

Full Length Research Paper

Adoption of e-banking in Bangladesh: An exploratory study

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Nowadays e-commerce, e-business and financial services industry have increasingly become a necessary component of business strategy and a strong catalyst for economic development. As a third-world developing country, Bangladesh is far behind to reach the expected level in global banking system. So it is our urgent need to upgrade its banking system. This study has been done mainly based on primary and secondary sources of data or information, which included different publications. This paper is aimed at to determine the present scenario of e-banking and banking sectors in Bangladesh and at the same time it demonstrated the scope and benefits of e-banking compared with the existing system. This paper addressed significant gaps in existing knowledge about the internet banking and landscape. We tried to present actual situation of e-banking in the marketing point of view in Bangladesh. The results showed that e-banking serves several advantages to Bangladeshi banking sector, however, this study also observed that the Bangladeshi customers have not enough knowledge regarding e-banking which is rendering by banking sector in Bangladesh. A discussion of the implications of these results and limitations are provided at the end.

Key words: Banking sector, e-banking, economy, Bangladesh.

INTRODUCTION

E-banking is now a global phenomenon. It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness (Kamel, 2005 and Nath, Shrick and Parzinger, 2001). 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 (Goi, 2005). The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine (ATM), Phone-banking, Tele-banking, PC-banking and most recently internet banking (Chang, 2003; Gallup Consulting, 2008). The developed country as a part and parcel of their economy is now using electronic banking or online banking. There have

already been a number of studies related to Internet banking covering a range of research dimensions. For example, Pyun et al. (2002) in the U.S., Japan and Europe, Gurau (2002) in Romania; Sathye (1999) in Australia; Polatoglu and Ekin (2001) in Turkey; Balachandher et al (2000) in Malaysia; and Jasimuddin (2004) in Saudi Arabia focused also related studies of internet banking. Apart from the developed countries, the developing countries are experiencing strong growth in e-banking such as India and the Republic of Korea are experiencing particularly strong growth in e-banking. In Southeast Asia, internet banking is also developing rapidly in Thailand, Malaysia, and Singapore and in Philippines (Mia et al., 2007). We refer also Thulani et al. (2009) in Zimbabwe; Guangying (2009) in China; Dhekra (2009) in Tunisia; Adesina and Ayo (2010); Maiyaki and Mokhtar (2010) in Nigeria; Salehi and Alipour (2010) in Iran, explored the extent of adoption and usage of internet banking. In Nepal, ATMs are the most popular electronic delivery channel for banking services but only

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a few customers are using internet banking facilities.

A strong banking industry is an important in every country and can have a significant affect in supporting economic development through efficient financial services (Salehi and Azary, 2008, Salehi et al., 2008). But there have been several major challenges and issues faced to the e-banking growth and the e-business in general. One major obstacle addressed most is the security concern (Feinman et al., 1999; Financial Service, 2001). Another issue challenged e-business (including e-banking) is the quality of delivery service - including both delivery speed and delivery reliability (Furst et al., 2000). Limited payment options available to online customers are also being complained (Furash, 1994).

As an Internet based technology, e-banking is new and a quite unfamiliar for some people in Bangladesh due to the digital divide and the different level of internet experience and environments. E-banking services have been available in Bangladesh since 2001. As of 2007, 29 out of 48 banks have offered online financial services (Rahman, 2007). In Bangladesh, research has been done on electronic commerce issues (Azam, 2007), computer usage (Azam, 2005), Internet usage (Awal, 2004), telephone (Khan, 2001) and electronic banking (Bakta et al., 2007). The reason for the lack of complete adoption of e-banking in developing countries like Bangladesh is an important research that will be addressed by this paper. In other words, despite this growth of IT Worldwide, Bangladeshi banks continue to conduct most of their banking transactions using traditional methods. Understanding the reasons for the lack of such technological innovation in developing countries such as Bangladesh will develop a fruitful research. The aim of the paper is to look at the emergence, advantages and acceptance of e-banking in Bangladesh. This paper is aimed at to determine economical prospects of e-banking and to explain the present scenario of banking sectors in Bangladesh and at the same time it demonstrates the scope and benefits of e-banking compared with the existing system. This paper also tries to present actual situation of e-banking in the marketing point of view in Bangladesh.

OBJECTIVES OF THE STUDY

The main objectives of this study are as follows:

- To shed light on the concept of e-banking.
- To examine the present status of existing e-banking in Bangladesh.
- To know the adoption of e-banking in Bangladesh context.

BACKGROUND OF THE STUDY

The definition of e-banking varies amongst researches

partially because electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999; Mols, 1998; Sathye, 1999). Burr (1996) describes that it as an electronic connection between bank and customer in order to prepare, manage and control financial transactions.

E-banking is form of banking, where funds are transferred through an exchange of electronic signals between financial institutions, rather than the exchange of cash, checks, or other negotiable instruments. The ownership of funds and transfers of funds between financial institutions are recorded on computer systems connected by telephone lines. Customer's identification is by access code, such as a password or Personal Identification Number (PIN), instead of a signature on a check or other physical document. E-banking involves individual and corporate clients, and includes bank transfers, payments and settlements, documentary collections and credits, corporate and household lending, card business and some others (UNCTAD, 2002).

Banking has never been more important to our society than it is today. The advance of communication and computer technology and the availability of the Internet have made it possible that one can do most banking transactions from a remote location even without stepping into a physical financial structure - that is, the emerging of e-banking (Bruene, 2002). The way Bill Gates (2008) announced that «banking is essential, banks are not». This quotation means that the traditional bank branch is going to vanish in order to be surrogated by electronic banking which continues to attract new users. The banking industry believes that by adopting new technology, the banks will be able to improve customer service level and tie their customers closer to the bank. Meanwhile, the banking industry has been also looking for new methods to expand its customer base and to counteract the aggressive marketing effort of those non-traditional banking entities (Graven, 2000). Larger banks that maintain expensive branch networks tend to have the greatest incentive to adopt e-banking services. In comparison, smaller banks have higher start up costs and tend to have a high initial technological cost in developing e-banking services (Treadwell, 2001).

Many banks quickly realized that there are a momentous number of customers like to do banking electronically. The application of e-banking has been proven as an effective way to reduce the costs of operation for the financial institutions. For instance, e-banking services will allow banks to reduce expenditures on physical structures. It is believed that the e-banking will help banks to cut costs, increase revenue, and become more convenient for customers (Halperin, 2001). Another important benefit from e-banking is a more effective information collection and management. A combination of a low percentage of customers using

e-banking services on a consistent basis and a relatively low start-up cost in developing e-banking services in the banking industry will make the impact of e-banking (positive or negative) quite limited on financial institutions (Marenzi et al., 2001). On another hand, e-banking services could be highly demanded and desirable to accommodate the sudden, rapid growth that has occurred in other information-intensive industries such as travel and securities brokerage. Finally, the development of e-banking service has encouraged the adoption of a decentralized approach to give banks more needed flexibility to distribute Internet access to a much larger number of employees and potential customers.

METHODOLOGY

The study has been done mainly based on primary and secondary sources of data or information. The first is an exploratory research based on secondary data obtained through the Net, books and related journals. Secondly, survey questionnaire was administered to empirically assess the level of adoption of e-banking in Bangladesh including different publications: (i) Bangladesh Institution of Bank Management (ii) Bank for International Standard Working (iii) Papers International and local Publications (iv) Different seminar papers (v) Information from Internet (vi) UNCTAD and WTO publication.

Data collection procedure

Primary data sources

Primary data has been collected from Dhaka based some selected banks e.g. Eastern Bank Ltd, Dutch Bangla Bank Ltd. in the year of 2003. These banks are considered as the private commercial banks and foreign banks respectively. 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 library of BIBM, BANBASE, Science Laboratory, DCCI library. The secondary data have been also collected from research material of the following sources; DBBL-Products and Software, EBL-Survey Report, IBA-Feasibility Report, WTO/UNCTAD-Secret of e-commerce.

Sample size determination for e-banking interview

The sample size determination ensures the minimum number of respondents on online Banking. Since there are many indicators the sample size is calculated using 50% as indicator percentage for survey that gives maximum sample size.

The sample size needed was calculated using the following formula:

$$n = z^2 \left[\frac{p(1-p)}{d^2} \right] \cdot D_{eff}$$

Where n = sample size, z = two-sided normal variate at 95% confidence level (1.96), p = indicator percentage, d = precision and D_{eff} = design effect.

To obtain data on indicators at a 10% precision and 95% confidence interval, assuming a design effect of 1.5 (assumed) and the most conservative estimate of indicator percentage (50%), the minimum sample size required is 150.

Survey design

The present study used a survey that was designed and conducted to find out the feasibility of the e-banking in Dhaka based different national, private commercial banks as well as foreign banks. A specifically designed questionnaire was used as a tool and the survey covered a sample of 150 respondents for the purpose of analysis. These respondents were the customers of various banks; this age group was less than 20, to 25, 26 to 35, 36 to 45 and 46 to 55 and above 56 years. The survey included queries on the following topics:

- Income ranges for the customers (per month)
- Problem faced regarding service in the bank
- Willingness to visit a web site for the relevant information
- Willingness to pay fee (Monthly)
- Opinion about online banking
- Additional services they would like to have.

We used Statistical Package for Social Sciences (SPSS) version 10 as the statistical analysis tool while descriptive statistics were computed and used in the interpretation of findings. The data was presented in the form of tables and graphs.

RESULTS AND DISCUSSION

This section dealt with the results and discussion on both the quantitative and qualitative research based on the primary and secondary data sources.

Adoption of e-banking by respondents

Male respondents were more interested about online banking than female respondents. For that reason most of our respondents are male displayed in Table 1. But the number of females was increasing which was a good sign. At the same it observed that young people adopt the use of Internet more rapidly. Regarding monthly income, Table 2 and Figure 1 showed that the percentages of respondents were found to be higher in case of whose monthly incomes were also more than that of other respondents.

Regarding service in the Bank, Table 3 and Figure 2 revealed that 44% respondents of the total sample size were faced problem in queue and 32% respondents faced hassle to get the telephone lines free in the Bank. It observed that most of the respondents of the total sample size were not willing to pay monthly fees for their service revealed in both Table 4 and Figure 3.

In addition, it found that 119 interviewee which 79.33%

Table 1. Number and percentage of respondents by gender.

Gender	Number	Percentage (%)
Male	87	58
Female	63	42
Total	150	100

Table 2. Number and percentage of respondents whose income per month Tk-000.

Income/Month	No. of respondents	Percentage (%)
Below 15 Tk.	20	13
15 - 20 Tk.	47	31
20 - 30 Tk	29	19
Above 30 Tk.	54	37
Total	150	100

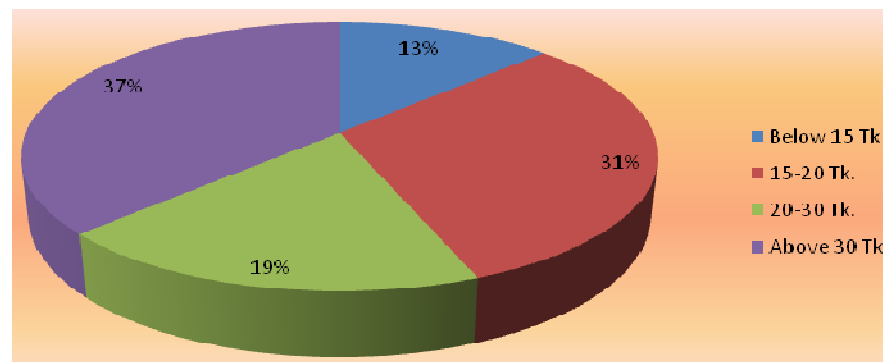


Figure 1. Number and percentage of respondents whose income per month Tk-000.

Table 3. Number and percentage of respondents problem faced in the bank.

Problem faced	No. of respondents	Percentage (%)
Queue problem	67	44.66
Hassle to get the telephone lines free	48	32
Information is not readily available	20	13.34
Lack of confident	15	10
Total	150	100

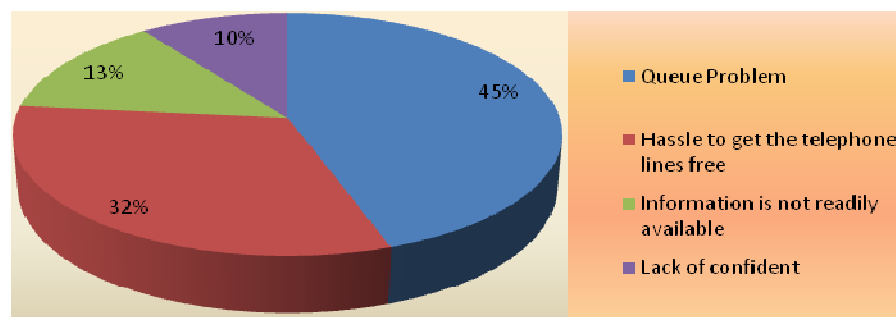
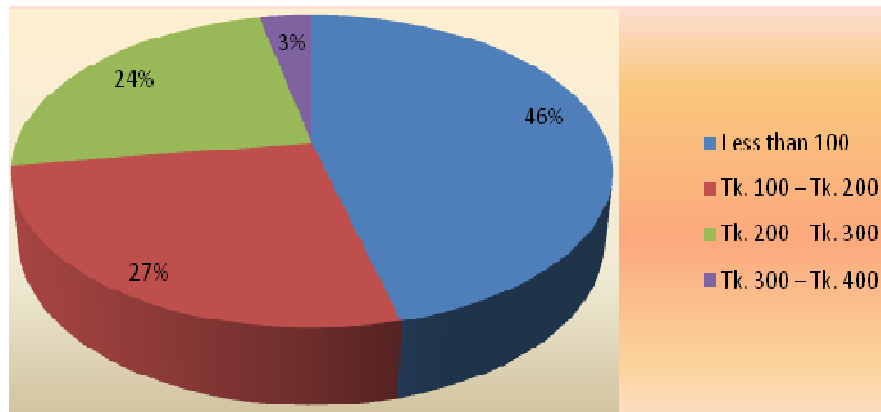


Figure 2. Number and percentage of respondent's problem faced in the bank.

Table 4. Number and percentage of respondents by monthly fees.

Monthly fee	No. of respondents	Percentage (%)
Less than 100	69	46
Tk. 100 – Tk. 200	40	26.67
Tk. 200 – Tk. 300	36	24
Tk. 300 – Tk. 400	5	3.33
Total	150	100

**Figure 3.** Number and percentage of respondents by monthly fees.

of the total sample size, responded that they needed moderation in operation of the computer. 112 of the interviewee who is 74.66% of the total sample size responded that they were moderated in browsing Internet. 96 of the responded of the total sample size told that they were quite known to the services that were provided in some foreign countries. Literacy results showed that e-banking would not be a tough operation to the people because of their computer knowledge. 89% told that they used to call the bank frequently to their balance. 95% told that they used to know whether the clearing check is cleared or not. 95% of the customers assert that they were willing to pay the utility bill payment through Internet, which would be very convenient for them. The above finding showed that on people's perception about Internet and e-banking are satisfactory.

Present status of e-banking in Bangladesh

E-Banking satisfied customer demand in banking activities electronically throughout the world. At present, several private commercial banks (PCBs) and foreign commercial banks (FCBs) in Bangladesh offered limited services of tele banking, internet banking, and online banking facilities working within the branches of individual bank in a closed network environment. The FCBs played the pioneering role with adoption of modern technology in retail banking during the early 1990s whereas the state-

owned commercial banks (SCBs) and PCBs came forward with such services in a limited scale during the late 1990s.

PC banking or PC home banking

PC banking referred to use of personal computer in banking activities while under PC home banking customers used their personal computers at home or locations outside bank branches to access accounts for transactions by subscribing to and dialing into the banks' Internet proprietary software system using password. Basically, PC banking or PC home banking categorized into two types such as online banking and Internet banking.

Online banking: International standard online banking facilities were expanding in Bangladesh. At present, 29 scheduled banks offered any branch banking facilities through their respective bank online network that provided facilities like transaction through any branch under the respective bank online network; payment against paid order or pay order encashment, demand draft encashment, opening or redemption of FDR from any branch of the same bank; remote fund transfer, cash withdrawal, cash deposit, account statement, clearing and balance enquiry within branches of the same bank; and L/C opening, loan repayment facility to and from any

branch of respective bank under its own online network.

Internet banking: Internet banking in true sense was still absent in Bangladesh. German banks offered the internet banking since the mid-nineties, although the only product they were offering at the time was information. Only 7 out of 48 banks were providing some banking services via internet that included account balance enquiry, fund transfer among accounts of the same customer, opening or modified term deposit account, cheque book or pay order request, exchange rate or interest rate enquiry, bills payment, account summary, account details, account activity, standing instructions, loan repayment, loan information, statement request, cheque status enquiry, stop payment cheque, refill prepaid card, password change, L/C application, bank guarantee application, lost card (debit/credit) reporting, pay credit card dues, view credit card statement, or check balance.

Mobile banking

Mobile banking was a term used for performing balance checks, account transactions, payments etc. via a mobile device such as a mobile phone. The standard package of activated that mobile banking covers are: mini-statements and checking of account history; alerts on account activity or passing of set thresholds; monitoring of term deposits; access to loan statements; access to card statements; mutual funds/equity statements; insurance policy management; pension plan management; status on cheque, stop payment on cheque; ordering check books; balance checking in the account; recent transactions; due date of payment; PIN provision, change of PIN and reminder over the internet; blocking of (lost/stolen) cards; domestic and international fund transfers; micro-payment handling; mobile recharging; commercial payment processing; bill payment processing; peer to peer payments; withdrawal at banking agent; and deposit at banking agent. Despite huge prospects, only a few banks adopted mobile banking in Bangladesh during the last year.

Tele-banking

Tele-banking service was provided by phone. To access an account it was required to dial a particular telephone number and there were several options of services. Tele banking services widened not enough in daily banking activities in Bangladesh. Only four banks so far provided a few options of tele banking services such as detail account information, balance inquiry, information about products or services, ATM card activation, cheque book related service, bills payment, credit card service and so on. Funds transfer between current, savings and credit card account, stock exchange transactions etc. were still

inaccessible through tele-banking in Bangladesh.

E-banking services in Bangladesh

In Bangladesh, credit card and point of sale services (POS) are already provided by a quarter of local banks, while ATM and internet banking were expanding rapidly especially in major cities (Raihan, 2001). According to Rahman (2003), 28 banking software's were in use in different banks in Bangladesh. The foreign banks used foreign software as per their central policies, and these were qualitative and have capability for carrying out e-banking operation. According to Ali et al. (2007), 19 percent of NCBs, 38% of PCBs and 100 percent of the FCBs are computerized. They were around 50 ATMs operating in the country; two foreign banks had several ATMs of their own, two local ATM service providers that offered syndicated or rental service to several banks.

CitiDirect®

The facilities of CitiDirect® were online direct debit transaction process; information reporting; real-time information reporting for more effective cash management; delivered with the highest level of security; easy-to-use application; world link through CitiDirect; comprehensive payment transaction solution; flexible, streamlined functionality; reliability, speed and information; payments through CitiDirect; a comprehensive payments solution globally and locally; simplified, secure transaction management; timely, accurate information; e-mail and wireless banking alerts by CitiDirect.

Standard chartered grindlays bank Ltd

Standard chartered offered the client a comprehensive range of Cash Management services. It provided the secure, reliable and effective link between the client and client's accounts anywhere across the Standard Chartered network.

HSBC: Business banking account enabled a person to receive credit of all the cash or cheque deposits along with inward remittance and made all local payments and provided access to the wide range of services for the business requirements. A person may deposit upto BDT50, 000 cash per transaction and any BDT amount in cheque 24 h a day, 7 days a week through the ATM Machines, conveniently located Sales and Service Centers. EasyPay Machines were also available for deposit of BDT 50,000 cash per transaction and any BDT amount in cheque to the business banking account. With easypay machines, both HSBC and Non-HSBC customers made deposits and pay their utility bills, credit

card payments and etc.

Eastern bank limited: Eastern bank limited Internet banking application addressed the needs of small, individual and corporate account holders of the bank. This application provided a comprehensive range of banking services that enabled the customer to meet most of their banking requirements over the net. The transactions that were supported by the internet banking provided by Eastern Bank Limited were account operations and inquiries, fund transfers and payments, utility bill payments, deposits, loans, session summary etc.

Bank Asia: Bank Asia centralized Database with online ATM, SMS and Internet query service. The significant delivery channel of Bank Asia was the shared ATM Network. Bank Asia had 21 ATMs as a member of ETN along with eleven other banks. Bank Asia was maintaining its competitiveness by leveraging on its Online Banking Software and modern IT infrastructure. It was the pioneer amongst the local banks in introducing innovative products like SMS banking, and under the ATM Network the Stellar Online Banking software enables direct linking of a client's account.

BRAC bank: BRAC bank used the most advanced commercially available Secure Socket Layer (SSL) encryption technology to ensure that the information exchange between the customer's Computer and BRACBank.com over the internet was secure and cannot be accessed by any third party.

Arab Bangladesh bank Ltd: Arab Bangladesh bank Ltd was the first private bank of Bangladesh with a long standing experience in domestic and international banking. Its 153 branches in all the major commercial centers of the country and 152 correspondents worldwide provided proficient banking services to its customers.

Prospects of e-banking in Bangladesh

The Bangladesh railway owned a high-speed optical fiber network (1,800 km) parallel to the railway path that covered most of the important parts of Bangladesh. This optical fiber network can be used as the backbone network of e-banking in Bangladesh. For example, mobile phone operators such as Grameen Phone and Ranks ITT of Bangladesh used this optical fiber network through which they reached even in rural areas with their services (Islam 2005). It is encouraging that some of the FCBs and PCBs are already used this optical fiber network for conducting online transactions, ATM and POS services.

In addition, Bangladesh Bank was implementing the different projects for modernizing national payment and settlement system started from 2009 followed by the development of inter-bank online network. It made mandatory for all head offices of the scheduled banks to

be connected with Bangladesh Bank. These efforts would allow the scheduled banks to be connected to each other for conducting inter-bank online transactions in near future and this would smooth the introduction of e banking in Bangladesh.

Internet services came to Bangladesh with connectivity in 1996. Digital telephone exchanges established in 389 upazilas and 17 growth centres. Work was underway to cover the rest of the upazilas under digital exchange system. Meanwhile, Bangladesh joined the information super-highway by connecting itself with international submarine cable system in 2006. A total of 159 Internet Service Providers (ISPs) now connected with this system of which 64 are actively providing services. Internet connection was slow with bandwidth range 32 - 56 kbps for dial up and 64 - 8 mbps for broadband. Under this scenario, as a part of government decision of building digital Bangladesh, the existing capabilities of ICT sector was likely to increase rapidly in bringing all upazilas under internet services and this will contribute in widening the scope of e-banking throughout the country.

The overall computer density in the banking sector was 1.64. For foreign commercial banks (FCBs) the computer density was 45.34, where as for NCBs the ratio was only 0.41. The specialized bank scenario was almost same as the NCBs, 0.43. On the other hand, private commercial banks had comparatively higher ratio, 4.94. As a whole 81.81 percent bank did not have any local area network (LAN), 30 percent had WAN (Wide Area Network) but for some banks many branches were outside of WAN connectivity. At present, all foreign banks of our country were using online banking system; they were invested a lot for their automation banking services. For this reason, they were increasing market share every year. They were the pioneer of implementing electronic banking systems in Bangladesh, but now most of the private banks of our country used electronic banking systems. In our country different banks were offering electronic banking services in different ways, some were offering ATM (Automatic Teller Machine) services, some were tele-banking and some were electronic fund transfer, debit card, credit card etc.

Recently, the government's emphasis on building a digital Bangladesh, setting up ICT park, raising allocation for developing ICT infrastructure, waiving taxes on computer peripherals and other measures including the automation program of banking sector led by the Bangladesh Bank and competition among the scheduled banks in improving customer services accelerated the prospects of e-banking in Bangladesh.

Advantages of e-banking in Bangladesh

There were a substantial number of educated unemployed youth forces, with ability to read and write English exist in the country. They trained within a required skill in a short time.

Short term benefits

Reduce extra time; Increase productivity and efficiency; Eliminate duplication and wastage; Cut down maintenance, and shortage cost; Curtail security cost.

Long-term benefits

Create new opportunities of jobs for jobless; participate in the country's economic health; proper planning and monitoring; Proper use resources.

Job creation

According to Bangladesh Bureau of Statistics, the number of unemployed people in Bangladesh in 1990 - 2001 was 1.0 million. Among them 0.2 million are male and 0.8 million female, at the rate of unemployment was 1.1 which was extended 1.9. The issue of computers eliminating jobs of people was quite emotional and painfully real. But it has two sides that automation will eliminate certain types of job like record keeper and also created jobs like administrator, system analyst, programmer, operator etc. and helped to reduce unemployment problem.

Contribution to GDP

Banks with a national economy, work towards building national capital, increasing national savings and mobilizing investments in trade and industry.

Benefits from the banks' point of view

From the banks' view point, the first benefits for the banks offering e-banking services was better branding and better responsiveness to the market. The other benefits were possible to measure in monetary terms. The main goal of every company was to maximize profits for its owners and banks were not any exception. Automated e-banking services offered a perfect opportunity for maximizing profits.

Benefits from the customers' point of view

The main benefit from the bank customers' point of view was significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money. The main benefits of e-banking were as follows:

Increased comfort and timesaving-transactions made 24

h a day, without requiring the physical interaction with the bank. Quick and continuous access to information. Corporations had easier access to information as, they checked on multiple accounts at the click of a button.

Better cash management. E-banking facilities speed up cash cycle and increases efficiency of business processes as large variety of cash management instruments is available on Internet sites of banks.

Private customers looked for slightly different kind of benefits from e-banking.

Reduced costs: This was in terms of the cost of availing and using the various banking products and services.

Convenience: All the banking transactions performed from the comfort of the home or office or from the place a customer wants to.

Speed: The response of the medium was very fast; therefore customers actually waited till the last minute before concluding a fund transfer.

Fund's management: Customers downloaded their history of different accounts and do a "what-if" analysis on their own PC before affecting any transaction on the web.

Economical benefits

E-banking served so many benefits not only to the bank itself, but also to the society as a whole. E-banking made finance economically possible: (i) Lower operational costs of banks (ii) Automated process (iii) Accelerated credit decisions (iv) Lowered minimum loan size to be profitable.

Potentially lower margins: (i) Lower cost of entry (ii) Expanded financing reach (iii) Increased transparency.

Expand reached through self-service: (i) Lower transaction cost (ii) Make some corporate services economically feasible for society (iii) Make anytime access to accounts and loan information possible.

POLICY IMPLICATIONS

The comprehensive set of e-banking products can help us run our business more effectively by automating many of our critical banking activities and interacting electronically with our bank. Initial cost of e-banking may be high, but it can be recovered within a few years. Electronic banking may play a vital role in order to promote an automated service to the potential customers. Ministry of finance can also play some role for conveyance. Arrange monthly seminar in the banks or in the training academy of the banks to make awareness about the new technology available in banks. Electronic security and viability may require taking faith from the potential clients. Communication should be liberalized for technological advancement. Bank should develop own online software rather depending on other vendors.

LIMITATIONS AND CONSTRAINTS

The focus of the study is mainly based on Dhaka based some selected banks in Bangladesh. E-banking was the important issue in world but Bangladesh is developing country with the limited infrastructure facility and limited skill manpower. Computer literacy was found very few and information technology was in the infant position. There were some limitations faced during the study: Small span on time. Shortage of book and published sources were in Bangladesh. The study was based on limited variable. Difficulties faced to collect the desire information. Disclosing the information was very restricted. IT division was not cooperative all the time. In addition, Interviewing target respondents adopted convenience sampling as alternative to random sampling, at some phases where respondents were inaccessible or not available. Bank officials were found too busy and also reluctant to talk without a proper written permission from the competent authority.

Although e-banking has bright prospects, it involved some financial risks as well. The major risk of e-banking included operational risks (e.g. security risks, system design, implementation and maintenance risks); customer misuse of products and services risks; legal risks (e.g. without proper legal support, money laundering may be influenced); strategic risks; reputation risks (e.g. in case the bank fails to provide secure and trouble free e-banking services, this will cause reputation risk); credit risks; market risks; and liquidity risks.

Conclusions

E-banking, the latest generation of electronic banking transactions, opened up new window of opportunity to the existing banks and financial institutions. Most of the banks have their own websites but not all of them offered internet facilities. The main reason of this was that the banks did not have the IT infrastructure and proper security features. The Ministry of Science, Information and Communication Technology went out the policy for the development in the IT sector.

Another important issue in extending the internet banking services throughout the country was gaining popularity. In Bangladesh most of the people were illiterate and obviously they were technology ignorant. But among the literate portion many of them had computer phobia. So these people could not trust on the internet banking services. To gain the confidence on internet banking the overall computer literacy must be developed. With that goal government had taken initiative even in the root level to develop it literacy in the country. This would be a perfect ground for the development of internet banking.

However, with banking customers growing increasingly comfortable with the digital lifestyle, but Bangladeshi customers were not aware about e-banking in

Bangladesh. They were not fully understand the power of technology and seek to leverage it to enjoy better control over their banking operations. To conclude that e-banking also provided other benefits. For instance, creating new markets, and reducing operational costs, administrative costs and workforce are increasingly important aspects for the banks' competitiveness, and e-banking improved these aspects as well. So, Bangladeshi banks should take these advantages of e-banking in Bangladesh economy as early as possible.

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REFERENCES

- Adesina AA, Ayo CK (2010). An empirical investigation of the level of users' acceptance of e-banking in Nigeria. *J. Int. Bank. Com.* 15(1): 1-13.
- Ali MM, Ahmed R, Rahman A, Azam MM (2007). Electronic banking in Bangladesh: potential and constraints. *Dhaka Uni. J. Mar.* 10: 1-19.
- Awal MA (2004). Internet in Bangladesh: past, present and a better future. Asia Pacific Networking Group.
- Azam MS (2005). Adoption of personal computer in Bangladesh: The effects of perceived innovation characteristics. *Proceeding of the 2nd International Conference of the Asian Academy of Applied Business (AAAB). Indonesia.* pp. 647-655.
- Azam MS (2007). Implementation of B2C E-commerce in Bangladesh: The effects of buying culture and e-infrastructure. *Adv. Glo. Bus. Res.* 3(1): 55-81.
- Bakta NC, Sarder MMR (2007). Online banking: Bangladesh perspectives. Paper prepared for presentation at the XVI Biennial Conference.
- Balachandran BKG (2000). E-banking developments in Malaysia: prospects and problems. *J. Int. Bank. Law,* 15(10): 250-256.
- Bruene J (2002). Online banking by the numbers. <http://www.onlinebankingreport.com>.
- Burr W (1996). Wie informations technik die bank organisation verändern könnte. *Bank Mark.* 11: 28-31.
- Chang YT (2003). Dynamics of banking technology adoption: an application to internet banking, Department of Economics, Workshop Presentation, University of Warwick, Coventry, UK.
- Consulting G (2008). Using technology to engage retail banking customers. Why banks must carefully manage their digital touchpoints to create a seamless customer experience. http://www.adobe.com/engagement/pdfs/gallup_retail_banking_white_paper.pdf
- Daniel E (1999). Provision of electronic banking in the UK and the Republic of Ireland. *Int. J. Bank Mark.* 17(2): 72-82.
- Dhekra A (2009). The adoption of electronic banking in Tunisia: an exploratory study. *J. Int. Bank. Comm.* 14(3): 1-11.
- Feinman T, Goldman D, Wong R, Cooper N (1999). Security basics: a white paper. <http://www.pwc.com>.
- Financial Services Security Lab Background (2001). Security issues and threats. Banking Industry Technology Secretariat. <http://www.bitsinfo.org/ppindustry>.
- Furash EE (1994). Payments system under siege: customers want information along with monetary transfers, Non-banks are providing it. *ABA Bank. J.* 86(6): 55.
- Furst K, Lang W, Nolle D (2000b). Who offers internet banking? *Special Studies on Technology and Banking, Q. J., available at: www.occ.treas.gov/special7-6.pdf,* 19(2): 29-48.

- Gates B (2008). Banking is essential, banks are not. <http://www.slideshare.net/Carolederks/banking-is-essential-banks-are-not-presentation>.
- Goi C.L. (2005). E-banking in Malaysia: Opportunities and Challenges, *J. Internet Bank. Comm.*, 10(3).
- Graven MP (2000). Electronic money, PC magazine. August.
- Guangying H (2009). An experimental investigation of online banking adoption in China. *J. Int. Bank. Comm.*, 14(1): 1-11.
- Gurau C (2002). E-banking in transition economies: the case of Romania. *J. Fin. Ser. Mark.*, 6(4): 362-379.
- Halperin K (2001). Balancing act, company business and marketing. February.
- Islam M (2005). Proposed IBT infrastructure for e-banking in Bangladesh, Master of Science Thesis, Royal Institute of Technology (KTH), Stockholm, Sweden.
- Islam M (2005). Proposed ICT infrastructure for e-banking in Bangladesh. Published in web site: <http://www.dsv.su.se/research/seclab/pages/pdf-files/2005-x-254.pdf>.
- Jasimuddin S (2004). Saudi Arabia banks on the Web, Retrieved 15 November 2004, from <http://www.arraydev.com/commerce/jibc/0103-02.htm>.
- Kamel S (2005). The use of information technology to transform the banking sector in developing nations, *Inf. Tech. Dev.* 11(4): 305-312.
- Khan AS (2001). Telecom industry in Bangladesh: current status and emerging issues. *Telecommunications in Bangladesh: Emerging Issues*.
- Maiyaki AA, Mokhtar SS (2010). Effects of electronic banking facilities, employment sector and age-group on customers' choice of banks in Nigeria. *J. Int. Bank. Comm.*, 15(1): 1-8.
- Marenzi O, Hickman M, Dehler L (2001). Is internet banking profitable? A study of digital insight's offering. Digital insight website. <http://www.aba.com>.
- Mia MAH, Rahman MA, Uddin MM (2007). E-banking: evolution, status and prospects. *Cost Manage.* 35(1): 36-48.
- Mols N (1998). The behavioral consequences of PC banking. *Int. J. Bank. Mark.*, 16(5): 195-201.
- Nath R, Shrick P, Parzinger M (2001). Bankers perspectives on Internet banking. e-Service Jour. Indiana University Press.
- Polatoglu VN, Ekin S (2001). An empirical investigation of the Turkish consumers' acceptance of internet banking services. *Int. J. Bank. Mark.* 19(4): 156-65.
- Pyun CS, Les S, Kiseok N (2002). Internet banking in the U.S., Japan and Europe. *Multinational Bus. Rev.*, 10(2): 73.
- Rahman M (2003). Present status of e-banking in Bangladesh. *Jour.al of the Ins. of Bankers Bangladesh.* 50(1).
- Rahman MM (2007). Innovative technology and bank profitability: The Bangladesh experience. Policy Analysis Unit (PAU), Bangladesh Bank WP 0803.
- Raihan A, Chowdhury A (2000). E-commerce in Bangladesh: a readiness assessment. Available at http://www.dnet-bangladesh.org/profile/ananya_raihan.html.
- Ranks- ITT Ltd. URL: <http://www.ranksitt.net/nwisp.php>.
- Salehi M, Ali M, Zhila A (2008). Islamic banking practice and satisfaction: empirical evidence from Iran. *ACRM J. Bus. Manage. Res.* 3(2): 35-41.
- Salehi M, Alipour M (2010). E-banking in emerging economy: empirical evidence of Iran. *Int. J. Econ. Fin.*, 2(1): 201-209.
- Salehi M, Zhila A (2008). Fraud detection and audit expectation gap: empirical evidence from Iranian bankers. *Int. J. Bus. Manage.*, 3(10): 65-77.
- Sathye M (1999). Adoption of internet banking by Australian consumers: an empirical investigation. *Int. J. Bank. Mark.*, 17(7): 324-34.
- Thulani D, Tofara C, Langton R (2009). Adoption and use of internet banking in Zimbabwe: an exploratory study. *J. Int. Bank. Comm.*, 14(1): 1-13.
- Treadwell T (2001). Community CU increases online apps with digital insight's AXIS e-Commerce portal. CUES Tech Port. <http://www.cuestechooort.com>.
- United Nations Conference on Trade and Development (UNCTAD) (2002). E-commerce and development report. New York and Geneva: United Nations.