

“Effectiveness of E-Banking in Bangladesh”

By
Shanita Rahman
ID: 161-25-514

This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Computer Science and Engineering- M.Sc. in CSE

Supervisor
Dr. Syed Akhter Hossain
Professor and Head
Department of Computer Science and Engineering
Daffodil International University



Daffodil International University

DHAKA, BANGLADESH
MAY -2018

APPROVAL

This Project/Internship titled “**Effectiveness of E-Banking in Bangladesh**”, submitted by *Shanita Rahman* to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of M.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 07th May 2018.

BOARD OF EXAMINERS



Dr. Syed Akhter Hossain
Professor and Head

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Chairman



Dr. Sheak Rashed Haider Noori
Associate Professor and Associate Head
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Md. Zahid Hasan
Assistant Professor & Coordinator of MIS
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Dr. Mohammad Shorif Uddin
Professor
Department of Computer Science and Engineering
Jahangirnagar University

External Examiner

DECLARATION

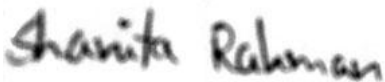
I hereby declare that, this report has been done under the supervision of **Dr. Syed AkhterHossain** Professor and Head Department of Computer Science and Engineering Daffodil International University. I also declare that this report has not been submitted elsewhere for any kind of Degree, Diploma or Publication.

Supervised by:



Dr. Syed AkhterHossain
Professor and Head
Department of Computer Science and Engineering
Daffodil International University

Submitted by:



ShanitaRahman
ID: 161-25-514
Department of Computer Science and Engineering
Daffodil International University

ACKNOWLEDGEMENT

At the very beginning I would like to express my deepest gratitude to the almighty **ALLAH** for giving me the strength and the composure to finish my report on “**Effectiveness of E-Banking in Bangladesh**” .

I would like to pay my gratitude to my supervising teacher **Dr. Syed Akhter Hossain, PhD, Professor and Head**, Department of Computer Science and Engineering (CSE), Daffodil International University, Dhaka, who has instructed me in the right way and given me proper guidelines for preparing this report.

I am very much obliged to my parents and my brother for their love, care and unconditional Support. Moreover I am very much grateful to all my friends for helping me in every feature.

So, again I want to express my admiration to all of them.

ABSTRACT

Technology has brought a revolution in our conventional banking system. Now it is an era of electronic banking. Electronic banking is the banking activities performed through the electronic means, i.e., using telecommunications network, web technology, computers, cellular phones and other electronic devices.

With the expansion of global Information and Communication Technology (ICT) infrastructure and the internet, e-banking is set to play a pivotal role in the national economy, proper software, infrastructure, cyber law and skilled manpower are important for the implementation of e-banking in the country.

Bangladesh is in the elementary stage of E-banking where the developed countries are in the stage of 'Virtual banks' (No man Banks) that have no physical offices in the traditional sense. Internet can be seen as a truly global phenomenon that has made time and distance irrelevant to many transactions. This paper presents the performance, problems and prospects of E-banking in Bangladesh.

TABLE OF CONTENTS

Content	PAGE
Approval	
Board of examiner	
Declaration.....	I
Acknowledgment	II
Abstract.....	III
List of Contents.....	IV-V
List of Tables.....	VI
List of Figures.....	VI
Chapter 1: Introduction	[1-3]
1.1 Introduction.....	1
1.2 Rationale of the Study.....	2
1.3 Expected Output.....	2
1.4 Report Layout.....	3
Chapter 2: Background	[4-6]
2.1 Introduction.....	4
2.2 Literature Review	4
2.3 Research Questions	5
2.4 Scope of the Study.....	6
2.5 Challenges.....	6

Chapter 3: Research Methodology	[7-13]
3.1 Introduction	7
3.2 Data Collection Procedure	7
3.3 Analysis	
3.3.1 Growth of Branch Automation in Bangladesh.....	8
3.3.2 Access of Computer (PC) and E-mail ID.....	8
3.3.3 Core Banking Software (CBS)	9
3.3.4 Development and Use of Application Software.....	10
3.3.5 Growth of Mobile Banking	11
3.3.6 Progress of Internet Banking.....	13
Chapter 4: Results and Discussion	[14-18]
4.1 Introduction.....	14
4.2 Finding of the Research	
4.2.1 Effective electronic banking system.....	15
4.2.2 Positives of mobile banking system.....	15
4.2.3 Problem with current Mobile BankingSystem.....	16
4.2.4 Proposed model for mobile banking system.....	17
Chapter 5: Summary and Conclusion	[19-20]
5.1 Summary of the Research.....	19
5.2 Conclusions.....	20
References.....	21

List of Tables

Content	PAGE
Computerization of Bank Branches by Categories.....	8
Access of Computer (PC) and E-mail ID.....	9
MobileBankingGrowth.....	12
Recent status of Mobile Banking Growth.....	12

List of Figures

Content	PAGE
Trends of CBS adoption in our banking sector.....	10
Types of Application Software Used by Banks.....	11
Transaction volume of Internet Banking.....	13
Transaction via Mobile.....	14
Problems with current Mobile Banking.....	16
Common Account banking Model.....	17

Chapter 1

Introduction

1.1 Introduction

“E- Banking” refers to systems that enable bank customers to Access accounts and general information of bank products and services through a Personal computer (PC) or other intelligent devices. *E-banking can provide speedier, faster and reliable services to the customers for which they are relatively happy.* At present, it is a subject of widespread interest in Bangladesh.

Electronic commerce and Electronic business have increasingly become an important component of business strategy in recent times and puts a strong impact in overall economic development. Our country Bangladesh is a developing country now, but we could not reach to the expected level in global banking system. So we have to push hard to upgrade our banking system.

E-banking is now a global phenomenon. It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness. Technological innovations have been identified to contribute to the distribution channels of banks and these electronic delivery channels are collectively referred to as electronic banking. The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine (ATM), Mobile-banking, Tele-banking, PC-banking and most recently internet banking. The developed country as a part and parcel of their economy is now using electronic banking or online banking.

Growth of Electronic banking in a country depends on many factors, such as success of internet access, new online banking features, household growth of internet usage, legal and

regulatory framework. E-banking can offer speedier, quicker and dependable services to the customers for which they may be relatively satisfied than that of manual system of banking. E-banking system not only generates latest viable return, it can get its better dealings with customers.

1.2 Rationale of the Study

A strong banking industry is an important in every country and can have a significant affect in supporting economic development through efficient financial services. But there have been several major challenges and issues faced to the e-banking growth and the e-business in general. Electronic banking is a technology that depends on Internet. It is relatively new method in our banking industry. Many people of Bangladesh are relatively unaware of E-banking, Because of the low level internet use experience and the digital divide among people. We also can say that, in spite of growth of Information technology around the world, our banks do most of their banking transactions using traditional methods. It is an important research to find out the causes why we could not fully implement e-banking in the country like Bangladesh. This matter will be addressed in this research. The objective of the report is to look at the benefits, growth, and acceptance of Electronic banking in Bangladesh. This report also intended to determine economic prospects of e-banking and try to explain the present scenario of banking sectors in Bangladesh and beside these it will try to find out most effective electronic banking system among many. This paper also tries to find out an idea to improve that banking system to bring most of the people of Bangladesh under proper banking facilities.

1.3 Expected Output

Information and communication technology (ICT) has become the heart of the banking sector, while banking industry is the heart of every robust economy. ICT helps the banking sector improve the efficiency and effectiveness of services offered to customers, and enhances business processes, managerial decision making, and workgroup collaborations,

which strengthens their competitive positions in rapidly changing and emerging economies. An effort has been made in this paper to analyze the trends of ICT adoption in developing e-banking products and how much effective these products are in our Banking industry. This paper also tries to find out the challenges with regard to ensuring reliable services in our banking industry in recent times.

1.4 Report Layout

I will divide the main report into three parts. In the first section, I will try to analyze the overall e-banking situation of our country. In the second part, I will try to find out the benefits and problems and prospects of e-banking in Bangladesh. And finally I will try to give some recommendation.

Chapter 2

Background

2.1 Introduction

The researches have defined the e-banking system in many ways. The main reason for that the banks provides banking services to their customers in so many ways and the bank customers can request for this banking services through computer or cellular phone.

The electronic banking system is a electronic relation between the bank and customer, which organizes and manages financial transactions. In the E-banking system there is no existence of negotiable instruments like check or cash. Here the funds are transferred via electronic signal among the financial institutions. These kinds of trisections are recorded in computer systems which are connected through the internet. In this modern system we do not need any signature of customers on the check or other physical document. We can identify the customers through Personal Identification Number (PIN) or passwords. Individual or corporate clients everybody can be served through E-banking system. Every types of transaction whether it is payment, transfer or settlement, is possible in E-banking system.

2.2 Literature Review

Nowadays banking has become very important for our society. it is possible to handle most bank transactions from a remote location Because of the progress of communication and information technology and the availability of the Internet. The customers need not to enter into a physical financial structure. The banking system is developing and the banks with new technology are improving customer service. By their improved service it brings their customers closer to the bank. The banking industry is trying to increase the number of customer. It is looking for new strategies to stop the non-traditional banking institutions from

aggressive marketing efforts of. Small banks have higher initial costs and usually have a high initial technological cost in the development of electronic banking services. On the other hand Large banks that maintain expensive branch networks generally have the biggest incentive to accept electronic banking services. Most of the banks now realized that there is a huge number of customers who wants to do banking electronically. The electronic banking system is an effective way to reduce operational costs for financial institutions. we can see that electronic banking services can reduce the cost of physical structures through banks. It has been proven that electronic banking more convenient for customers .It also help banks to reduce costs, increase revenues. Another important advantage of electronic banking is a more effective collection and management of information. A combination of a low percentage of customers who constantly use electronic banking services and a relatively low initial cost in the development of electronic banking services in the banking sector will release the impact of electronic banking (positive or negative) in financial institutions. On the other hand, there may be excessive demand and interest of e-banking in the rapid growth related areas like travel and electronic banking services and securities broking. The development of electronic banking services has facilitated the introduction of a decentralized approach. the banks focus on to distribute internet access to a much larger number of employees and potential customers.

2.3 Research Questions

The main questions on which we will focus in this report are-

- i) What is the present status of e-banking service in Bangladesh?
- ii) What types of E-banking products and services are available in the banking sector of Bangladesh?
- iii) How much positive impact those systems can put our banking sector?
- iv) What is the level of performance of e-banking activities of commercial banks in Bangladesh?
- v) Is the E-banking service able to satisfy the customers of Bangladesh?
- vi) What are the Challenges we have to face to establish E-banking in Bangladesh?

- vii) the light of above question I will try to find out most effective electronic banking system among many the E-banking Services and find out an idea to improve that banking system to bring most of the people of our country under proper banking facilities.

2.4 Scope of the study

The main purposes of this study are-

- To shed light on the concept of e-banking.
- To know the adoption of e-banking in Bangladesh context.
- To examine the present status of existing e-banking in Bangladesh.
- To know the performance of e-banking activities of commercial banks in Bangladesh.
- To find out the problems in e-banking activities to satisfy the customers in Bangladesh.
- To provide some recommendation.

2.5 Challenges

Banks are not interested in disclosing their trade secrets. In addition, magazines, magazines and published data are not available in this topic. Respondents questioned adopted convenience sampling as an alternative to random sampling, in some phases when respondents were inaccessible or unavailable. It turned out that bank employees were too busy and hesitated to speak without the proper written permission of the competent authority. Moreover, they did not reveal a lot of information / data when collecting data because of the secret nature of the organization.

.

Chapter 3

Research Methodology

3.1 Introduction

Based on the research goals, both primary and secondary data were collected. The survey was conducted primarily on the basis of primary and secondary data sources or information. The first is an exploratory survey based on secondary data obtained through the web, books and related journals. Secondly, a questionnaire was made for empirical assessment of the degree of adoption of e-banking in Bangladesh, including various publications: (i) Bangladesh Bank Management (ii) Banking in Bangladesh (iii) Paper International and Local Publications (iv) Various seminars papers (v) Information from the Internet and newspapers.

3.2 Data Collection Procedure

Primary data sources

Primary data has been collected from Dhaka based some selected banks e.g. Janata bank Ltd., Brac bank Ltd. These banks are considered as the one of the Largest State Owned Commercial banks and Private Commercial Bank of Bangladesh. Primary data collections are done by the interviewing method with proper questionnaire.

Secondary data sources

Secondary data has been collected from different publication material and web site as well as the books and material from different libraries, the hand note of the various seminar and research related to the issue are taken into account that includes the Journals of BIBM,

Bangladesh Bank Reports, Different Articles of Newspapers. The secondary data have been also collected from research material of the following sources; Janata Bank Ltd- Products and Software and Different commercial Banks Websites.

3.3 Statistical Analysis

3.3.1 Growth of Branch Automation in Bangladesh:

Despite the fact that the SCBs are large in terms of shares in assets and number of branches, they could cover only around 71.16 per cent of their branches under computerization by 2012 while the PCBs and FCBs brought 100 per cent of their branches respectively under computerization. But at the end of 2013, 96.49 percent branches of SCBs are computerized, showing a tremendous growth. The following table (Table-1) shows computerization status of bank branches during 1998-2013 in Bangladesh. We see that, total computerization of bank branches for all banks in 2013 increased slightly due to computerization of govt. banks compared to 2012

Table-1: Computerization of Bank Branches by Categories, 2008-2013 (In %)

	2008	2009	2010	2011	2012	2013
SCB	21.7	23.59	40.15	64.92	71.16	96.49
PCB	99.0	99.01	99.11	99.15	100	100
FCB	100	100	100	100	100	100
Total	37.5	47.49	55.22	69.17	76.21	88.32

Source: BIBM Survey information (2008-2013) [3]

3.3.2 Access of Computer (PC) and E-mail ID

Number of computers and official E-mail account per hundred employees are two important parameters to understand the automation status of a bank. In this regard, the following table gives us an idea and comparison between 2012 and 2013. The penetration of PC and official

E-mail ID are now at a good situation and gradually increasing. This will enhance the productivity and efficiency of the bank employees.

Table-2: Access of Computer (PC) and E-mail ID, 2012 – 2013

	2012			2013		
	Minimum	Maximum	Average	Minimum	Maximum	Average
No. of Computers per hundred employees	25	100	78	30	100	83
No. of Official E-mail ID per hundred employees	12	100	65	15	100	72

Source: BIBM Survey Information, 2014 [10]

3.3.3 Core Banking Software (CBS)

Online banking operation is mainly run by Core Banking Software. Efficient CBS plays the key role for the smooth operation of an online bank. In 2011, 45% banks were using foreign CBS and 32% local CBS. Only 20% banks developed their CBS by their own experts and 3% banks used joint-venture CBS (Figure-3.1). In 2012, we see that 49% and 28% banks used foreign and local CBS, respectively. But in 2013, the use of foreign software also increased slightly and stood at 53% of total CBS. Clearly, the use of foreign software has been increasing over the period 2011-2013 defeating the local software market. This figure shows that banks have been losing their confidence on local CBS. As compared to foreign CBS, quality and reliability of local CBS is not increasing. Local vendors should give more emphasis on it to take competitive advantages.

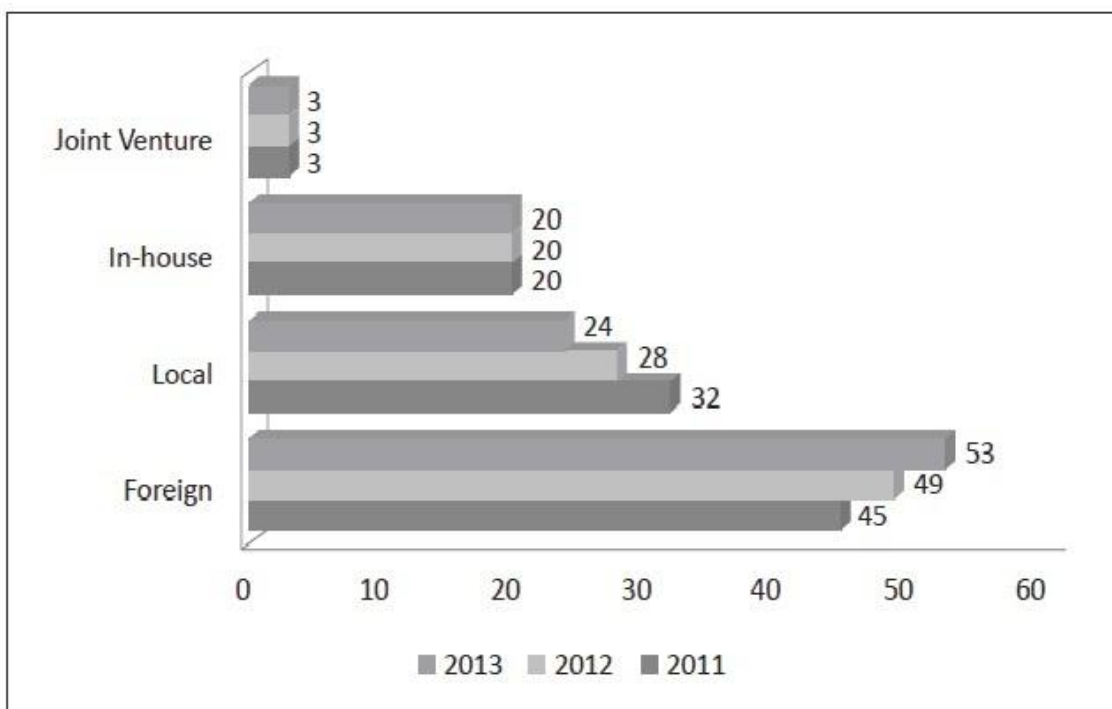


Figure-3.1: Trends of CBS adoption in our banking sector (In %)

3.3.4 Development and Use of Application Software

Other than CBS, banks use a large number of application software for their day to day operations. An effective use of sufficient application software in banks enhances the efficiency of office automation services. With the increasing proportion of knowledge workers in business enterprises, there is an increasing concern for improving the work environment. The productivity of knowledge workers can be improved by providing secretarial help and better communication facilities. This can be achieved with the help of the automation of office systems. It is seen that, on an average 23, minimum 6 and

maximum 80 application softwares are being used in the banks. Among the software, 55% are developed by the banks themselves, 22% are local and rest of the 23% are foreign software (Figure-3.2). It is a good sign that most of the softwares have been developed by the banks in-house personnel.

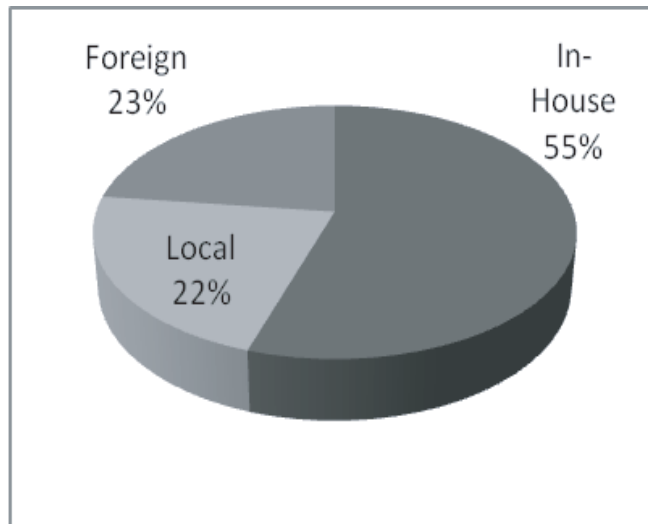


Figure-3.2: Types of Application Software Used by Banks, 2013

3.3.5 Growth of Mobile Banking

Mobile banking is a term used for performing banking activities via a mobile device such as a mobile phone. Mobile banking is most often performed via SMS or the Mobile Internet but can also use special programs called clients downloaded to the mobile device. Up to March 2014, though, a total of 28 banks got permission from BB for MFS, only 20 banks started the services. Among them only three banks brought truly mobile banking in Bangladesh during the last years through which inward remittance transfer, cash in transaction, cash out transaction, P2P transaction, salary disbursement (B2P) and utility bill payment (P2B) are possible.

Table-3 : Mobile Banking Growth, 2012-2014

	March 2012	April 2013	July 2013	Nov 2013	Jan 2014	March 2014
No. of Banks Permitted	10	27	27	27	28	28
Live Deployment	5	18	18	19	19	20
No. of Agents	9093	82638	107760	172265	200000	240000
No. of Customers (Core	0.04	0.53	0.72	1.15	1.32	1.5
No. of Transaction Per Month (Crore)	0.12	1.51	2.12	2.34	3.01	3.33
Volume of Transaction Per Month (Core Tk.)	17.2	3634	5350	5533	6630	7849

Source: Bangladesh Bank Report and Daily Newspaper, 2012-2014 [1]

According to Bangladesh Bank, up to March 2014, the total number of mobile accounts reached to 1, 50, 23,604 and the total number of agents was 2, 40,000. In March 2014, Tk. 7,849.12 core was transacted through 3, 33, 62,135 transactions, showing a high growth per month in this sector.

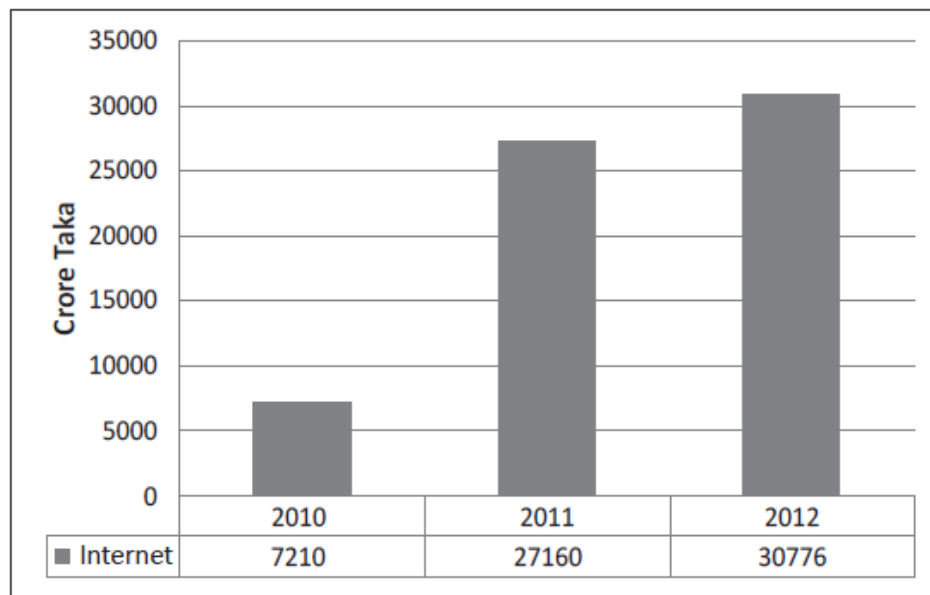
Table-4: Recent status of Mobile Banking Growth

	Dec 2014	Jan 2015
No. of Customers/Accounts (Core Tk.)	2.51	2.52
No. of Active Accounts (Core)	1.12	1.21
No. of Agents	5,10,00	5,36,000
Average Transaction Volume per day	349	378

Source: The Daily Jugantor, March 12, 2015

3.3.6 Progress of Internet Banking

Since Internet is the cheapest and global delivery channel, banks should give more emphasis on providing online banking services through internet. Development of I-banking facilities - At the end of 2013, only 63% banks were able to provide some sort of Internet banking services in Bangladesh, which was 38% at the end of 2010. In December 2012, it was 57%, showing a 6% growth compared to 2011 (51%). Amount of money transferred by this channel is shown in the following graph. The growth from 2010 to 2012 was notable



Source: Financial Stability Report (2011, 2012, 2013), BB

Figure-3.3: Transaction volume of Internet Banking, 2010-2012

Chapter 4

Results and Discussion

4.1 Introduction

According to a report (Dhaka Tribune, December 21 2014) only 22% adults of Bangladesh have bank accounts and almost half of them lie dormant. On the other hand according to BTRC (Bangladesh Telecommunication Regulatory Commission) at the end of June, 2017 there are over 135 million Mobile Phone subscribers in Bangladesh. Beside this scenario we can see that Mobile banking in Bangladesh continues to grow fast. The average monthly transactions made through mobile phones stood at more than Tk 13,147.77 crore in 2015., rising from Tk 8,596.28 crore in 2014 (The Daily Star, February 03 21 2016).

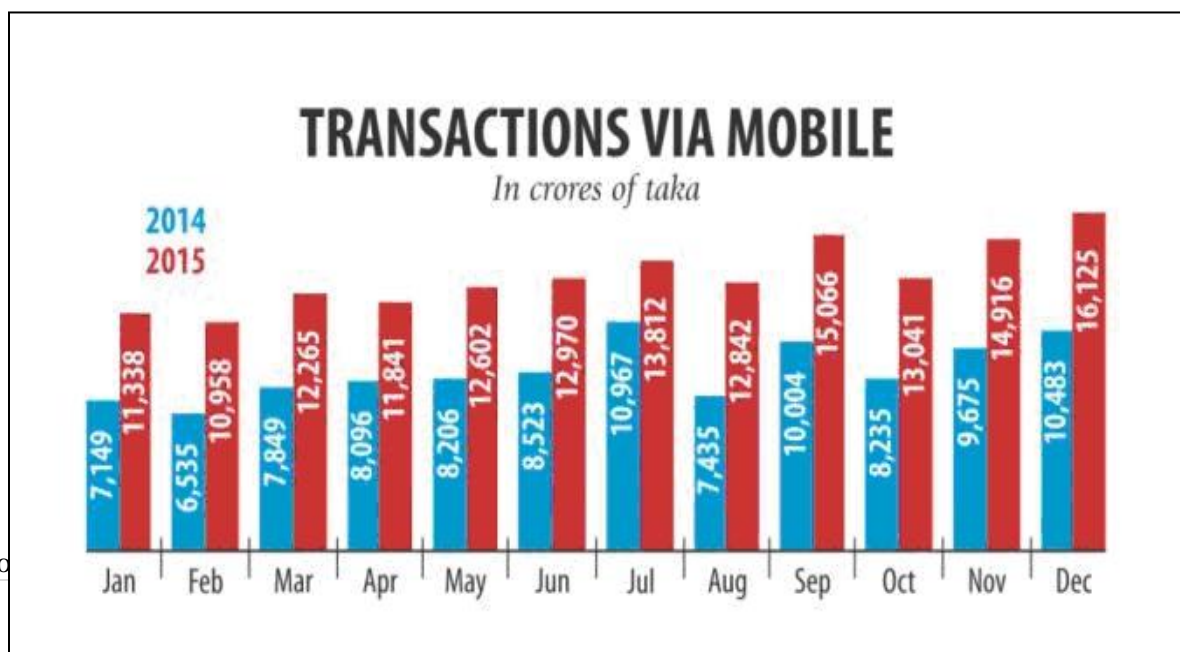


Figure-4.1: Transaction via Mobile, 2014-2015 (Source- The Daily Star)

4.2 Finding of the Research

4.2.1 Effective electronic banking system:

In the last couple of years, we have observed that people at the bottom of the pyramid are also massively taking part in economic activities and that volume is increasing significantly every day. This contribution directly impacted the transactions in mobile banking. So my view is if we want to cover most of the people of our country under proper channel of banking service we can use the Mobile Banking System.

4.2.2 Positives of mobile banking system:

- The main advantage of mobile banking is that it can be reached to wide range of people. It is much more effective in developing savings habits. Its using system is also easy. Anyone can use it. Poor people are often not considered viable customers by the formal financial sector as their transaction sizes are small, and many live in remote areas beyond the reach of banks branch networks. Informal banking services such as microfinance and village savings and loan associations remain limited in their reach. So, mobile banking system develops to bring poor people into banking system.
- Mobile banking is real time on-line banking. As it is on-line banking it takes less time than traditional banking. It will make access to banking and advanced payment, transactions at affordable cost People have not to wait by standing in a long line which is happen in traditional banking system.

- It is cheap both for the banks and the customers. The bank will be able to lower down the overhead costs and make more profit out of it. Mobile banking will require less manual workers. Again the customers will be able to save time as well as money for their transaction needs.
- Mobile banking is convenient as the service is available all the time with the cell phone network.

4.2.3 Problem with current Mobile Banking System:

Mobile banking was a term used for performing balance checks, account transactions, payments etc. via a mobile device such as a mobile phone. Mobile financial services were launched in Bangladesh back in mid-2011, and since then, the platform has seen exponential growth among the large unbaked segment of the population. Although MFS increased day by day there are some problems with that system. Some of the problems of those systems are described below:

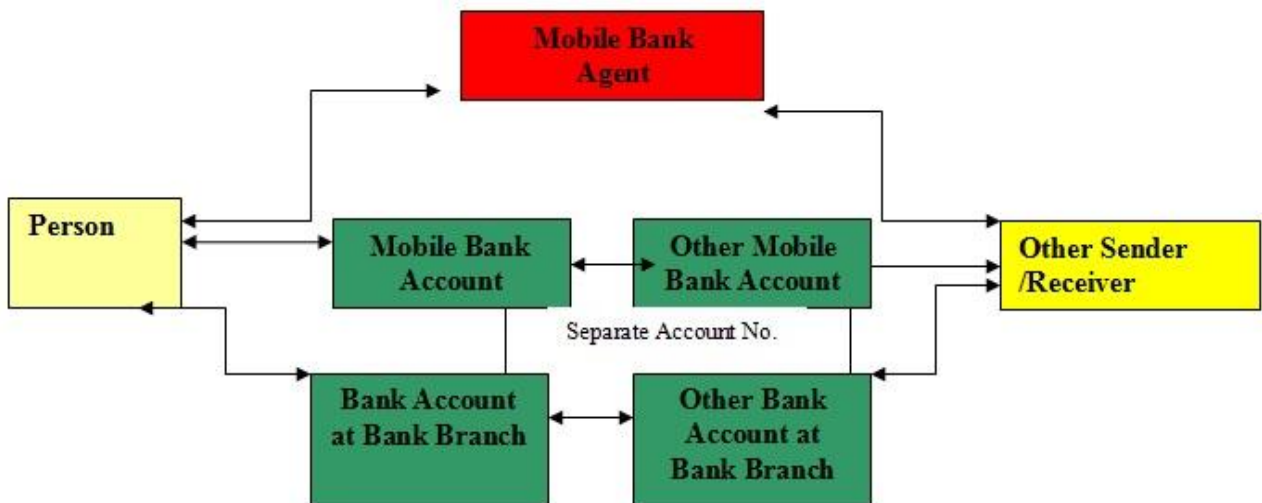


Figure-4.2: Problems with current Mobile Banking

- In an article in daily prothom alo published on 05 August, 2017 described that the mobile banking system day by day is going out from proper banking channels. In the current mobile banking system anyone can send or receive money without having a mobile bank account with the help of a mobile banking agent. Thus it opens a scope for
- corrupted people to do illegal financial transactions. Thus it becomes difficult to identify the corrupted people and many illegal sources of money.
- If a person wants to do a financial transaction through the mobile banking system then he has to open a mobile banking account. He has to maintain a separate mobile banking account number although he has a bank account number already. This is really a redundant system.

4.2.4 Proposed model for mobile banking system:

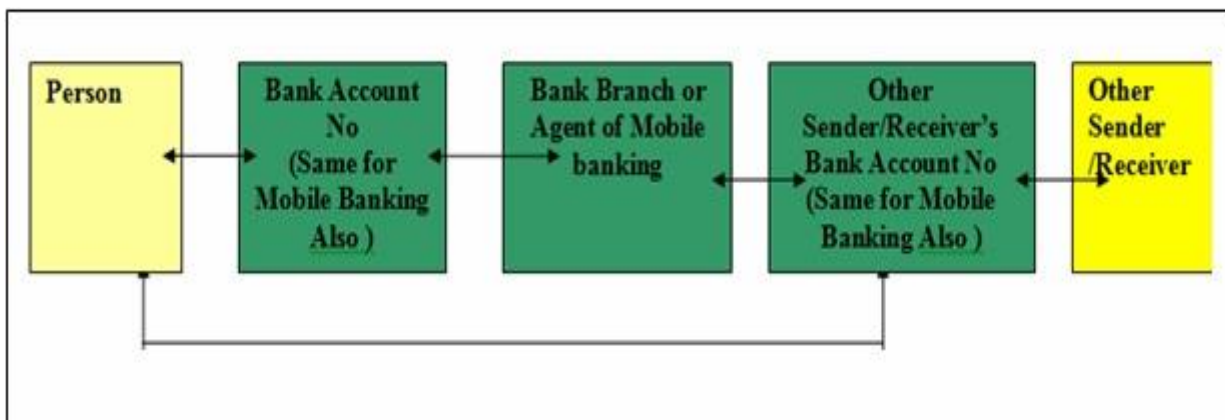


Fig 4.3: Common Account banking Model

In this system a person will have to open just one bank account and with that account he will be able to operate the mobile banking system also. There will be no scope for mobile banking agent to do agent banking that means every people will have do mobile transaction through a proper banking Account. This system will have the following benefits:

- We can track any kind if suspicious financial transaction through mobile banking system by KYC (know you customer) form of the account holder.
- Money laundering through mobile banking channel can be minimized to a tolerable level.
- We can cover most of the people of our country under proper channel of banking service and large portion our population will able to get legal banking service.

Chapter 5

Summary and Conclusion

5.1 Summary

The electronic banking activities have opened a new window for existing banks and financial institutions and mobile banking is one of the electronic banking systems, so we can offer good banking services to a wide range of people in our country. The use of mobile banking gradually increases when the mobile device is delivered Great features and more mobility with which people want to keep an account mobile phone.

In order to make mobile banking more user-friendly, banks should look forward to improving this system. Since there are many different customers using this service, adjustments and improvements are needed to enable all types of bank customers to use them easily. As a result, everyone can maintain an account via m-banking service.

Security is a matter of mobile banking transactions performed from a remote location and transfer of financial information in the air. These are the most complex challenges that need to be solved jointly by developers of mobile apps, providers of wireless networks and IT departments at banks

5.2 Conclusion

Despite of fraud and forgery we observe that our banking sector has reached a satisfactory level in respect of development of e-banking services. still the banking sector is required to take more ICT based initiatives. The banks are facing several problems and challenges to develop innovative e-banking products and to ensure smooth e-banking services.

Although the electronic banking system is increasing day by day, it is in its infancy in Bangladesh. At the moment, information technology (IT) is a subject of broad interest in Bangladesh. The government has labeled IT as a push sector and formulated a vision for Digital Bangladesh in 2021. But Bangladesh still has a long way to go to enjoy the fruits of the information age. It will only be possible if there is a political commitment with a better IT infrastructure, an internal network, a rural domain and, above all, a high-speed fiber link with the information highway.

References

- [1] Bangladesh Bank. Financial Stability Report, Department of Off-Site Supervision www.bb.org.bd
- [2] Syeedul Al-Amin and Sk. Saifur Rahman. (2010). Application of Electronic Banking in Bangladesh: An Overview. Bangladesh Res. Pub. J. 4(2): 172- 184 Retrieve from <http://www.bdresearchpublications.com/admin/journal/upload/09164/09164.pdf>
- [3] Development of ICT Based Products and Services in the Banking Industry of Bangladesh: Current Status, Prospects and Challenges, http://crbedbd.com/article/article_2007.pdf
- [4] International Review of Business Research Papers Volume 6. Number 4. 2010. Pp. 145 – 156, E-Banking and Customers’ Satisfaction in Bangladesh: An Analysis, <http://www.wbiconpro.com/604-Nupur.pdf>
- [5] H. M. Saidul Hasan, Md. Azizul Baten, Anton Abdulbasah Kamil and Sanjida Parveen , Mathematics Section, School of Distance Education, University Sains ,Malaysia 11800 USM, and Penang, Malaysia.
- [6] Adoption of e-banking in Bangladesh: An exploratory study, (10 June, 2010), <http://www.academicjournals.org/ajbm/pdf/pdf2010/4Oct/Hasan%20et%20al.pdf>
- [7] E-BANKING – IMPACT, RISKS, SECURITY, <http://steconomice.uoradea.ro/anale/volume/2008/v4-management-marketing/280.pdf>
- [8] E-Banking in Bangladesh: The Future of Banking, Kamrul Hasan, <http://www.wbiconpro.com/602-Kamril.pdf>
- [9] Dutch bangle bank Ltd. www.dutchbanglabank.com
- [10] Bangladesh Institute of Bank Management (BIBM), <https://www.bibm.org.bd>