile banking are:

- Handset operability

There are a large number of different mobile phone devices and it is a big challenge for banks to offer mobile banking solution on any type of device. Some of these devices support Java ME and others support SIM application tool kits.

- Security

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

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 can offer for more secure transactions over air.

- If the device is stolen, the hacker should require at least an ID/Password to access the application.
- 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 off-line analysis by the customer.

One-time passwords (OTP) are the latest tool used by financial and banking service providers in the fight against cyber fraud. Instead of relying on traditional memorized passwords, OTP 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 phone via SMS or hardware tool. The password is expired once it has been used or once its scheduled life-cycle has expired.

- 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.

V. CURRENT LIMITATION OF MOBILE BANKING

- Mobile Banking offers non checking limited purpose account only.
- Most people have not enough idea about mobile banking yet.
- The customer who has already an account with the bank, he needs addition account for mobile banking.
- The customer who has the convention and mobile bank account both, he cannot access the conventional account through mobile account.
- Mobile banking is being used for fund transfer mainly. Customer does not keep deposit for long duration.
- Mobile banking has no various deposit schemes as of conventional banking yet.
- Mobile banking has no investment/loan schemes yet.
- The data is transferring through a third party cellular network, so there is a security thread.
- Mobile bank has not interbank fund transfer facility yet.

CONCLUSION

Mobile banking has become really popular owing to the convenience that it gives its customers. You can access your account, pay bills, and make cash transfers through cell phone banking. It offers many benefits over internet banking and banking in person. With the wide range of mobile connectivity, mobile banking through cell phone can be accessed by anyone. In Bangladesh, all the banks should start to follow the concept of mobile banking besides, existing financial services which will help us in making our lives easier.

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