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Identifying Determinants of SWOT Analysis for ICT Sector in Bangladesh

Dr. Syed Masud Husain[*]
Mr. Abdullah M Noman[**]
Mohammed Asraf Uddin[***]

Abstract: *The main objective of the paper is to find determinants or factors that must be considered while conducting SWOT analysis of a business organization in the broad area of information technology (IT) with special reference to Bangladesh. In order to achieve the set aims and objectives of the paper, primary data have been collected from active business organizations in the broad area of information technology using a pre-structured questionnaire. The questionnaire was developed on the basis of expert opinion collected from in-depth interview with some industry experts. Then, it was pre-tested on a set 20 experts in the business other than those previously interviewed. The pre-test ended with some corrections of the original questionnaire. The final version was sent to a sample of 100 firms selected randomly and 97 filled-in questionnaires were returned resulting in a high rate of response. The paper employs Likert-scale type questionnaire to collect data. After collecting the data, valid responses are being coded in order to make analysis towards hypothesis testing. The null and alternative hypotheses for each item in the four categories of SWOT analysis were tested. For an aspect in each category, we have to calculate associated sample t-statistic from the mean and standard deviation of the responses. A decision is made, i.e., whether we reject or accept the null, on the basis of the calculated t-statistic. The findings of the paper are presented in tabular form. Table I reports the important aspects that need to be taken into account when an IT firm's strength is analyzed. Table 2 reports important measures in the area of judging weaknesses of a firm in ICT industry. The paper also attempts to identify the issues and aspects that must be taken into account when singling out the opportunities for a firm in the IT industry. The results of this enquiry are reported in Table 3. Table 4 reports the results of the responses regarding identification of the threats for an IT firm in Bangladesh.*

Keywords: *SWOT Analysis, ICT Sector of Bangladesh, IT firms in Bangladesh.*

[*] Professor, Accounting & Information Systems, University of Dhaka
[**] Assistant Professor, American International University of Bangladesh
[***] Assistant Professor, Southeast University, Bangladesh

Introduction:

Thousands of years ago at the dawn of human civilization, agricultural society evolved from the plough. In the second half of the eighteenth century, with the advent of the steam engine the industrial revolution took place in Europe. Now at the dawn of the new millennium another revolution of entirely different kind is taking place across the globe- a silent revolution. No wonder that the present age is being called the ICT age. The term Information and Communication Technology (ICT) facilitates the process of identification, collection, storing, processing and disseminating of information. It encompasses the broad fields of data processing, transmission and communication by means of computer and telecommunication techniques and these modern tools are being increasingly used for personal and organizational information processing in all sectors of economy and society. The ICT sector in Bangladesh is still in an infancy stage. All feel that the sector has huge potential. Given that the country has abundant number of inherently talented people who can be trained in IT skills, the ICT industry can play significant role in the development of the nation through employment creation and poverty alleviation.

Rationale of the Study:

Information technology has emerged as the most promising industry in the global economy. It has brought fundamental changes to the ways that people communicate with one another, share and manage information, engage in trade and commerce, and even enjoy their leisure. Its all-encompassing and pervasive nature has made it a catalyst of rapid growth and advancement.

It might be of note that besides opening up new horizons of possibilities, information technology goes a long way in creating a level playing field in the global economic setting. Nations with strong industries in more traditional industries find themselves facing the task of re-learning the golden rules of success in this information age. The opportunity to establish our nation as a player the world market has never been greater.

The United States of America has been on an economic growth surge for nine years on a trot, the longest recorded of economic expansion in its history. A major portion of this can be credited to the nation’s pro-active and pioneering role in development of Information Technologies. Our neighbor India has established itself as an IT powerhouse and in through the exports of software related products, has created a multi-billion dollar IT industry.

Bangladesh has not yet seized the opportunities in this field. As others have planned for the future and have started cashing in on the benefits, the IT industry of Bangladesh is still at the rudimentary level in most aspects. At present, both the Government and the private sector are making efforts to make advancements in this sector. However, as time is the most critical factor in the IT age, more a progressive attitude is required to create a Bangladesh that is up to date with the global IT scenario.

Bangladesh has great potentialities for earning crores of dollars in foreign currency by providing ICT-enabled services to the foreign buyers. Bangladesh has a time difference of twelve hours with North America and other main market which makes possible easy delivery of ICT enabled services. Availability of large number of computer trained young people with English base on the one hand and cheap wage of the trained manpower on the other puts, Bangladesh is an advantageous position. Political will of the government manifested in the declaration of ICT as a "Thrust Sector" and its desire to turn Bangladesh into an ICT driven country will definitely help. The prospective ICT enabled services are call centres, medical transcription, data entry, back office processing, insurance claim processing, salary processing, engineering design, translation, animation and many things more.

Literature Review:

The decision to adopt a new technology can be motivated by a series of factors such as the need for increased operational efficiency, the desire to improve market reach and profitability, and the need to manage risks (Daniel and Grimshaw, 2002). Choudhury (2002) discussed background and present position of ICT sector in Bangladesh. He also pointed out the opportunities, major constraints, some recent developments and future prospects of ICT sector in Bangladesh. There are several attributes of innovations that can act as drivers or obstacles to adoption. First and foremost, an innovation must possess a relative advantage over existing alternatives. According to Rogers (1995), when a new technology emerges, individuals evaluate both its economic profitability and other variables – degree of risk, convenience, time and effort saving, immediacy of rewards. This is similar to the idea of perceived usefulness of the technology, which identifies the subjective probability that using a specific technology will increase an individual's job performance (Davis, 1989).Potential users also pay great attention to the compatibility of an innovation, both in terms of technical features and in terms of past experience and needs. Compatibility is especially important in the case of ICT, whose adoption is affected by the existence of network effects (Church and Gandal, 2006). Mohnen and Rosa (1999) analyzed how perceptions of a series of obstacles to innovation in the service industries in Canada, vary across firm-specific variables. They find that the perception of

barriers to innovation varies according to industrial affiliation, firm size, perceived competitive environment and firm R&D activity. In particular, large firms appear to be more concerned than do small firms about risks related to feasibility and success, high costs and uncertainty, and internal obstacles, while small firms are concerned about funding and lack of special equipment. Firms facing high levels of competition tend to see obstacles to innovation as being more significant. This attitude is based on the fact that competition is an incentive to innovate and it is innovative firms that perceive the barriers to innovation most strongly. Finally, high R&D intensity increases awareness of the obstacles to innovation. This might be an indication that impediments are not perceived until firms engage in innovative activities. Along the same lines, Galia and Legros (2004), in a study of a group of French firms, examined the perception of obstacles to innovation as a function of firm size, technological intensity, group membership and activities dedicated to innovation (R&D, cooperation, use of training programmes). Their results indicate that firm size has no effect on the perception of obstacles, and that high-tech firms assign less importance than other firms to obstacles related to customer responsiveness, organizational rigidities and lack of skilled employees, but are more sensitive to barriers related to the institutional environment. Morgan et al. (2006) identified three main features of ICT initiatives in SMEs, including the operation and structure, the success from a participant's perspective and the development of a model of blended learning to support and continue developing the program. IT creates many new inter-relationships among businesses, expands the scope of industries in which a company must compete to achieve competitive advantage. Information systems and technology allow companies to coordinate their activities in distant geographic locations. Thus, one could say that IT is also changing the way companies operate (Porter and Miller, 1985). Oyelaran-Oyeyinka and Lal (2006a) found evidence of ICT investment and learning processes in some selected developing countries such as India, Nigeria, and Uganda. Their study showed that there is clear evidence of increasing complexity in adapting and using ICT in developing countries firms. In addition to the above findings Oyelaran-Oyeyinka and Lal (2006b) identified that technological progress requires skills upgrading through explicit learning of the new technologies; and finally, firm performance is highly associated with learning capabilities, levels of technology, and a host of firm-level knowledge, skills, and experience. The potential contribution of ICT to improve the competitiveness of SMEs has long been recognized (Morgan et al., 2006). Bayo-Moriones and Lera-Lopez (2007) explored ICT adoption by looking at five factors such as environment, firm structural characteristics, human capital, competitive strategy, and internal organization. Quantitative and qualitative indices were devised and used to evaluate and rank countries

on the e-readiness scale. Haj Bakry (2003) cited that e-readiness assessments, for various countries, are associated with the investigation of their state of readiness for digital integration which includes ICT infrastructure and applications of e-government, e-commerce, e-learning, and other e-applications.

Objective of the Study:

The main objective of the paper is to find determinants or factors that must be considered while conducting SWOT analysis of a business organization in the broad area of information technology (IT). The specific objective of the study is to identify the determinants or major factors in SWOT analysis of the ICT sector in Bangladesh.

Data and Methodology of the Study:

Business organizations involved in Hardware, Software and Internet Service were considered for this study. Both primary and secondary data were collected for the study. A questionnaire was prepared for collecting primary data. The sources of primary data were Hardware trading and assembling firms, Software Development Firms, Internet Service Providers etc. On other hand, secondary data collected from Bangladesh Computer Council (BCC), ICT Business Council (IBPC), Bangladesh Computer Samity (BCS), Bangladesh Association of Software and Information Services (BASIS), Internet Service Providers Association of Bangladesh (ISPAB) etc. The sample size was 97 and drawn using the convenient sampling procedure. Appropriate statistical techniques were used for tabulating and analyzing data collected through survey. The survey was conducted only in the Dhaka city. Some respondents were found reluctant to provide data.

In order to achieve the set aims and objectives of the paper, primary data have been collected from active business organisations in the broad area of information technology using a pre-structured questionnaire. The questionnaire was developed on the basis of expert opinion collected from in-depth interview with some industry experts. Then, it was pre-tested on a set 20 experts in the business other than those previously interviewed. The pre-test ended with some corrections of the original questionnaire. The final version was sent to a sample of 100 firms selected randomly and 97 filled-in questionnaires were returned resulting in a high rate of response.

The paper employs Likert-scale type questionnaire to collect data. After collecting the data, valid responses are coded in order to make analysis towards hypothesis testing. The null and alternative hypotheses for each item in the four categories of SWOT analysis is as follows:

Ho :p>3 The mean score is at least 3 (three). In other words, the item is important and can not be ignored.

Hi :p<3 The mean score is less than 3 (three). In other words, the item is not important and can be ignored.

For an aspect in each category, we calculate associated sample t-statistic form the mean and standard deviation of the responses. A decision is made, i.e., whether we reject or accept the null, on the basis of the calculated t-statistic.

Results and Findings

The findings of the paper are presented in this section. Table I reports the important aspects that need to be taken into account when an IT firm's strength is analysed. All aspects, except one, have been considered to be very import measure of strength of a firm in the ICT industry. The only measure that is rejected in our survey as an important element is the amount of social contribution of the firm. This finding may be taken as unexpected. But it may reflect the fact, at present, the organisations in this industry is more centred on their business motives than social ones. This is expected to change at later stages of their growth, when firms would find it worth discharging corporate social responsibility.

Table 1: Strengths of the firm

Measure	**Mean**		S.D.	CN.	**t-stat**	**Decision**
Financial Soundness	4.37		1.05	0.24	*12.813*	Accepted
Competitive price	4.03		1.09	0.27	*9.281*	Accepted
Trained Manpower	4.35		0.79	0.18	*16.813*	Accepted
Stable and growing market	3.99		0.92	0.23	*10.612*	Accepted
Management satisfaction	3.55		1.14	0.32	*4.734*	Accepted
Information and Consumer Awareness	3.68		1.05	0.28	6.405	Accepted
IT friendly Government policies	3.29		1.20	0.36	*2.372*	Accepted
Higher profitability	3.29		1.41	0.43	*2.011*	Accepted
Social Contribution	1.79		1.13	0.63	*-10.543**	*Rejected*
Technical Competence	3.40		1.17	0.34	*3.385709*	Accepted

*Note: The lower tail critical values are -1.984 (5%) and -1.660 (10916). *and ** denote rejection of the null at 5% and 10% levels of significance respectively. The sample size is 97.*

Table 2 reports important measures in the area of judging weaknesses of a firm in ICT industry. This section had 5 measures chosen on the basis of expert survey and pretesting of the questionnaire. However, two of the five measures are found to have no importance according to the responses given in our survey. The respondents think that problems in human resources and financial constraints are not necessarily significant elements when identifying the weaknesses of an IT firm. This outcome is surprising to a great extent and contrary to the traditional wisdom of the business. On the other hand, respondents emphasized on other issues that must be considered when judging the weaknesses of a company, they are, problems in the IT infrastructure of the nation, availability of huge investment and marketing strategies.

Table 2: Weakness of the firm

Measure	**Mean**	**S.D.**	**CN.**	**t-stat**	**Decision**
IT Infrastructure	2.79	1.29	0.46	-1.574	Accepted
High Investment	2.94	1.29	0.44	-0.472	Accepted
Human Resources	2.60	1.12	0.43	-3.522*	*Rejected*
Financial Constraints	2.62	1.12	0.43	-3.348*	*Rejected*
Marketing Problems	2.96	1.29	0.44	-0.315	Accepted

*Note: The lower tail critical values are -1.984 (5%) and -1.660 (10%). * and** denote rejection of the null at 5% and 10% levels of significance respectively. The sample size is 97.*

The paper also attempted to identify the issues and aspects that must be taken into account when singling out the opportunities for a firm in the IT industry. The results of this enquiry are reported in Table 3. One can see that all issues identified in the pilot survey, except one, have been deemed very important by the respondents. The associated test statistics can not be rejected at all levels of significance. The only aspect for which the test statistic is rejected at 5% level of significance is people's interest. It is probably hard to defend this finding given that peoples' interest in a firm or in its products is very much vital.

Table 3: Opportunities of the firm

Measure	Mean	S. D.	C.V.	t-Stat	Decision
Exempt from duty and VAT	2.86	1.42	0.50	-1.081	Accepted
Peoples' interest	2.02	1.25	0.62	-7.718*	*Rejected*
New Export policy	3.02	1.36	0.45	0.149	Accepted
Submarine Cable Line	198	1.22	9.85	0.408	Accepted
Publicity and Awareness	2.72	1.32	9.85	0.485	Accepted
School And College Curriculum	3.41	1.46	0.43	2.776	Accepted

Note: The lower tail critical values are -1.984 (5Y6) *and -1.660 (10%). * and ** denote rejection of the null at* 5% *and 10% levels of significance respectively. The sample size is* 97.

Table 4 reports the results of the responses regarding identification of the threats for an IT firm in Bangladesh. The associated test statistics show that four out of five aspects included in the questionnaire have been considered important by the respondents. The only issue for which we can reject the null is migration of the skilled labour. This can partly be explained by the fact that educational other vocational institutions in Bangladesh are now supplying a good number of skilled manpower for the industry.

Table 4: Threats of the firm

Measure	Mean	S. D.	C.V.	t-Stat	Decision
New Local Competitors	2.92	1.40	9.85	0.479	Accepted
New Foreign Competitors	2.97	1.48	0.50	-0.207	Accepted
Technological changes	2.91	1.34	9.85	0.461	Accepted
Withdrawal of Tax Exemption	2.96	1.38	0.47	-0.294	Accepted
Migration of Skilled Manpower	2.24	1.17	0.52	-6.419*	*Rejected*

Note: The lower tail critical values are -1. 984 (55vo) *and -1. 660 (10%). *and** denote rejection of the null at 5% and 10% levels of significance respectively. The sample size is* 97.

Conclusion:

The ICT sector of Bangladesh is still at its initial stage of development. The entrepreneurs in this sector could not yet been able to establish themselves as high profile and heavy weight pressure group. They have not been able to contribute in a visible manner to the national exchequer, in GDP or in the discharging of corporate social responsibility. Their basic strengths are; competitive price, trained manpower, stable and growing market, management satisfaction, information and consumer awareness, IT friendly government policies, higher profitability, technical competence etc. Major problems they face in this sector are related to; IT infrastructure, high investment, human resources, financial constraints, marketing problems etc. Opportunities in this sector are provided by; exemption from duty and VAT, new export policy, submarine cable line, publicity and awareness, school and college curriculum etc. Entrepreneurs in this sector must address the challenges in this sector coming mainly through; financial constraints, migration of workers, new local competitors, new foreign competitors, frequent technological changes, withdrawal of tax exemption etc. If Bangladesh has to realize its dream of being a digital country, ICT sector problems need to be addressed on a priority basis. Appropriate focus by the policy planners is the need of the time.

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