A study to analyse Bangladeshi consumers' e-commerce security and privacy satisfactions in small to mid-sized enterprises (SMEs)

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Abstract

E-commerce is playing a fundamental part in changing the old economy into a rapid new economy for the world. The aim of this paper is to develop a model of cyber security by increasing an e-commerce success, termed e-commerce security and privacy satisfaction (ESPS). This paper also involves about various security and privacy factors in e-commerce operation for evaluating ESPS. Though e-commerce is still not being used comprehensively in Bangladesh and also, not fully convinced of the reliability of using e-commerce in business, this paper will let the users in Bangladesh bring the glorious opportunity of e-commerce.

Keywords: E-commerce, e-commerce satisfaction, security and privacy factors, small and medium enterprises (SME).

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1. Introduction

This paper analyses the current security and privacy factors (SPFs) and responses of e-consumers who are using small to mid-sized enterprises (SME) e-commerce web sites in Bangladesh. Then, it develops standard strategies to help SME e-commerce companies to provide more secured and privacy environment on their e-commerce web sites. It also assists to develop a single assessment of e-commerce success, termed e-commerce security and privacy satisfaction (ESPS). This paper also involves the investigation of a variety of significant success factors in e-commerce implementation to support a comprehensive framework for measuring ESPS. As a developing country, Bangladesh is still new born in e-commerce arena. Bangladesh's e-commerce sites are not well organised as well as people cannot run online business smoothly.

1.1. Purpose and scope

This paper focuses on the different sectors in Bangladesh such as retail, wholesale, accommodation, transport, finance and banking, property services etc. Bangladesh is the chosen country for this purpose because it is a developing country with strengths which has potential for the growth of e-commerce industry.

1.2. Objectives

The problem regarding e-commerce security and privacy satisfaction in Bangladesh has enabled the project to develop the following objectives. The objectives are:

- Finding out the status of IT, e-commerce security and privacy satisfaction in Bangladesh.
- Finding out the reasons of the slow improvement in e-commerce in Bangladesh.
- Identifying the requirements for a successful e-commerce in SMEs.
- Categorising common SPFs for customer and business satisfaction by the use of e-commerce in Bangladesh.
- Extending a successful assessment for ESPS for Service SMEs in Bangladesh (Azad & Hasan, 2013).

1.3. Aim of the paper

The aim is to develop a model of security systems in e-commerce for the successful checking of ESPS for service SMEs in Bangladesh. It also brings about the acceptance of SPFs for businesses using e-commerce systems in order to incorporate them as standard presentation indicators supporting completeness for evaluating ESPS. For the potential users in Bangladesh to have confidence in such online access and to use e-commerce with certainty, they need to be assured that an online access cannot be monitored by external third parties. This appears to be a requirement that fits in well with the work of safe e-commerce dealings.

1.4. Questions

This paper aims to try answering the following questions about ESPS in Bangladesh:

- What is the history and current status of IT, e-commerce security and privacy systems in Bangladesh?
- What are the reasons for the delay progress in IT and e-commerce industry in Bangladesh?
- What is the current security and privacy status of e-commerce use in servicing SMEs in Bangladesh?
- What arrangements for evaluating satisfaction with e-commerce systems have been accepted in service SMEs in Bangladesh?

- What is the prospect for developing a successful assessment of ESPS for service SMEs in Bangladesh?
- How secured IT and e-commerce can help in the economic growth of Bangladesh?
- How could Bangladesh build up the opportunity to develop e-commerce security and privacy satisfaction for its own economic growth (Azad & Hasan, 2013)?

1.5. Significance

This paper is very significant for the people of Bangladesh and able to reach the policy makers for the country and forward the concerns in relation to the improvement of economy through secured IT and e-commerce sector. IT and e-commerce are being widely used and moving on rapidly to become the common fixture of modern social and economic life. They are opening the opportunities and new avenues for people to score worldwide. Most of the countries have already achieved a moderate level of success in IT. From all over the world, people are allowed to do online shopping, online banking and dealing with e-commerce fully and so on by using the Internet technology (Hoq, Kamal & Chowdhury, 2012).

2. E-commerce

E-commerce through Internet, e-mails, websites and other facilities enables an industry to link people to every corner of the world, and thus, open up greater opportunities in the global market (Chowdhury, 2014).

Internet services and its usage for e-commerce by the producers to export as well as to access inputs are dependent on their willingness and have ability to use this medium as well as that of the buyers of final products and the sellers of intermediate goods and services (Bhowmik, 2014).

2.1. Internet usage and e-commerce industry in Bangladesh—not yet fully ready

Internet usage is increasing day by day, but Internet penetration is still very low in Bangladesh. Aside from a few divisional cities, there is no good Internet connection in rural areas. Even in big cities, it is impossible to have uninterrupted Internet connection. Frequent electricity outage, technical difficulties and natural disasters like storms create frequent problems. The high price of Internet bandwidth is also another problem. Although the Bangladesh Telecommunication Company Limited (BTCL) brought down the bandwidth price significantly, regular users are yet to reap the benefits. Though the broadband connection is available in Bangladesh, it still costs users with high speed connection much more than in other South Asian countries. Internet and e-commerce in Bangladesh is being developed very slowly in comparison with their Asian neighbours (Hoq, Kamal & Chowdhury, 2014). The communication sector in Bangladesh, including the Internet, has changed extensively within the past couple of years. The incentives both from the government and from public sectors have encouraged this progress, which can brightly be reflected by the volume of Internet users in Bangladesh. In the year 2000, just 0.1%, or 100,000 of the Bangladesh population had Internet access compared to the 0.3% or 450,000 subscribers in 2014. Currently over 600,000 of Bangladeshis, or about 0.5% of the population, use the Internet actively. Though the penetration still remains very low, within the country the growth is significant—over 40%. Internet connection appeared in Bangladesh rather late with connectivity only beginning in 1996. Recently, the government decided to cut the tariff by 50% (Hoq et al., 2014).

Table 1 depicts the numbers and statistics of Internet users in relation to the total population of Bangladesh.

Table 1. Internet usage and population statistics in Bangladesh: per capita GDP in US dollars: United Nations Department of Economic and Social Affairs (http://www.thedailystar.net/newDesign/news-details.php?nid=264286)

Year	Users	Population	% Pen.	GDP p.c.
2000	100,000	134,824,000	0.1%	N/A
2007	450,000	137,493,990	0.3%	US$ 466
2009	556,000	156,050,883	0.4%	US$ 574
2010	617,300	158,065,841	0.4%	US$ 624
2011	5,501,609	158,570,535	3.5%	US$ 700
2012	8,054,190	161,083,804	5.0%	US$ 700
2014	10,867,567	161,411,249	9.00%	US$ 800
2015	53,941,000	168,957,745	31.9%	US$ 1,080

2.1.1. Internet usage comparison between Bangladesh and Australia

Australia already has a matured e-commerce market. After China and Japan, Australia had the third highest business-to-consumer (B2C) e-commerce sales rates. Australian consumers are spending more and more in online. Australia has the third hig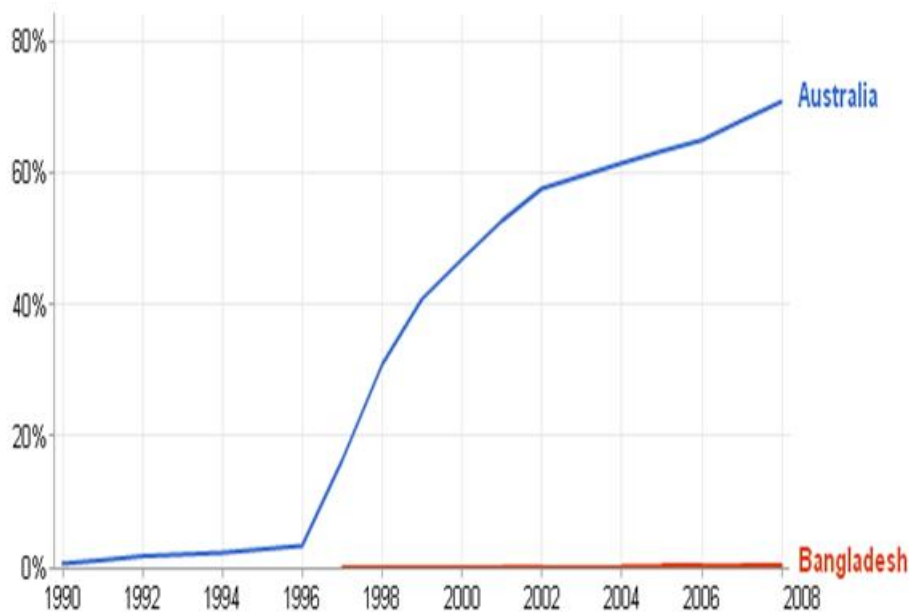hest B2C e-commerce sales rates in the Asia-Pacific region (http://www.thedailystar.net/newDesign/news-details.php?nid=264286).

Figure 1. Internet users in Australia and Bangladesh (http://www.thedailystar.net/newDesign/news-details.php?nid=264286)

2.2. Telecommunications in Bangladesh

The telecommunication sector of Bangladesh is characterised by a poor level of penetration (0.4 telephone for every 100 persons), high cost to access, $341 connection fees for each telephone, one of the highest in the world, and a lengthy waiting period—an average waiting period for a new telephone connection varies from 3 months to 10 years (Daniel & Myers, 2014).

2.3. E-commerce sector in Bangladesh

E-commerce started in Bangladesh in the late 90s. All the sites were based abroad and had branches in Bangladesh. From 2000 to 2008, the e-commerce sector showed slow growth. There were a few e-commerce websites but there were no systems for online transactions. Currently, e-commerce is very important and relevant to the economy of Bangladesh in general and in particular to the export market. Obviously, e-commerce sector has commenced developing boosted by Internet penetration growth; however, it's still on the lowest stage of progress (Daniel & Myers, 2014).

2.4. E-commerce sites in Bangladesh

There are more than hundred e-commerce sites at present in Bangladesh. For the last few years, Ramadan—the biggest Muslim occasion became the biggest online shopping season. For comfortable shopping, many people are now turning to Internet. On 2015, the volume of festival-based online shopping exceeded Taka (Bangladeshi currency) 4 billion. People buy products and services online. The same way, people in cities buy products from villages. Understanding the potential of the rural e-commerce, the current government's Access to Information Programme in May 2014 with eight private company providers. The companies are—Future Solutions for Business, Chal-Dal dot com, Computer Jagat, e-Cash limited, Casada Technologies, Sonar Courier, Sundarban Courier and e-Courier dot com (Daniel & Myers, 2014).

Bangladesh's e-commerce can be represented by few popular industries such as Aarong, AddressBazar, Adhuli, AjkerDeal, AjkerOffer, Akhoni, AmarDeshEshop, e-Sheba, etc. (Daniel & Myers, 2014).

In 2014–15, consumers in Bangladesh have seen tremendous and explosive growth in the classified advertisements online. Traditionally, people were used to seeing classified advertisements in popular daily newspapers. Normally, such advertisements were posted about jobs, tuition, houses to-let etc. Posting such advertisements was inexpensive but not free. Posting a classified advertisement online has many benefits both for the consumers (Daniel & Myers, 2014).

2.5. Major constraints to e-commerce in Bangladesh

This paper highlights various constraints to e-commerce:

- Too few telephone connections.
- Absence of a strong independent regulatory body for the telecommunication sector.
- Absence of encryption law that precludes acceptance of digital signature.
- No encryption laws to accept electronic authentication of transactions.
- Very poor number of pre-shipment agents found.
- No system for fines and penalties on PSIs for breach of rules and regulations.
- Very tight foreign exchange controls available on travel and for credit cards (Ahsan, 2014).

2.6. Computer crime—a growing threat

Computer crime is a criminal activity involving the IT infrastructure including illegal access, illegal interception, data interference, systems interference, misuse of devices and electronic fraud. Some major computer crimes are as follows: hacking, child pornography and associated paedophile activity, cyber stalking, virus dissemination, software piracy, chat crime, credit card fraud, net extortion, phishing, money laundering, information theft, industrial espionage, email bombing, denial of service attack, virus attacks, harassment, password sniffing, fraud and cheating (Ahsan, 2014).

2.7. Present situation of cyber crime in Bangladesh

In Bangladesh, some people send malicious mail to different foreign diplomatic mission and other VIPs which sometimes cause serious problem for the police and government. One group of people hack the website of Rapid Action Battalion (RAB) in Bangladesh. When this incident is published in the media, all the government institutions became scared. RAB arrested some people. RAB website hackers said that nobody should use his acquired computer skills in such criminal activities like hacking of important government or private websites. In Bangladesh, nowadays, youths are increasingly using cyber cafes as dating places. Various types of antisocial activities take place in these cafes (Ahsan, 2014).

3. Methodology

This paper uses a qualitative method based interview with 50 IT experts, 50 government officials, 50 academics and 50 IT students and the author. The author observes the participants' attitudes and behaviours based on the in-depth research interviews. In order to achieve the objectives through the questions, the author has implemented an intensive examination on the topic of the e-commerce industry in Bangladesh and the issues that surrounded the effects on the economic growth of the country. It also highlighted factors to be considered that greatly affected the IT and e-commerce industry of Bangladesh (Neuman, 2013).

3.1. The strategy

In this paper, the qualitative approach provides a huge number of data. It gives the better approaching into this field. This paper starts with reviewing published secondary sources to provide the wide topic picture. New information about the e-commerce security and privacy satisfaction in Bangladeshi enterprises is produced by analysing the secondary data from the documents. The participants are examined in order to identify problems of e-commerce privacy and security satisfaction. The subsequent stage of the data collection is under qualitative approach, in which interviews are conducted to collect important data from IT experts, officials, students and university academics (Neuman, 2013).

3.2. Research area selection

This research was basically conducted in Dhaka, the capital of Bangladesh. Because this is the most busiest and prosperous city in Bangladesh; the education rate is high; and major corporations, the universities and the IT experts are located here.

3.3. Document analysis

In this paper, it is the best approach to find the general scenario of e-commerce security and privacy satisfaction by assessing the existing documents and the reports and it will be the best advancement. In addition, the author goes to the organisations to get data. It is straightforward to say that to get a better scenario of the topic is the aim of document analysis (Neuman, 2013).

3.4. Sampling

Purposive or convenience sampling has been selected in this paper and allowed the author to get a realistic figure from the interview session. The author has selected those participants who he thinks will provide him with the best e-commerce information. In this purpose, the author has selected IT experts in non government organisations, person who work in government IT sector, academics from

the school of engineering and technology and school of business and potential students from the both school. The school is in help for the best choice of potential students. Using purposive sampling in this situation provides the same and equal chance to play their role properly and equally. In addition, random sampling gave the research the better picture of the overall population. The author is always creative and prioritises peoples' beliefs and attitudes when deciding who can provide him with the best information (Berger, 2015).

3.5. The qualitative method

This part talks about the qualitative stage of the data collection, the communication process of the participants, and the selection method of the participants, ethical clearance process and semi-structured and in-depth individual interviews.

3.5.1. Participants chosen and communication method

Strong commitment and trust between the interview and interviewee and confidentiality are in use at the interview session. A selected group of the participants who are officials, university students and academics, IT experts are involved in this paper. In order to maintain the quality, there is a minimum of 200 participants from IT experts, government officials, academics and university students. An invitation letter is in assistance in the beginning of the interview. Once, the universities and organisations are finally listed, the key people for the interview are informed by email. To receive consents from the organisations and universities, the author has approached to them. The author has contacted with Business and IT faculties to get the positive response. In terms of student selection process, the lecturers have communicated with the students. Once the project is officially approved, the author has contacted to the Faculty of the universities by sending a letter to identify students. All the interview sessions have taken one hour. Interviews are recorded digitally. IPad and Laptop are used and Skype is used as Internet software. All data is sorted and analysed. Qualitative data analysis with computer software (NVivo) is used. The author has categorised all the transcripts into alphabetical order of interviewees surname. Key issues are checked thoroughly and noted in the list.

4. Data collection and Analysis

This part has defined qualitative results from in-depth interviews. The results have been collected developed from the potential interviewers like 50 IT experts (identified as I1, I2, I3, I4, I5...), 50 government officials (identified as G1, G2, G3, G4, G5...), 50 Academics (identified as A1, A2, A3, A4, A5...) and 50 IT students (identified as SI, S2, S3, S4, S5...). This part also has analysed the collected data together with the relevant secondary data The interview data mainly are the subject to the process of analysis resulting in the below vital key issues: the impact of secured e-commerce in Bangladesh, the main reasons contribute strongly for the non-operation of e-commerce in the past in Bangladesh, business restrictions exist in the development of e-commerce in Bangladesh, Bangladeshi consumers' concerns, economically importance about secured e-commerce to SME in Bangladesh, the economic impact of e-commerce on business costs and productivity, the current network infrastructure in Bangladesh, industrial solutions about security and privacy in e-commerce, the role of private and public sector in developing secured e-commerce and enterprises role to make fast and easy going communication between the consumers (DeLone & McLean, 2012).

5. Key Findings

As e-commerce is rapidly growing in the developed country, in Bangladesh it is different, although e-commerce is considered a significant instrument for development to the Bangladeshi economy. Trade over the Internet has not been quickly adopted in Bangladesh because there are a number of barriers that have mitigated e-commerce. There is deference between Bangladesh and the other

developed countries in the services provided for business men. Bangladesh wants to fit in the move for e-commerce because it both has the potential and at the same time cannot afford to be left out (DeLone & McLean, 2012).

The author has obtained the below findings by analysing data from face to face and in-depth interviews. The outcomes are the result of the interviews with stakeholders like IT experts (identified as I1, I2, I3, I4, I5...), the government officials (identified as G1, G2, G3, G4, G5...), academics (identified as A1, A2, A3, A4, A5...) and IT students (identified as S1, S2, S3, S4, S5...). In addition, secondary data are also in help for this purpose.

Key findings are as below:

- E-commerce has emerging business potentials in Bangladesh.
- The current situation of network infrastructure and operations in Bangladesh are limited.
- High speed Internet and tech savvy young are main reasons for huge potential of e-commerce in Bangladesh.
- Many firms can come up with different levels of e-commerce solutions and opportunity for employment.
- In Bangladesh, IT infrastructure was not very supportive in the past.
- Misuse of electronic devices is the vital reason for slow improvement in e-commerce.
- There is lack of availability of computers, Internet and smart phones in the past.
- Heaps of business restrictions exist in the development of e-commerce in Bangladesh.
- Secured online payment is a big concern in Bangladesh.
- Bangladeshi organisations need to give comfort to people that their information and money are secured.
- Bangladeshi People can use social network site to raise the latest security issues of Internet.
- Bangladeshi People share experience with others frequently, by this way it will be established.
- Bangladeshi people cannot ensure the security properly without establishing a good IT infrastructure.
- The Bangladeshi private sector and the public sector can make significant progress in developing secured e-commerce push through its industry association.

6. Conclusion and Recommendation

This paper has made suggestions for enterprises, complete e-commerce privacy and security satisfaction, shape limitations. E-commerce to boost up trade, especially international trade has already been recognised by international business community, especially in developing nations. However e-commerce is still in infancy stage in Bangladesh (http://www.telenor.com/wp-content/uploads/2012/03/Towards-a-Connected-World-1MB.pdf).

The author has offered some recommendations. These are as follows:

- Bangladesh should be connected under fibre optic backbone for e-commerce infrastructure as soon as possible.
- Bangladesh Government should provide legal framework and implement the proper National ICT policy.
- Bangladesh Government should establish high capacity fiber optic connection in all areas.
- The connectivity through submarine cable should immediately be established in all areas.
- IT experts in Bangladesh should develop in-house software for the banking system.
- Bangladesh Government should do tax exemption for computer items.
- BTCL should utilise extensive network.
- Bangladesh Government should take necessary steps to implement computerisation everywhere.

Karim, S. & Gide, E. (2018). A study to analyse Bangladeshi consumers' e-commerce security and privacy satisfactions in small to mid-sized enterprises (SMEs). *Global Journal of Computer Sciences: Theory and Research. 8*(1), 32-40.

Acknowledgements

References

E-commerce in Bangladesh. (2013, January 8). Retrieved from http://www.thedailystar.net/newDesign/news-details.php?nid=264286 on 2 May 2017.

Socio-economic impact of internet in Bangladesh. Retrieved from http://www.telenor.com/wp-content/uploads/2012/03/Towards-a-Connected-World-1MB.pdf on 2 May 2017.

Ahsan, A. F. M. (2014, March 22). Computer crime. *The Financial Express*. Retrieved from http://www.thefinancialexpress-bd.com/2009/01/12/55733.html on 2 May 2017.

Ali, M. M. (2014). E-Business in Bangladesh: An analysis. *Journal of Business and Economics, 1*(3), 10–26.

Azad, M. M. & Hasan, M. M. (2013). E-commerce aspect of developing countries like Bangladesh. *International Journal of Computer and Research and Reviews in Computer Engineering, 1*(1), 55–60.

Berger, A. A. (2015). *Media and communication research methods: An introduction to qualitative and quantitative approaches*. London, UK: Sage.

Bhowmik, R. (2014). The present E-commerce situation in Bangladesh for B2C e-commerce. *International Journal of Economics, 5*(5), 7–9.

Chowdhury, J. R. (2014). *Information technology in Bangladesh*. Retrieved from www.bdix.net on 2 May 2017.

Daniel, E. & Myers, A. (2014). *Levelling the playing field: Electronic commerce in small and medium enterprises*. Retrieved from http://mn-isweb1.com.cranfield.ac.ak/publications/ISRC2014SME-Report.pdf on 2 May 2017.

DeLone, W. H. & McLean, E. R. (2012). Measuring E-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of E-commerce, 9*(1), 31-40.

Ferose, K. (2012). *E-commerce*. Retrieved from http://nation.ittefaq.com/issues/2008/07/19/news http://mn-isweb 1.com.cranfield.ac.ak/publications/ISRC 2014SME-Report.pdf

Hoq, Z., Kamal, M. S. & Chowdhury, A. H. M. E. H. (2012). The economic impact of E-commerce. *BRAC University Journal, 2*(2), 49–56.

Hoq, Z., Kamal, M. S. & Chowdhury, A. H. M. E. H. (2014). The economic impact of E-commerce. *BRAC University Journal, 2*(2), 49–56.

Neuman, W. L. (2013). *Social research methods: Qualitative and quantitative approaches* (5th ed.). US: Person Education.