

Critical Success Factors (CSF) on e-Commerce Adoption in Bangladesh SMEs

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ABSTRACT

This study aims to empirically analyse the critical success factors affecting e-Commerce adoption by SMEs in Bangladesh. It identifies the benefits of e-Commerce adoption realized by these SMEs and investigates the relationships among those factors. In developing countries, previous studies were consulted to formulate the adoption in their parent countries, but the observations regarding e-Commerce remain on upstream. They focused on

major issues rather than minor ones. This study examines the four main critical success factors (technological, organizational, environmental and strategic) in Bangladesh. 500 Respondents of 210 SMEs were given questionnaires. The Results were analyzed using the SPSS version 25. The analysis result will be helpful for future researchers and policy makers to promote the B2C e-Commerce adoption as predictors of SMEs.

Keywords: Critical Success Factor, e-Commerce Adoption, Bangladesh SMEs

INTRODUCTION

In last two decades, internet played a pivotal role in the better development of business. Business organizations transferred their data to the internet for handling information quickly, which paved way for e-Commerce adoption in business processes. e-Commerce is a type of commercial transaction conducted electronically over the internet. e-Commerce has brought several benefits that include cost reduction, participation of unique customers, effect on demand and supply, improvement in the product quality, and the creation of modern roots for the distribution of products (Nguyen, 2011).

Mohammed et al. (2013) claimed that the role of e-Commerce adoption in SMEs (small and medium sized enterprises) is vital in economic condition of developing and under-developed countries. Similar is the case discussed by a study conducted on Bangladesh. The research point out that e-Commerce, which is defined as “doing business electronically” is one of the most important factors in promoting the development of SMEs in Bangladesh (Al Noor et al., 2011).

Bangladesh is a developing country comprised of 165 million people in South Asia. It is a country of opportunity for business, but there are many problems in e-Commerce adoption. And, there has not been much research to investigate. B2C (Business-to-Consumers) e-Commerce is potential in Bangladesh. This is due to slow processing of internet services, non-availability of quick transition system and payment delay. Implementation of innovation technology and its practices are very important from the view of academicians and practitioners. Only minor cases are observed in detail in previous studies on SMEs (Grandon & Pearson, 2003).

The fact remains the same as undeniable role of SMEs in the development of Bangladesh. Also, e-Commerce is succeeded in the development of new opportunities at a limited rate. The SMEs role in the adoption process of e-Commerce still limited. If owners and consumers pay attention to the adoption of e-Commerce, that challenge will be tackled with a positive response. As stated by Huy & Filiatrault (2006), there are many factors affecting the participation of SMEs in the e-Commerce sector in Bangladesh, hence in order to solve this problem, it is necessary for SMEs to formulate a strategy that not only defines the key long-term goals but also determines the essential activities and the important resources to achieve these goals (Combe, 2012).

Therefore, the objective of this study is to explore the critical successful factors influencing adoption and implementation of B2C e-Commerce by Small and Medium-sized Enterprises in Bangladesh. And, this study is to search about the formulation of an e-Commerce adoption guidelines so that Bangladeshi entrepreneurs trying to move towards the e-Commerce sector with recommendations to initiate e-Commerce.

LITERATURE REIVEW

e-Commerce

There are many definitions about e-Commerce. Chaffey (2009) defines “e-Commerce was the exchange of information across electronic networks, at any stage in the supply chain, whether within an organization, between businesses, between businesses and consumers, or between the public and private sector, whether paid or unpaid”. Similarly, according to Fellenstein & Wood (2000), “e-Commerce is the use of online facilities for doing business. The Internet, intranets, extranets, private networks, and any other networking facility that enables buyers to communicate with sellers are components of online facilities. Doing business can be defined as a set of buying and selling activities of goods and services that make up a business transaction.” Although there are different definitions about these concepts, e-Commerce can be simply understood as any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact (Zorayda, 2003).

According to Tassabehji (2003), there are several assumptions about the source of e-Commerce; one of them is that the internet is a medium of information sharing. Zorayda (2003) explains that the Internet is the connection of many global networks using a common set of protocols. Importantly, with more than 1.6 billion Internet users and the surprisingly enormous amount of available information, the Internet is the most suitable environment for the extension of e-Commerce globally (Fellenstein & Wood, 2000). Above all, one of the most notable point is that e-Commerce and e-Business are dissimilar concepts, and they cannot be used interchangeable (Fellenstein & Wood, 2000; Tassabehji, 2003).

e-Commerce in SME

In SMEs sector, e-Commerce is a blessing, although there are some barriers to overcome. The internal barriers are poor internal communications infrastructure within SME firms along with lack of ICT awareness and knowledge as well as inadequacy of ICT-capable and literate managers and workers, insufficient financial resources, and the perceived lack of relevance or value-added of ICTs to their business. e-Commerce adoption (effectiveness improvement, customer satisfaction and productivity improvement) depends on the following factors which are technological, organizational, environmental and strategical factors.

Derived Factors of Technological Concept

One important aspect of e-Commerce is the technological concept by providing an organization of an ease of doing businesses.

Information and Communication Technology (ICT)

Through the emergence of technology, many businesses today can be wider through the adoption of e-Commerce. A more expansive and extensive form of technological advancement through Information and Communication Technology (ICT) helps many SMEs to conduct businesses through the integration of different form of communication lines that will connect the business to customers at their fingertips and will be exposed to business information regarding products and services (Iacovou et al., 1995).

Customer Service

e-Commerce adoption in many SMEs helps to provide quality services at a convenient and responsive manner based on

technological capacity and nature for this imperative resource to address business means in all aspects (Iddris, 2012).

Business Processing

e-Commerce adoption helps many SMEs in a widespread of businesses from all sizes and aids in conducting every business processing from various departmental duties that ease employees for causing too much burden on work and allows to deliver services on a timely basis. It also shapes opportunities for SMEs for growth and development in a sustainable approach (OECD, 2004).

Derived Factors of Environmental Concept

Apart from technological and organizational aspects, environmental facets have great impacts on the factors affecting e-Commerce adoption by SMEs in Bangladesh. In terms of this context, there are factors that affect business existence towards external parties that are often uncontrollable by the organization that includes the following:

Government Intervention

The government plays a vital role to every business aspect of an organization by maintaining legitimate and legal business operations that would protect clients and customers from any deregulation and fraud brought by negative impacts of e-Commerce adoption. Many SMEs have been operating not only in Bangladesh but around the globe through e-Commerce to expand market competitiveness, and government help support businesses and customers to provide policies and lawful terms concerning e-Commerce adoption (Li et al., 2010).

Business Partner Affiliation

The growth of business is highly thriving through business partnership. Affiliation is where two companies or more build a tie to control and benefit from each other. This external parties help companies to grow and expand market especially when it comes to adoption of e-Commerce to replace old ways of doing businesses. e-Commerce adoption among SMEs helps business secure interest among each other to become stronger in financial, technological and managerial aspects (Zhu & Kraemer, 2005).

Value Chain

e-Commerce adoption is an important value to be added facilitating businesses in company's products and services through profound impacts. It helps provides an easier and convenient way of dealing with customers' needs thus entailing satisfaction and exceeding expectation. e-Commerce adoption provides value from external parties from various stakeholders such as customers, other organizations, outsourcing and other related factors which influence organization to different market pressure (Wang & Hou, 2012).

Derived Factors of Strategical Factors

Strategic factors are client need, client value orientation, and sensitivity to competitive/customer atmosphere and experience through e-skills development mechanisms. Increasing the impact of technology through advances in e-Commerce will result in a variety of perceptions, from the extremely positive entrepreneurial viewpoint to vary of stance found in different companies (Covin & Slevin, 1991).

Experience

The owner's lack of awareness of technology and perceived advantages could be a major issue to a takeoff of electronic business. The dearth of information on the way to use the technology and the low percent acquirement square measure alternative conducive factors for not adopting electronic business (Knol & Stroeken, 2001).

Need

Account from the study by Bean Town Consulting cluster in 2000 (Reynolds, 2000) indicates that trust is a vital component in establishing complete electronic market. In Asian countries, the factors that have effects on adoption were found to be relative advantage, compatibility, structure readiness, manager's characteristic and security (Shah Alam et al, 2011). The behavioral barriers of e-Commerce square measure attitudes of individuals among a company.

Value

The adoption of e-Commerce depends on the cultural and social atmosphere values. Claimed by Poorangi et al, 2013, the prevailing culture of an organization affects the resistance of employees that negatively affect the e-Commerce adoption in Asian countries. Likewise, the amount of education, the supply of IT skills, the amount of penetration of private computers and phone among the society influence the expansion of e-Commerce. The bulk of the content of the globe wide net is made within English, making a barrier for several potential users in developing countries, particularly those in Asian states whose first or second language isn't English (Molla et al, 2006).

e-Commerce Adoption

Several related factors on e-Commerce adoption are as follows considered as like typical factors on e-Commerce adoption.

Effectiveness Improvement

Online shopping in consumer's viewpoint, web shopping allows them to search and compare various products or service alternatives from different online stores located in different geographical locations throughout Bangladesh. The interactive nature of the Internet offers opportunities for not only consumers but also for the stakeholders or business owners to use the web shopping facilities effectively by improving the availability of product information, enabling direct multi attributes comparison, and reducing prospective buyers or sellers information search costs (Alba et. al, 1997).

Customer Satisfaction

Customer satisfaction is outlined as the consequences of a customer's experiences which is helpful throughout his/her shopping for method with a company, portrayed as emotional reactions. Customer satisfaction has long been shown by promoting practitioners to be extraordinarily vital for a company to be ready to keep in business as within lower cost of the finish merchandise and services are meant to satisfy customers' wants or demands by convenient way (Nguyen, 2014).

Productivity improvement

Productivity improvement is usually identified by two concepts: productivity level and productivity growth. The productivity level is related to the standard of living in a country, while productivity growth is the major determinant of the rate of increase in living

standards over time. In fact, the two performance measures have been strongly related over the past four decades (Harris, 1999).

Previous Studies

There is a growing amount of theories and studies on technological innovation and technology adoption. The most common theories are the Technology Acceptance Model (TAM) (Davis et al. 1989), Theory of Planned Behavior (TPB) (Ajzen, 1985;1991), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), Diffusion of Innovation (DOI) (Rogers, 1995) and the Technology-Organization-Environment (TOE) framework (Tornatzky and Fleischer, 1990). From all of these, we can select a research framework for SMEs sector in e-Commerce of Bangladesh perspective.

Moreover, to identify the focus and influencing critical successful factors of the adoption of e-Commerce in SMEs, we have performed a literature review that covers articles published from 2004 to now. Literature reviews represent a well-established method for accumulating existing knowledge within a domain of interest. An initial search of the articles was performed in Google Scholar and ProQuest using the keywords: SMEs, information systems, innovation adoption, TOE framework. The keywords for the search were used in different combinations. After identifying the relevant literature, only articles directly addressing IS adoption in SMEs were selected. The selection process was based on the author, year of publishing, type of study (qualitative or quantitative), type of IS being adopted, methodology, data, context of the study, focus and influencing factors. We have used a review approach with explicit procedures and conditions that minimize bias. From all of them, few analyzed articles are illustrated in a summary table as following Table 1.

Table 1. The List of the Previous Studies

Author and Year	Research Approach	Application Area	Data collection	Sample size and country
Alam & Noor, (2009)	Qualitative & Quantitative	ICT Adoption	Cross Sectional Survey (owner/manager)	180 SMEs, Malaysia
Grandon & Pearson (2004)	Quantitative	Adoption Factors	Internet Survey (top managers)	100 Surveys, USA
Macharia (2009)	Quantitative	e-Commerce Adoption	Internet Surveys (Owners/managers)	46 SMEs, Kenya
Poorangi et.al., (2013)	Qualitative & Quantitative	e-Commerce Adoption	Survey Questionnaire	1,200 SMEs, Malaysia
Raymond & Bergeron (2008)	Qualitative & Quantitative	e-Business	Contingency Theory Perspective	107 SMEs, Canada

All the review of the literature on technological innovation confirms that the majority of empirical studies refer to the “Diffusion of Innovation” or the DOI theory of Rogers as well as to the TOE framework. DOI is recognized by many researchers as being able to identify “perceived” critical characteristics of technological innovations (such as relative advantage, compatibility, complexity, observability and trialability) which have the direct influence on ICT usage, customer service as well as overall business processing of the organization that may influence the attitude of potential adaptors or rejecters of e-Commerce.

It was however argued that Rogers model should also be blended with other contexts or factors for a more holistic adoption approach. In line with this argument, we found that the TOE

framework includes the environment context (not included in the DOI theory), thus becoming better able to explain intra-firm innovation adoption and therefore more complete, which is suitable for developing countries like Bangladesh. The TOE framework has a solid theoretical basis and the potential for application in the e-Commerce adoption (Oliveira & Martins, 2011) which is effective for Bangladesh perspectives in terms of doing research into Electronic commerce for the SMEs sectors.

It is developed by Tornatzky & Fleischer (1990) while it specifies 3 types of factors that influence the adoption and organizational usage of technological innovation; it is seemed to be fruitful as this research is on the e-Commerce adoption into SMEs sector of Bangladesh market. The technological context includes both internal and external technologies that might be useful in improving organizational productivity. The organizational context, defined in terms of firm size and scope, complexity of the managerial structure, quality, characteristics and availability of firm's technology and financial resources as well as environmental (or institutional) context refers to the firm's industry and dealings with business partners, competitors and government (Tornatzky & Fleischer, 1990). And for the convenience of our research study, we have added another type, Strategial factors. It has overall effects into Bangladesh SMEs to the e-Commerce adoption by its context of experience, need and value.

RESEARCH METHODOLOGY

Research Model

Technology Organizational Environment model (Tornatzsy & Fleischer's, 1990) is used in this study. This model gives us insight in e-Commerce adoption by different type of corporations and

organizations along with its impact on different type of critical successful factors including technological, organizational, environmental and strategical factors. The TOE model is useful in the prediction of wide range of innovations and contexts.

1) Technological factors narrated with three sub variables: information and communication technology, customer service and business processing. These will be both internal and external technologies.

2) Organizational factors are related with three sub variables: culture, security and privacy, trust which gives the several descriptive measures of firm size and scope, formalization and centralization with the complexity of its managerial structure as well as the amount security and trust with slack resources availability of SMEs companies.

3) Environmental factors constructed with variables of government intervention, business partner affiliation and value chain which related to industry, competitors, access to resources supplied by others and dealings with SMEs firm.

4) Strategical factors consisted with experience, need and value which gives theories of adoption of electronic commerce as well as the strategies that companies choose to develops a competitive advantage, the models on economic interactions, the barriers on the part of companies to be included in the electronic marketplace. The research model is displayed in the below:

Hypothesis Development

H1: There is a positive relationship between technological factors (information and communication technology, customer services, business processing) and e-Commerce adoption.

H2: There is a positive relationship between organizational factors

(culture, security & privacy, trust) and e-Commerce adoption.

H3: There is a positive relationship between environmental factors (government intervention, business partner affiliation, value chain) and e-Commerce adoption

H4: There is a positive relationship between strategical factors (experience, need, value) and e-Commerce adoption

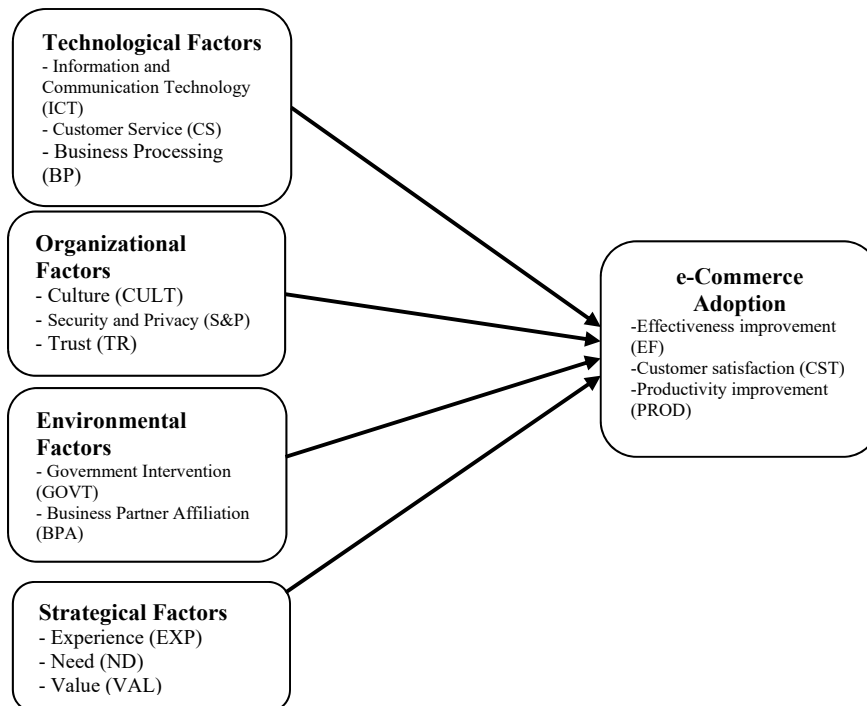


Figure 1. Research Model

Methods of Data Collection

The framework of this study based on TOE model illustrates the relationships between e-Commerce adoption by corporations and the freelance and interactive impact of technological, organizational, environmental and strategical critical successful factors which relating to owner/manager/employee profile. During the present analysis, responses were sought-after on every analysis question by formulating relevant queries with the analysis meant to assemble information from an outsized range of respondents in several business sectors that are set in elect regions over a large geographic area which are SMEs registered in Dhaka, Chittagong, Mymensing, Gazipur and Narayangonj regions of Bangladesh. Every respondent received a questionnaire and was distributed via email and Facebook for easy communication.

More than seven hundred SMEs have been elected from producing & construction, media & ICT, health services, sales and selling, transport, education, cordial reception, finance & insurance, agriculture & food process sectors. The sectors were elected to support the expected high utilization of innovative technologies, as earlier established through pilot study. Amongst them 500 respondents correctly responded to the questionnaires. Correlation analysis with proper regression model utilized to measure the impact of e-Commerce adoption on different factors.

Data Analysis and Discussion

Male and female participants are 78%, 22% respectively. Majority of the respondents 49.4% age between 31 to 40 years. 37% of the respondents are junior staff and simple workers, 19% are supervisor/foreman/section officer, 22% are branch managers, 18.3% are chief executive/managing director, and 3.2% are freelancers

participating in the study. Industry distribution among respondents; 16.2% belong to manufacturing, 13.4% to construction, 15% to finance, 20% to service, 12.2% to communication, 22.8% to technology, and 0.6% to other organizations.

Table 2. Description of Respondent Profile

Demographic Variables	Category	Frequency (N=500)	Percentage (%)
Gender	Male	390	78
	Female	110	22
Age	21-30 Y	6	1.2
	31-40 Y	247	49.4
	41-50 Y	173	34.6
	51+ Y	74	14.8
Occupation	JS/Simple Worker	185	37
	Supervisor/Foreman	95	19
	/Section officer		
	Branch Manager	111	22
	Chief Executive/Managing Director	93	18.3
	Freelance	16	3.2
Industry	Manufacturing	81	16.2
	Construction	67	13.4
	Finance	75	15
	Service	99	19.8
	Communication	61	12.2
	Technology	114	22.8
	Other	3	.6

Table 3. Descriptive Statistics

Items	Techno	Organi	Strat	e-Com	Envn
N	500	500	500	500	500
Range	3.89	2.19	3.00	2.53	2.67
Min	1.00	1.31	1.00	1.08	1.00
Max	4.89	3.50	4.00	3.61	3.67
Sum	1211.53	1237.58	1241.86	1255.11	1289.61
Mean	2.4231	2.4752	2.4837	2.5102	2.5792
SD	.58843	.55933	.60199	.44464	.52455
Skewness	-.263	-.473	-.373	-.468	-.600
Kurtosis	1.357	-.667	-.325	-.275	-.167

In the present table, the mean of technological factors is 2.42 with skewness of -.263 and kurtosis value 1.35. The mean value of organizational factors is 2.47, which is higher than the previous factor with skewness value of -.473. Strategical factor has higher mean than the previous ones with 2.48. The e-Commerce adoption factors have mean of 2.51 with skewness value of -.468. The highest mean is of environmental factors 2.57 with skewness value of -.600 which is highest with lowest value of kurtosis -.167.

Reliability and Validity Analysis

In Table 4, Validity of the instrument is tested through Cronbach alpha and KMO test. Cronbach alpha calculated the internal consistency and reliability of the scale. This shows that all the items have high internal consistency.

Table 4. Exploratory Factor Analysis

Items	Component
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	1	2	3	4	5	6	7	CA
ICT1	.941							.943
ICT2	.941							
ICT3	.881							
CS1		.867						.907
CS2		.827						
CS3		.823						
BP1			.785					.778
BP2			.649					
BP3			.550					
BP4			.936					
CULT1				.883				.776
CULT2				.879				
CULT3				.849				
SP2					.656			.914
SP3					.639			
SP4					.626			
TR1						.559		.881
TR2						.920		
GOVT1							.848	.821
GOVT2							.821	
GOVT3							.764	
BPA1								.773
BPA2								
BPA3								
Eigen	7.38	5.14	2.35	2.25	1.94	1.58	1.54	
Variance	16.84	11.64	5.44	5.24	4.52	3.68	3.58	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 4. Exploratory Factor Analysis (continued)

Items	Component							CA
	9	10	11	12	13	14	15	
VC1	.914							.910
VC2	.883							
EXP1		.867						.745
EXP2		.655						
EXP3		.774						
ND1			.704					.765
ND2			.661					
ND3			.914					
VAL2				.909				.817
VAL3				.853				
VAL4				.812				
EF1					.812			.808
EF3					.786			
CST1						.740		.790
CST2						.714		
CST3						.797		
RPROD1							.659	.831
RPROD2							.878	
RPROD4							.860	
Eigen	1.19	2.92	1.47	2.74	1.41	1.25	2.06	
Variance	2.77	6.11	3.98	3.87	3.25	2.50	4.12	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The KMO, known as Kaiser-Meyer-Olkin, is a measure of sampling adequacy. It shows the variance proportion in the variables caused by underlying factors. High value of KMO is close to 1.0, which shows the usefulness of factor analysis in data. If the value of KMO is less than 0.7, the results will be of no use (Field, 2009). The KMO value of the test is .806. This value is acceptable to high standard. This study used the method of exploratory factor analysis, which is considered more appropriate for the verification of reliability and validity of the variables. In total, we can factor analysis 50 items were run with variable maximization rotation

under principal component method, in which 7 items were deleted for poor loading and the rest 43 items were obtained with high loading value of over 0.50. Technological factors were composed of 10 items and Information and Communication technology items were obtained with high loading the range of .948 to .881. It explained the 16.84% of variance with Eigen value of 7.38. Customer services were obtained with high loading from .867 to .823. This explained the variance of 11.64% with Eigen value of 5.14. Business Partner items with loading from .936 to .550 explain variance of 5.44 with Eigen value of 2.25. In Organizational, Culture loading .879 to .849, Security and Privacy .656 to .626. In e-Commerce adoption Effective Improvement loading from .812 to .786 which explains the variance of 3.25 with Eigen Value of 1.41, Customer satisfaction with loading from .797 to .710 which explains variance of 2.50 with Eigen value of .125.

Correlation Analysis

Table 5. Correlation Statistics

Variables	Tech.	Org.	Env.	Strat.	e-Com
Technological	1	.086	.789**	.812**	.638**
Organizational	.086	1	.085	.051	.032
Environmental	.789**	.085	1	.711**	.664**
Strategical	.812**	.051	.711**	1	.525**
e-Commerce	.638**	.032	.664**	.525**	1

** . Correlation is significant at the 0.01 level (2-tailed).

In the table above, the dependent variable is 'e-Commerce adoption' and independent variables are technological, organizational, environmental and strategical factors. There is a

statistically significant relationship between the factor of technological and e-Commerce adoption ($r=.638$), $p<0.01$. This showed profound impact of technological factors on e-Commerce adoption. There is statistically insignificant relationship with organizational factors ($r=0.32$), which showed no impact of organizational factors on e-Commerce adoption in Bangladesh. There is a statistically significant relationship between the factors of environment and e-Commerce adoption ($r=.664$), $p<0.01$. The environmental factors also have profound impacts on e-Commerce adoption in Bangladesh. A weak statistically significant relationship is observed between the factors of Strategic and e-Commerce adoption ($r=.525$). The results of correlation analysis showed that all the independent variables have profound impacts on e-Commerce adoption except organizational factors.

Regression Analysis

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1 ^b	.692 ^a	.479	.474	.26801	2.116

a. Predictors: (Constant), Strategic Factors, Environmental Factors, Technological Factors, Organizational Factors

b. Dependent Variable: e-Commerce adoption

Model summary indicates the cause and effect model to understand and assure the relationship between variables. In this study, regression analysis will be used for hypothesis testing as significant or insignificant. To check how much variance is explained in the dependent variable (e-Commerce) by the model, R Square value was used. Model fitness is determined through R

square. It also explains the variance by independent variable. The value of multiple correlation coefficient $R=.692$ indicates a good level of prediction. The coefficient of determination R square $.474$ indicates that 47.4% of the variance in e-Commerce is explained by technological, environmental, organizational, and strategical factors. These critical successful factors significantly predict the independent variables, $F(4, 495) = 113.7, p = 0.000$. It shows that regression model is a good fit.

Table 7. ANOVA Test with e-Commerce adoption

Model ^a	Sum of Squares	df	Mean Square	F	Sig.
Regression	32.641	4	8.160	113.607	.000 ^b
Residual	35.555	495	.072		
Total	68.195	499			

a. Dependent Variable: e-Commerce adoption

b. Predictors: (Constant), Strategical Factors, Environmental Factors, Technological Factors, Organizational Factors

The ANOVA table showed the value of F which is statistically significant. The results showed that model fit and is significant which further shows the impact of e-Commerce adoption on independent factors, $F=113.7, p<0.05$.

Beta value is the value of dependent variable in the Table 8. It depicts the change in dependent variable. In this study, e-Commerce is dependent factor and technological, organizational, environmental and strategical factors are independent variables. The standard coefficient between technological factors and e-Commerce adoption is $Beta=.305, p<0.05$, between environmental factors and e-Commerce adoption, the standard coefficient is $Beta=.407, p<0.05$, between organizational and e-Commerce

adoption the standard coefficient is Beta=-.024, $p>0.05$.

Table 8. Regression Coefficients with e-Commerce adoption

Model ^a	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.496	.152		9.84	.000
Technological	.305	.056	.353	5.43	.000
Organizational	-.024	.025	-.032	-.978	.329
Environmental	.407	.050	.440	8.17	.000
Strategical	.250	.051	-.073	1.28	.000

a. Dependent Variable: e-Commerce adoption

The standard coefficient between strategical factors and e-Commerce adoption is Beta=.250, $p<0.05$. The results showed that organizational factors and e-Commerce adoption has no association with each other either positive or negative.

Hypothesis Test

These are the hypothesis to test through regression analysis. Hypothesis H1, H3 and H4 were accepted, while Hypothesis H2 is insignificant, because no positive relationship is observed among culture, security and privacy, and trust with e-Commerce.

DISCUSSION AND CONCLUSION

This study conducted in critical successful factors on e-Commerce adoption in Bangladesh SMEs. TOE model is used to investigate the different critical successful factors which producing effect on e-Commerce adoption. The factors selected in the study to

investigate their impact were technological factors, organizational factors, environmental factors, strategical factors. Each factor was sub-divided into different acronyms.

Organizational factors played a poor role in the adoption process, which is why organizational setup in Bangladesh is observable to a maximum standard to improve the e-Commerce adoption process. Among organizational factors, the culture is important to a maximum level. Improved culture within the country for SMEs can play a better role. Also, security and privacy is important for industries. If there are no rules and regulations from the government side for the industries to cater their privacy and security, there will be no survival for SMEs in Bangladesh. The adoption of e-Commerce has been a barrier in the past. With improved security and privacy, culture and the level of trust can manage the adoption process easy. Productivity improvement is directly related to culture and trust. In case of any issue or barrier between them, the overall e-Commerce productivity feature will be in decline, similar the case observed in the above Table [6].

The role of government intervention is partial. Environmental factors such as government intervention, business partner affiliation, value chain are important for the development of any organization. These factors include the role of Government, and it is obvious that Bangladesh government won't contribute to the development of e-Commerce adoption process. Lack of government support is the biggest problem nowadays, the reason behind the case is lack of interest in the future technological development of the country. The other barriers include the risk to adopt e-Commerce process because it has ample of transformations and need quick implementation of speedy and secure internet services. Also, the need to provide computers for the local marketers and to offer them quality internet connectivity services is the biggest issue in under-developed areas of Bangladesh.

Business partner affiliation and customer satisfaction are strongly correlated to each other. In case of customer satisfaction, the role of business partner affiliation is improved. Similar is the case with improved value chain on customer satisfaction. In both cases, customer satisfaction is important for the growth of SMEs in Bangladesh. Experience has impact over e-Commerce adoption; the more an employee is experienced in the field, the more he is satisfied and provides customer satisfaction. In demand and supply phenomenon, need and value are two assets, which are weakly related to e-Commerce factors. The improvement of need and value could maintain the e-Commerce adoption process. There is a strong impact on information and communication technology and customer satisfaction, Similar the case with effective improvement. Business services and productivity are poorly correlated, shows that business services have no solid impact on productivity improvement. Business processing and customer satisfaction are strongly correlated, shows that business processing demands customer satisfaction, also the effective improvement factor has greater role in business processing and customer services. This relationship shows that culture has positive impact on customer satisfaction, while culture has no impact on productivity. The security and privacy have strong impact on customer satisfaction, but weak impact on productivity, which shows that the role of security and privacy is limited in case of productivity.

In technological factors the role of information and communication technology (ICT) is limited among e-Commerce adoption. It has no impact on customer satisfaction and productivity. Business processing has no impact on productivity, but it has profound impact on customer satisfaction. If customer is satisfied according to business demands, the business processing will be higher. In environmental factors, business partner

affiliation is attached to customer satisfaction, but it has no profound impact on productivity. Customer satisfaction in e-Commerce adoption is the prominent factor which is attached to another factor. The case of productivity is limited, as the least affected factor is productivity.

This research has been conducted in Bangladesh as predictors of SMEs and their adoption of e-Commerce. The research developed a tool to further investigate the case of different critical successful factors of technological, organizational, environmental and strategical resources and the adoption of e-Commerce by SMEs in Bangladesh. Further research can be carried out under the same manual by inspecting the sub-factors of technological factors and strategical factors. Also, the role of government, in the adoption of e-Commerce for SMEs can be inspected to revolutionize the economic process of Bangladesh.

In every research, there are some limitations. This research offers some limitations also based on the area of research. The results concluded in the study are taken from the study conducted in Bangladesh. The industries consulted were small and medium sized enterprises. The sample of this research is 500 which include industries from all over Bangladesh. The limitations applied on e-Commerce module were to computers, technological tools and gadgets, internet and smart phones.

A reformation is needed in the telecommunication sector of Bangladesh. There is an urgent need to reform the financial and delivery infrastructure of the country for smooth e-Commerce operation and adoption. Also, there is an urgent need to publish a white paper for Medium and Small size business enterprises on yearly basis including the detailed information and data about SMEs' changing policies and plans and what is the situation of SMEs. The role of SMEs should be highly encouraged for progressive operations.

At government level, rules must be established to enable e-Commerce in Bangladesh as per Japanese SMEs pattern of rules. Highly trained officials must be hired from different countries to teach parties about the progressive business of e-Commerce. The role of SMEs can be increased with the transformation of relevant research in universities about scientific and technological aspects. To ensure of Mobile and Smart phones, Computers, Internet and software applications is necessary. The deregulation of telecommunication sector is a plus point for e-Commerce adoption. The Electronic payment system should be insured by the Government of Bangladesh. IT curriculum is the top requirement in schools, colleges. For that purpose, the board of education must ensure and devise a flexible and post-modern policy for e-Commerce facilitation.

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