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E-COMMERCE IN BANGLADESH

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MD. RAJHAN JAMIL
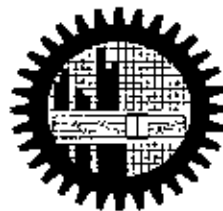
DEPARTMENT OF INDUSTRIAL AND PRODUCTION ENGINEERING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
Dhaka 1000
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A thesis paper submitted to the Department of Industrial and Production Engineering (IPE), Bangladesh University of Engineering and Technology (BUET), Dhaka, in partial fulfillment of the requirements for the degree of Master of Engineering (M. Engg.) in Advanced Engineering Management (AEM).

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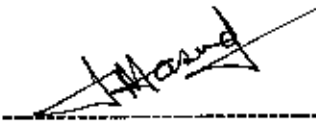AUGUST, 2010

CERTIFICATE OF APPROVAL

This thesis paper titled "Present Status and Critical Success Factors of E-commerce in Bangladesh" submitted by Md Raihan Jamil, Student ID-040808105 (F) of session April, 2008, has been accepted as satisfactory in partial fulfillment of the requirement for the award of the degree of Master of Engineering in Advanced Engineering Management on August 10, 2010.
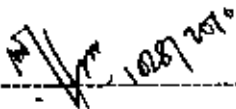
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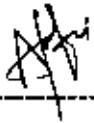Bangladesh University of Engineering and Technology, Dhaka 1000

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Declaration

I do hereby declare that this work has been done by me and neither this thesis nor any part of it has been submitted elsewhere for the award of any degree or diploma.

Md. Raihan Jamil

Countersigned

Dr. Nafis Ahmad
(Supervisor)

This dissertation is dedicated to my parents,

Professor Dr. Muhammad Loqman
&
Professor Shamima Afroz

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Acknowledgement

Abstract

Online trading between businesses or individuals has employed attention of corporations worldwide as they are challenged to remain viable through difficult economic conditions. Despite the losses of so many businesses two years ago when the "dot-com bubble" burst, no serious business analyst disagrees that electronic commerce is steadily transforming how business is done, hence changing the business environment globally. Businesses everywhere need to understand if, when and how to use electronic commerce. The organizational factors, which are critical to the success of e-commerce, are investigated in this research. Different pieces of literature report different factors as key to success and generally based on subjective, perceptual data. A synthesis of existing literature is a basis for survey questions. The data is collected from Bangladesh e-commerce based organizations who are offering their goods & services on electronic channels, using postal questionnaires and Interview technique. The top factors found to be most critical for the success in e-commerce are: quick responsive products/services, organizational flexibility, services expansion, systems integration and enhanced customer service. An important lesson from this research is that organizations need to view the e-commerce initiative as a business critical area rather that just a technical issue. They need to give attention to internal integration, which may include channels, technology and business process integration, and improving the overall services to their customers.

Chapter 1

Introduction
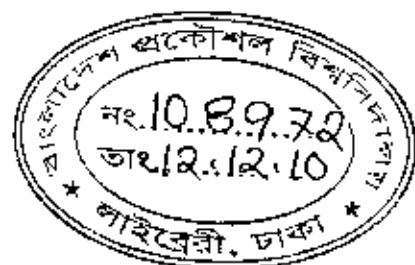
1.1 Country Profile of Bangladesh

Bangladesh, a sovereign state in the South Asian belt encompasses a mass population of 150 million people in a geographical land of 147,570 sq. km. Bangladesh has emerged as a sovereign nation after a protracted bloody War of Independence in December 1971. Bangladesh takes great pride in its hard earned political independence and also care for its long fought struggle and movements from 1952 to establish Bangla as the "National Language", respected widely among the locals as "Mother Tongue".

Table· 1 1 Bangladesh Data Sheet

Administrative Unit As per 2006	
Division	6
Zilla	64
Upazilla	481
Thana	596
Municipality	308
Union	4498

Looking at the history on formation of Bangladesh, it is recorded that dating back to several thousand years this country was formed from the alluvial soil of the river Ganges while free 'flowing from the Himalayas Mountain to the sea. The new land is the largest Delta of its kind in the world. Being ideally located in the southern foot steps of the Himalayas, this independent country is surrounded by Indian states of West Bengal at west and north borders whilst Assam and Meghalaya states shares the eastern borders. A south east tip of the land is bordered with Myanmar. The circumference of Bangladesh is between $20^0 34'$ and $26^0 38'$ North Latitudes and between $88^0 01'$ and $92^0 41'$ East Longitude.

In regard to its geographical location, the country is environmentally guided by tropical climates and therefore Mother Nature awards the country with long hot summer, heavy

monsoon, dry autumn, short stayed cool winter and festive spring–round the calendar year. The average temperature is around 26 degree C and the average rainfall is 2540mm. The Bay of Bengal, rich in natural wealth, directly lies at the south of the country where the country has two sea ports to carry forth the international trade and commerce. Elaborating on the achievements and benchmarks acquired in the international arena, the country acclaims to be the pioneer and vanguard in micro-credit concept and operation for poverty reduction which has gloriously brought the Nobel Prize in Peace for the country in 2006 by Grameen Bank and its distinguished founder fore figure Professor Dr. Muhammad Yunus

Furthermore, Bangladesh is one of the largest participants in United Nations Peace Keeping Missions, contributing majority of the UN Armed Forces for the continuation of peace and harmony in the many war-torn countries across the globe. The professional strength of Bangladeshi soldiers played in reconstructing and peace keeping across Africa, Europe and Asian continent has indeed earned her with worldwide praise, respect and recognition. Bangladesh has been achieving more than 6 percent economic growth over the last 5 years The country has attained tremendous success in several areas particularly at primary school enrollment, reducing gender disparity, child mortality rate and achievement of immunization.

The population of Bangladesh ranks seventh in the world, but its land area is ranked ninety-fourth, making it one of the most densely populated countries in the world. Still the country has vast economic potentials with 68 million people of unused workforce and vast amount of unexplored natural resources like gas, coal. It is pertinent, while forging the natural and human resources, the country can augment better economic output and ensure better standard of living to its citizens.

In this modern era ICT is playing a significant role in the economic growth specially in poverty reduction. In that context ICT is yet to form a strong foundation in Bangladesh. Each year Brown University and World Economic Forum (WEF) conducts survey with some indicators to review the e-Governance status around the world. Brown University's seventh annual analysis (which was published on July 24, 2007) of international e-Governance reflects that Bangladesh ranked 155 out of 198 countries from 86 (last year ranking). The Network Readiness Index (NRI) measures the propensity for countries to exploit the opportunities offered by information and communications technology. The

NRI shows that Bangladesh ranked 118 out of 140 countries which is mainly based on three components: the environment for ICT offered by a given country or community, the readiness of the community's key stakeholders (individuals, businesses, and governments) to use ICT and finally the usage of ICT amongst these stakeholders.

Table: 1.2   NRI ranking of Bangladesh (source, Brown University and WEF, 2007)

Rank Status			
Brown University Ranking	Year	2005	2006
	Rank Status	86	155
NRI Ranking	Year	2005	2006
	Rank Status	100	118

1.2 Background of the Study:

The Internet has opened up a new horizon for commerce, namely electronic commerce (e- commerce). The Internet, through advanced mechanisms of data transfer   networks, establishes global linkages between customers and suppliers regardless of geographic location. There have been significant developments in the structure of the Asia online transaction services sector in the past 12 years. Kalakota and Whinston define E-Commerce as 'the buying and selling of information, products and services via computer networks'. It is changing the way organizations carry out their responsibilities, cooperate with customers and running their business usually. According to Tuunainen E-Commerce consists of transaction oriented Internet base functions (e.g. on-line catalogs, purchasing and payment). In particular, Electronic Commerce provides a new means of creating, sustaining and escalating competitive advantage by driving down the cost of transacting business, deepening customer relationships and creating new markets in the MarketSpace through virtualization.

E-Commerce is one of the most visible examples of the way in which information and communication technologies (ICT) can contribute to economic growth of different developing countries. It helps countries to improve trade efficiency and facilitate the integration of developing countries into the global economy It allows businesses and entrepreneurs to become more competitive in the global arena. E-Commerce is making new jobs and hereby creating wealth. There have been significant developments in online

businesses in the past 12 years in Asian countries. The combined effects of the aftermath of the Dot com crash and the current recessionary worldwide economy put even more pressure on firms to find cost-cutting measures. A number of developing countries have adopted E-Commerce hoping that it would boost their economies and competitiveness to a new level.

The concept of critical success factor (CSF) was developed (in 1979 by John F. Rockart) to help managers define the key information needed by top-level management. CSFs are the limited number of areas in which results, if they are satisfactory, will insure successful competitive performance for the organization. CSFs can be used to direct an organization's effort in developing strategic plans, establish guidelines for monitoring a corporation's activities, identify critical issues associated with implementing a strategic plan and can be used by manager and organizations to help achieve high performance

In this work research is conducted to investigate the Critical Success Factors (CSFs) for E-Commerce in Bangladesh. Understanding the CSFs in E-Commerce is important for Bangladesh Government and senior management of E-Commerce related organisations, because it would potentially help the country in taking decision for strategic planning of E-Commerce. Bangladesh represents an emerging nation and E-Commerce can play a major role in promoting the economic health of Bangladesh. Other developing nations (e.g. Vietnam, Thailand) can learn from the E-Commerce experience of Bangladesh. Hence, E-Commerce CSF for Bangladesh can not only be useful to the policy makers of Bangladesh but will also assist policy formulation of other emerging countries.

1.3 Objective of the Study:

The objectives of this research in concentrated on:
  a) Understand the E-Commerce related business issues, challenges, constraints and present status in Bangladesh
  b) Identify the critical success factors that can be used to formulate E-Commerce strategies and implementation plans

The possible outcomes of the proposed research is to make a clear picture of present situation of EC in Bangladesh and to identify and examine the critical success factors

related to E-Commerce which may also be applied to other developing countries with similar business and E-Commerce related infrastructure and national culture.

1.4 Research Questions

The research question is one of the first methodological steps the investigator has to take when undertaking research The research question must be accurately and clearly defined. Choosing a research question is the central element of both quantitative and qualitative research and in some cases it may precede construction of the conceptual framework of study. In all cases, it makes the theoretical assumptions in the framework more explicit, most of all it indicates what the researcher wants to know most and first.

The focus of this research is to give a latest scenario of E-Commerce in Bangladesh and to identify key success factors in the implementation of Electronic Commerce. It is envisaged that identification of these factors may assist prospective adopters with the transition to EC The research aims to answer the question: "What are the critical success factors in an Electronic Commerce implementation and how do I use these guidelines as a framework to ensure a successful implementation of the technology in Bangladesh?" In answering these questions, it is prudent to focus on three distinct disciplines of research - business, organizational and technological factors for success. Research on CSFs for E-Commerce in developing countries is relatively limited. Therefore, CSFs for E-Commerce in Bangladesh will be used as a tentative roadmap for the researcher to understand the CSFs for E-Commerce in Bangladesh

1.5 Organization of the Report:

The organization of this thesis paper is as follows: in the next chapter, literature review is illustrated. In chapter 3 Research Framework follows with literature review which describe the overall procedure of the study. Then in chapter 4 the present status of E-Commerce in Bangladesh is discussed and described enormously. Then in chapter 5 Research Framework and Empirical data follows the data collection, statistical process, etc. In the chapter 6 the findings of the study with reliability test is conducted to explain the findings. Discussion is made on issues in the research and conclusion about the study ends the paper.

Chapter 2:
Literature and Technology Review

This chapter will discuss the definition of critical success factor and there will be an illustration of literature review. The most success factor of online buying and selling reported in the literature will be mentioned here. The existing situation and potential of E-Commerce in Bangladesh will also be discussed here. This chapter will lead to the selection of CSFs included in the survey questionnaire used for this research.

2.1 Critical Success Factors in E-Commerce:

The concept of critical success factor (CSF) was developed to help managers define the key information needed by top-level management. CSFs have been defined in several ways depending on the purpose for which they were used. Rockart defines CSFs as "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organisation". The CSF approach represents an accepted top-down methodology for corporate strategic planning, and while it identifies few success factors, it can highlight the key information requirements of top management (Rockart 1979, pp. 81-93). In addition, if the CSFs are identified and controllable, management can take certain steps to improve its potential for success (Chen 1999, pp. 83-91) CSFs can be used to direct an organisation's effort in developing strategic plans, establish guidelines for monitoring a corporation's activities, identify critical issues associated with implementing a strategic plan and can be used by manager and organisations to help achieving high performance. In the context of this research, CSFs theory will be used to pinpoint some areas that are critical for success of the E-Commerce in Bangladesh. The following are some of the most critical success factors of the Internet based services reported in the literature (listed in table 1). These factors formed the basis for questions included in our data collection instrument.

2.2 CSFs for E-Commerce in Developed/ Developing Countries

Sharing Information is one of the CSFs identified by Sung (2004) when the author was trying to find the critical success factors of E-Commerce in East Vs West regions. France Belanger (2002, p. 245-270) also mentioned this while working on Trustworthiness in E-

Commerce. Digman (2000) andd Viehland (2000) mentioned that flexible organisation structure is another CSF for E-Commerce. They identified six factors critical to the success of the e-business strategy as to create a consumer-centric strategy, to accept outsourcing to improve business performance, to act like a new entrant, to utilize information management to differentiate company's product, to be part of an e-business community, and to require executive leadership. For E-Commerce success Turban et al. (2002, p 689-690) also mentioned this variable.

Web-specific marketing was listed as CSF by Stamoulis (2000) and Fruhling and Digman (2000) Stamoulis sees a re-drawing of the Internet market map as a vital prerequisite for the E-Commerce strategy, because the Internet requires different marketing methods than other service distribution channels. He suggested identification of a niche market and focus on exploiting is very important for E-Commerce based organisations. Rapid delivery of services is a CSF for E-Commerce companies which identified by Sung (2004) and Turban et al (2002, p. 689-690, 718). Sung sees there are ease of use, stability of systems, variety of goods/services, speed of systems, payment process, services, delivery of goods/services needed for E-Commerce success.

Fast and integrated business processes was mentioned as a CSF by Riggins (1998, p. 1-11) and Sung (2004). Riggings identified a number of critical success factors of Internet banking in the context of the Australian banking industry. These include: developing the will to innovate rapidly, aggressively marketing the bank's website address to generate first time visitors, online decision support tools for personal financial management, the creation of an online 'virtual' community for financial services, and bundling of products/services. Franco and Klein (1999) describe personalizing services as a CSF of E-Commerce. They see that the interactive nature of E-Commerce creates an opportunity for gaining a much deeper understanding of the customers. The data gathered about the customer during their interaction with the bank can be analyzed using data mining techniques and this marketing decision support capability will ultimately determine the success of the organisation's electronic channel

All time availability of services is another CSF defined by Stamoulis (2000). The service and website must be available for customer like 24/7. He sees that the richness of the medium's content has been a critical success factor in attracting a sharply growing number of websites visitors and commercial users. E-Commerce based organisations

usually launch their websites with content such as corporate profile, product and pricing information, shipment fee, application forms, auction system etc However they need to look beyond the usual contents and make their websites far richer in terms of functionality, to attract a larger number of visitors. According to Sung (2004) and Turban et al. (2002, p. 689-690, 718) light and faster website is one of the CSFs for E-Commerce companies Sung identified that there are ease of use, E-Commerce strategy, technical E-Commerce expertise, stability of systems, plenty of information, speed of systems. For E-Commerce success Turban et al. listed user-friendly Web interface

Secure website and other related systems was listed by many scholars like by Enos (2001); Turban et al. (2002, p 689-690, 718); Regan and Macaluso (2000), Han and Noh (1999-2000, p. 25-43); Sung (2004). Security, which may include protection of consumers' personal data and safe transactions to prevent frauds, is paramount for the growth of any sort of online trade, including e-banking. This factor has been cited as very critical Security in this context includes secure website, secure transactions as well as secure front end and back end systems They identified several success factors for online banking including: improving trust and security.

Customer Database for E-Commerce industries was investigated by Enos (2001); Thornton and Marche (2003, p. 121-138). They also investigated that business plans/strategy record-keeping/adequate financial control, targeted marketing strategy; distinguished market position and effective customer service are among the factors that cause E-Commerce industries to fail or success And to perform these factors maintaining Customer Database is must Promotion of electronic E-Commerce within organisation is listed by C. J. Brian (2000, p.119 – 130). He suggested in his research the fact that Promotion of electronic E-Commerce within organisation is important influential issues operating at another level within the organisation

Fast responsive customer service another important CSF identified by Regan and Macaluso (2000); Storey et al. (2000, p. 723-728), Orr (2004, p. 56-57); Franco and Klein (1999); Han and Noh (1999-2000, p. 25-43), Thornton and Marche (2003, p. 121-138) They see excellent customer services as a key factor in the success of E-Commerce. Their reason for this is that the Internet transfers power from supplier to the customer and superior customer service is absolutely essential for keeping customers loyal. The

provision of a pleasant experience on this channel, according it is one of the key requirements for success of the channel.

Table 2.1: List of Success Factors obtained from literature and used for survey (V stands for variable which is followed by the number it was given in the questionnaire)

Serial	Success Factors	CSFs reported by various Scholars
V1	Share Information	Sung (2004) ; France Belanger (2002)
V2	Flexible organisational structure	Digman (2000); Viehland (2000); Turban et al (2002)
V3	Web-specific marketing	Stamoulis (2000); Fruhling and Digman (2000)
V4	Rapid delivery of services	Sung (2004); Turban et al. (2002)
V5	Fast and integrated business processes	Riggins (1998); Sung (2004)
V6	Personalizing services	Franco and Klein (1999)
V7	All time availability of services	Stamoulis, 2000
V8	Light and faster website	Sung (2004); Turban et al. (2002)
V9	Secure website and other related systems	Enos (2001); Turban et al. (2000); Macaluso (2000); Turban et al. (2002); Hahn and Noh (1999-2000), Sung (2004)
V10	Customer Database	Enos (2001);Thornton and Marche (2003)
V11	Fast responsive customer service	Regan and Macaluso (2000); Storey et al. (2000); Orr (2004); Franco and Klein (1999);Hahn and Noh (1999-2000) ; Thornton and Marche (2003)
V12	Flexible workforce	P. Jaap , F Elaine and W.Roger (2004); X. Biao (2002)
V13	Promotion of electronic E-Commerce within organisation	C. J. Brian (2000)
V14	Business solution	F. N Mark, C. Lei-Da (2004)

P. Jaap , F. Elaine and W.Roger (2004); X Biao (2002, p. 73 – 90) define Flexible workforce as a CSF of E-Commerce. They see a globalization of the potential workforce for companies involved in E-Commerce.

This clearly poses a major challenge for HR to support managers in these new roles creating a more flexible workforce to meet production and deadline. Business solution another important CSF was identified by F. N. Mark, C. Lei-Da (2004, p 53 – 61). They figured that shortly after the advent of digital mobile phone service, a new innovative way of doing business known as mobile commerce (M-commerce) was created. They focused that organisations gain insight as to whether mobile commerce is a business solution worth exploring. It reviews the technology behind M-commerce and the products and services currently available.

Although the publications reviewed above identify one or more CSFs, it is evident that CSFs in E-Commerce have not been specifically studied in the context of developing country like Bangladesh and most of the factors reported above were presented with little empirical evidence. This study will investigate CSFs of E-Commerce empirically, to find out which factors are really critical to the success of this channel in Bangladesh. From this extensive literature review, Success Factors are categorized into 14 groups (summarized in table 2.1): Light and faster website, Secure website and other related systems, Fast responsive customer service (better that usual), promotion of electronic E-Commerce within organization, All time availability of services, Rapid delivery of services, Fast and integrated business processes, Fast and integrated business processes, Share Information, Customer Database, Flexible workforce, Personalizing services, Flexible organizational structure, Web-specific marketing, Business solution.

2.3 The Existing Situation and Potential of E-Commerce in Bangladesh

Internet services are presently available in Bangladesh. Its usage for E-Commerce by the Bangladeshi producers to export as well as to access inputs will be dependent on their willingness and ability to use this medium as well as that of the buyers of final products and the sellers of intermediate goods and services.

Figure 21 depicts the three dimensions of E-Commerce Business-to-Consumers (B2C) e- commerce is practically non-existent within Bangladesh, while a very

limited level of Business-to-Business (B2B) and Business-to-Government (B2G) transactions exists. The potential for use of E-Commerce by Bangladeshi consumers and businesses with foreign firms is much brighter, and can play an important role in boosting the country's exports. A significant volume of B2G is also possible, as the government remains the biggest spender.
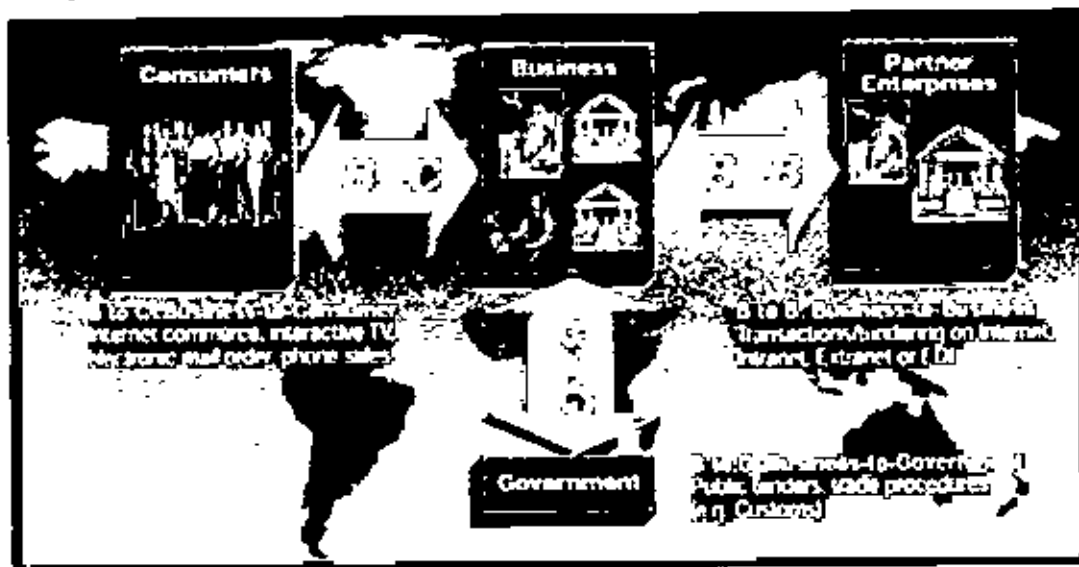
Figure 2.1: The Three Dimensions of E-Commerce

Source: International Telecommunications Union, Millennium, October 1999.

2.3.1 Business-to-Consumer (B2C) Scenarios

Business-to-Consumer (B2C) E-Commerce is unlikely to be of much use in the foreseeable future in Bangladesh. At the domestic level, low per capita income, limited infrastructural facilities (e.g. low teledensity), weak legal environment (inadequate contract laws, poor implementation and enforcement), and lack of trust and confidence between business and consumers are going to hinder B2C. In the backdrop of such limitations, the low wage economy, with high levels of unemployment and underemployment, will continue to rely on the physical presence of buyers and sellers during a transaction in most cases. B2C for cross border trade is inhibited by the factors suggested for the domestic front. In addition, non-availability of international credit cards, foreign currency remittance restrictions, delays and informal payments at customs clearance even for small value and quantity items will discourage B2C.

2.3.2 Business-to-Business (B2B) Scenarios

As mentioned before, the Business to Business (B2B) scenario prevails in Bangladesh

to a very limited extent.   The B2B scenario exists mostly in the export sector, especially in the Ready Made Garments (RMG) industry   RMG has the lion's share of the export earnings in Bangladesh, accounting for 75 percent of total exports. The current value of annual exports of the RMG sector is close to $4 35 billion   The RMG sector has begun to use the Internet, and its dependence on E-Commerce is likely to grow significantly in the coming years.

E-Commerce through the Internet is poised to be an effective business tool for the RMG exporters   The Internet would enable them to seek information about potential buyers as well as raw material suppliers.   Similarly the practice of posting a website by individual producers has begun.   Opening a website is a step towards the right direction.   Also, the adherence of Bangladeshi firms to quality, labor and environmental standards (e.g. ISO 9000, QS 9000) can also be shared and highlighted through the Internet technology. Following the withdrawal of the quota system and the GSP in 2005, the RMG sector will inevitably become more competitive.   As expected delivery time decreases, considering alternative payment mechanisms becomes imperative.   The effective use of E-Commerce both for placing orders, purchasing raw materials and for quick and efficient payment would be the necessary ingredients for any country to enhance its ability to deliver early. Necessary infrastructural, legal and regulatory reforms will be essential to avail of the e- commerce technology in dealing with the international market place.

Access to the market depends on the buyers and sellers' willingness and ability to market through mediums that are mutually cost effective, reliable, and replicable. A foreign buyer, say in the readymade garments sector, expresses a preference to use E-Commerce for its purchases, thereby circumventing the Letter of Credit (L/C) mechanism to place an order Since the overseas financial institutions often insist for "Add Confirmation" it increases the cost of L/C. Add Confirmation is basically a matter of payment guarantee depending on the country's credit rating, asset status etc., where Bangladesh generally lags behind. If Bangladeshi producers are unable to accommodate electronic transfer of payment and other facets of E-Commerce, the business opportunity will move on to countries that have developed such systems

E-Commerce usage will become attractive when entrepreneurs will be convinced

that this medium is capable of obtaining orders as well as increasing profitability by eliminating the role of middlemen. However, confidence and trust between the buyers and sellers is an important determinant. If the local producer fails to ensure adequate quality or timely delivery of products, the benefits of an efficient search and communication process will be undermined Thus, authentication of both buyer and seller is a prerequisite for successful implementation of this medium.

The services of organizations like XMNet, Net ASM, etc. can be utilized in order to obtain information regarding authentic suppliers, manufacturers and buyers. XMNet is an organization that provides the service of verifying the claims of sellers with excess goods. They send inspectors to readymade garment factories world wide to check on merchandise and production lines, and also use independent agencies to check product quality. On the other hand, they also provide the seller with the credit history of the buyer to help them locate genuine buyers. For a reasonable fee, a great deal of information can be found from the Net Asian Sources Media Group (ASM) website.

With improvements in infrastructural facilities (e.g. cheaper and better access to Internet service), and greater application of the computer in management and finance by individual firms, export oriented sectors (such as frozen food, sea food, leather) as well as importers would appreciate the ease and benefits of the Internet in promoting their products.

2.3.3 Business-to-Government (B2G) Scenarios

The government is a major buyer of goods and services from the private sector. Typically, the government procures goods and services by inviting tenders. This has been the traditional method of any government procurement for goods and services. Tender notices are published in the major national dailies followed by selling the Request for Proposal (RFP) documents to the interested bidders. If any bidder seeks clarification on any aspect of the RFP, the customer is mandated to notify that clarification to all bidders by mail In addition to costing money and taking time, such notification sometimes forces the customer extending the bid-closing deadline. Bidders also obtain the RFP document "unofficially" for a comprehensive understanding of the 'scope of work' as well as for assessing their own capability.

The availability of the RFP and other relevant documents on-line provides an alternate choice, thereby reducing the monopoly rent that can be extracted. In order to prevent such unfair practice, the Bangladesh Telecommunication Company Limited (BTCL) (formerly known as Bangladesh Telegraph and Telephone Board-BTTB) initiated publishing the RFP documents of selected projects in its website. This immediately stopped the illicit practice of unofficially selling the RFP document, and only competent bidders were able to procure the RFP documents. In addition to reducing the extra administrative burden of BTCL, it also enabled BTCL to close those bids within a reasonable timeframe. The posting of the RFP documents on the Web is however an isolated effort being initiated by a few BTCL officials.

Introducing on-line payment or allowing electronic fund transfer for selling the RFP would be a significant leap towards B2G in Bangladesh. There are numerous instances of deliberate "unavailability" of the RFP, namely while the bids for civil infrastructure projects are invited. Syndicated vested groups forbid the other bidders' participation by forming a cartel. B2G inherently brings transparency in such cases and ensures a level playing field for all the bidders. Electronic submission of the RFP followed by presenting the hardcopies could also be used to promote transparency, accountability and the threat or coercion that is often evidenced during the bid submission period.

In addition, transactions involving information collection, obtaining various governmental forms, registering activities can be conducted on-line. This will reduce time costs, corruption and the necessity of going through lengthy bureaucratic procedures as well as increasing transparency.

2.4   Experimental Design:

To confirm and solidify the mentioned aim and achieve the desired outcomes of the research it needs to follow some steps:

a) Design the questionnaire on E-Commerce and its success factors for survey.

b) A survey and quantitative research method will be conducted. And the targeted population will be:

       i.   Consumer

      ii.   E-Commerce based company

     iii.   E-Commerce expert's

     iv   Government and Non-government business organizations

      v.   Private companies and Business Industry

     vi.   ITES (IT Enabled Services) Solution Company like Basis, BCC, BCS etc.

c) Define the present status of EC in Bangladesh.

d) Find out the CSFs of E-Commerce based on survey data.

The literature analysis of E-Commerce CSF is summarized by giving an insightful summary of the CSF reported by various scholars in the existing literature sources. A table has also produced mentioning the fourteen CSF and the name of the scholars who had reported those CSFs.

Chapter 3
Research Framework

This chapter will discuss and motivate the approach that was decided to use in this research. Description of how data was collected and analyzed will be followed by a part discussion the trustworthiness of this thesis.

3.1 Research method

According to Cantzler (1992) there are two different research methods; quantitative and qualitative methods. Depending on what the researcher is looking for, how much time and resources the researcher has available; the two research methods can be done one by one or combined

Holme and Solvang (1991) claims that qualitative research is characterized by the proximity the researcher has to the respondent. In qualitative research, sample sizes are relatively small. (Cantzler, 1992). Qualitative research is often built upon interviews and open questionnaire. Due to the way data collection is done, the answers can vary and it also requires time and money to collect data this way (Cantzler, 1992). Cantzler (1992) characterizes quantitative research as a method where a large amount of respondents can be researched and where the data collection is many times done through questionnaires and statistical methods can be applied to the collected data. In this research work data was collected through a quantitative research method and the main focus was the IT based companies in Bangladesh. Furthermore, a quantitative study is a good way to minimize the subjectivity which otherwise can impact the result of the study. But it is important to make sure that the subjectivity is not reflected in the questionnaire.

The research presented in this paper proceeded as follows: first, a list of possible success factors (see Table 2.1) in E-Commerce was extracted using the literature review process. Second, a questionnaire was developed (see Appendix 1 and 2). Third, a survey was conducted using postal questionnaires. Finally, various statistical methods including descriptive statistics, factor analysis and t-tests were applied using the SPSS/Win 9.0 statistical package to analyze the data collected.

3.2 Development of Survey Questionnaire and Pilot Study

In our quest for a suitable existing questionnaire for the research, we have searched the literature and posted an enquiry to the IS world members' email list. Failing to find any suitable instrument we developed a questionnaire. The questions ask one thing at a time and their internal cohesiveness was one of the main objectives of 'validation testing' of the instrument during pre-pilot and pilot study. The consistency of the attributes was achieved by dividing the instrument into different sections and special attention was paid to validity and linearity issues during the design and testing stages of the instrument development. Likert Scales (1-7) were used to measure the criticality of different attributes, with 1 being least critical and 7 representing maximum criticality. This scale is frequently used for measuring people's opinions and that is what this instrument set out to measure.

No dependent variables were established, as a possible dependant variable in this context could be 'success' which is a broad term and varies in meaning for different people. Another reason for not developing dependent variables or hypotheses was that the objective of this study was explanatory in nature. Once a workable instrument was ready, a testing strategy similar to that of Han and Noh (1999-2000) was used. It was tested on 2 PhD and 3 Msc. Engineering students within the Department of Computer Science and Engineering University, which resulted in several changes. Few e-commerce consultants participated in a separate field test. Their comments led to a refinement of the questionnaire instrument. Their contribution is gratefully acknowledged.

At a later stage this questionnaire was further tested using a pilot study The questionnaire was posted to 25 organizations in the financial sector, some of whom agreed in advance to respond. Twelve completed questionnaires were received. The respondents made several suggestions for improvements, which were duely implemented. This instrument was further tested on a different set of researchers to assess its comprehension and the average completion time. They found the questions generally clear; thus, the questionnaire was deemed ready for data collection using the survey research method.

3.3   Data Collection

The questionnaire was sent to 325 medium and large size e-commerce organizations, software firm, government officials and expert personnel. It is important to note that this sample therefore, represented a purposive, non-probabilistic population, rather than a random one. Senior IT managers are generally considered to be the most likely people to be aware of issues related to e-commerce For this reason, the questionnaire was targeted at them with a request to pass it to anybody they considered to be more suitable to answer the questions in the survey instrument. The organizational background of the respondents is summarized in Table 3.1.

Table 3.1: organizational background of the respondents

Organization Type	Number	Percentage
E-Commerce based Company	18	18.75
Software firm	28	29.12
Bank	22	22.92
Expert Personnel	28	29.12
Total	96	
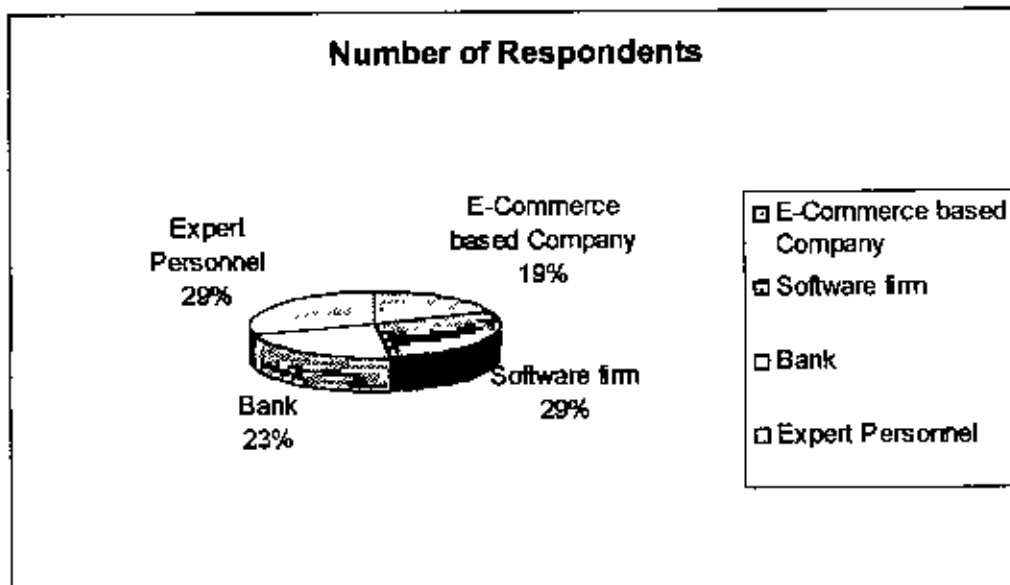
Figure 3.1: Number of Respondents

The employee's contact information was extracted from organization's portal. Those who did not respond through e-mail that employee was visited physically and taken

interviews. All the questions were evaluated carefully. Furthermore, some basic questions on the respondent's background were also included in the questionnaire.

3.3.1 Primary Data

An empirical study is done to collect primary data. Furthermore researcher should select respondents to get access to deviating or typical cases. Collection of primary data through a questionnaire was chosen. It was tried to set the questions self-explanatory. This was done to ensure that no respondent would misunderstand the questionnaire due to the language. Interested readers can find the questionnaire in Appendix

According to Saunders, Lewis and Thornhill (2003) the use of questionnaires works best if the questions asked are of a closed character and if different persons cannot interpret the questions differently, this is to achieve as high validity and reliability as possible Furthermore, a well-developed questionnaire makes it easier to interpret and control the data gathered.

All questionnaires were sent by email to their respondents, and physically visited the interviewees. Self-administrated questionnaire is a good way to collect truthfully data from the respondents; the reason for this is that the respondent does not try to please the interviewer, something that can occur when the researcher is doing interviews. This problem was addressed carefully. A way to work with this problem is to use e-mail to make sure the right person gets the questionnaire.

3.3.2 Selection of Sample

Sampling techniques provide a range of methods that enable us to reduce the amount of data we need to collect by considering only data from a sub-group rather than all possible cases or elements (Saunders et al. 2000). Non-probability sampling is done without chance selection procedures. A non-probability judgmental sampling was selected. Those companies are selected as a case which completed their implementation recently. Miles and Huberman (1990) suggest that investigating contrasting cases will help understand a single case finding, by specifying how, where and possible why it proceed as it does Based on this reasoning, companies from divergent industries was included in the sample selection. A personal survey method was used to collect data. A straightforward approach to collect respondents was applied. All most all of the top-level employees

directly involved in the IT fields were selected. Finally the sample was ended up with 325 employees of various organizations with e-mail contact information.

Out of 325 questionnaires sent, a total of 96 were returned giving a 29 5% response rate. This level of response is common for similar surveys (Fitzgerald 1997). Out of 96 responses, 73 were usable (22.4%). Table 3.2 presents a breakdown of 'valid respondents' by type of organization. 23 responses were not usable. This unusually high number (23.96% of total responses) of unusable responses was due to the fact that Internet based transaction services are a relatively new area and many organizations are not yet offering such services. Therefore, they returned the questionnaire, stating that they do not take part in e-commerce. Also, some companies were no longer operating from the address given, and these questionnaires were returned uncompleted.

3.4 Data Analysis

This section is a presentation of statistical analyses, which were applied to the data collected from the survey. First the factors were ranked using the mean scores to see if there was an indication of consensus about the relative weighting of the factors. Second, a factor analysis was performed which shows a possible relationship between different factors by categorizing them into six different categories. Finally, an Independent Sample t-test was performed to compare the data from different size organizations. Results show no significant difference with the exception of 'systems and services integration' factor which medium size organization see as more critical than large size organizations do.

3.5 Trustworthiness

To discuss this research's trustworthiness, there are four key issues to consider; validity, reliability, generalizability, and objectivity. Each one of these conceptions will be described and discussed further below and will also be reviewed in the final part of this thesis.

3.5.1 Validity

Inner validity is achieved if the survey used is measuring what is meant to be measured. Furthermore, outer validity is reached when the empirical study is coherent with the reality. This survey contained relevant questions since they measured what was wanted to

find in the research. It was the main target to have a sample that reflects the reality, and therefore was strived to get results, which were coherent with the reality.

3.5.2 Reliability

To achieve as high reliability as possible, it is important that the study is conducted in the same way for all respondents. The question of the survey should be designed in the same way and measure the same things Furthermore, other researchers should, independent of each other, be able to conduct the same research and achieve the same result.

In order to get the study reliable, the steps of the research were described carefully and also attached the survey was used in the research to make it easier for other researchers to conduct the same investigation.

3.5.3 Generalizability

A researcher dividing a study's generalizability into two segments; statistical and analytical. Statistical generalizability is not generated automatically for the population, but the analytical generalizability can provide information where patterns can be visible and new theories can be created. Since the population was unknown, it cannot be proved that the sample of 96 respondents allows us to generalize to the entire population, but the sample is big enough to indicate tendencies of the population, although, this might not be totally generalized.

3.5.4 Objectivity

A researcher should strive to find facts in an objective and impartial way; the researchers' values and opinions should not influence the research. Theory in this thesis is based on research papers, and had put an effort in depict the theories in a correct way to make sure that information is not left out or twisted. The results from the survey were analyzed and the conclusions drawn were based on the analysis and from the collected theory. In order to achieve high objectivity during the analysis, it had to take the extended knowledge within the subject into consideration since it might affect the analysis.

In this chapter how questionnaire was developed and tested by various accepted process has discussed. Using the questionnaire the survey has conducted and the response rate of the survey has been discussed here.

Chapter 4:

Present Status of E-Commerce in Bangladesh

This chapter will focus one of the main objectives of the research: the present status of E-Commerce in Bangladesh. There will be also a comparative study of E-Commerce in Bangladesh and the world business.

4.1   E-Commrece in World Business

The combined effects of the aftermath of the Dot com crash and the current recessionary worldwide economy put even more pressure on firms to find cost-cutting measures. A number of developing countries have adopted E-Commerce hoping that it would boost their economies and competitiveness to a new level. In the words of Kofi Annan, the former Secretary-General of the United Nations, E-Commerce is one of the most visible examples of the way in which information and communication technologies (ICT) can contribute to economic growth. It helps countries improve trade efficiency and facilitates the integration of developing countries into the global economy. It allows businesses and entrepreneurs to become more competitive. And it provides jobs, thereby creating wealth ("E-commerce and Development Report," 2002).
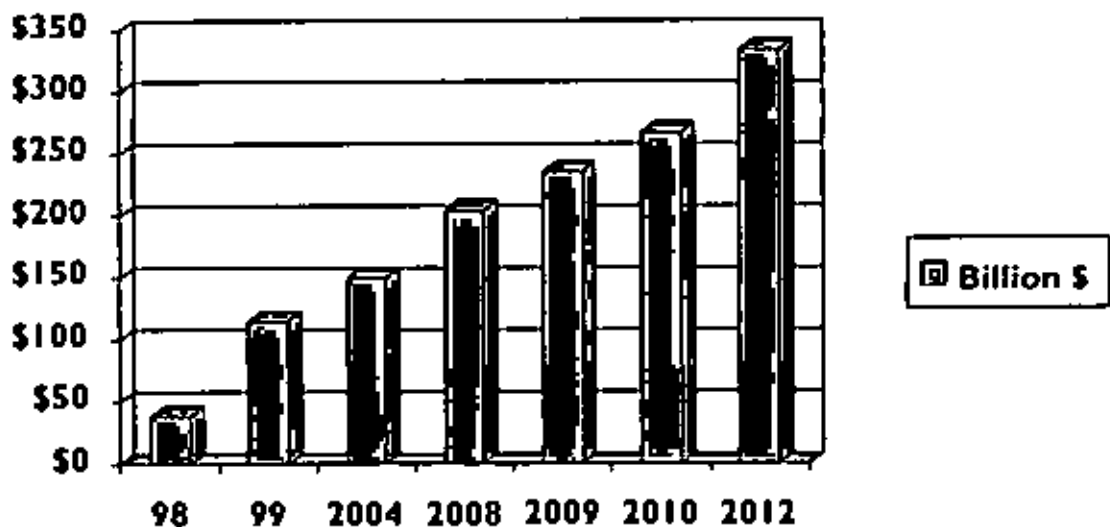
Figure 4.1: Status of E-Commerce

The current volume of trade through E-Commerce is not significant in Bangladesh compared to developed countries. In Bangladesh there are approximately 5,000 technical

professionals engaged in the E-Commerce industry and the size of the domestic market has been estimated to be more than BDT 3 billion (1 USD=70 BDT) in a year (BASIS 2007).

The B2B application already exists in the export sector of Bangladesh, especially in the Ready Made Garments (RMG) industry. B2G E-Commerce is practiced in Bangladesh on a limited scale. The government is a major buyer of goods and services from the private sector. According to the Global Information Technology Report 2001-2002: Readiness for the Networked World (2002, p. 168-169) Bangladesh is ranked 73 in the world in the context of 'Internet availability and infrastructure'. On the contrary considering the world business in 1998 E-Commerce generates $39 billion, in 1999 it was 114 billion, in 2004 E-Commerce generated well over $100 billion in retail business and over 1.5 trillion business-to-business traffic (Awad 2007, pp. 5-45). Forrester forecasts (Biz Report 2008) that shopping supposed to grow to $204 billion in 2008. By 2009 online shopping will reach $235 billion, by 2010 it will reach $267 billion and by 2012 online shopping is expected to reach $334 billion.
(figure 4.1)

4.2 Dimensions of E-Commerce in Bangladesh

The three dimensions of E-Commerce are Business-to-Consumers (B2C), Business-to- Business (B2B) and Business-to-Government (B2G). B2C E-Commerce is unlikely to be of much use in the near future in Bangladesh because of low per capita income, a weak infrastructural and legal environment, lack of trust between business and consumers. B2C for cross border trade is also limited by the factors suggested for the domestic front. In addition, non-availability of international credit cards, foreign currency remittance restrictions, delays and informal payments at customs clearance even for small value and quantity items will discourage B2C.

The B2B application already exists in the export sector of Bangladesh. In Bangladesh there are approximately 5,000 technical professionals engaged in the E-Commerce industry and the size of the domestic market has been estimated to be more than Tk. 300 crore in a year (BASIS 2007). RMG has the lion's share of the export earnings in Bangladesh. The RMG sector has begun to use the Internet, and its dependence on e- commerce is likely to grow in the coming years. The Internet

would enable them to seek information about potential buyers as well as raw material suppliers Similarly the practice of hosting a website by individual producers has begun.   However, if Bangladeshi producers are unable to accommodate electronic transfer of payment and other facets of E-Commerce, the business opportunity will move on to countries that have developed such systems.

B2G E-Commerce is possible in Bangladesh, but on a limited scale at this stage. The government is a major buyer of goods and services from the private sector.   Typically, the government procures goods and services by inviting tenders. The availability of the RFP and other relevant documents on-line provides an alternate choice. Transactions involving information collection, obtaining various governmental forms, registering activities can also be conducted on-line.   This will reduce time costs, corruption and the necessity of going through lengthy bureaucratic procedures as well as increasing transparency

The Internet came late to Bangladesh with connectivity in 1996 In the last few years it has grown dramatically, although obviously from a very low base. With an estimated Internet user base of more than 700,000 by end-2009, representing only a 0.4% user penetration, the local Internet industry is preparing to move into the next stage of its development   (source.   http://www.budde com.au/Research/Bangladesh-Internet-Market.html). As this report demonstrates, however, the country must work hard to overcome obstacles associated with the country's lowly economic status and still developing infrastructure, not least of which being an indifferent, bureaucratic government. The report also looks briefly at very early signs of broadband Internet in Bangladesh and its first moves into WiMAX services

4.3 Government Legislation

An overview of the government trade and industrial policies as well as various acts and statutes affecting E-Commerce has been presented in this paper. For E-Commerce to develop requires an enabling environment that would ensure easy and quick movement of inputs as well as goods and services within the country and cross border trade. Two major government documents reflect the mood of trade and investment policy directions to be pursued in the medium term. These are the Five-Year Plans and the Industrial Policy. The Foreign Private Investment (Promotion

and Protection) Act of 1980 guarantees legal protection to foreign investors against nationalization and also indemnifies them against losses due to civil unrest. In the area of foreign trade, the legal framework is primarily governed by three legislative Acts: The Imports and Exports (Control) Act, 1950; The Customs Act, 1969; and The Foreign Exchange (Regulation) Act, 1947 Revisions and updates of these Acts are made periodically. The Export Policy 1997-2002 aims at promoting exports in the regional and international markets.

The recently passed Intellectual Property Rights (IPR) bill of Bangladesh concentrates on software copyright protection. However, E-Commerce related copyright protection is not covered in the new IPR. According to the Evidence Act, 1881, a physical signature is necessary to make any contract legal. This makes electronic contracts void under Bangladeshi law. Contract Law in Bangladesh is governed by the Contract Act 1872. Cross border contracts are legal, but a physical signature is necessary to validate the contract. Legislation that legalizes digital certificates, electronic contracts, also needs to be enacted to promote E-Commerce.

Two Acts play an important role in dispute settlement -- the Arbitration Act 1940 and the Money Loan Court Act 1990. The Arbitration Act governs the settlement of any disputes arising from business transactions. The Money Loan Court (Artha Rin Adalat) is an independent judicial body established under the Money Loan Court Act 1990 and the Money Loan Court Regulation 1990 to recover public money loaned to individuals through public sector financial institutions. However, the Money Loan Courts are overburdened with the enormous number of cases they have to deal with.

Although no laws that directly provide for Consumer Protection exist in Bangladesh, certain laws, if implemented appropriately, can play a significant role in Consumer Protection. Two Articles in the Constitution in Bangladesh -- Article 15 and Article 18 – state broad principles regarding consumer protection. Article 18 specifically includes raising the level of nutrition and improvement of public health among the states primary duties. Article 15 can be interpreted as making the provision of basic necessities a fundamental responsibility of the state.

4.4   Infrastructure: Status and Issues

4.4.1 Telecommunication Network

(a)   Public switched Telephone network (PSTN):

Though a revolution already have taken place in the cellular phone industry, people still choose and like to rely on PSTN services due to its low call charge and other facilitating services.
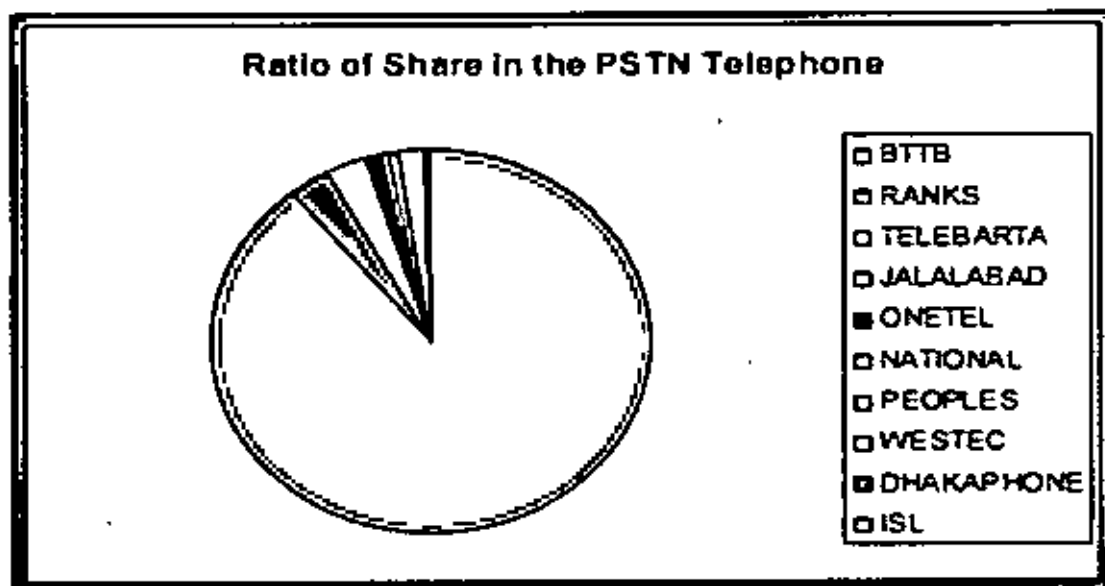
Fig 4.2: Ratio of share in PSTN telephone

Source: e-Governance Horizon Scan Report 2007

Bangladesh Telecommunication Regulatory commission (BTRC) has divided the Whole country into 6 (North-East, South-East, North-West, South-West, Central Zone and Rural) regions and issues license on that basis. They have issued 5 licenses for national PSTN operators and 11 for different regions. Government owns BTCL has the largest market share in the PSTN market. Yet now, in general, mass people rely on BTCL to get the connection. By widening its operations it can be augmented in bigger portion of the market. Private operators have started their journeys recently and able to gain the confidence and satisfaction of the customers. Figure shows the ratio of share in the PSTN Telephone market.

(b) Mobile Operator:

CellularPhone: Asia   telecommunications reports   looks   Bangladesh's   surprisingly

energetic telecoms sector, in particular, the effort that has been going into building telecom infrastructure and the progress that has been made on regulatory reforms (source: http://www.internetworldstats.com/asia2.htm). Following deregulation of the mobile market and the entry of 2 new operators (bringing the total number of mobile providers to 5) in 2005, Bangladesh saw a period of booming growth in subscriber numbers. While growth has slowed somewhat through 2009, network expansions and foreign investment interest has ensured mobile subscribers has outstripped fixed-line users by a considerable margin. Cellular phone has revolutionized the telecommunication industry in Bangladesh. The telecommunication growth in the year 2007 was 123%. After starting back in 1993 (first license was issued in 1989) it has brought more than thirty million people under the shade of telecommunication service. There are 6 mobile operators providing services, among them 5 are GSM technology based and one is CDMA technology based. The whole country is under the network coverage of mobile operators.

Subscriber Growth rate of Mobile Phone: Mobile phone is the strongest tool to reach the mass people in Bangladesh. People from almost all economic levels can afford to access mobile phones. The following figures how the revolution that has happened in telecommunication sector in Bangladesh.
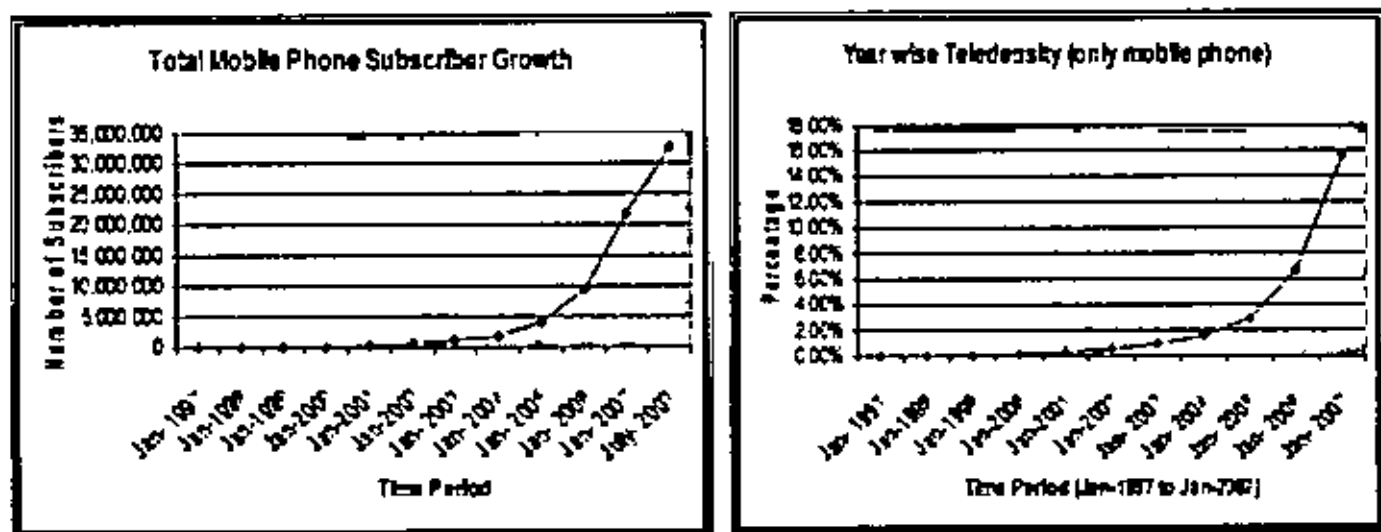
Figure 4.3: Year wise subscriber Growth

Source: e-Governance Horizon Scan Report 2007

In July-2007 the total number of mobile phone subscribers have reached to 32,525,414 (e-Governance Horizon scan Report 2007) and tele-density reached to 23.3% (As per population number 140 million).

Data and Different services provided by Mobile Operators: The mobile web and web based service has started in Bangladesh in recent times, but not in a large scale. The subscribers have yet treated data service as a costly and luxurious service. There are two basic subscriber classes in cellular market: Post-Paid and Pre-Paid. For post-paid a monthly line rent fee is to be provided by the subscribers Pre-paid is real time charging base and is obviously allocates the largest percentage of subscribers. Based on the general data service tariff plan, there are two packages are provided by almost all the operators. One is pay per use and another is unlimited usages. The subscribers have to pay a flat fee for unlimited usages monthly The user classes of these packages are generally the corporate. It is getting popular among the students now CityCell, one of the operators, having CDMA network, is providing data service package based on segmented download size with the brand name "myCityCell Zoom". They are providing data services based on monthly download usage of 100MB, 300MB and 3GB They are also providing pay per use data service. City Cell also provides the data card with the package.

Services: As the data service is still treated as the costly service by the subscribers so operators are sluggish to take initiatives on data service. Among the six (6) operators only two are found to be leading the data service market in Bangladesh. They are: AKTEL (Recently AKTEL is renamed as ROBI) and Grameen Phone. AKTEL (ROBI) having almost 6.5 million subscriber base. Grameen Phone is currently leading the market of subscriber base of almost 15.5 million. Here the subscribers are enjoying and experiencing the mobile web through several services like. WAP browsing, MMS, Peer to Peer, MMS Peer to Email, download service (like game, wallpaper, ring tone etc.)

So far compared to voice service revenue data revenue is very much lower and the subscribers as well as the operators are not so much concerned about the data services. So there is very less promotion in this sector. But there are huge potentialities in this sector. A subscriber having a data service (GPRS/EDGE/CDMA 2000) enabled and having a data service featured (WAP/MMS/Streaming enabled) hand set can be thought of as the Eligible Data User for that network. A handsome number of the subscriber base is generally using data service enabled handsets GPRS/EDGE modem is also available in market and people are using these for better mobility. The web service will be popular among the mass people, especially among the student and young generation if the price falls. A steady growth is observed in mobile internet connectivity.

4.4.2 Data Connectivity:

Bangladesh's entry on 21st May 2006 to the 13-members consortium, SEA-ME-WE-4 (widely known as Submarine cable connection) in acronym, has slashed internet and long-distance telephone call costs and greatly boosted browsing speed. It has connected Bangladesh to the information super highway. BTCL (formerly known as Bangladesh Telegraph and Telephone Board-BTTB) is the authority to operate and maintenance this submarine cable connection. Now (2010) this submarine cable has a 1.2-Gigabyte-per- second data transfer capacity. The country will have a 10-gigabyte data transfer capacity per second, 8 times more than the current capacity. The capacity is considered adequate for the next 10-15years.

The consortium South East Asia Middle East West Europe-4 (SEA-ME-WE-4) has started the cable connection from Singapore running through Malaysia, Thailand, Bangladesh, India, SriLanka, Pakistan, a number of Middle Eastern countries and ended in France. With a view to minimize cost minimize the project has been implemented through a consortium. The consortium will take care of the maintenance at a low cost and Bangladesh will have to make no additional spending to land its cable in the member countries. The establishment of submarine cable link provides the infrastructure for large-scale software export and scopes for investment to establish IT-enabled value-added service e.g. callcentre, tele-medicine, and distance education at overseas universities.

BTCL believes government earnings from telecommunications sector will shoot up as it can raise the number of telephone circuits with the consortium members. After fulfilling the requirement of the country, excess capacity in the main stream may be leased out to overseas operators. For the next two years, capacity can only be sold on lease basis and not as IRU (Indefeasible Rights of Use). To make better and greater utilization of the submarine cable new services like IP VPN, Virtual telephone network abroad and various kinds of broadband service may be introduced in the country.

The Utilization Plan for the cable capacity has been prepared to address the national interest first. It will consider the requirement for voice, data, video, entertainment and similar other broadband services by BTCL and other service providers for next 10 years. It will also facilitate overall ICT activity to enhance the socio-economic growth of the country. Utilization plan has focused on to meet requirements specified by ICT Task

Force and BTRC regarding VoIP and make effective use of the surplus capacity.

BTCL has already started the following facilities by using sub marine cable, Post-paid Dialup Internet Service, Leased Internet Access (Broadband Internet), Nationwide DDN circuit, Multi-exchange area DDN circuit, E1 Access to PSTN from ISP, IPLC (International Private Leased Line Circuits).

(a)   Access Network

At present (2010) most cities and towns are covered by digital telephone exchanges. All Upazilla exchanges will have digital exchanges by the end of 2011-2012. So all telephone subscribers up to Upazilla level will have voice and Internet connectivity through the submarine cable. Rural growth centers will be brought under digital exchanges by installing suitable access network to extend benefits of submarine cable in to the rural areas.

The quality of service to private mobile and land phone operators is improving to allow access for all the existing subscribers and ensure access for the future growth. Establishment of two more international gateway exchanges is underway. BTCL's present data access network is based on the existing DDN which can support only up to 2Mbps capacity. But to develop IP Access network the necessary procedure is going on where optical interfaces is deployed in major cities to connect customers through optical local loop at higher speed. At present, DDN nodes are available at 41 districts only.

BTCL Data and Internet-related services: BTCL (formerly known as Bangladesh Telegraph and Telephone Board-BTTB) started running internet services in 1999. Data and internet—related services are now being operated and maintained by the Telex and Teleprinter Division, under the Overseas Telecommunication Region. All administrative purposes for the offered services are served from the Divisional Office at Mogbazar Telephone Bhaban. The overall features of the BTCL's network infrastructure are as follows:

- Optical Fiber/Microwave systems with career-class equipment
- Higher International Internet Backbone (8 x STM-1 Duplex through SEA-ME-WE-4 Submarine cable System)
- Redundancy in IP Backbone (32 Mbps downlink/16 Mbps uplink through BT)
- Connected directly to Europe/America

(b)   National Backbone

A project is going on to establish the national backbone. Under this project there will be a setup for Layer3 Switch (ADSL Site) in 12 districts connected by Fiber optics to main backbone These districts are Dhaka, Comilla, Chittagong, Sylhet, Khulna Bogra, Barishal, Rajshahi, Gazipur, Savar, Mymensigh, and Jessore. Any organization can lease their connection from these centers. But one constraint is that if any one wants to take a fiber optic link connection, they have to take a connection of 3 Mbps. This project will hopefully be ended within June2010.

(c) Internet Service Provider (ISP):

The internet came late in Bangladesh, with UUCP e-mail beginning in 1993 and IP connectivity in 1996. In June 1996, the government decided to allow private entrepreneurs to act as ISPs using VSATs (Very Small Aperture Terminal). In 1999, there were 10 ISPs (8 in Dhaka and 2 in Chittagong) while in2007, there are about 203 ISPs in Bangladesh among them 77 are nationwide ISPs. ISPs cover and provide their service in 18 districts in Bangladesh. Maximum ISPs are Dhaka based and they lease bandwidth from BTCL and sell bandwidth among different organizations and also provide single user connection. ISPs outside Dhaka are mainly connected to international backbone by their own VSAT (e-Governance Horizon scan Report 2007).

(d) Digital Telephone Exchange:

Bangladesh Telecommunication Company Limited (BTCL) has already established Digital telephone exchange in 41 districts and in prominent upazillas. The rest of the districts will be under the digital telephone network coverage within 2010 Digital telephone exchanges will not only facilities the voice call they will provide high speed internet connectivity.

(e) Bandwidth Price:

Though bandwidth price remain the main barrier to increase the internet penetration in the country but in recent times it is decreasing as the number of users are increasing. Still it is higher than our neighbor countries. To foster the IT enabled service there is no other alternative to decrease the bandwidth price.

(f) Wireless Internet Connectivity

In developing countries like Bangladesh, reliable wireless network is a quick and cost-effective way to facilitate communications and bring more citizens into the Internet infrastructure. In a developed country, cities are facilitated with internet with the use of wireless technology. To reach the internet connectivity to the mass people WiMax can play a strong role. BTRC yet to have their rules and procedures required in order to issue WiMax license. WiMax provides a cost effective and quality service, so it will foster the internet penetration in the near future. Bangladesh Government gave WiMax license to three companies in Bangladesh and they have started operating in Bangladesh.

4.4.3 Television Network:

(a) Bangladesh Television (BTV)

Bangladesh Television is the national television of Bangladesh. It is the only terrestrial channel in the country. The information and circular broadcasts by this media is the most circulated, because it is owned and run by government. It has great influence in social and day to day life of the citizen. It broadcasts many development programs in the sector of health, education, women and children affairs, weather and agriculture.

As Cable/ satellite TV is yet to reach the rural area of the country, BTV is the most powerful tool for information dissemination in Bangladesh. Almost 41% households own television. Although there was a wide variation between urban (78%) and rural (27%) areas, 26% households own black and white TVs whereas 15% were found to have colored TVs. Nearly 10.4% households had cable connections. So, 25% households had satellite penetration among the total TV owning households. Viewer ship of TV in the year 2004 was about 64%, which was one and a half times higher than that in 1998 (42%) and two times higher than the viewer ship in 1995(31%) (e-Governance Horizon scan Report 2007).

(b) Local Satellite TV:

Satellite TV has been gaining popularity since the end of nineties. It is now a well-networked infrastructure in Bangladesh. There are 9 private channels. These channels are very popular among the citizen, especially the news service

4.4.4 Tele Center and Cyber Café

Some of the most marginalized segments of digital divide are the rural communities

around the world– most of which lack access to information and, more often than not, lack access to technology. One of the key challenges facing development practitioners today is how to utilize information and communication technology (ICT) tools to provide service to this underserved segment with the objective of decreasing human poverty and improving livelihoods. The services delivery platform of choice for various poverty alleviation interventions so far has been through the humble "telecenter"–often given names relevant to the region or community within which it is based.

In Bangladesh various private organizations have experimented with establishing different types of telecentres. D.Net's "Pallitathya Kendras" are centered on providing livelihood information to the community they serve. GrameenPhone, a leading telecom operator in Bangladesh, has 506 Community Information Centers in 417 Upazillas (www.grameenphone.com) Community Information centre (CIC) that are fully owned by local entrepreneurs. With a minimum investment of BDT 80,000 (USD 1,100) an entrepreneur can become a franchisee of GrameenPhone and thus serve her or his community. Community Multimedia Centre (CMCs) which was launched by YPSA (a Bangladeshi NGO) is equipped with computers with CD-ROM, a pocket PC, digital video camera, audio recorder, cassette player, cable TV, cable radio and DVD players. Rural ICT Centers (RICs) run by the Digital Equity Network (DEN) with support from KATALYST disseminates livelihoods information for local businesses in sectors that are relevant to the community – such as information for fishermen or potato farmers or poultry farmers.

Present telecenters of Bangladesh disseminate information to the rural community through various methods e.g. text contents, multimedia contents, animated contents, video documentary etc.   To disseminate the information, telecenters use mobile phones, internet, email, sometimes printing services of the contents, brief written explanation, customized consultation etc. In some areas telecenters provide community peoples access to online newspapers. Primarily the telecenter operators read out the contents preserved in digital format for the illiterate people. Some telecenters have taken social mobilization and training initiatives to aware the community people about different social and human development issues. Besides these, flexi load for recharging the mobile phones, net to phone services for calling the relatives abroad, courier service are also found at some of the telecentres in Bangladesh. Most of the telecenter operators have text based contents. Few telecenter practitioners are developing animated contents on a experimental basis.

Audio contents are mainly useful for illiterate (print disabled) people as well as for the people with visual challenges. Although not very large in number, video contents are quite popular among rural people.

The existing challenges for telecenters include lack of steady power supply, internet connectivity, quality services of the local service providers, effective empowerment of the female infomediaries of the rural communities. The initiative of Bangladesh Telecentre Network (BTN) puts a positive effort in achieving better coordination and synergy among telecentre practitioners In the mean time, e-Governance focal points are becoming interested in telecentre activities to bring Government closer to the people and to build people's trust on Government mechanism.

The business of cybercafé has been growing in Dhaka since the late 90s Cyber cafe is now available even at the district level. People use cyber cafes to browse, send and receive e-mails, transfer data and even for video conferencing The café owners' association presented, an estimate showing that 40 percent of their users are students, 30 per cent job-seekers, 20 per cent business users and 10 percent of them fall in the mixed category. Everybody was dreaming of a high bandwidth after the connection to the SE-ME-WE-4, but it will take time to benefit from such connectivity. The rate for browsing in cybercafé is BDT 20-35 (approx) per hour. Internet Usage Statistics: 556,000 Internet users as of September, 2009; which is 0.4% of the population, according to ITU (source · http://www.internetworldstats.com/asia/bd.htm).

4.4.5 The Power Sector of Bangladesh

Undisrupted supply of electricity is an important factor for the ICT sector and as well as for overall economic growth of Bangladesh Without ensuring the uninterrupted power supply ICT enabled services cannot be ensured. Due to huge amount of load shedding, our economy is losing significant amount of money and working hour every single day. However, the condition of the power sector of Bangladesh is improving. But the situation is not yet satisfactory and there is still a long way to go.

4.5   Financing: Status and Issues

Easy access to credit and a well-developed financing mechanism is essential for Bangladesh to compete in the highly competitive export market. There

are three types of export financing in Bangladesh: pre-shipment financing in local currency by commercial banks; pre-shipment financing in foreign currency by commercial banks through the Export Development Fund (EDF); and back-to-back letter of credit (L/C) facilities.

Studies have reported that lack of access to trade financing, caused by a weak commercial banking system and foreign exchange scarcity, has constrained Bangladesh's export expansion. The insistence by commercial banks on the use of L/Cs for export financing and the existence of interest rate ceilings on export loans has had negative effects. Indirect exporters are forced to give inter-firm credit for their sales of indirect export items to direct exporters because they do not have the option of sight or advance payments from direct exporters.

Restriction on issuance of international credit cards prevails. Lack of internationally accepted credit card facilities sends wrong signals to their foreign counterparts about the inability of Bangladeshi businessmen to make speedy payments through international credit cards. Restrictions on foreign currency remittance imply that many businessmen make foreign payments through the illegal – but extensively used – system of "Hundi". According to the Evidence Act (The Negotiable Instrument Act, 1881, Revised up to 1999), a physical signature is necessary to make any contract valid in the eyes of the law. This makes electronic contracts void under Bangladeshi law. The Evidence Law should be revised to recognize the validity of a digital signature.

4.6   Commerce Issues

Conducting business at the Chittagong port (the main port of Bangladesh) is comparatively more expensive than anywhere else in the region. One of the main reasons for such abnormally high costs for the port in Bangladesh are frequent strikes (locally known as hartaals) and arbitrary work stoppages by the trade unions Corporate taxes are high and burdensome, resulting in widespread tax evasion. Modest coverage and weak enforcement make corporate taxation a minor contributor to the treasury. In addition, the tax system is not client friendly, appeal procedures are lengthy, and definitions of deductible business expenses are strict and nontransparent.

Customs clearance and procedures continue to be saddled with delays and allegations of informal payments. The introduction of Pre-shipment Inspection (PSI) agents and the Green Channel are steps in the right direction in promoting speedy movement of goods. However, the government's reliance on Customs as a major source of tax revenue and the private sector's attempts to find ingenious means to forego taxes (at times in collusion with Custom officials) demands further modernization and improved monitoring systems of the Custom authorities

4.7 Human Capital

Successful application of E-Commerce demands not only availability of technology and infrastructural facilities but also a skilled manpower that can appreciate and apply it. Bangladesh lacks skilled manpower and knowledgeable managers in the IT sector. Computers are primarily used for word processing, making presentations, e-mails in selected formal sector business establishments. However, the communication is constrained by the quality of verbal and written communication skills in English, which is mediocre at best, even among university graduates. If Bangladesh aims to interact closely with the international markets and seeks growth through exports, improved communication and computer skills among various segments of the society are imperative.

A good understanding of the current benefits and future opportunities of E-Commerce is essential for the advancement of E-Commerce. The lack of knowledge among public officials about the Internet and its potential, and their application in E-Commerce, significantly handicaps policy reforms in this sector. In the private sector, viable IT sector projects fail to obtain financing due to the lack of understanding of the investors.

In the software development sector, Bangladesh has not shown much success because of the lack of qualified programmers and lack of initiative in the development of skilled manpower. Isolated, individual efforts were taken for initiating data entry and software export with limited success. These efforts were not successful because of inadequate experience, lack of quality control, inability to meet the deadlines as well as a failure to globally market Bangladesh's keen interest and attempts to enter this market. However, selected entrepreneurs and organizations

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continue to make concrete and positive efforts to become involved

4.8   Governance and Policy Implementation Constraints

Regulatory intrusiveness is a way of economic life in Bangladesh. Ageing laws on patents, trademarks and copyrights; post and telegraphs, land ownership and transfer;   and employment have yet to be brought into alignment with modern practices and requirements (The World Bank, 1996).

In addition to this, Bangladesh has an intractable problem of poor governance. This has been manifested in the form of continued involvement of politicians and public officials, often in collusion with the private sector, in undermining the rule of law. As a consequence, institutions continue to remain weak and legal and regulatory   reforms   are   difficult   to implement. Rent seeking activities galore, discouraging competition and promotion of efficiency.

Table 4.1 The Hidden Cost of Service

Source: *Government That Works, Reforming the Public Sector*, The World Bank, 1996

Service	Standard Waiting Time	Informal Payment for Faster
Electricity		
High Tension Connection		Taka 100,000-150,000
Low Tension Connection		Taka 10,000-15,000 The
Gas	3 months	Taka 40,000
Water	3-4 months	Taka 14,000-20,000
Phone	10-12 years	Taka 50,000-70,000
Trade License for a Garments Factory	1 year	Taka 5,000-8,000
Garments Factory Construction License	Supposed to take 1 Month but takes longer	Taka 30,000-33,000

Trade and commerce through E-Commerce assumes business norms and practices that are mutually acceptable or understandable between buyers and sellers. Poor

governance discourages trade in general and E-Commerce in particular. The amount of time that businesses have to spend as well as the side payments they have to make to complete any simple transaction can be lengthy and time consuming. As examples, obtaining a passport, registering a land title, procuring a building permit or accessing telephone connection or licenses are usually an expensive and unpleasant experience.

Conducting business at the Chittagong port (the main port of Bangladesh) is comparatively more expensive than anywhere else in the region. The handling charge for a 20 feet container is $640 in Chittagong as compared to $220 for Colombo, $360 for Bangkok and $216 for Singapore. One of the main reasons for such abnormally high costs for the port in Bangladesh is frequent strikes (hartaals) and arbitrary work stoppages by the trade unions. (The Daily Star, December 8, 2000)

Customs clearance and procedures continues to be saddled with delays and allegations of informal payments. The introduction of Pre-shipment Inspection (PSI) agents, and the Green Channel are steps in the right direction in promoting speedy movement of goods. However, the government's reliance on Customs as a major source of tax revenue and private sector's attempts to find ingenious means to forego taxes (at times in collusion with Custom officials) demands further modernization and improved monitoring systems of the Custom authorities.

Corporate taxes are high and burdensome, because of the hassle involved in dealing with tax authorities – resulting in widespread tax evasion. Modest coverage and weak enforcement make corporate taxation a minor contributor to the treasury. In addition, the tax system is not client friendly, appeal procedures are lengthy, and definitions of deductible business expenses are strict and nontransparent. For developing economies like Bangladesh, Foreign Direct Investment (FDI) is believed to be critical for much needed capital in infrastructural development, infusion of technology and for accessing overseas markets. Bangladesh, primarily through its governmental agencies, has been wooing FDI for more than a decade with limited success. The major reasons for poor FDI into Bangladesh are its small domestic market, poor infrastructural facilities, weak governance and poor law and order conditions. Bureaucratic red tape and corruption also dissuades domestic as well as foreign investment. E-Commerce

and FDI are likely to reinforce each other's presence and growth. Greater involvement of international businesses will offer greater demonstration effect on the merits of E-Commerce, and concurrently remove the impediments to its use. Acceptance and successful application of E-Commerce would enhance the business environment, sending signals to foreign investors that it is becoming easier to do business in Bangladesh.

Present status of E-Commerce in Bangladesh is not really significant. Government legislation, power Sector, Financing and Commerce issue, etc need to be more prioritized whereas he telecom industry and optical fiber technology are good prospects of Bangladesh.

Chapter 5

Description of Research Framework and Empirical data

This chapter is a presentation of statistical analyses, which were applied to the data collected from the survey. First the factors were ranked using the mean scores to see if there was an indication of consensus about the relative weighting of the factors. Second, a factor analysis was performed (see table 5.2 and table 5 2) which shows a possible relationship between different factors by categorizing them into six different categories. Finally, an Independent Sample t-test was performed to compare the data from different size organizations.

Table 5.1: Descriptive statistics for each variable in the order of importance

Ranking of the Item	Description of variable	Mean	Std. Deviation
V8	Light and faster website	5.947	1.057
V9	Secure website and related systems	5.869	1.258
V11	Fast responsive customer service	5.684	1.200
V13	Promotion of EC within organization	5.602	1.349
V7	All time availability of services	5.453	1 426
V4	Rapid delivery of services	5.450	1.406
V5	Fast and integrated business processes	5 419	1.506
V1	Share Information	5.287	1 465
V10	Customer Database	5.260	1.337
V12	Flexible workforce	5.145	1.734
V6	Personalizing services	5.095	1.667
V2	Flexible organizational structure	5.082	1.598
V3	Web-specific marketing	5.080	1.412
V14	Business solution	4.932	1.879

5.1   Descriptive Statistics of CSFs in E-Commerce

In order to present descriptive scores such as means and standard deviation for each of the variables used in the survey, descriptive analyses were performed. The main aim of this analysis was to describe the importance of each variable in order of importance given to it

by the survey respondents. These types of analyses are similar to those conducted by Ang and Teo (1997) in a survey to investigate the CSFs for sources of assistance and expertise in strategic IS planning. Results are presented in descending mean value (order of mean importance) in Table 5.1. The relative ordering of adjacent factors in the Table 5.1 is not significant but across the table as a whole there are some indications of significant differences between the factors at the top and bottom of the table. This could imply that factors at the top are significantly more critical than the factors at the bottom of the table.

5.2   Factor Analysis

Factor analysis was performed using a Principal Component Analysis (PCA) and the Varimax with Kaiser Normalization rotation method until the Eigen value of each factor was greater than 1. The rotation converged in 14 iterations. The reasons for PCA selection are given in the following paragraph.

5.2.1 Principal component analysis (PCA)

Principal component analysis (PCA) involves a mathematical procedure that transforms a number of possibly correlated variables into a smaller number of uncorrelated variables called principal components. The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. Depending on the field of application, it is also named the discrete Karhunen–Loève transform (K.L.T.), the Hotelling transform or proper orthogonal decomposition (POD).

PCA was invented in 1901 by Karl Pearson. Now it is mostly used as a tool in exploratory data analysis and for making predictive models. PCA involves the calculation of the Eigen value decomposition of a data covariance matrix or singular value decomposition of a data matrix, usually after mean centering the data for each attribute. The results of a PCA are usually discussed in terms of component scores and loadings (Shaw, 2003).

PCA is the simplest of the true eigenvector-based multivariate analyses. Often, its operation can be thought of as revealing the internal structure of the data in a way which best explains the variance in the data. If a multivariate dataset is visualized as a set of coordinates in a high-dimensional data space (1 axis per variable), PCA supplies the user with a lower-dimensional picture, a "shadow" of this object when viewed from its (in

some sense) most informative viewpoint. PCA is closely related to factor analysis; indeed, some statistical packages deliberately conflate the two techniques. True factor analysis makes different assumptions about the underlying structure and solves eigenvectors of a slightly different matrix. PCA are statistical techniques applied to a single set of variables where the researcher is interested in discovering which variables in the set form coherent subsets, which are relatively independent of one another. Variables that are correlated with one another, but largely independent of other subsets of variables, are combined into factors. Factors are thought to reflect underlying processes that have created the correlations among variables. The exploratory nature of this study led to the selection of PCA to make the findings more meaningful.

5.2.2 *Varimax*

In statistics, a varimax rotation is a change of coordinates used in principal component analysis and factor analysis that maximizes the sum of the variances of the squared loadings. That is, it seeks a basis that most economically represents each individual—so that each individual can be well described by a linear combination of only a few basis functions.

$$
R_{\text{VARIMAX}} = \arg \max_R \left(\sum_{j=1}^{k} \sum_{i=1}^{k} (\Lambda R)_{ij}^4 - \frac{\gamma}{P} \sum_{j=1}^{k} \left(\sum_{i=1}^{P} (\Lambda R)_{ij}^2 \right)^2 \right).
$$

Where $\gamma = 1$ for VARIMAX.

Suggested by Henry Felix Kaiser in 1958, it is a popular scheme for orthogonal rotation which cleans up the factors as follows: "for each factor, high loadings (correlations) will result for a few variables; the rest will be near zero". Varimax rotation is often used in surveys to see how groupings of questions (items) measure the same concept.

5.2.3 *Cronbach's α*

Cronbach's α (alpha) is a statistic. It is commonly used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. It was first named as alpha by Lee Cronbach in 1951, as he had intended to continue with further coefficients. The measure can be viewed as an extension of the Kuder-Richardson Formula 20 (KR-20), which is the measure's equivalent for dichotomous items. Alpha is not robust against missing data. Several other Greek letters have been used by later

researchers to designate other measures used in a similar context. This article assigns the use of α to psychology, yet the Cronbach's alpha statistic is widely used in other disciplines, e.g. social sciences, business studies and nursing. This article uses the term "item", while recognizing that items are variable. When manipulated items are commonly referred to as variables.

Cronbach's α is defined as

$$\alpha = \frac{K}{K-1} \left(1 - \frac{\sum_{i=1}^{K} \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

where K is the number of components (K-items or testlets), σ_X^2 is the variance of the observed total test scores for the current sample of persons, and $\sigma_{Y_i}^2$ is the variance of component i for the current sample of persons.

5.3   Ranking of the Variables

The critical success factors to the implementation of E-Commerce in Bangladesh were based on Likert Scales (1-7), used to measure the criticality of different attributes, with 1 being least critical and 7 representing maximum criticality. The answers are rated by level of agreement, including very unimportant (disagree) to very important (agree). The distribution of these weights is given for each aspect.

5.4   Rotation and Factor Analysis:

Rotation is ordinarily used after the factor extraction to maximize the potential high correlations and minimize low correlations. There are many methods of rotation such as Quartimax and Direct Oblimin but Varimax is most commonly used (Tabachnick and Fidell, 1996). The goal of a Varimax rotation is to maximize the variance of factor loadings by making a high loading higher and low ones lower for each factor. The results of the factor analysis appear in Table 5.2, which shows that variables are grouped into 6 factors, with the highest score of each variable given in the bold type face highlighting the membership of each variable within 6 factors. The results of factor analysis are presented in Table 5.2.

Table 5.2: Results of factor analysis (Rotated Component Matrix)

Variables	Components					
	1	**2**	**3**	**4**	**5**	**6**
V1	-3.29E-	**.58302**	-3.97E-02	.454	.108	-4.12E-02
V2	**.495**	.231	.196	.314	-.218	-.147
V3	.237	.149	.152	**.732**	.206	.112
V4	.191	.289	-.104	**.475**	.450	-.331
V5	.242	249	.258	**.397**	.247	-.274
V6	.321	.142	.405	**.409**	.287	-7.36E-03
V7	.236	**.724**	.371	.259	-1.47E-02	3.835E-02
V8	7 029E-02	**.241**	.165	5 09E-02	9 751E-02	5.263E-02
V9	.254	-8.51E-02	4.355E-03	6.09E-02	**.781**	5.625E-02
V10	4.575E-02	5.166E-02	**.592**	.426	9.828E-02	2.358E-02
V11	-.159	**.739**	.223	-2 28E-03	-5.58E-02	9.093E-02
V12	**.658**	.144	.263	8.79E-02	102	107
V13	**.544**	.394	-1.36E-02	5.595E-03	-4.55E-02	-.109
V14	-9 28E-02	**.731**	5.627E-02	120	211	.247

The main statistical part of this research has done in this chapter using the collected data from the survey Factor analysis has performed using a Principal Component Analysis (PCA) and the Varimax with Kaiser Normalization rotation method.

Chapter 6

Findings

This chapter will discuss the results of the statistical analysis and at the same time the internal consistency of the statistical result will also apply here to explain the findings Finally an independent sample student t-test will be done to analyze whether the large organizations and medium size organizations differed in respect of their success factors.

Factors were tested using reliability analyses to calculate their Cronbach's Alpha, results of which are given in Table 6.1. The factors are derived from the combination of their variables. For example, the first factor (given in bold) in Table 6 1 has three variables as its members, chosen by the factor analysis process, including. Flexible organisational structure, Promotion of electronic E-Commerce within organisation and Flexible workforce. The researchers' interpretation was that all these variables point towards organisational flexibility. The researchers' interpretation was that all these variables point towards organizational flexibility These interpretations were validated by showing them to three other distinguished academics and modified slightly according to their feedback. Four of these factors had a score of more than 0.6 in the Cronbach's α reliability test (see Table 6.1). The Cronbach's α value of factor 4 is not large enough to indicate whether this factor is reliable. It was included because it was thought to be important by the researchers. The fifth factor was eliminated because its Cronbach's α was 0.52 (less than 0.6). The sixth factor was also eliminated because of its Cronbach's α value is 0.

As discussed earlier, the purpose of conducting factor analysis was to explain the different relationships amongst different variables. Four groups of variables emerged from the analysis and are discussed below. Although this discussion may sound similar to the one presented above, the difference is that in the descriptive analysis chapter, variables were presented individually as factors. This chapter discusses the results of factor analysis which were done to find the interrelationships of variables. This process provided a much shorter and concise list of factors which may be critical to the success in E-Commerce.

6.1 Organizational Flexibility (α = α.72)

The working of the items constituting this factor (see factor 1 in Table 5) portrays the concept of flexibility in different aspects of an organisation. The first element is structural flexibility, which is about organizing different functions of an organisation around business processes, rather than traditional hierarchical structures, so that a structure changes according to the changes in business environments and objectives (Kalakota and Robinson, 1999).

Having a policy of selecting best of breed products and an ability to integrate them, adds another dimension to the organisation's business freedom. This enables it to choose the systems components according to its business requirements, rather than building the business around its systems capabilities. Promotion of E-Commerce within an organisation, as discussed in the previous section, is likely to increase an organisation's ability to change itself quickly. This is because less resistance to change and increased cooperation amongst its employees resulting from active promotion is often a basic ingredient for success (El Sawy et al. 1999, pp.305-335).

6.2 Fast and Responsive Products/Services (α = 0.78)

This factor is comprised of variables (see factor 2 in Table 5) which mainly involve fast responsive customer service, all time availability of services, light and faster website, share Information and having business solution to do these things. As mentioned in the previous section, customers' expectations from e-channels are very high and they expect services to be delivered much faster than conventional channels. To deliver services quickly, other factors such as integration of business processes as well as systems are also required. This shows that although each of these factors is critical for success, getting one or a few of them may not be enough. Organisations will need to take a holistic view of these factors.

6.3 Expansion of Services (α = 0.69)

In E-Commerce expansion of services starts from development of an interactive and user-friendly website. The website along with associated functions or services has to be available 24 hours every day of the year. Some organisations, such as CellBazaar <http://www.cellbazaar.com> and Hutbazar <http://www.hutbazar.com> are offering extra services such as job circular or other advertisements on their website, through their partner organisations. Not only does this result in extra revenues from new services, it

often results in increased sales of existing products. This process can be taken further by offering discounts on packages of different products. This, combined with other factors discussed in this section, should increase an organisation's ability to expand in new markets and create new streams of revenue

Table 6.1: Cronbach's α for each critical factor in E-Commerce

Factors	Number of variables	Cronbach's α Score	Success factors and their variables
1	3	0.72	**Organisational flexibility** Flexible organisational structure Promotion of electronic E-Commerce within organisation Flexible workforce
2	5	0.78	**Fast and responsive products/services** Fast responsive customer service All time availability of services Light and faster website Share Information Business solution
3	1	0.69	**Expansion of services** Customer Database, 24 x 365 days availability of service, attractive website.
4	4	0.65	**Systems and services integration** Rapid delivery of services Fast and integrated business processes Web-specific marketing Personalizing services
5	1	0 52	**Enhanced customer service** Eliminated from analysis because of low score
6	0	0	Eliminated from analysis because of too low score

6.4   Systems and Services Integration (α = 0. 65)

Integration is not only necessary for cost savings in processing, but also to develop the ability to gather/analyze customer related data for marketing purposes and the ability to deliver integrated products in real time across channels. Effective Web-specific marketing and personalizing products to individual needs, requires gathering relevant data about customers and using it to build long-term relationships. Integrated business processes and systems create opportunities to trace the trails of each transaction by a customer. If that transaction is aggregated with the customer's other transactions and analyzed, it may yield invaluable historical information about consumer preferences and how the organisation may cater for and influence those preferences. If the customer's transaction history is analyzed along with that of other customers, the organisation may discover a segment preference that can be satisfied by new products and services (Kalakota and Frei 1998, pp. 19-74). This level of integration requires a substantial investment and technical capabilities. Businesses with limited technical or financial resources to ensure total integration may consider single vendor solutions because systems integration is usually easier this way and the vendor's help is available for this purpose.

6.5   Independent Sample Student t-test

G.Yan and J.C. Paradi (1999) identified the five critical success factors for financial institutions to compete in E-Commerce market and size of company assets is one of them. Zhu et al. (2003) and his research team have been investigating drivers of E-Commerce value in recent years There are several key important findings by them. One of them is, 'firm size is negatively related to E-Commerce value, suggesting that structural inertia associated with large firms tends to retard E-Commerce value'. In this research work this test was conducted to analyze whether the large organizations and medium size organizations differed in respect of their success factors. Respondents were divided into two groups according to the number of employees and these two groups were the primary targets to participate in the survey.

For the purpose of this research, large organizations were those with more than, or equal to, 150 employees. Medium sized organizations were the ones with less than 150 but more that 30 employees. Organizations with less than 30 employees were classified as small organizations and ignored when the survey instrument was sent out. This was done on the assumption that most small organizations were unlikely to be offering a substantial

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number of financial products online and may be ignored to reduce the study to a manageable size. The study assumed that the two groups are different in respect of how they perceive different factors to be critical to them, because of the differences in their size, financial resources and market penetration. An Independent Sample Student t-Test was used to test this assumption and results are presented in Table 6 2. Table 6.2 presents the test findings that show whether the large organizations and medium size organizations differed in respect of the success factors.

Table 6.2: Result of Student t-test

Factors	Size of Organizations	Number	Mean Value	Degrees of freedom	t-Value	Significance (2-tail)
Organizational flexibility	Large	21	5.0169	73	-.713	N/S
	Medium	52	5.2381	28.123		
Quick responsive products/services	Large	21	5.1490	73	-.628	N/S
	Medium	52	5.3257	44.126		
Expansion of services	Large	21	5.68	73	- 416	N/S
	Medium	52	5.58	36.799		
Systems and services integration	Large	21	4.45	73	-2.037	P<0.05
	Medium	52	5.1026	46.943		

Only the first four factors in Table 6.2 were used in this test as factor 5 was not included because of its very low score in Reliability Analysis. The t-test results indicate that the 'systems integration' factor was the one on which the two groups significantly differed. Medium size organizations consider this factor to be much more critical than large organizations. This may be due to the limited resources medium size organizations have to invest in integration of their back end systems with their front end systems. This test showed that generally there is little difference between medium and large size organization in terms of factors which are critical to the success in E-Commerce This finding is contrary to the study's assumption that there may be significant differences between two groups.

Chapter 7
Summary and Conclusions

Despite being a poor country, selected segments of the Bangladeshi business community has embraced technology with reasonable success. The Facsimile in the 1980's and mobile telephones in the 2010's popularized modern technology in the mass market. Personal computers and the Internet are also emerging as day-to-day business tools. These positive indicators are favoring the prospects of E-Commerce in Bangladesh.

The focus of this paper was on the current state of the regulatory environment in the financial and technological sectors of Bangladesh. Necessary reforms in order to introduce E-Commerce have also been suggested. Lack of awareness among the policymakers has been identified as the major deterrent to introducing E-Commerce. Conventional understanding of payment mechanisms raises false alarms against the flight of capital if E-Commerce is implemented.

The access of information must be permitted in the language most comfortable to the public user, generally the local language. Most citizen services should have Bangla interface (Bangla content on the web or in other digital format is a major impediment) as a matter of policy since a vast majority of the population is still not comfortable with English. Gateways should be established to allow citizens to fully benefit from online services and to enable the Government to generate revenues from online payments and related functions.

Synergy between telecommunications and information technology has the proven capability of monitoring and administering the real-time transactions. Therefore, liberalizing the telecom and IT sectors as well as reforming the country's financial and commercial procedures is the preconditions of successfully implementing e-commerce in Bangladesh. In the case of marketing, simply having a website in the vast sea of the Internet is not sufficient. Uniformity is an important factor in the commencing of contracts through the Internet. Therefore, to take advantage of the newer opportunities that IT development presents, the Bangladeshi companies have to attain internationally accepted certification on quality control, competitive price and timely delivery.

This paper presents possible E-Commerce application in the RMG sector. Availing of the IT technology by the RMG as well as other export-oriented industries is likely to become a necessity (because of international demands and expectations) rather than a choice.

Banks, customs and other supporting institutions, along with the entrepreneurs exporting goods and services, will have to accommodate the external demands in order to maintain competitiveness and open new global opportunities Creating awareness among the Bangladeshi exporters regarding E-Commerce is essential They have to be knowledgeable to appreciate and to utilize the benefits of IT The exporters are not required to acquire operating knowledge on IT. Their understanding on the cost-benefit aspects followed by adopting E-Commerce would be an achievement. Business associations can play a major part at this juncture by highlighting the benefits of IT to its members, and encouraging them to use customized software for their day-to-day operations

This chapter is a summary of the main findings of the survey. E-Commerce is a key issue for many organisations specially in the financial industry. However a number of organisations are finding it difficult to exploit this relatively new way of conducting business (Dewan and Seidmann 2001, pp. 31-32) This study addresses these issues by attempting to explain the factors, which are critical to the success E-Commerce in Bangladesh. The process and results of this study so far, are summarized in Figure 7.1.
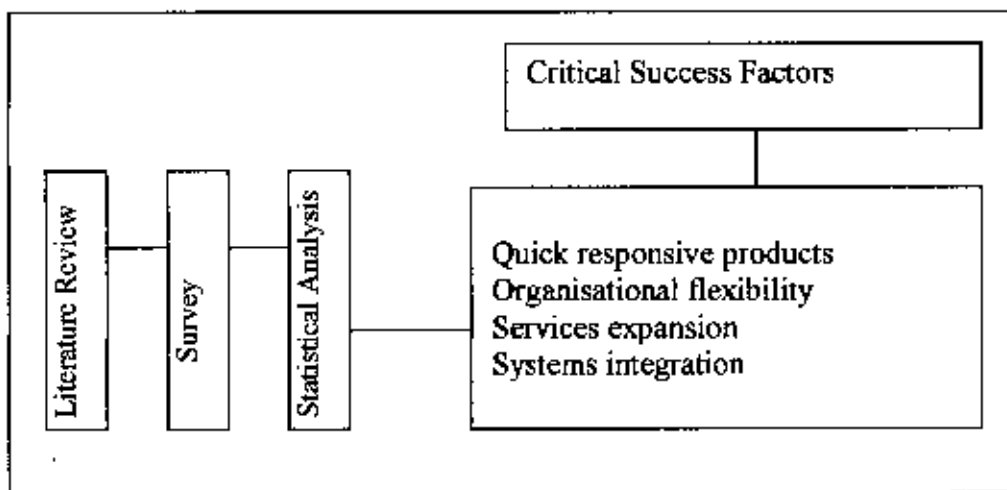
Figure 7.1. The process and results of postal survey research

In this paper, two major types of statistical analyses were conducted, descriptive statistical analyses and factor analysis In descriptive analyses, the factors (or variables) were ranked in order of their mean score, the highest score being the most important and so on. The top six factors in order of importance were: user-friendly website, systems security, support from top management, fast responsive customer service (better that usual), promotion of E-Commerce within organisation, all time availability of services and rapid delivery of services. Factor analysis, which was done to group together related variables to uncover 'factors' (in terms of factor analyses), found the following factors to be critical for the success in E-Commerce Issues related to organisational flexibility and speed of services delivery were found to be at the top of the importance list.

Flexibility in this context meant an organisation's ability to re-organize or re-invent itself in response to the internal or external changes. From an e- commerce point of view, this may include: restructuring the organisation to speed up decision making, re-engineering processes to web-enable them, or simply making pro-active changes in the website to attract more visitors or to increase its appeal for conducting business. Quick responsive products/services factor is related to flexibility and speed in service delivery. This would imply that an organisation should be able to deliver its products via electronic channels much faster than other channels and it should be able to make quick changes in services, if necessary, in response to the changes in the market-place. This finding was also supported by Owens and Robertson (2000, p. 67-75).

Services expansion was related to marketing products to new segments as well as offering extra services to utilize the capabilities of e-channels. Business processes and systems integration and enhanced customer services were next in the list of importance. The findings of the survey are in line with theoretical predictions from general e- commerce literature reviewed earlier in the paper. One of the main contributions of this research was that it brought together a diverse range of factors which were scattered across many publications and had them validated by the practitioners in the field The resulting list of factors is by no means exhaustive or final. Managers may find it useful in the strategic planning of e- commerce and to channel resources towards the most critical aspects of E-Commerce management. The theoretical framework based on CSFs proposed by this research, is useful in demonstrating the presence of critical factors in the E-Commerce environment and their positive relationship with the success of such services. It is concluded that factors found by this research may be applicable in retail e-banking in

general but only with some context specific changes. The factors found in this research are also likely to be applicable to many other areas, but further research is required to address these issues. The main limitation of this paper is that the 14 success factors used in the survey were collected from previous literature review relates to other countries rather from Bangladeshi sources. It is because any published journals regarding Bangladesh issue were not found. Moreover Bangladesh is still new in practicing E-Commerce.

In the context of this research, one of the main advantages of the survey research approach was the ability to collect information from a large number of samples which in this case were all medium and large size organizations in Bangladesh. Thus, the researcher was able to explore the opinions of a large group of people, dispersed all over the country. The second advantage of the survey is that results can often be generalized but this was not the main aim of this research. However, a relatively good response rate of this survey and rigorous application of best practice in this research area means that results presented in this paper may be viewed as reliable for the whole sample. The third advantage of this survey is that it lends itself to future replication by other researchers because the questions and sampling were tightly controlled. Thus this survey may be repeated after few years to assess the degree of change over a given period of time

References:

[1] Ang, J. and Teo, T.S.H. (1997), "CSFs and Sources of Assistance and Expertise in Strategic IS Planning: A Singapore Perspective", *European Journal of Information Systems*, 6(3), pp. 164-171

[2] Awad, E. M. (2007), "Electronic Commerce From Vision to Fulfillment", *Prentice-Hall of India Private Limited, 3rd Edition*, pp 5-45.

[3] Bangladesh Association of Software and Information Services,(2007), "Basis News & Views", 3(4), BASIS.

[4] Biao, X. (2002), "Structuration of Indian Information Technology Professionals' Migration to Australia: An Ethnographic Study", *Journal of International Organization for Migration*, 39(5), pp. 73 – 90.

[5] Benbasat, I., Goldstein, D.K. and Mead, M. (1987), "The Case Research Strategies in Studies of Information Systems", *MIS Quarterly, 11(3)*, pp 369-386.

[6] Bingi, P., Sharma, M. K. and Godla, J. (1999), "Critical issues affecting an ERP implementation", *Information Systems Management*, pp. 7-14.

[7] Biz Report (2008), *E-Commerce*, viewed 05 February 2008, <http://www.bizreport.com/2008/02/forrester_online_shopping_growth_to_slow.html>

[8] Boonyalug, O. (2004), E-commerce Growth in Thailand, STAT-USA Market Research Reports. <http://strategis.ic.gc ca/epic/internet/inimr-ri nsf/en/gr127360e.html>

[9] Boulton, W. and Stanwick, P. (2002), Strategic Management (2nd ed.). Boston: Pearson Custom Publishing.

[10] Boynton, C.A and Zmud, W.R. (1984), "An Assessment Of Critical Success Factors", *Sloan Management Review, 25(4)*, pp 17-27.

[11] Boynton, A. C. and Zmud, R. W. (1984) "An Assessment of Critical Success Factors," Sloan Management Review (25:4), pp.17-27.

[12] Brian, C. J. (2000), "Developing intraorganizational electronic commerce strategy: an ethnographic study", *Journal of Information Technology*, 15(2), pp. 119 – 130.

[13] Brunn, P., Jensen, M. and Skovgaard, J. (2002), "E-Marketplaces: Crafting A Winning Strategy", *European Management Journal, 20(3)*, pp 286-298.

[14] Cantzler, I. (1992). *"Vad Tycker Kunden?* Malmö: Liber Ekomoni/Almqvist & Wiksell Förlag" AB.

[15] Chen, L., Gillenson, M L. and Sherrell D.L. (2004), "Consumer acceptance of virtual stores. a theoretical model and critical success factors for virtual stores", *ACM SIGMIS Database*, 35(2).

[16] Chen, T. (1999), "Critical Success Factors for Various Strategies in the Banking Industry", *International Journal of Bank Marketing*, 17(2), pp. 83-91

[17] Dewan, R. and Seidmann, A. (2001), "Current Issues in e-Banking", *Communications of the ACM*, June, 44(5), pp. 31-32.

[18] e-Governance Horizon scan Report 2007, An assessment study of e-Governance in Bangladesh, *Access to Information (A2I) Programme*.

[19] Eid. R., Trueman, M. and Ahmed. A.M. (2002), "A Cross-Industry Review of B2B Critical Success Factors", *Internet Research: Electronic Networking Applications and Policy, 12(2)*, pp 110-123.

[20] El Sawy, O. A., Malhotra, A., Gosain, S and Young, K. M. (1999), "IT-Intensive Value Innovation in the Electronic Economy. Insights from Marshall Industries", *MIS Quarterly*, 23(3), September, pp.305-335.

[21] Enos, L. (2001), "Report: Critical Errors in Online Banking", *e-Commerce Times*, April 11, <Wysiwyg://4/http://www.ecommercetimes com/perl/story/8867.htm>

[22] Fitzgerald, B. (1997), "Methodology-in-Action. The Nature of Usage of Systems Development Methodologies in Practice", *PhD Thesis*, Birkbeck College, University of London, UK.

[23] France, B., Janine, S H. and Wanda J S. (2002), "Trustworthiness in electronic commerce. the role of privacy, security, and site attributes", *Journal of Strategic Information Systems*, 11(3-4), pp. 245-270.

[24] Franco, S. C. and Klein, T. (1999), "Online Banking Report", *Piper Jaffray Equity Research*, <www pjc.com/ec-ie01.asp?team=2>

[25] Fruhling, A L. and Digman, L. A. (2000), "The Impact of Electronic Commerce on Business-level Strategies", *Journal of Electronic Commerce Research*, 1(1),
<http://www.csulb.edu/web/journals/jecr/p_i.htm>

[26] Han. K.S. and Noh M.H. (1999), "Critical Failnre Factors That Discourage Electronic Commerce Growth", *International Journal of Electronic Commerce, 4(2)*, pp 25-43

[27] *Hofstede G. (1983). "*The Cultural Relativity of Organizational Practices and Theories*", Journal of International Business Studies*, pp 75-89.

[28] Holme, T. M., and Solvang, B. K. (1991). "Forskningsmetodik: om kvalitativa och kvantitativa metoder". *Lund: Studentlitteratur.*

[29] Huang, J.,Wang, H. and Zhao,C. (2005), "E-commerce Success Factors: Exploratory and Empirical Research on the Chinese Publishing Industry", *Journal of IEEE*, *18*, pp 465 – 472.

[30] Jaap, P., Elaine, F. and Roger, W. (2004), "Web-Based Organizing in Traditional Brick-and-Mortar Companies: The Impact on Hr", *Social Science Research Network (SSRN)*, ERIM Report Series Reference No. ERS-2004-071-ORG.

[31] Jennex, M.E , Amoroso, D and Adelakun, O. (2004), "E-Commerce Infrastructure Success Factors for Small Companies in Developing Economies", *Electronic Commerce Research, 4(3)*, pp 263 – 286.

[32] Kalakota, R. and Frei, F. (1998), "Frontiers of Online Financial Services, in Cronin, M. J. (Ed.)", *Banking and Finance on the Internet, John Wiley and Sons*, New York, USA, pp. 19-74.

[33] Kalakota, R. and Robinson, M. (1999), *e-Business, Roadmap for Success*, Addison-Wesley, Reading, USA.

[34] Kirkman,G.S., Cornelius, P.K., Sachs, J D. and Schwab,K. (2002) , "The Global Information Technology Report 2001-2002: Readiness for the Networked World", *Oxford University Press*, pp 168-169.

[35] Laosethakul, K. and Boulton, W. (2007), "Critical Success Factors for E-commerce in Thailand: Cultural and Infrastructural Influences", *Electronic Journal of Information Systems in Developing Countries, 30(2)*, pp 1-22.

[36] Liu, C. and Arnett, K.P. (2000), "Exploring the factors associated with Web site success in the context of electronic commerce", *Information and Management*, 38(1), pp.23-33.

[37] Mark, F. N. and Lei-Da, C (2004), "Assessing M-Commerce Opportunities", *Journal of Information Systems Management*, 21(2), pp. 53 – 61.

[38] Miles, M. B and Huberman, M (1994), "Qualitative data analysis: a source book of new methods (Thousand Oaks, California: Sage)".

[39] Oppenheim, A. N. (1992), *Questionnaire Design, Interviewing and Attitude Measurement*, Pinter, London, UK.

[40] Orr, B. (2004), "E-Banking job one: Give customers a good ride", *ABA Banking Journal*, 96(5), pp. 56-57.

[41] Owens, I. and Robertson, D. (2000), "Aligning e-Commerce with Business Strategy: The Case of the Bank of Scotland", *in Proceedings of the 5th UKAIS Conference*, 26-28 April, University of Wales Institute, Cardiff, UK, pp. 67-75.

[42] Regan, K and Macaluso, N. (2000), *Report: Consumers Cool to Net Banking. e-Commerce Times*, October 3, 2000,

< http://www.ecommercetimes com /news/articles2000/001003-4.shtml>

[43] Riggins, F. J. (1999), "A Framework for Identifying Web-based Electronic Commerce Opportunities", *Journal of Organisational Computing and Electronic Commerce*, 9(4), pp. 1-11

[44] Rockart, J F. (1979), "Chief Executives Define Their Own Data Needs", *Harvard Business Review, 57(2)*, pp 81-93

[45] Saunders, M., Lewis, P. and Thornhill, A (2003). *Research Methods for Business Students. (3rd ed.)* Essex: Pearson Education Limited.

[46] Southard, P.B and Siau, K. (2004), "A Survey of Online E-Banking Retail Initiatives", *Communications of the ACM*, 47(10), pp. 99-102.

[47] Stamoulis, D S (2000), "How Banks Fit in an Internet Commerce Business Activities Model", *Journal of Internet Banking and Commerce*, 5(1),

<http://www.arraydev.com/commerce/jibc/0001-03.htm>

[48] Storey, A, Thompson, J. B., Bokma, A. and Bradnum, J. (2000), "An Evaluation of UK and USA Online Banking and WebSites, in Chung, H. M. (Ed.)", *Proceedings of the Americas Conference on Information Systems*, August 10-13, Long Beach, California, USA, 2, pp. 723-728.

[49] Sung, T.K. (2006), "E-Commerce Critical Success Factors: East Vs. West", *Technological Forecasting and Social Change, 73(9)*, pp 1161-1177.

[50] Tabachnick, B. G., and Fidell, L. S. (1996), *Using Multivariate Statistics*, 3rd Edition, Harper Collins Publishers Inc., New York, USA.

[51] Thornton, J. and Marche, S. (2003), "Sorting Through the Dot Bomb Rubble How Did The High-Profile E-Tailers Fail?", *International Journal of Information Management, 23(2)*, pp 121-138.

[52] Turban, E., King, D., Lee J., Warkentin M. and Chung H.M. (2002), *Electronic commerce 2002 A Managerial Perspective*, pp. 689-690, 718 , Prentice-Hall, New Jersey.

[53] Viehland, D.W. (2000), "Critical success factors for developing an e-business strategy", viewed 2001, <http://www.massey.ac.nz/dviehland/ebusinesscsf.html>

[54] Vijayaraman,B.S. and Bhaita, G.(2002), "A framework for determining success factors of an e-commerce initiative", *Journal of Internet Commerce, 1(2)*, pp 63 - 75.

[55] Yan, G and Paradi, J.C. (1999), "Success Criteria for Financial Institutions in Electronic Commerce", *Proceeding of the 32nd Annual Hawaii International Conference on System Sciences*, vol.5, pp. 5007, January

Appendix :

Questionnaire for EC organization:

Please answer the following questionnaire to provide information on your interests and current initiatives regarding ecommerce. Please add any other important information - comments, clarifications, or requests - in question 21 and 22. This questionnaire is for the purpose of Project work of BUET and every information you provide will be kept secret. Thank you for using this questionnaire.

If you have a printed catalog or data sheets, please provide a sample. Email completed questionnaire to jamilraihan@gmail.com.

1.   How many products do you have (or product variations)? How many Categories/subcategories? Will the categories change or grow in number? How is categorization applied—by an existing database structure, or will it be done only at the site?

2.   What type of products? In what quantities are they usually sold?

3.   Who will do fulfillment? (Shipping, returns, etc?) How will your information get to fulfillment channels (via file upload, fax, email, full system integration?) Describe your normal offline process, and indicate how much integration will be necessary.

4   What type of reporting is required? (total sales, status of order, etc.) Where this information be displayed/stored?

5.   What types of payment (PO, credit card, online or offline payment)? Which cards? (Visa/MC? American Express?)

6.   Do you have an existing Internet Merchant Account for processing credit cards directly into your Bank account, and can it be used for Internet usage? (Some

banks will not allow this, or will charge higher fees because of the high return/cancellation percentage.)

7. How many individual transactions do you "realistically" expect per day in the first year? Second year? Fifth year? What is average sale total normally?

8. Who can order on your site? Anyone? Do they fill out a profile that is saved in the database for future access to them? What type of password authentication and security do you need? Standard SSL + Web password? What other information do you want to store in user profiles?

9. Will you offer multiple levels of pricing? (wholesale, retail, bulk, international?)
    How many levels?
    What about "special" customers who have a negotiated pricing? How will the site handle them?

10. Taxes – How many states do you operate in, and does your sales tax vary according to city or state pricing? What internal tax system or accounting software do you use for calculating and reporting? Do we need to integrate? How often will you need to pull reports?

11. Do you need the sales information to be automatically dumped into an existing database/mainframe? What type of database/mainframe is it? Give details of hatdware and software, including any accounting packages.

12. Do you need inventory levels to be returned into the Web database periodically from your internal system, and what type of database/mainframe is it? How frequent is the inventory exported to site?

13. Do you intend to host this yourself? Or, do you want to set it up on its own server and co-locate it at an ISP so that you are not "sharing" with any other sites? (Some

ISPs offer software sharing so that you can take advantage of someone else's software license and server configuration)

14. Is this a mission-critical site? That is, is it worth paying extra for redundancy on different servers for backup, a development server for making changes so that you don't endanger the live site, frequent server monitoring and daily backup, etc. so that you are not down for one single minute of any day?

15. If you sell software, do you intend to offer immediate download or email a location after payment is cleared? Manual or automatic email? Will there be demos for free? How large is the file size on your software? What reporting system will you require (total downloads, successful/partial downloads)?

16. Who will maintain the product database and the site content? What level of expertise do these administrators have? Do you need a Web-based administration for catalog? Page content? How many administrators, and do they have to have separate passwords and different levels of access?

17. Will new product data be imported from internal server or mainframe? How often? Will internal data need to be supplemented by additional data per item (i e. thumbnail photos, long descriptions, cross selling information, etc.)

18. Will you want cross-selling capability to associate products with each other? How will these relationships be defined, on your internal server or at the Web server?

19. What other areas of content on the site will need to be developed? Please quantify in number of 'pages' (interfaces), and specify which of them need to be content-managed by non-technical personnel. We can build custom forms for updating select content, or put in place a full Content Management System if the requirements are larger or more complex

20 How will you market the site? Will you be providing XML feeds of your database to any search engines via a "paid inclusion" program?

21. Which one you think is the bottleneck factor to start E-Commerce in Bangladesh?
(you can choose more than one)

☐ Awareness ☐ Infrastructure ☐ Trustiness ☐ International Gateway

☐ Legal Issue ☐ Fund ☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

22. Which one you think is the main success factor to start E-Commerce in
Bangladesh?
(you can choose more than one)

☐ Leadership ☐ Strategy ☐ Management ☐ Organization

☐ Technology (IT) ☐ Customer ☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Please feel free to call me at 01711270519 or e-mail me at
jamilraihan@gmail.com .

Appendix 2:

Questionnaire for General/ Expert Personnel. :

Please answer the following questionnaire to provide information on your interests
and current initiatives regarding ecommerce. Please add any other important
information - comments, clarifications, or requests - in the last two questions of
section 3 This questionnaire is for the purpose of Project work of BUET and
every information you provide will be kept secret. Thank you for using this
questionnaire.

Could you please spend a few minutes of your valuable time to answer the following questions by putting a tick in the appropriate box?

Section 1: General Information

Are you belong to :

☐ Organization ☐ Individuals

(if you are an individual please go to Section 2)

Does your company use the computers to do the job?

☐ Yes ☐ No

Does your company have an IT department?

☐ Yes ☐ No

Which areas do the IT system used for?

(you can choose more than one)

☐ E-mail ☐ Sales ☐ Purchasing ☐ General Ledger ☐ Accounts receivable ☐ Accounts payable ☐ Payroll ☐ Others

Section 2 : Use the internet

Are you suing the internet to do you job or panning to use?
☐ Yes ☐ No

Which type of connection to the internet do you use?
☐LAN ☐ Intranet ☐ Extranet
☐ Wireless Connection ☐ Others _

Do you have a website or a homepage?

☐ Yes   ☐ No

Website: _____

Does the website include information in the following languages:

☐ English   ☐ Bengali

☐ Others _____

What are the purposes to use the Internet?

(You can choose more than one)

☐ Communicating with employees, customers, prospects and suppliers

☐ Information search relevant to the job requirement

☐ Selling and purchasing products

☐ Obtaining t\after sales services

☐ Training and education

☐ Electronic Payments

☐ Others _____

What type of security tools used for your Internet Connectivity?

☐ Secure server   ☐ Firewalls   ☐ Login password

☐ Authentication   ☐ Antivirus programs   ☐ Others _____

Section 3 : E-Commerce via the Internet

Do you use the E-Commerce?

☐   Yes   ☐ No

Which of the following reasons is the most important to apply for eCommerce in your opinion?

☐ TO build the consumer interest and advertise

☐ Online presence

☐ More information about the firm's products and services

☐ Providing connivance

☐ Assuring customer satisfaction

☐ Dissolving geographic barriers

What applications are you going to use for electronic transaction?

☐ Buying and selling

☐ Import and export

☐ Marketing and Production

☐ Financial services

☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

What internet payment methods will be accepted for buying and selling goods and services?

☐ Credit cards   ☐ Debit

☐ eCheck   ☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

What are the benefits that you will gain from the Internet purchases/ sales?
(you can choose more than one)

☐ Reduce the transaction cost

☐ To improve the quality of the product

☐ Reduce the inventory

☐ To speed up the business processes

☐ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

How much the size of your selling via the Internet (or the organization that you belong to)?

Nothing at all

☐ Less than 10,000 BDT

☐ Between 10,000-50,000 BDT

☐Between 50,000-100000 BDT

☐Between 100000- 500000 BDT

☐Between 500000- 2000000 BDT

☐Between 2000000- 5000000 BDT

□More than 500000

Which of the following barriers might face the eCommerce?

□ The existence of the electronic market

□ The existence for the companies providing software for the internet and Ecommerce services

□ Issuing rules and regulation to control the Ecommerce

□ The government assistance and participating in Ecommerce projects

□ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Which one you think is the bottleneck factor to start E-Commerce in Bangladesh? (you can choose more than one)

□ Awareness □ Infrastructure □ Trustiness □ International Gateway

□ Legal Issue □ Fund   □ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Which one you think is the main success factor to start E-Commerce in Bangladesh? (you can choose more than one)

□ Leadership   □ Strategy □ Management □ Organization

□ Technology (IT) □ Customer □ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Section 4: Background Information and Feedback

Which sector you belong to?

□ Public sector

□ Private sector

□ Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

What is your job specification?

_____

If you would like me to send for you the result of questionnaire, Please provide me your name and contact details below:

Name: _____

. Telephone number _____

E-mail address _____

Please use the same envelope to resend the letter.

Please feel free to call me at 01711270519 or e-mail me at jamilraihan@gmail.com

Appendix 3:

Questionnaire on Success Factors:

1. How important do you think having a light and proper website in expanding E-Commerce on a scale of 1 to 7 with 1 being not very important to 7 being very very important.

2. On a scale of 1 to 7 how important do you think easy access of secure website and other related systems is to expand E-Commerce in Bangladesh?

3. Do you think fast responsive customer service would increase buying and selling online?
   Yes__No__

4. Do you think there is promotion of E-Commerce within organizations in BD?
   Yes__No__

5. How would you rate all time availability of services as an important aspect of E-Commerce on a scale of 1 to 7 with 1 being not very important to 7 being very very important?

6. As a customer how much importantance do you give to rapid delievery of service on a scale of 1 to 7 with 1 being not very important to 7 being very very important?

7. Do you think fast and integrated business processes would enhance E-Commerce?

   Yes__ No__

8. Share Information/maintaining privacy·

How critical do you think maintaining customer privacy and not sharing information is for a E-Commerce business on a scale of 1 to 7 with 1 being not very important to 7 being very very important?

9. Do you think maintaining a customer database would increase E-Commerce sales?

   Yes__ No__

10. Flexible workforce: Do you think having a flexible workforce is necessary for E-Commerce businesses?

    Yes__ No__

11. How would you rate personalizing services as an important attribute for E-Commerce businesses on a scale of 1 to 7 with 1 being not very important to 7 being very very important?

12. How important do you think having a flexible organizational structure is for E-Commerce business on a scale of 1 to 7 with 1 being not very important to 7 being very very important?

13. Do you think webspecific marketing would enhance E-Commerce sales?

    Yes__ No__

14. Developing a business solution for all E-Commerce needs is first priority for E-Commerce businesses. Please rate your response on a scale of 1 to 7 with 1 being not very important to 7 being very very important.

An Answer Sheet

Questionnaire for EC organization:

Please answer the following questionnaire to provide information on your interests and current initiatives regarding ecommerce. Please add any other important information - comments, clarifications, or requests - in question 21 and 22. This questionnaire is for the purpose of Project work of BUET and every information you provide will be kept secret. Thank you for using this questionnaire.

If you have a printed catalog or data sheets, please provide a sample. Email completed questionnaire to jamilraihan@gmail.com.

1. How many products do you have (or product variations)? How many Categories/subcategories? Will the categories change or grow in number? How is categorization applied—by an existing database structure, or will it be done only at the site?

   Five Products with at least 15 categories. These categories may change

2. What type of products? In what quantities are they usually sold?

   Book, Electronic products mainly.

3. Who will do fulfillment? (Shipping, returns, etc?) How will your information get to fulfillment channels (via file upload, fax, email, full system integration?) Describe your normal offline process, and indicate how much integration will be necessary.

   Respective officers.

4. What type of reporting is required? (total sales, status of order, etc.) Where this information be displayed/stored?

   In our database

5. What types of payment (PO, credit card, online or offline payment)? Which cards? (Visa/MC? American Express?)

   Offline payment.

6. Do you have an existing Internet Merchant Account for processing credit cards directly into your Bank account, and can it be used for Internet usage? (Some

   Yes, with commercial private bank.

banks will not allow this, or will charge higher fees because of the high return/cancellation percentage.)

7. How many individual transactions do you "realistically" expect per day in the first year? Second year? Fifth year? What is average sale total normally?
   Average is 1000 individual transactions.

8. Who can order on your site? Anyone? Do they fill out a profile that is saved in the database for future access to them? What type of password authentication and security do you need? Standard SSL + Web password? What other information do you want to store in user profiles?
   Anyone can order after registration process.

9. Will you offer multiple levels of pricing? (wholesale, retail, bulk, international?)
   How many levels? *Yes; wholesale and retail.*
   What about "special" customers who have a negotiated pricing? How will the site handle them? *Not done yet.*

10. Taxes – How many states do you operate in, and does your sales tax vary according to city or state pricing? What internal tax system or accounting software do you use for calculating and reporting? Do we need to integrate? How often will you need to pull reports?
    No tax is associated for e-Commerce.

11. Do you need the sales information to be automatically dumped into an existing database/mainframe? What type of database/mainframe is it? Give details of hardware and software, including any accounting packages
    Yes.

12. Do you need inventory levels to be returned into the Web database periodically from your internal system, and what type of database/mainframe is it? How frequent is the inventory exported to site?

Yes, we need it, and we have inventory software of our own.

13. Do you intend to host this yourself? Or, do you want to set it up on its own server and co-locate it at an ISP so that you are not "sharing" with any other sites? (Some ISPs offer software sharing so that you can take advantage of someone else's software license and server configuration.)

We don't have our own server, we pay for it to certain ISP.

14. Is this a mission-critical site? That is, is it worth paying extra for redundancy on different servers for backup, a development server for making changes so that you don't endanger the live site, frequent server monitoring and daily backup, etc. so that you are not down for one single minute of any day?

Yes.

15. If you sell software, do you intend to offer immediate download or email a location after payment is cleared? Manual or automatic email? Will there be demos for free? How large is the file size on your software? What reporting system will you require (total downloads, successful/partial downloads)?

We do not sell software.

16. Who will maintain the product database and the site content? What level of expertise do these administrators have? Do you need a Web-based administration for catalog? Page content? How many administrators, and do they have to have separate passwords and different levels of access?

Our own administrator and web programmer.

17. Will new product data be imported from internal server or mainframe? How often? Will internal data need to be supplemented by additional data per item (i.e thumbnail photos, long descriptions, cross selling information, etc.)

Yes, regularly.

18. Will you want cross-selling capability to associate products with each other? How will these relationships be defined, on your internal server or at the Web server?

Web-server.

19. What other areas of content on the site will need to be developed? Please quantify in number of 'pages' (interfaces), and specify which of them need to be content-managed by non-technical personnel. We can build custom forms for updating select content, or put in place a full Content Management System if the requirements are larger or more complex.

Some newspaper sites and job circular need to be developed.

20. How will you market the site? Will you be providing XML feeds of your database to any search engines via a "paid inclusion" program?

N/A

21 Which one you think is the bottleneck factor to start E-Commerce in Bangladesh? (you can choose more than one)

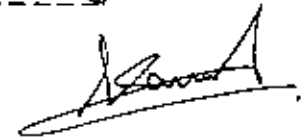☐ Awareness ☐ Infrastructure ☐ Trustiness ☑ International Gateway

☑ Legal Issue ☐ Fund ☐ Others _Language (local)_

22. Which one you think is the main success factor to start E-Commerce in Bangladesh?

Bangladesh?

(you can choose more than one)

☐ Leadership   ☐ Strategy   ☐ Management   ☐ Organization

☑ Technology (IT)   ☐ Customer   ☐ Others _Telecommunication growth_

Please feel free to call me at 01711270519 or e-mail me at jamilraihan@gmail.com .

Questionnaire on Success Factors:

1. How important do you think having a light and proper website in expanding E-Commerce on a scale of 1 to 7 with 1 being not very important to 7 being very very important.

2. On a scale of 1 to 7 how important do you think easy access of secure website and other related systems is to expand E-Commerce in Bangladesh?   5

3. Do you think fast responsive customer service would increase buying and selling online?
   Yes__ No__

4. Do you think there is promotion of E-Commerce within organizations in BD?
   Yes__ No__

5. How would you rate all time availability of services as an important aspect of E-Commerce on a scale of 1 to 7 with 1 being not very important to 7 being very very important?   6

6. As a customer how much importantance do you give to rapid delievery of service on a scale of 1 to 7 with 1 being not very important to 7 being very very important?   7

7. Do you think fast and integrated business processes would enhance E-Commerce?

   Yes__ No__

8. Share Information/maintaining privacy:
   How critical do you think maintaining customer privacy and not sharing information is for a E-Commerce business on a scale of 1 to 7 with 1 being not very important to 7 being very very important?   5

9. Do you think maintaining a customer database would increase E-Commerce sales?

   Yes__ No__

10. Flexible workforce: Do you think having a flexible workforce is necessary for E-Commerce businesses?

    Yes__ No__

11. How would you rate personalizing services as an important attribute for E-Commerce businesses on a scale of 1 to 7 with 1 being not very important to 7 being very very important?   4

12. How important do you think having a flexible organizational structure is for E-Commerce business on a scale of 1 to 7 with 1 being not very important to 7 being very very important?   6

13. Do you think webspecific marketing would enhance E-Commerce sales?

    Yes̶‾ No__

14. Developing a business solution for all E-Commerce needs is first priority for E-Commerce businesses. Please rate your response on a scale of 1 to 7 with 1 being not very important to 7 being very very important.

    4