# PROJECT PAPER

## E-commerce and online Banking in Bangladesh

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# LETTER OF TRANSMITTAL

05 August 2007

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Dear Sir,

With great pleasure, I am submitting the Project report on *"E-Commerce and Online Banking Process in Bangladesh – A new horizon in the business world".* E- Commerce is a big sector and it is all most impossible to cover all the parts of E-Commerce in my report but I tried hard to cover most of the side of *Banking Sector of e-commerce.* I have tried my best to follow your instructions to complete this report within the selected time. I really enjoyed doing such a challenging assignment.

 In the circumstances, if you have further queries regarding this report, I gladly remain stand by whenever you ask for it.


Thanking You.

*Tasrik Tamanna*

Yours truly
Tasrik Tamanna Taznin
ID # 2003-2-10-189

# ACKNOWLEDGEMENT

At first I want to pay our gratitude to all mighty Allah for preparing the report successfully. Then, I want to pass my gratefulness to my honorable course instructor, **M Sayeed Alam**, for giving me the opportunity for giving me an overall concept on the **E-commerce and Online Banking**. His contribution to me can only be acknowledged but never be compensated. I would like to give thanks cordially to **all those Participant** whom documents made my works a lot easier, which will enhance my knowledge about **E-commerce and Online Banking Process in Bangladesh.**

# INDEX

# 1. INTRODUCTION

Thousands of years ago at the dawn of human civilization, agricultural society evolved from the plough. In the second half of the eighteenth century, with the advent of the steam engine the industrial revolution took place in Europe. Now at the dawn of the new millennium another revolution of entirely different kind is taking place across the globe -- a silent revolution, much more powerful and all pervasive - it is information technology revolution. No wonder that the present age is being called the information age. E-commerce is another born child of human brain which is originated from the revolution of information technology.

E-commerce brings the universal access of the internet to the core business processes of buying and selling goods and services. It helps generate demand for products and services and improves order management, payment, and other support functions. The overall goal is to cut expenses by reducing transaction costs and streamlining all kinds of processes. The internet's worldwide reach helps business discover new markets while increasing the speed of access and the speed of transactions.

Electronic commerce or e-commerce covers many forms of trade of goods and services, all of which rely on the internet to market, identify, select, pay for and deliver these goods and services. Although it originated in developed countries, e-commerce has changed the perspectives of entrepreneurs the world over, including the remote areas of developing countries. E-commerce and e-banking or online banking is in its nascent state in Bangladesh. We should develop e-commerce culture to create such buyers who would expect quick service and supply. Bangladesh can specialize in e-service, any service that can be provided through internet. More and more services will emerge which will be just appropriate for providing through internet.

## 1.2. Problem Statement

The research is administered to identify the problems of e-commerce and online banking services and its probable solution form customer point of view and for this reason researcher try to find out the attitudes of customers about online banking service about what kind of services customers want and what should be done to improve the performance of online banking for flourishing e-commerce.

## 1.3. Research Objective

The main objective of the study is to identify the account holder's attitude towards online banking.

## 1.4. Hypothesis

H-1: Customer feels secured for online banking
H-2: Utility Bill Payment by Online bank is flexible
H-3: Online Banking is Costly
H-4: Fund deposit is flexible by online banking

## 2.1. What is E-commerce?

"E-commerce is the buying and selling processes supported by electronic means, primarily the internet."

**Kotler, Philip (2005)**, *Principles of Marketing*, **Pearson Education, 10th Ed.**

E-commerce can be defined in several ways:

1.  From a *communication* perspective, e-commerce is the ability to deliver products, services, information, or payments via networks such as the internet and the World Wide Web.

2.  From an *interface* perspective, e-commerce involves various information and transaction exchanges: business to business, business to consumer, consumer to consumer etc.

3.  From a *business process* perspective, e-commerce includes activities that directly support commerce electronically by means of networked connections. Within business process (manufacturing, inventorying, and operation) and business to business process (supply chain management) are managed by the same networks as business to consumer process.

4.  From an *online* perspective, e-commerce is an electronic environment that makes it possible to buy and sell products, services and information on the internet. The products may be physical such as cars or services such as news or consulting.

5.  From a *structural* perspective, e-commerce involves various media: data, text, web pages, internet telephony and internet desktop video.

6.  As a *market*, e-commerce is a worldwide network. A local store can open a web storefront and find the world at its doorstop commerce, supplier, competitors, and payment service.

From its inception, electronic commerce had included the handling of purchase transactions and funds transfers over computer networks. Its grown now to include the buying and selling of new commodities such as electronic information. And the opportunities for companies seeking to take advantage of the capabilities of electronic commerce are greater than merely adopting our present view of commerce to performing those same transactions over electronic network.

Electronic commerce enables new forms of business, as well as new ways of doing business. Amazone.com, for example, is a bookseller based in Seattle, Washington. The company has no physical stores, sells all their books via the internet, and coordinates deliveries directly with the publishers so they do not have to maintain any inventory. Examples from Bangladesh are seradam.com, clickbd.com, dhakashop.com, edhaka.com etc.

## 2.2. Types of E-commerce

The trend in e-commerce is to integrate the entire transaction life cycle, from the time the consumer purchases the product on the web site to the time the product is actually received. This life cycle centers around four major e-commerce applications or types.

The three major types of e-commerce are given below:
- B2B (Business to Business)
- B2C (Business to Consumer)
- C2C (Consumer to Consumer)

### 2.2.1. B2B (Business to Business) E-commerce:
Using B2B trading networks, auction sites, spot exchanges, online product catalogs, barter sites, and other online resources to reach new customers, service current customers more effectively and obtain buying efficiencies and better prices.

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### 2.2.2. B2C (Business to Customer) E-commerce:

B2C is the online selling of goods and services to final customers. The focus of this e-commerce application is on the consumer's use of web storefront of web site. Consumers anywhere can browse and order goods and services online anytime.

### 2.2.3. C2C (Consumer to Consumer) E-commerce:

C2C is the online exchange of goods and information between final consumers.

## 2.3. Advantage and limitation of E-Commerce

The digital age and the digital revolution affect every one of the society. Changes in telecommunication are affecting the way we receive and transmit information, product announcements, purchase orders etc. as the telephone, the fax machine, PCs, and printers have become essential ingredients in doing business, so have e-mail. Web storefronts, and integrated digital communications. The much talked about "digital governance" will drive all these piece of hardware into one digital platform, whether it is a computer connected to the internet or computer interacting with other computers or device, because such connectivity will prove to be more efficient and effective. Beside all these things there are some advantage and disadvantage those are presented in the next part.

### 2.3.1. Advantages of E-Commerce

- *Lower cost:* doing e-business on the internet is cost effective, it reduces logistic problem and puts a small business on a par with giant business organization like Amazon.com.

- *Economy:* E-commerce is economical. Unlike the brick-and-mortal environment, in e-commerce there is no rental of physical store space, insurance, or infrastructure investment. All you need is an idea, a unique product and a well designed web storefront to reach your cyber-customers, plus a partner to do fulfillment.

- *Higher margin:* E-commerce means higher margin. For example. The cost of processing a conventional airline ticket is $8.0. According to one travel agency, processing the same ticket (e-ticket) over the internet cost $1.0 only. Along with higher margins, business can gain more control and flexible and are able to save time when manual transactions are done electronically.

- *Better customer service:* E-commerce means better and quicker customer service. Web-based customer service makes customers happier. Instead of calling company on the phone, holding for ten minutes then getting to a clerk who taps into the company account, the web merchant gives customers direct access to their personal account over the web. It saves time and money. It is a win-win proposition. For companies that do business with other companies. Adding customer service to the web is a competitive advantage. The overnight package delivery service, where tracking numbers allow customers to check the whereabouts of a package online, is a good example.

- *Quick comparison shopping:* E-commerce helps consumers to comparison shop. Automated online shopping assistants called hop bots scour Net store and find deals on everything from applesauce to printer ribbons.

- *Productivity gains: E-commerce means productivity gains.* Weaving in the web throughout an organization means improved productivity. For example we can say about IBM, which incorporated web into every corner of the firm- products, marketing, and purchase.

- *Teamwork:* E-commerce helps people work together. E-mail is one example of how people collaborate to exchange information and work on solutions. It has transformed the way organizations interact with suppliers, vendors, business partners, and customers. More interact means better overall results.

- *Knowledge markets:* E-commerce helps create knowledge market. Small groups inside big firms can be funded with seed money to develop new ideas. It helps firms to conduct market research and develop new products and services.

- *Information sharing, convenience and control:* Electronic market places improve information sharing between merchants and customers and promote quick, just-in-time deliveries. Convenience for the customer is a major driver for changes in various industries. Customers and merchants save money, experience no traffic jams, no crowds, and do not have to carry heavy shopping bags. Control is another major driving factor. For example, instead of banks controlling the relationship with the customers, customers today can have more control of their banking needs via internet web sites.

## 2.3.2. Limitations of E-commerce

Even though we can generate a long list of advantages and benefits, there are still problems and drawbacks to consider before plunging into web business. Here are just a few of these problems.

- Security: security continues to be platform for an online business. In a 2000 Economist article, 95% of American expressed reluctance to give out their credit card numbers via internet. For millions of potential cyber-customers, the fear of credit card theft is a real one. Customers have to feel confident about the integrity of the process before they commit to the purchase.

- System and Data integrity: Data protection and integrity of the system that handles the data are serious concern. Computer viruses are rampant, with new viruses discovered every day. Viruses cause unnecessary delays, file backups, storage problems, and the like. The danger of hackers accessing files and corrupting accounts adds more stress to an already complex operation.

- Lack of confidence among the customers

- Consumer search is not efficient or cost-effective

# 2.4. Online Banking

### 2.4.1. Origin of online banking

The advent of the Internet and the popularity of personal computers presented both an opportunity and a challenge for the banking industry.

For years, financial institutions have used powerful computer networks to automate millions of daily transactions; today, often the only paper record is the customer's receipt at the point of sale. Now that its customers are connected to the Internet via personal computers, banks envision similar economic advantages by adapting those same internal electronic processes to home use.

Banks view e-banking as a powerful "value added" tool to attract and retain new customers while helping to eliminate costly paper handling and teller interactions in an increasingly competitive banking environment

Recent developments in information and communications technology (ICT) and the rise in the volume of banking business performed electronically are causing what will be a vital catalyst for changing the business policies of financial institutions like internet banking or electronic banking and some of banks in Bangladesh are coming forward for online banking.

## 2.4.2. Advantages of online banking

- Convenience: Unlike your corner bank, online banking sites never close; they're available 24 hours a day, seven days a week, and they're only a mouse click away.

- Ubiquity: If you're out of state or even out of the country when a money problem arises, you can log on instantly to your online bank and take care of business, 24/7.

- Transaction speed: Online bank sites generally execute and confirm transactions at or quicker than ATM processing speeds.

- Efficiency: You can access and manage all of your bank accounts, including IRAs, CDs, even securities, from one secure site.

- Effectiveness: Many online banking sites now offer sophisticated tools, including account aggregation, stock quotes, rate alerts and portfolio managing programs to help you manage all of your assets more effectively. Most are also compatible with money managing programs such as Quicken and Microsoft Money.

## 2.4.3. Disadvantages of online banking

- Start-up may take time: In order to register for your bank's online program, you will probably have to provide ID and sign a form at a bank branch. If you and your spouse wish to view and manage your assets together online, one of you may have to sign a durable power of attorney before the bank will display all of your holdings together.

- Learning curve: Banking sites can be difficult to navigate at first. Plan to invest some time and/or read the tutorials in order to become comfortable in your virtual lobby.

- Bank site changes: Even the largest banks periodically upgrade their online programs, adding new features in unfamiliar places. In some cases, you may have to re-enter account information.

- The trust thing: For many people, the biggest hurdle to online banking is learning to trust it. Did my transaction go through? Did I push the transfer button once or twice? Best bet: always print the transaction receipt and keep it with your bank records until it shows up on your personal site and/or your bank statement.

## 2.5. Main Challenges facing by Online Bank

When the customers use the internet to move or hold their money, they expect messages to arrive at their destination without error or interception; they expect the system to be safe from fraudulent or unauthorized access; and they expect to enjoy the same degree of customer confidentiality as with conventional banking arrangements. They want to be assured not only that the execution process is reliable and secure, but also that there are adequate controls on "read only" access facilities.

One of the main challenges therefore facing Internet banking is that of security of data and confidentiality, both for the user and the bank. By virtue of the nature of banking, absolute confidence in the privacy and security of data is a fundamental requirement and needs to be demonstrated not only to the bank's own clients and internal auditors, but also to external auditors and regulators.

## 2.6. How can we as bank supervisors obtain these assurances?

Inevitably we will have to depend to a large extent on the experts who have and continue to devise sophisticated methods. The key components of these methods, which will help maintain a high level of public confidence in an open network environment, include:

- Security
- Authentication
- Certification
- Non-repudiation
- Privacy

## 2.6.1. Security

Although the publicly accessible Internet is generally less secure than the direct dial-in access system, both types of connections are vulnerable to interception and alteration. For example, software "sniffers" can obtain passwords, account numbers, credit card numbers, etc. without regards to the means of access.

Firewalls are frequently used on Internet banking systems as a security measure to protect internal systems and should be considered for any system connected to an outside network. They provide the gateway to guard against unauthorized individuals gaining access to the bank's network. The mere presence of a firewall does not ensure security, as firewalls are not impenetrable. There are instances where the existing privacy protection regime afforded Internet banking customers have proven inadequate.

## 2.6.2. Authentication

Authentication is a process that provides confidence to the message receiver on the identity of the sender and the integrity of the message itself. In a digital environment, authentication is achieved through the use of a digital signature, which is analogous to a handwritten signature. This piece of data asserts that a named person wrote or otherwise agreed to the document to which the signature is attached. Authentication is usually implemented through the use of Encryption technology.

Encryption is the transformation of data into an unreadable form. The purpose of encryption is to provide secrecy by keeping the information hidden. Information can be encrypted through use of an encryption key and decrypted for viewing via a decryption key. Public key cryptography and secret key cryptography are currently the two leading cryptosystems. For secret key cryptography, only the sender and the receiver know the common encryption and decryption key. The main concern here is to getting the sender and receiver to agree upon a secret key without anyone else finding out.

## 2.6.3. Certification

A trusted third party is a necessary part of the Internet banking process. A certificate authority is a trusted third party that verifies identities in cyberspace. Certificates issued by certifying authorities are issued to deter and detect an entity from impersonating another using a fake key. Some people think of the certificate authority functioning like an online notary.

### 2.6.4. Non-repudiation

Non-repudiation is the undeniable proof of participation by both the sender and receiver in a transaction. It is one of the reasons public key encryption was developed, i.e., to authenticate electronic messages and prevent denial or repudiation by the sender or receiver. There are two sides to non-repudiation: one side is relevant to the sender, known as non-repudiation of origin, and to assure that the sender cannot deny having sent the message. The other side is at the receiver's side, known as non-repudiation of receipt, to assure the receiver cannot deny the receipt of the message. Both of these are extremely important to the banking community.

### 2.6.5. Confidentiality

Confidentiality deals with protecting the contents of message or data transmitted over the Internet from unauthorized people. For example, one wants to protect his/her credit card information when he/she purchases over the Internet.

## 2.7. The concept of money in Online Banking

The electronic revolution in banking basically centers in changes in the distribution channels of financial institutions. The basis of the emergence of the modern electronic distribution channels is the result of the evolution of the concept of money.

In the days of barter trade, the ability to pay for goods and services was reflected in the physical existence of the goods, which could be used for exchange. Then came hard cash in the form of coins made of precious metals. This was then followed by the advent of fiduciary money in the forms of modern coins and paper notes.

Today, an individual's ability to pay for goods and services simply reflected in the accounting records of his or her bank. Thus it is important to realize that now money is just defined as just information, which can be electronically transmitted to facilitate economic transactions. It is new definition of money, which is the prime attribute for electronic transaction of any kind. And we can name the money as *E-Money*.

## 2.8. Security issues for Online Banking

As E-banking gives many opportunities to customers and it works with extra capabilities that brings the customers to engage in e-banking functions it causes some security risks. So many security issues involve regarding online banking security. Because some one can impersonate another person or process and steal others information like banking information. So it is a matter of concern for every customer that is his or her money is really saved in Bank. So security issues are mainly discussed here in two perspectives in the next section.

1. Software security/ Application level security
2. External security issue/ communication security

- **Operational risk**

Operational risk arises from the potential for loss due to significant deficiencies in the system's reliability and integrity. Banks that offer financial products and services through the Internet must be able to meet their customers' expectations. Customers who do business over the Internet are likely to have little tolerance for errors or omissions from financial institutions that do not have sophisticated internal controls to manage their Internet banking business. Attacks or intrusion on banks' computer and network systems are a major concern. Studies have shown that systems are more vulnerable to internal attacks than external, because internal system users have knowledge of the system and access.

It arises from the fact of some external events (like natural hazards), processes, systems, people etc. in the execution phase error occurred due to internal failure of processes, systems etc. external event causes serious operational risk due to natural disaster. It sometimes arises from the part of customers such as misuse of system and inadequately designed and implemented electronic business system.

The various types of operational risks are the followings

- **Security risks**

Operational risk arises with respect to the controls over access to a bank's critical accounting and risk management systems, information that it communicates with other parties and, in the case of electronic money, measures the bank uses to deter and detect counterfeiting. Controlling access to bank systems has become increasingly complex due to expanded computer capabilities, geographical dispersal of access points, and the use of various communication paths, including public networks such as the Internet. It is worth noting that with electronic financial transaction, a breach of security could result in fraudulently created liabilities of the bank. For other forms of electronic banking, unauthorized access could lead to direct losses, added liabilities to customers or other problems.

A variety of specific access and authentication problems could occur. For example, successful attack by hackers via Internet he/she can cause severe danger by accessing confidential customer information. Some of the threat may occur like Replay attack Besides the external attack, an e-banking site must be well equipped to deal with some internal bad practice like employee fraud: employees could surreptitiously acquire confidential information of the customer for some evil aspects.

- **System design, implementation and maintenance**

A bank faces the risk that the systems it chooses are not well designed or implemented. For example, a bank is exposed to the risk of an interruption or slow-down of its existing systems if the electronic banking system it chooses is not compatible with user requirements.

The rapid pace of change that characterizes information technology presents banks with the risk of systems obsolescence. Furthermore, rapid technological change can mean that staff may fail to utilize the power of newly adapted technology for e-banking.

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## Customer misuse of products and services

As with traditional banking services, customer misuse, both intentional and inadvertent, is another source of operational risk. In the case of e-banking this sort of risk is predominating if a bank does not adequately educate its customers about security precautions such as authentication information, credit card number etc. Subsequently, the bank may incur financial losses because of transactions customers did not authorize.

## Strategic risk from management perspective

Financial institution's board and management should understand e-banking risks and evaluate the risk and cost to minimize associate risks prior to offer e-banking service. Strategic risks result from (bad) business decisions taken by management. Specifically, the danger of not being able to keep up with rival technologies is the source of the greatest strategic risk. Technology is so important for e-banking operations that there is a correspondingly great need to invest in new technologies. Innovators assume most of the risk. It is often impossible to foresee whether a new product will survive on the market or whether a project can be successfully brought to conclusion. Failed IT projects can raise the amount of misallocated investment; thus, instead of reducing costs, e banking would have precisely the opposite effect. Therefore, some institutions are pursuing the strategy of imitation. Such banks not only save costs on IT development but also have the advantage of knowing that a technology has proved to be feasible and that the market has shown initial signs of acceptance. A major disadvantage of this strategy is that if circumstances cause the technology to be entered into production too late, the market segment could already be occupied.

The rapid pace of innovation in e-business is requiring banks to make e-banking strategy decisions as quickly as possible, since technological innovation and customers' tastes may radically change. Frequently there is no way to predict which technology and which terminals (e.g. mobile phones, television set, PDAs ) will prevail.

Missteps in the planning and implementation of strategy engender considerable risks. The responsibility for these decision lies with the senior management of the bank.

## Reputational risk

Banking business is especially sensitive to fluctuations in confidence. Therefore, reputational risk, particularly in a relatively new field of business, represents a special challenge for banks. Customers' confidence in their bank can be shaken if the bank is not able to provide secure and trouble-free e-banking services. The same is true if services

## Legal risk

Legal risk arises from the violations of or non-conformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of parties to a transaction are not well established. Given the relatively new nature of many internet banking activities, the rights and obligations of parties to such transactions are, in some cases, uncertain.

Electronic money schemes may be attractive to money launderers if the systems offer liberal balance and transaction limits, and provide for limited audit trail for these transactions. Application of money laundering rules may be inappropriate for some forms of payments over the Internet because some of the funds transferred can be conducted remotely, and banks may face increased difficulties in applying traditional methods to prevent and detect criminal activity. Another legal risk involves customer disclosures and privacy protection, as some customers who have not been adequately informed about their rights and obligations may bring legal action against the bank.

One of the key requirements of any web site is clear disclosure on who may be considered suitable customers. Failure to exclude certain groups can lead to promoters being subject to enforcement action in jurisdictions where they have no direct involvement. It is essential that all web sites are formatted as an 'invitation to treat' and that a contract is only brought into effect in jurisdictions where it is appropriate, with clients from jurisdictions acceptable to home and host regulators.

Finally, with respect to legal risk, the role of a certification authority may also expose a bank to significant risk, as it could be found liable for financial losses incurred by parties relying on the certificate.

As electronic business expands, banks may seek to play a role in electronic authentication systems, such as those using digital certificates. The role of a certification authority may expose a bank to legal risk. For example, a bank acting as a certification authority may be liable for financial losses incurred by parties relying on the certificate. In addition, legal risk could arise if banks participate in new authentication systems and rights and obligations are not clearly specified in contractual agreements.

**Outsourcing**

A growing trend in the industry is for banks to focus strategically on core competencies and rely on external parties specializing in activities outside the bank's expertise. While these arrangements may offer benefits such as cost-reduction and economies of scale, outsourcing does not relieve the bank of the ultimate responsibility for controlling risks that affect its operations. Consequently, banks should adopt policies to limit risks arising from reliance on outside service providers.

Security of the bank's sensitive information is of critical importance. Banks should therefore evaluate the ability of the service provider to maintain the same level of security as though the activities were conducted in-house. This can be done by reviewing the service providers' policies and procedures aimed at protecting sensitive data.

## 2.9. Security Resolve Strategy

It is obvious that security issue that deserves the highest importance in such system where security breaches could occur enormous disaster. Hence, it imposes security in two levels:

i.     Customer level authentication

ii.     Application level

iii.     IP level

### 2.9.1. Customer level authentication

It is very much needed to ensure the security of all levels in E-banking. One of the parts is customer authentication. In traditional system, to authenticate customers the central bank maintains a policy when they open account like it stores the photo and signature of the customer and later this process is used to verify customers. In our proposed system, customers can authenticate themselves by digital certificate which can be obtained from certificate authority.

### 2.9.2. Application level security management

In application level, many transactions are occurred electronically. Each transaction is required more than one message. Each message should have some desirable properties:

i.     Authenticity

ii.     Confidentiality

iii.     It is enforceable

iv.     Integrity

v.     Not reusable

Digital signature can be used to support all of these except confidentiality. It is a protocol that has same affect as real signature and maintains the properties mentioned above and it uses the public key cryptography.

**Digital signature**

In this process, sender signs the message and sign can be verified by anyone that it really comes from sender, so sender can not forge later and nobody can modify the message while in transit.

To ensure authenticity, receiver can verify the signature and understand that the message really comes from sender. Hash algorithm and asymmetric encryption is used to perform this operation.

**Digital certificate**

Digital signature is performed by using asymmetric encryption that involves two keys: public key and private key. Sender signs the message using his private key and receiver decodes it using senders public key, as public key is public anybody can get this key and can pretend to be as authentic and it can be continued until intended user inform other users. To avoid this problem digital certificate can be used. It is widely used for network security applications. The certificate authority provides the certificate and authority is trusted by everyone. It signs the message that contains user identification and public key. It also specifies which algorithms and parameter are used to perform digital signature. The authorities those provide Digital Certificate are VeriSign, Cybertrust or the US Postal Service

Source: **Awad, Elias (2006)**, *Electronic Commerce: From Vision to Fulfillment, 2ⁿᵈ* Ed

### 2.9.3. IP level security

IPSec is designed to secure communication across LAN, WAN and Internet. In the age of Information Technology many attacks like IP spoofing and various forms of eavesdropping and packet sniffing may occur. Through these sorts of attacks attacker can get authentication and read transmission information like logon information and database content

## 2.10. E-Commerce in Bangladesh

Many Bangladeshi companies currently distribute their images through the Internet to clients all over the world, but the monetary transactions take place through conventional means. Some companies put messages on bulletin board, on ' internet yellow pages' with email links, and sometimes web pages, but there never is a place to submit a credit card.

This is because currently the government does not permit credit card charges over the internet. However, the ISPs in Bangladesh do have the technology for e-commerce, and are anticipating governmental approval within the next year.

E-commerce sites needed to be hooked up to a merchant bank account. A merchant bank account allows a company to accept and process credit card transactions. All businesses that use electronic credit cards need to be hooked up to their merchant account. For example, in a grocery store, when one swipes a card through the card swipe machine, machine is hooked up to the grocery store's merchant account.

Though there are 53 banks in Bangladesh, mostly head quartered in Dhaka, most of them have web pages. However, most of these banks do not offer online or electronic service such as Direct Deposit. There are some ATM machines, though not nearly as concentrated as in the United States.

Ikota Forum in Bangladesh is an NGO that represents 14 producer organizations that represent 75,000 women. They have a web site produced entirely in Bangladesh. The site shows many of the products, all of which were made by very poor people in remote rural settings in Bangladesh.

Bangladesh's public power sector is inadequate, overloading and lack of maintenance cause frequent outages and necessary planned blackouts. How can a country like this be able to provide E-commerce, when the main component, "e," is never there!

Bangladesh began to purchase power from private companies in the U.S. The country has significant natural gas reserves, but the inadequate gas transmission system, as well as electricity transmission system, is a bottleneck to growth in this area. The gas company has signed exploration and development agreements and aid is coming in from the ADB and World Bank. In addition, transformers, wood poles, insulators, surge protectors, line tools and other parts needed for the electricity transmission system are

being brought into the country. Country's telecommunications services are also inadequate.

http://www.american.edu/carmel/ap1579a/ecom.htm

The recently established Incubation Centre at Kawranbazar, Dhaka with data transmission facility and uninterrupted electric supply will attract companies involved in software and IT enabled services to start their business from the centre. The nation is now eagerly waiting for the establishment of the High Tech Park with all modern infrastructural facilities planned at Kaliakair near Dhaka, which will be a milestone in IT industry, high tech industry and R&D in Bangladesh those will help our country to go ahead toward the new trend of electronic commerce.

Http://www.bangladeshgateway.orgitc_in_bd_mai.php

## 2.11. Present Involvement of ICT in banking of Bangladesh

Due to immense advances of information and communication technology (ICT), it certainly introduced new dimensions for the global E-banking community. It provides some attractive features for the customers than those offered by traditional banking system such as to open an account; it takes less time than traditional system. Other services offered like free fund transfer and free payment cards etc.

In case of traditional banking system a fund transfer, for instance, used to take several days whereas electronic banking is capable to perform the same operations within few seconds. Customers are getting better services now because of the development of ICT in E-banking and so bank now can perform its function with high speed and accuracy. But it is very frustrating to note that banking industry from Bangladesh's perspective still follow the so-called 'manual procedure'.

## 2.12. Scope of electronic banking in Bangladesh

For any electronic banking system the major cost goes for setting up a backbone network. For a country like ours it's a matter of huge investment. Fortunately Bangladesh Railway

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has a high-speed optical fiber network parallel to the railway path owned by Bangladesh Railway. Its total capacity is about 2.5 GBPS. This fiber optic network covers almost every important parts of the country. Hence, it can be used as the backbone network of electronic banking in Bangladesh. Some of the multinational companies like Grameen mobile phone company, Ranks ITT of Bangladesh have already started to use this high-speed optical fiber network and they are providing their services even in rural area. So we can utilize this opportunity in case of E-banking in Bangladesh.

## 2.13. The Law of Information Technology in Bangladesh

Still there is no Cyber Law in Bangladesh but there is a good sign for us that we are going to pass Cyber law. It will help us to control and reduce cyber crime. Initial part of the final report on the law of information technology, which is going to be implemented very soon in Bangladesh, is given below:

After the invention of computers and improvement in digital technology and communication systems dramatic changes have taken place in our lives. Business transactions are being made with the help of computers. Computers are being increasingly used by the business community and individuals to create, transmit and store information in the electronic form instead of traditional paper documents. Information stored in electronic form is easier, cheaper, much less time-consuming and less cumbersome than storage in paper documents. Information stored in electronic form is also easier to retrieve and speedier to communicate. In spite of all these advantages and although they are aware of these advantages people in our country are reluctant to conduct business or conclude transactions in electronic form due to lack of legal framework. At present, many legal provisions (such as the Evidence Act, 1872, the Penal Code, 1860. the Banker's Books Evidence Act, 1891, etc.) recognize paper based records and documents bearing signatures of parties and make them admissible in evidence in various disputes. Electronic commerce eliminates the need for such paper based transactions and as such, transactions in electronic form are often not recognized in courts thereby retarding the growth of electronic commerce. Many legal rules assume the existence of paper records and documents, signed records, original records, physical cash,

cheques, face to face meetings, etc. As more and more activities to-day are carried out by electronic means, it becomes more and more important that evidence of these activities be available to demonstrate legal rights and obligations that flow from them. As such, in order to facilitate electronic commerce, there is a need for a legal framework and also for legal changes. In 1996, the United Nations Commission on International Trade Law (UNCITRAL) adopted Model Law on electronic commerce known as the UNCITRAL Model Law on Electronic Commerce hereinafter referred to as the Model Law.

The Model Law establishes rules and norms that validate and recognize contracts formed through electronic means, sets default rules for contract formation and governance of electronic contract performance, defines the characteristics of a valid electronic writing and an original document, provides for the acceptability of electronic signatures for legal and commercial purposes and supports the admission of computer evidence in courts and arbitration proceedings. The Model Law does not have any force but merely serves as a model to countries for the evaluation and modernization of certain aspects of their laws and practices in the field of communication involving the use of computerized or other modern techniques, and for the establishment of relevant legislation where none exists.

In the above context, it is proposed to suggest enactment of a suitable law to facilitate electronic commerce and to encourage growth and development of information technology. Necessarily, such law has to be in conformity with the Model Law.

### 2.13.1. The objectives of the proposed legislation

Source: http://www.lawcommissionbangladesh.org/wplit.html

The objectives of the proposed legislation are to give effect to the following purposes:-
a) To facilitate electronic communications by means of reliable electronic records;
b) To facilitate electronic commerce, eliminate barriers to electronic commerce resulting from uncertainties over writing and signature requirements, and to promote the development of the legal and business infrastructure necessary to implement secure electronic commerce;

c) To facilitate electronic filing of documents with government agencies and statutory corporations, and to promote efficient delivery of government services by means of reliable electronic records;

d) To minimize the incidence of forged electronic records, intentional and unintentional alteration of records, and fraud in electronic commerce and other electronic transactions;

e) To help to establish uniformity of rules, regulations and standards regarding the authentication and integrity of electronic records; and

f) To promote public confidence in the integrity and reliability of electronic records and electronic commerce, and to foster the development of electronic commerce through the use of electronic signatures to lend authenticity and integrity to correspondence in any electronic medium.

While preparing this report proposing enactment of a law on electronic commerce the following matters are, therefore, required to be addressed in order to achieve the above purposes:-

i) Applicability of the Act

ii) The "Functional Equivalent" approach

iii) Electronic documents and electronic contracts

iv) Electronic governance

v) Electronic signatures

vi) The technology for electronic signatures

vii) Liability and risk allocation in a Public Key Infrastructure (PKI)

viii) Procedural aspects of PKI

ix) Contraventions

x) Cyber Regulations Appellate Tribunal (CRAT)

xi) Information technology offences

xii) Investigation, search and seizure

xiii) Limited liability of Network Services Providers

xiv) Cyber Regulations Advisory Committee

xv) Amendment/ repeal, etc., of related enactments.

Article 1 of the Model Law defines the sphere of application of the law as follows:-

"This Law applies to any kind of information in the form of a data message used in the context of commercial activities."

While limiting the applicability of the law to data messages in the context of only "commercial activities", in the substantive part of the Model Law, the United Nations Commission on International Trade Law (UNCITRAL) hereinafter referred to as the Commission made various alternative suggestions such as, it suggested for the states which might wish to limit the applicability of the Act to only international data messages the following text:- "The Law applies to a data message where the data message relates to international commerce"; and for the states that might wish to extend the applicability of the law, the following text:- "This Law applies to any kind of information in the form of data message, except in the following situations:"

The Commission also suggested giving the word "commercial" occurring in Article 1 of the Model Law the widest possible interpretation in order to include every conceivable transaction of a commercial nature.

On due consideration, it appears to us that the applicability of the Act need not be limited by using the term "commercial" as in Article 1 of the Model Law. The applicability should be wide enough and this purpose can be achieved by simply excluding certain matters specifically from its jurisdiction. In her Information Technology Act, 2000, India has excluded documents relating to the following five specific matters from the jurisdiction of the Act and has also authorized the Government to exclude any other

documents: (1) negotiable instruments, (2) powers of attorney, (3) trusts, (4) wills, (5) contracts for the sale or conveyance of immovable property and (6) any other documents or transactions as the Government may notify and except the above, the Act applies to all circumstances, types of transactions and documents. The Indian Act also extends the applicability relating to offences and contraventions beyond her territories. It also overrides all other laws in force in India.

In Singapore, the corresponding law is the Electronic Transactions Act, 1998. Following the second alternative suggestion made by the Commission in the Model Law, Singapore also sought to widen the applicability of the law by excluding the following transactions from the operation of the law:- (a) wills; (b) negotiable instruments; (c) the creation, performance or enforcement of an indenture, declaration of trust or power of attorney with the exception of constructive and resulting trusts; (d) contract for the sale or other disposition of immovable property, or any interest in such property; (e) the conveyance of immovable property or the transfer of any interest in immovable property; (f) documents of title and also authorized the Government to add, delete or amend any class of transactions or matters. It appears to us that in some respects the Indian provisions and in some respects the Singapore provisions regarding the applicability of the law are precise and clear.

http://www.lawcommissionbangladesh.org/wplit.html

## 2.14. E-commerce and Online Banking in Bangladesh: Problem and Prospect

Speakers at a seminar held in the city on March 23, 2003 identified inadequate telecommunications infrastructure, non-existence of legal frameworks and lack of efficient manpower as the main hindrances in developing e-commerce in the country. Prof M Lutfor Rahman of Independent University of Bangladesh presented keynote paper in the seminar. He also stressed the need for installing effective means for protection, authentication and confidentiality of the electronic information system for smooth

operation of e-commerce and coping with the challenges of global economy. The seminar titled 'E-commerce: Problems and Prospect' was organized by Rapport Bangladesh Limited (RBL) at its seminar hall. Chairman of Shahjalal Bank Limited, Sajjatuz Jumma was the chief guest at the seminar. Director General of the Bangladesh Institute of Bank Management (BIBM) M Sohrab Uddin presided over the seminar. He said that introducing encryption mechanism and using public key infrastructures might be helpful in this connection. 'The Prospect of e-commerce is enormous in Bangladesh, Jumma observed. He suggested that the government and the private sector should come up for exploring its potentials. Existing financial acts need to be amended and high-speed but low- cost reliable data communication facility requires to be ensured, he added. Executive Vice President, Dutch-Bangla Bank Limited (DBBL) Abul Kashem M Shirin stressed the need for setting up electronic payment gateway system in bank. M Mosharraf Hossain, Managing Director, Rapport Bangladesh Limited who presented the address of welcome in the beginning of the seminar said that centralized on-line banking and using digital certificate for making the transaction authenticated and encrypted are needed in this connection. He stressed manpower training as pre-requisite to success in e-commerce. Prof Dr Enamul Haque of the Economics Department of North South University (NSU) blamed the country's private sector mobile operators for charging higher rates and said this is hindering the development of telecommunications. The mobile phone companies now have a strong client base in the country and they can now stop charging incoming calls, he said. Abdus Sobhan, Vice Chancellor of the Prime University urged that the government to advise Bangladesh Railway (BR) to let other mobile operators use its Optical Fiber backbone to enhance telecommunications infrastructure across the country. At present, only one mobile operator can use BR's, Optical Fiber backbone, he added. Abu Sarwar, Director of International Finance and Credit Corporation (IFCC) of Australia urged the country's bankers to change their mindsets to adopt latest banking technologies. Assistant General Manager of Bangladesh Shilpa Rin Sangstha (BSRS) M Mahboob Ali stressed the need for introducing a clearing system and cheque truncation system In banking to adopt to the e-commerce environment. The seminar was also addressed by senior official of the International Trade Centre (ITC) Nicolai V Semine and Faculty Member of Victoria University of

Wellington, New Zealand, Dr Waresul Karim and Shaidullah, Registrar, Darul Ihshan University.

Private sector urged to explore potentials of IT sector,
Business & Finance News Monday March, 24, 2003

# 3. METHODOLOGY

## 3.1. Research Design

On the broad classification of research "E-Commerce and Online Banking in Bangladesh" falls into problem identification research. Again on the basis of research design it follows conclusive research design. From the specific aspect research design it follows the cross sectional design which falls under descriptive research. In the survey method the researcher took personal interview to find out the customers attitudes toward online banking.

## 3.2. Sampling Design

The target population of the research is the people who have the idea regarding e-commerce, online banking system and service and have Bank account in different public and private sector banks. Non-probability judgmental sampling technique was followed in selecting sampling technique in this research. A sample size of 20 was taken to conduct the research.

## 3.3. Scaling Techniques

Non-comparative itemized rating and some comparative scaling technique was adopted in some of research questions. Research question scale was designed to find out Yes or No types answers for ten questions and a mixture of other types of questions were also been used which was essential to fulfill the purpose of the research. Complex and ambiguous questions were avoided to prepare the questionnaire.

## 3.4. Questionnaire Development and Pre-testing

Primary data was collected using structured questionnaires from different respondents. Initially some screening questions were used to identify the intended respondent who would be best fitted for the research. Initially seventeen questions were developed and pre-tested on five respondents. Finally ten questions were selected to conduct the survey among the respondent.

## 3.5. Model Development

### 3.5.1. Verbal Model

The independent variables are the Telecommunication infrastructure, legal frameworks, efficient manpower, authentication, confidentiality, encryption mechanism, public infrastructures, speed of data communication, cost of data communication, electronic payment gateway system, centralized on-line banking, digital certificate, the cost of private sector mobile operators, Optical Fiber backbone, latest banking technologies, clearing system, check transaction system.

Dependable variable is the success of E-Commerce in Bangladesh.

Independent variables have impact on the Dependable variable which is the success of E-Commerce.

## 3.5.2. Graphical Model



| |
|---|
| Telecom infrastructure |
| Efficient manpower |
| Authentication |
| Legal frameworks |
| Confidentiality |
| Check Transaction System in Banking is needed |
| Cost of data communication |
| Electronic payment gateway system |
| Centralized on-line banking |
| Digital certificate |
| Speed of data communication |
| Optical fiber backbone |
| Central Clearing system |

BUYER

Online Banks

Seller

Success of E- Commerce

## 3.5.3. Mathematical Model

$$Y = f (X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13)$$

**Dependent Variable:**
Y= Success of E-Commerce

**Independent Variables are:**
$f$, X1= Telecommunication Infrastructure
$f$, X2= We have efficient manpower for E-Commerce
$f$, X3= Speed of data communication is adequate
$f$, X4= Cost of data communication is high
$f$, X5= Optical fiber backbone will facilitate our E-Commerce
$f$, X6= The existing legal framework for E-Commerce is sufficient
$f$, X7= Authentication of E-Commerce is enough for doing business
$f$, X8= Confidentiality of E-Commerce is ok
$f$, X9= Central Clearing System
$f$, X10= Effective and Centralize Online banks
$f$, X11= The encryption (encode) mechanism is adequate
$f$, X12= Electronic payment gateway system is required to prosper E-Commerce
$f$, X13= Digital certificate is required

## 3.6. Data Collection

Data was collected through primary sources and secondary sources. Primary data was collected through surveys and observation. Survey questionnaires were administered through traditional personal interviewing. Interview was carried out by the researcher. Data was collected from service holder, business person, teacher, housewife and students those who have traditional and online bank accounts. The method of data collection for this descriptive research is single cross-sectional method. It took 20 days to collect primary data from different respondents. In case of secondary sources, different websites, news paper articles, journals, previous research etc. were crosschecked and different problems with probable solutions were found.

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## 3.7. Data Analysis

Survey was conducted on 20 respondents in Dhaka City who are the customers of different banks having both traditional and online banking account. Preliminary checking of all questionnaires were made for completeness and interviewing quality. Then more thorough editing took place. Editing consists of screening questionnaire to identify illegible, incomplete, inconsistent, or ambiguous responses. Most of the data are of interval scale and the rest are ordinal and nominal. The interval scale was used for questions answered. To analyze quantitative primary data SPSS 11.0 tool was used. The data was entered into the data sheet of SPSS tool after coding. Different techniques were used for different types of scaling for accurate results. Except percentage, frequency, correlation matrix, and cross tab, no complex statistical test was conducted to analyze the data. Rational judgment of the researcher was used for analyzing the qualitative data.

## 3.8. Limitations

As it is being an academic research the scope of the research was limited. Though the perspective of the research was whole Bangladesh, research was carried out only on Dhaka Metropolitan city area. The study was constrained by **time, money, manpower**. Sample size of the research was not big enough. The survey was conducted only on 20 respondents. Moreover respondents were not fully spontaneous and cooperative.

# 4. FINDINGS

## 4.1. Frequency Analysis:

**4.1 (a)**

**Prefered Service**

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Online Banking | 10 | 50.0 | 50.0 | 50.0 |
|  | SMS Banking | 10 | 50.0 | 50.0 | 100.0 |
|  | Total | 20 | 100.0 | 100.0 |  |

From the table we found that 50% respondents prefer Online Banking and rest of 50% prefer SMS Banking.

**4.2 (b)**

**Feel secured doing online banking**

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Yes | 14 | 70.0 | 70.0 | 70.0 |
|  | No | 6 | 30.0 | 30.0 | 100.0 |
|  | Total | 20 | 100.0 | 100.0 |  |



No, 30%

Yes, 70%

□ No
□ Yes
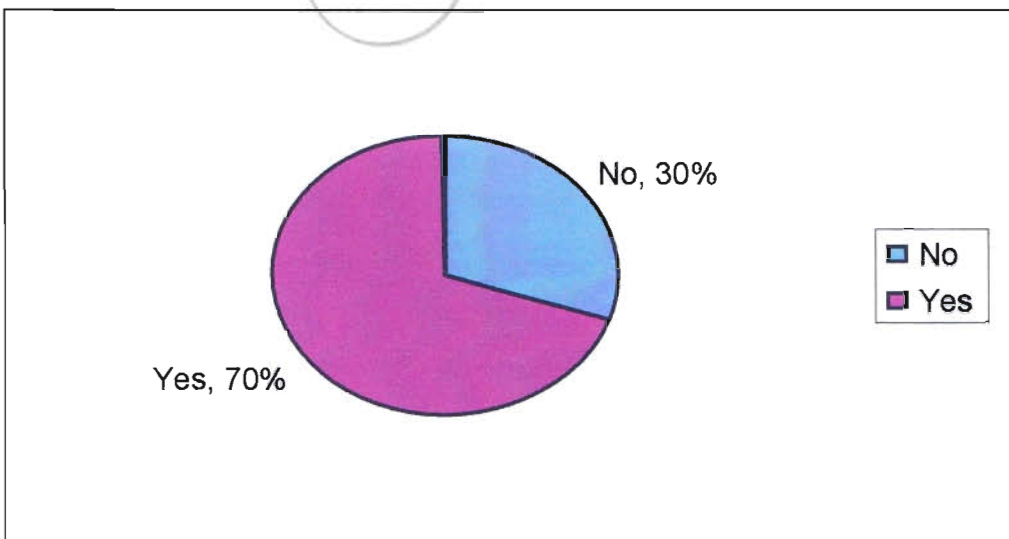
70% respondents feel secured of doing Online Banking and 30% says that they don't feel secure to do Online Banking.

**4.1 (c)**

**Prefering a system that allows to transfer fund from PC**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | Yes   | 19        | 95.0    | 95.0          | 95.0               |
|       | No    | 1         | 5.0     | 5.0           | 100.0              |
|       | Total | 20        | 100.0   | 100.0         |                    |
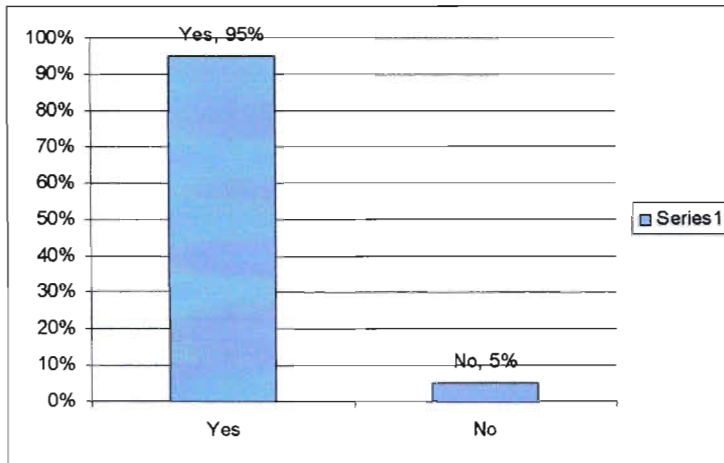


Among the respondents 95% prefer a system which will allow transferring fund from Personal Computer but 5% said that they don't prefer.

**4.1 (d)**

**Utility bill payment through Online Banking is flexible**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | Yes   | 15        | 75.0    | 75.0          | 75.0               |
|       | No    | 5         | 25.0    | 25.0          | 100.0              |
|       | Total | 20        | 100.0   | 100.0         |                    |

Utility Bill Payment through Online Banking is Flexible
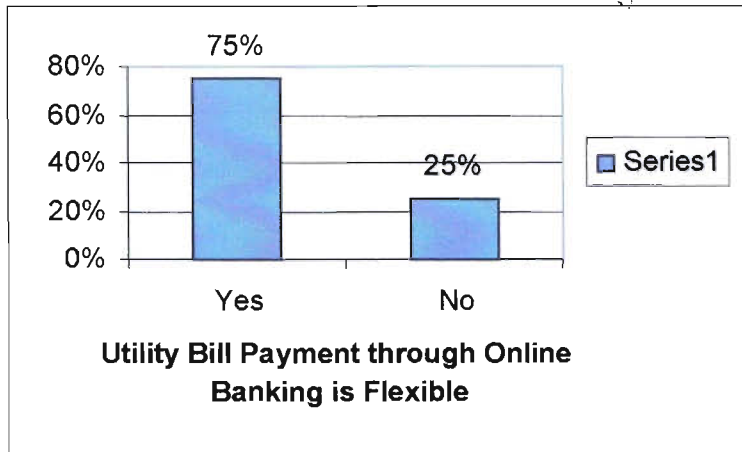
75% of the respondents said that they feel flexible to pay utility bill through Online Banking and 25% said no.

**4.1 (e)**

**Fund deposit by Online banking**

|         |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-------|-----------|---------|---------------|--------------------|
| Valid   | Yes   | 10        | 50.0    | 50.0          | 50.0               |
|         | No    | 10        | 50.0    | 50.0          | 100.0              |
|         | Total | 20        | 100.0   | 100.0         |                    |



**Fund Deposit by Online banking**
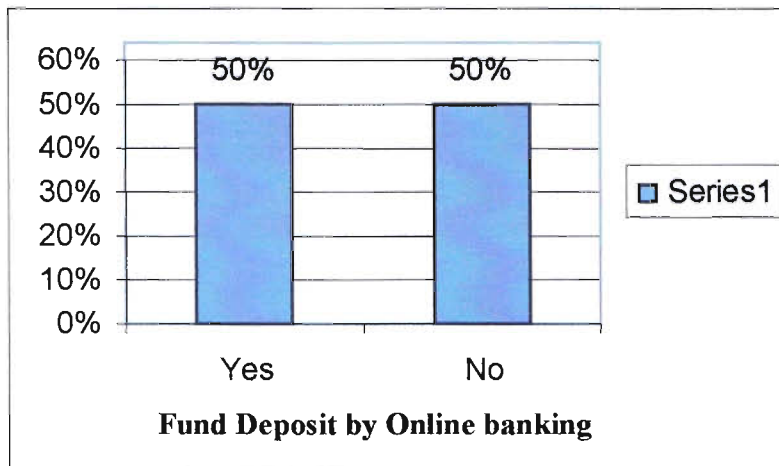
50% of the total respondents prefer to deposit fund by Online Banking and rest of 50% said no.

**4.1 (f)**

**A/C statement from website**

|        |     | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-----|-----------|---------|---------------|--------------------|
| Valid  | Yes | 20        | 100.0   | 100.0         | 100.0              |

100% respondents like to have Account Statement from the bank's website

**4.1 (g)**

**ATM booths are widely available**

|        |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-------|-----------|---------|---------------|--------------------|
| Valid  | Yes   | 1         | 5.0     | 5.0           | 5.0                |
|        | No    | 19        | 95.0    | 95.0          | 100.0              |
|        | Total | 20        | 100.0   | 100.0         |                    |
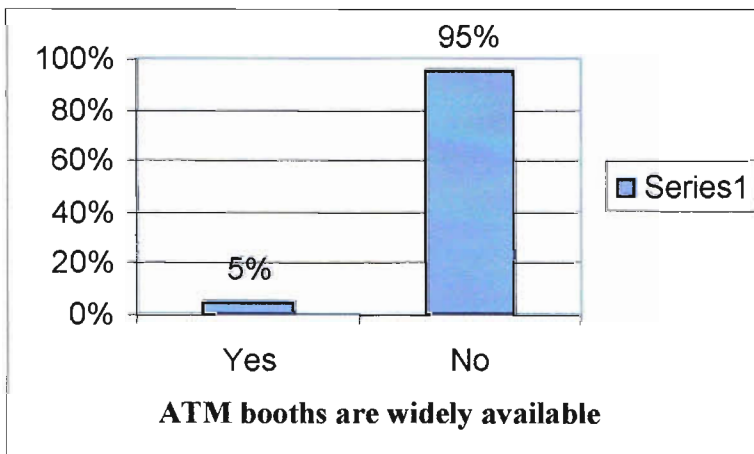


95% respondents think that ATM booths of Banks are not widely available and 5% think that there is a wide range of ATM booths.

**4.1 (h)**

**Online banking is costly**

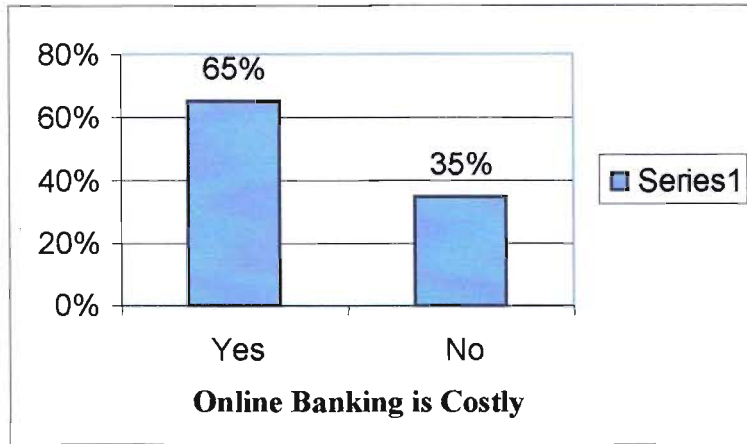|        |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-------|-----------|---------|---------------|--------------------|
| Valid  | Yes   | 13        | 65.0    | 65.0          | 65.0               |
|        | No    | 7         | 35.0    | 35.0          | 100.0              |
|        | Total | 20        | 100.0   | 100.0         |                    |



Online Banking is Costly

65% respondents said that online banking is costly but 35% said that it is not costly.

**4.1 (i)**

**The facility of inward remittance service**

|        |     | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-----|-----------|---------|---------------|--------------------|
| Valid  | Yes | 20        | 100.0   | 100.0         | 100.0              |

100% of the respondents said that they want to enjoy the service of inward remittance service through online banking.

**4.1 (j)**

**Extra payment for Online service per month**

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1200 | 2 | 10.0 | 10.0 | 10.0 |
|  | 750 | 2 | 10.0 | 10.0 | 20.0 |
|  | 600 | 4 | 20.0 | 20.0 | 40.0 |
|  | 300 | 12 | 60.0 | 60.0 | 100.0 |
|  | Total | 20 | 100.0 | 100.0 |  |



**Amount that respondents want to spend for online banking service**
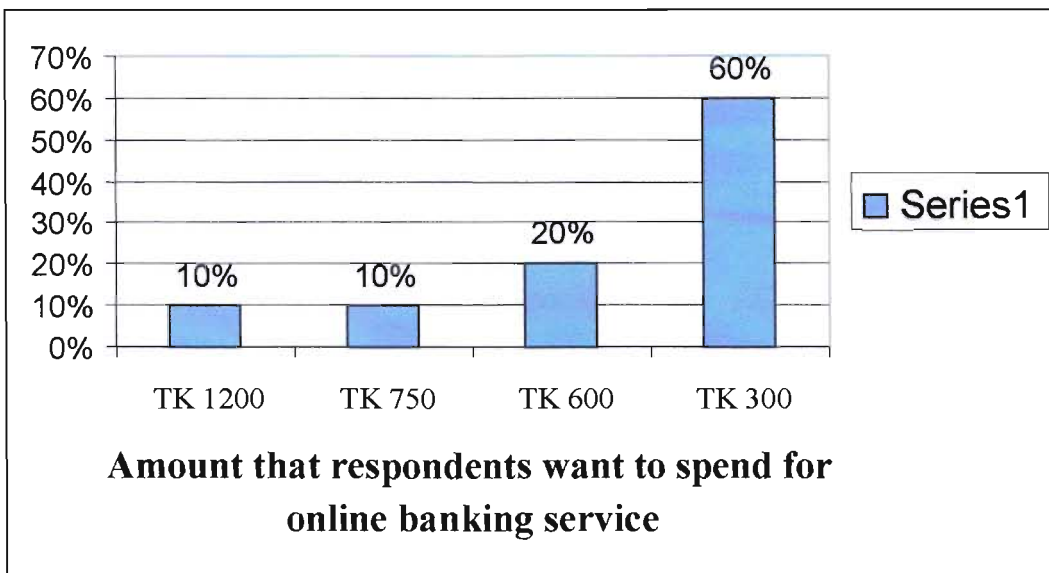
For online service 60% respondents said that they want to pay maximum Taka 300, 20% want to spend Taka 600, 10% want to spend Taka 750 and rest of 10% want to spend Taka 1200 for enjoying the service of Online Banking.

# 4.2. Crosstab Analysis:

Crosstab analysis between Fund deposit by Online banking and Feel secured doing online banking is presented below:

**Fund deposit by Online banking * Feel secured doing online banking Crosstabulation**

| | | | Feel secured doing online banking | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| Fund deposit by Online banking | Yes | Count | 5 | 5 | 10 |
| | | % within Fund deposit by Online banking | 50.0% | 50.0% | 100.0% |
| | | % within Feel secured doing online banking | 35.7% | 83.3% | 50.0% |
| | | % of Total | 25.0% | 25.0% | 50.0% |
| | No | Count | 9 | 1 | 10 |
| | | % within Fund deposit by Online banking | 90.0% | 10.0% | 100.0% |
| | | % within Feel secured doing online banking | 64.3% | 16.7% | 50.0% |
| | | % of Total | 45.0% | 5.0% | 50.0% |
| Total | | Count | 14 | 6 | 20 |
| | | % within Fund deposit by Online banking | 70.0% | 30.0% | 100.0% |
| | | % within Feel secured doing online banking | 100.0% | 100.0% | 100.0% |
| | | % of Total | 70.0% | 30.0% | 100.0% |

From the crosstab analysis table we see that 45 percent of accountholders feel secured regarding online banking but they are not interested to deposit fund by online banking and only 5 percent of the account holders didn't feel secure regarding online banking as well as they are not interested to deposit fund through online banking.

# 4.3. Correlation Matrix:

## Correlation Matrix

|          | PR_SERVI | SECURE  | TRNSFR_F | UTILITY | FUND_DEP |
|----------|----------|---------|----------|---------|----------|
| PR_SERVI | 1.0000   |         |          |         |          |
| SECURE   | .2182    | 1.0000  |          |         |          |
| TRNSFR_F | -.2294   | -.1502  | 1.0000   |         |          |
| UTILITY  | **-.5774** | -.1260 | -.1325  | 1.0000  |          |
| FUND_DEP | -.2000   | -.4364  | .2294    | **.5774** | 1.0000 |
| ATM_BTH  | -.2294   | -.3504  | .0526    | .1325   | .2294    |
| COST     | -.1048   | .2059   | -.1683   | .0605   | -.1048   |
| PAYMENT  | -.2985   | .3474   | -.0685   | .1723   | -.2985   |

|          | ATM_BTH | COST   | PAYMENT |
|----------|---------|--------|---------|
| ATM_BTH  | 1.0000  |        |         |
| COST     | -.3126  | 1.0000 |         |
| PAYMENT  | .0685   | .0939  | 1.0000  |

N of Cases =        20.0

| Inter-item Correlations Variance | Mean | Minimum | Maximum | Range | Max/Min |
|----------|--------|---------|---------|--------|---------|
|          | -.0500 | -.5774  | .5774   | 1.1547 | -1.0000 |

.0664

Reliability Coefficients        8 items

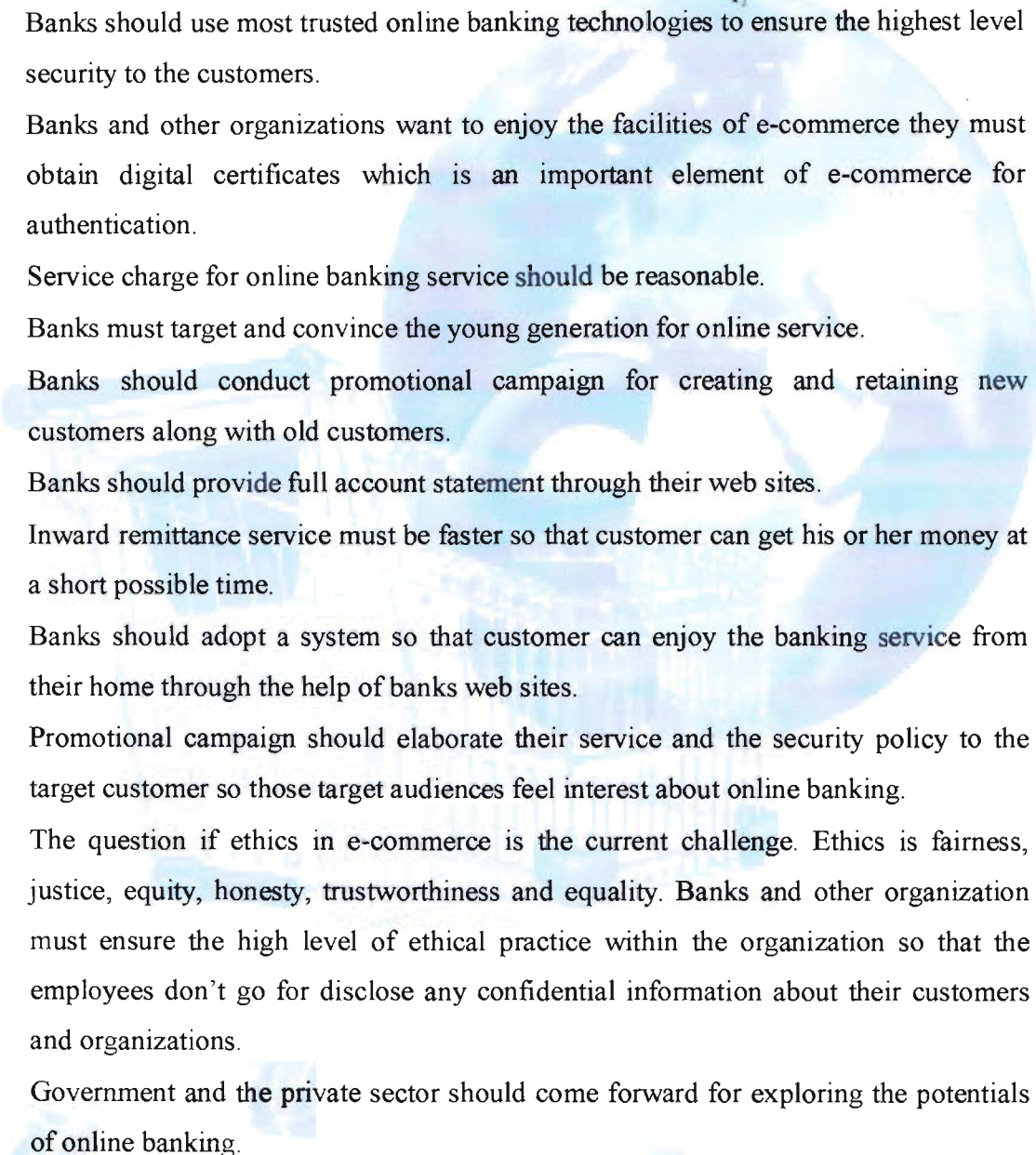Alpha =   -.3052         Standardized item alpha =   -.6153

From the Correlation Matrix we found that there is a positive relationship between *Utility Bill payment* and *Fund Deposit by Online Banking* (0.5774) and

On the other hand there is a negative relationship between *Preferred Service* and *Utility Bill Payment through Online Banking* (-0.5774).

# 5. RECOMMENDATION

Recommendations for flourishing e-commerce and online banking are given below:

- Inadequate telecommunications infrastructure is a major constrain for e-commerce as well as for online banking. So present telecommunication infrastructure should be upgraded including private telecommunication sector.
- ICT law must be introduced in our country and the government should necessary steps to ensure the best use of it.
- Authentication should be take place which will ensure that transactions are taking place from the claimed or authentic person.
- There must have confidentiality of the electronic information system for smooth operation of e-commerce and coping with the challenges of global economy. It must be ensured during any transaction or information transformation from sender to receiver, no third party can access the contents of the message or can identify the sender and receiver.
- Encryption mechanism and using public key infrastructures should be introduced in the internet or network connection.
- High-speed but low- cost reliable data communication facility requires to be ensured.
- It is needed for setting up electronic payment gateway system in banking sector to establish Centralized on-line banking.
- Government should ensure the best use of newly coming Fiber Optic connection.
- Human Resource training program should be taken so that they can handle the technology and deliver highest quality service to the target customer for the success in e-commerce.
- Bankers have to change their mindsets to adopt latest banking technologies. In banking to adapt to the e-commerce environment should introduce a clearing system and check truncation system.
- Bank should take necessary steps to setup sufficient number of ATM booths so that customer can easily consume the service.

- Banks should use most trusted online banking technologies to ensure the highest level security to the customers.

- Banks and other organizations want to enjoy the facilities of e-commerce they must obtain digital certificates which is an important element of e-commerce for authentication.

- Service charge for online banking service should be reasonable.

- Banks must target and convince the young generation for online service.

- Banks should conduct promotional campaign for creating and retaining new customers along with old customers.

- Banks should provide full account statement through their web sites.

- Inward remittance service must be faster so that customer can get his or her money at a short possible time.

- Banks should adopt a system so that customer can enjoy the banking service from their home through the help of banks web sites.

- Promotional campaign should elaborate their service and the security policy to the target customer so those target audiences feel interest about online banking.

- The question if ethics in e-commerce is the current challenge. Ethics is fairness, justice, equity, honesty, trustworthiness and equality. Banks and other organization must ensure the high level of ethical practice within the organization so that the employees don't go for disclose any confidential information about their customers and organizations.

- Government and the private sector should come forward for exploring the potentials of online banking.

# 6. CONCLUSION

E-commerce is one of the most visible examples of the way in which information and communication technologies can contribute to economic growth of Bangladesh. It will help to improve trade efficiency and facilitates the integration of developing country like Bangladesh into the global economy. It will allow businesses and entrepreneurs to become more competitive. And it will provide jobs, thereby creating wealth. But knowing that an instrument is powerful is not enough to ensure that it will be put to the best possible use. We need to understand how it works, and how and when it should be used, and find creative ways to put this knowledge into practice, disseminate it widely and maximize its power. We have the high potentials or enjoying e-commerce as well as online banking business. But inadequate telecommunication infrastructure, non-existence of legal frameworks, low speed but very high cost of internet, less confident of customers and lack of efficient manpower are the main hindrances in developing e-commerce in Bangladesh. It is needed for installing effective means for protection, authentication and confidentiality of the electronic information system for smooth operation of e-commerce and coping with the challenges of global economy. Encryption mechanism, most trusted technology, proper infrastructures should be introduced for meeting with global challenge. Government and the private sector should come up for exploring its potentials. Existing financial acts need to be amended and high-speed but low- cost reliable data communication facility requires to be ensured. It is needed for setting up electronic payment gateway system in banking sector. Centralized on-line banking and using digital certificate for making the transaction authenticated and encrypted are needed and manpower training as pre-requisite to success in e-commerce. Bankers have to change their mindsets to adopt latest banking technologies. In banking to adapt to the e-commerce environment should introduce a clearing system and check truncation system and must take necessary promotional activities for creating and retaining customers.

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## APPENDIX-A

# Questionnaire

Dear Sir/Madam,

The questionnaire is for administering a research on 'Electronic Commerce and Payment System in Bangladesh'. To serve the purpose, it is required some information from you. It may be noted that all information from you will be kept confidential and be used for research only.

Thank you,
Research Team Management
Course Code: BUS 498
Dept. of Business Administration
East West University
Mohakhali C/A

### Screening Questions

i. Do you have any idea regarding Online?
   (a) YES       (b) NO
ii. Have you heard about SMS banking?
   (a) YES       (b) NO
iii. Have you heard about Online banking?
   (a) YES       (b) NO
iv. Are you using any Online banking System?
   (a) YES       (b) NO

1. Which banking service do you prefer?

| 1 | 2 |
|---|---|
| Online Banking | SMS Banking |

2. Do you feel secured doing online banking?

| 1 | 2 |
|---|---|
| Yes | No |

3. Will you prefer a system that allows you to transfer fund from your PC?

| 1 | 2 |
|---|---|
| Yes | No |

4. Do you think that Utility Bill Payment through Online bank is flexible?

| 1 | 2 |
|---|---|
| Yes | No |

5. Fund deposit by Online Banking is flexible

| 1 | 2 |
|---|---|
| Yes | No |

6. Do you like to get A/C statement from website?

| 1 | 2 |
|---|---|
| Yes | No |

7. Do you think that ATM booths are widely available?

| 1 | 2 |
|---|---|
| Yes | No |

8. Do you think that Online banking service is costly?

| 1 | 2 |
|---|---|
| Yes | No |

9. Do you like to enjoy the facility of inward remittance service?

| 1 | 2 |
|---|---|
| Yes | No |

10. How much maximum extra money you want to pay for online service per month?

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| TK. 1200 | TK. 750 | TK. 600 | TK. 300 |

## Personal Information

1. Name
2. Sex

| 1 | | 2 |
|---|---|---|
| Male | | Female |

3. Age
4. Occupation
5. Name of your bank
6. Address
7. Contact no

**Thanks for your cooperation**