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LEVERAGING ICT FOR GROWTH AND COMPETITIVENESS IN BANGLADESH: IT/ITES INDUSTRY DEVELOPMENT

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List of Acronyms

AAA	Analytical and Advisory Activities
AHM	Academy for Healthcare Management
BASIS	Bangladesh Association of Software and Information Services
BCS	Bangladesh Computer Samity
BCC	Bangladesh Computer Council
BPO	Business Process Outsourcing
BTCL	Bangladesh Telecommunications Company Limited
BTTB	Bangladesh Telegraph and Telephone Board
CAGR	Compound Annual Growth Rate
CMMI	Capability Maturity Model Integration
COPC	Customer Operations Performance Center
DANIDA	Danish International Development Agency
eSCM	eSourcing Capability Model
EU	European Union
EPB	Export Promotion Bureau
FSA	Financial Services Authority
GDP	Gross Domestic Product
HR	Human resource
ICT	Information and Communication Technology
IIA	Insurance Institute of America
ISO	International Standards Organization
ISP	Internet Service Providers
ISPAB	Internet service Provides Association of Bangladesh
IP	Internet Protocol
IPR	Intellectual Property Rights
ISO	International Standards Organization
IT	Information Technology
ITES	Information Technology Enabled Services
ITU	International Telecommunication Union
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
LOMA	Life Office Management Association
LRI	Locational Readiness Index
MNC	Multinational Companies
MIS	Management Information System
MoICT	Ministry of Information Communication and Technology
MoSICT	Ministry of Science and Information Communication and Technology
NASD	National Association of Security Dealers
NASSCOM	National Association of Software and Services Companies
NRB	Non Resident Bangladeshi
ODC	Offshore Development Center
OECD	Organisation for Economic Co-operation and Development
PCI	Payment Card Industry
PMO	Prime Minister's Office
SCM	Supply Chain Management
SEA-ME-WE-4	South East Asia-Middle East-West Europe 4
SICT	Support to ICT Task Force Program
SME	Small Medium Enterprise
SWOT	Strengths, Weaknesses, Opportunities and Threats
TR 19	Technical Reference 19
UNDP	United Nations Development Programme
VoIP	Voice Over Internet Protocol
WTO	World Trade Organization

EXECUTIVE SUMMARY

In 1997 Bangladesh started the process of developing a national ICT strategy. In 2002 Bangladesh identified ICT as a "thrust sector" as it represents potential for quick wins in reforms, job creation, industry growth, improving governance and facilitating inclusion, and it has high spillover effects to other sectors. Today, the newly elected Awami League (AL) government has incorporated the Digital Bangladesh concept in its platform. However, the lack of coordination, common focus, agreed goals and objectives have limited progress within the sector as a whole, even while select individual activities in Bangladesh have met with success.

Numerous studies and planning activities have provided extensive fodder for further discussion, and have promoted broad-based approaches that attempt to address multiple elements of the overall ICT sector. If the country is to develop a vibrant and healthy information technology/information technology enabled services (IT/ITES) industry and secure the potential benefits that accompany growth in this business sector, Bangladesh first requires a focused and concrete program agreed to by all stakeholders, and functionally supported by the government, so that Bangladesh can move ahead with building and implementing concrete action plans to develop the industry.

The objective of this study is to assist Bangladesh in becoming a viable player in the IT/ITES industry in five (5) years by identifying the strategies, programs and investments needed in order for the country to leverage ICT for economic growth and competitiveness, as well as for social development by increasing gender equality and youth employment. Local stakeholders in government, private sector and the donor community have identified the following goals and objectives through 2014:

The primary objectives include achieving yearly IT/ITES export revenues of USD $500 million in five (5) years' time; and generating over 30,000 direct, high value jobs in the IT/ITES industry. The program also aims to achieve 25% in women's employment, increase youth employment, and placing the country within the top 50 IT/ITES destinations as ranked by top consulting firms

Why is it important for Bangladesh to concentrate its efforts in developing the IT/ITES industry? First of all, industry development is aligned with many of the goals for Digital Bangladesh as described in the AL's manifesto, including development of software exports, IT parks, youth employment, etc. Secondly, the global IT/ITES is too large to be ignored - the value of the global industry is estimated at $475 billion per year, with only around 15% ($65 billion) of that value being realized (McKinsey, 2008), leaving a significant untapped market for which many countries are competing. Beyond direct economic benefits, IT/ITES growth can generate large-scale employment, especially for youth, reduce gender inequality, catalyze fiscal, regulatory and legal reforms, and help to overhaul a country's image – all attractive possibilities for Bangladesh. India and the Philippines are established competitors while China, Vietnam, Sri Lanka and Pakistan are emerging as new threats.

In Bangladesh, the overall IT sector (excluding telecoms) is small, valued at $300 million, with IT/ITES claiming 39% ($117 million) of that value. The overall IT/ITES industry has enjoyed a high growth rate of 40% over the last five (5) years and this trend is expected to continue. However, the value of Bangladesh's IT/ITES exports has been unsteady over the same period, with yearly growth rates varying between -8% to 113%, partly due to changes in accounting methods. In looking at the opportunities for Bangladesh in this industry, various competitive frameworks have been considered. While different categorizations are used in each model, the general

agreement in the industry about the key factors determining the "locational competitiveness" of a country include: availability of employable skills, competitive costs, quality of relevant public infrastructure and conducive business environment. In order to best assess the current status and potential of the IT/ITES industry in Bangladesh, these four areas are considered from the perspective of strengths, weaknesses, opportunities and threats (SWOT). Of the greatest significance in the SWOT analysis for Bangladesh are the following:

Strengths

- Abundant, young, trainable labor
- Among the lowest IT/ITES labor costs in comparison to India, China and Pakistan
- Apparently supportive government and active industry associations

Weaknesses

- Quantity, quality and relevance of skilled workforce is inadequate
- Weak and uncoordinated industry promotion despite a generally negative country image and lack of visibility as a potential IT/ITES destination
- Weak, unreliable and inconsistent infrastructure overall
- Too much government interest with resulting lack of coordination, fragmented and disparate initiatives
- Poor business environment in terms of corruption, time to set up business, and recent security challenge
- No cohesive workforce development initiatives targeting youth or females

Threats

- Resource crunch as skilled labor is taken by other business sectors
- Declining number of enrollments in IT courses
- Insufficient English proficiency to capture ITES related business opportunities including call centers
- Lack of action in addressing infrastructure issues, policy and regulatory framework to improve business environment
- Potential for strikes ("hartals") and shutdowns that could paralyze commercial activity

Opportunities

- Global financial crisis means companies are looking for places to cut additional costs, a possible opportunity for Bangladesh, with low labor costs, to enter the market
- IT Park-type activity to define a manageable space within which the larger issues of infrastructure, policy and image can be more successfully addressed

There are many opportunities in the IT/ITES market, and new entrants such as Bangladesh have many paths they could follow. However, the majority of the Bangladeshi companies do not currently possess any discernible strategic competency or particular combination of skills, process or knowledge that is of significant value. This is expected in a country with such a nascent IT sector, but it makes it all the more essential for Bangladesh to identify a strategic direction and focus for their resources. To determine the strategic direction, a variety of approaches can be taken and potential focus areas can be broken down by service segment, complexity, size of operation and by target market/customers.

Recommendations herein address not only the most significant, existing weaknesses, but also build on existing strengths. Taking the approach of dividing activity into the short-, medium-, and long-term allows immediate action on those items where current strengths can be brought to bear, while also identifying areas of investment/intervention that can benefit from small, early interventions to build momentum but allow for greater, long term benefits.

The broader ICT sector has long been considered a “golden” opportunity for Bangladesh, and the current level of enthusiasm and excitement is extremely high due to the “digital Bangladesh” agenda as described in the AL’s election manifesto. It is time to join the ranks of businessmen calling for action; for Bangladesh to take action and seize the opportunity.

1 INTRODUCTION

1997 - Bangladesh started the process of developing a National Information Technology (IT) Policy
2000 - USAID sector study with recommendations
2001 - Ministry of Science and Technology (MOST – now Ministry of Science and ICT) held an E-Commerce Policy Conference wherein a list of 35 action items for further Information and Communications Technology (ICT) development was drafted by stakeholders.
2002 - USAID national strategy document, incorporating 35 action items, as above
2002 - Government of Bangladesh issued its finalized National ICT Policy, declaring the ICT sector a "thrust sector", slated for special support and investment
2003 - Bangladesh Information and Communications Technology Business Center, funded by the World Bank, established in Santa Clara, California.
2005 - Bangladesh Information and Communications Technology Business Center closed down after failing to meet objectives.
2005/06 - JICA industry study
2007 - DANIDA industry study
2008 - Awami League campaigns with "Digital Bangladesh" as part of party platform; they win the election. Interpretations among government agencies and individuals on what Digital Bangladesh actually entails vary significantly.
2009 - Government's approval of the National ICT Policy, which includes ICT employment creation and export strengthening as objectives, and over 300 action items.

During this decade a myriad of additional IT sector development initiatives and activities have been supported by a host of organizations and donors such as USAID, DANIDA, the Government of Bangladesh, and UNDP to name but a few.

Bangladesh first identified ICT as a "thrust sector" as it represents potential for quick wins in reforms, job creation, industry growth, improving governance and facilitating inclusion, and it has high spillover effects to other sectors; all valid reasons for the continued attention to the development of the sector. However, lack of common focus, lack of coordination, and lack of agreed goals and objectives have allowed no meaningful collective progress within the sector as a whole, even while certain individual activities in Bangladesh have met with success.

Previous recommendations, action plans, and road maps, stemming from the numerous studies and planning activities as mentioned above, have provided extensive fodder for further discussion and subsequent studies, recommendations, action plans and road maps – but they have led to only minimal action. Background and analysis provided below present findings that differ very little from anything previously put forward, but lack of action to-date is not due to lack of knowledge about what should be done. Rather, it is a lack of focus that is manifest in the shortage of meaningful development activity in the IT services and IT-enabled services (ITES) industry. Broad-based approaches that attempt to address multiple elements of the overall sector spread resources – human and fiscal – too thin to provide any lasting, positive impact. If the country is to develop a vibrant and healthy IT/ITES industry and secure the potential benefits that accompany growth in this business sector, Bangladesh requires a unified, focused, concrete plan that is agreed to by all stakeholders, and functionally supported by the government.

The objective of this study is to provide just such a plan. In the next five years NASSCOM-Everest (2008) predicts that the IT/ITES market has the potential to double in size to over $700 billion[1]. Bold and relevant initiatives can help Bangladesh in becoming a viable player in the IT/ITES industry, and this includes identifying the strategies, action programs and investments needed for the country to leverage ICT for economic growth and competitiveness, as well as for social development by increasing gender equality and youth employment. The World Bank's current Country Assistance Strategy for Bangladesh also recognizes the key role of ICT in supporting Bangladesh's growth, competitiveness and governance agenda. Activity bears direct relevance to Pillar 1 for improving the investment climate, including strengthening sectors critical to pro-poor growth, especially the ICT sector, and builds toward goals and objectives as identified by local stakeholders. In addition, this plan will leverage on some of the action items identified in the National ICT Policy, in order to ensure alignment with the government's intention, and assist in driving and focusing effort in the appropriate direction.

- The primary objectives of the proposed program is to:
    - Achieve yearly IT/ITES export revenues of USD $500 million in five (5) years' time. This will:
    - Generate over 30,000 direct, high value jobs in IT/ITES industry;
    - Drive yearly IT/ITES export growth rates of between 50% to 100%; and
    - Contribute an estimated 1% to Bangladesh's GDP; and
    - Catalyze rapid industry growth due to economies of scale in operations and significantly improved market visibility and perception.
- The additional objectives are to:
    - Achieve 25% in women's employment in IT/ITES
    - Increase youth employment by job creation for youths below 29 years old; and
    - Ensure placing within top 50 IT/ITES destinations as ranked by top consulting firms

Short-, medium-, and long-term activities, over the next five (5) years, that address the general areas of skills development, industry promotion, policy and regulatory environment, and infrastructure are herein coordinated to meet these mutually agreed goals and objectives developed with the input from various local stakeholders, By further identifying areas of consensus, utilizing existing strengths, and targeting a limited number of key, inter-related issues, Bangladesh can start the journey toward success in IT/ITES. However, in order for Bangladesh to fully reap the benefits of the global ITES industry, a new approach is needed. Over-analysis by various stakeholders, which has often resulted to no action and no progress, is no longer an option. Action is required.

1.1 Global Market Size

Estimates regarding the global IT/ITES market vary considerably given definitional issues and the relative novelty of the field. However, it is obvious that the demand for IT/ITES is very large, and only a small percentage of the potential has been realized. McKinsey estimates the annual addressable market for IT/ITES to be $475 billion (McKinsey Global Institute 2008), with less than 15 percent of that market being exploited—about $65 billion in 2007. This large untapped market offers enormous

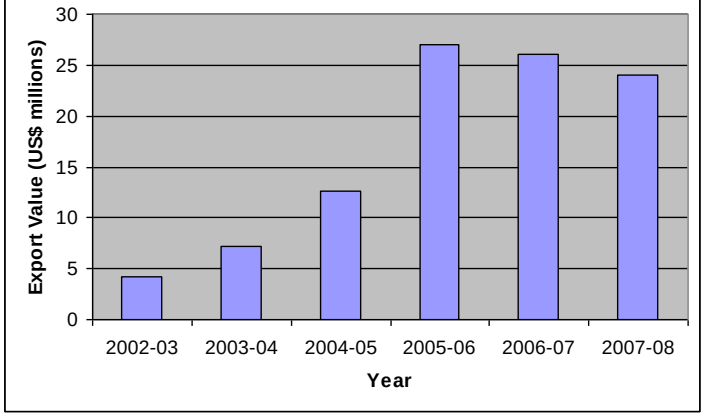
[1] NASSCOM-Everest Study, 2007.

opportunities for countries that meet its requirements, and many countries are strategically launching structured national campaigns to better prepare themselves as viable competitors.

1.2 Bangladesh Market Opportunity

The IT/ITES industry in Bangladesh has grown rapidly since the 1990s. However, the industry remains in a perpetual state of infancy since then, and the value of exports have actually declined slightly in 2007. While the decline in export value in 2007, as seen in Figure 1 below, was partly impacted due to the change in accounting method in 2006, it is still an alarming trend, considering the global IT/ITES market has been expanding and there is still a significant untapped market for Bangladesh to capture.

Figure 1:
Export Value of Software and ITES from Bangladesh



Source: BASIS

1.3 Industry Benefits

The benefits of IT/ITES expand well beyond the known economic benefits into other areas such as social development and governance (refer to Figure 2).

Economic

- Contributes directly to GDP and foreign reserves, and generates large-scale employment. India alone generated export revenues of $40.4 billion (5.5% of GDP) and employed 1.6 million people in the industry in 2007 - 2008. In addition, the industry creates 4 additional semi or low-skilled jobs for every job created, and has a 2 times multiplier effect on other industries.[2]

Social

- Reduces gender inequality as employment in the industry is gender-biased in favor of women. Women account for about 65 percent and 30 percent of the IT/ITES workforce in the Philippines and India respectively, representing a higher female participation rate than most other service industries in these countries.
- Increases youth employment - it is becoming the largest employer of the "young generation" in India, where the average age of employees is 28.9 years. Bangladesh has a population of over 156 million, out of which

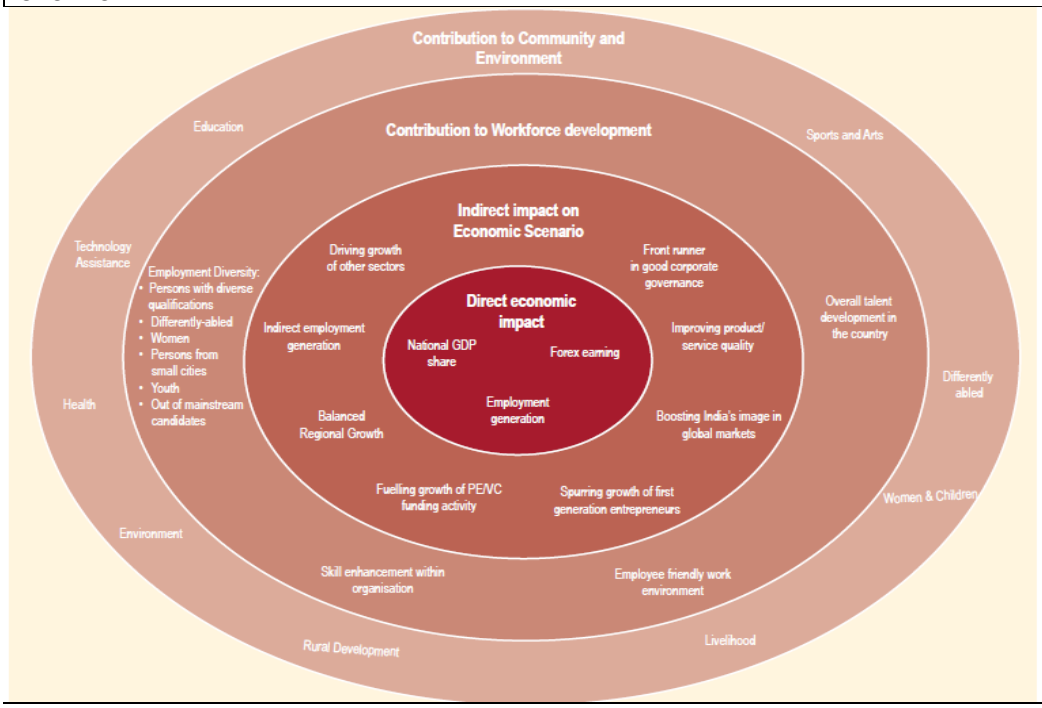
[2] NASSCOM/Deloitte Study, 2008. "Indian IT/ITES Industry: Impacting Economy and Society 2007-08."

34.6% are under the age of 14 and with a young overall median age of 23.3.[3] ITES industry has the potential to grow quickly by implementing strategic interventions targeting the youth population.

Others

- Catalyzes fiscal, regulatory and legal reforms. Policy reforms are often easier to enact when a "new" export-oriented industry like IT/ITES is targeted, since entrenched special interests are less directly affected than when reforming other sectors. This appears to have been the case in several Indian states, where as the value of more efficient fiscal, regulatory, and legal regimes becomes increasingly appreciated, innovations and reforms can be extended to other sectors of the economy.
- Improves the competitiveness of local companies through acquisition of best-of-breed business and human resource practices, adoption of international standards, etc.
- Helps to re-position the image of a country, bringing about a "branding" effect that can have profound implications. India has become associated with the success of its national IT/ITES champions such as Genpact, Wipro, TCS, and Infosys. (NASSCOM, 2008)

Figure 2: Socio-economic contribution of the Indian IT/ITES industry – an overview



Source: NASSCOM-Deloitte, 2008

[3] CIA,2009. "The World Factbook." https://www.cia.gov/library/publications/the-world-factbook/geos/bg.html

2 DEFINITION AND SEGMENTATION

2.1 Definition of IT/ITES

IT services typically include IT applications and engineering services, while ITES include a wide range of services delivered over electronic networks. In comparison to the manufacturing industry where products are physically visible, the "raw materials" in the IT/ITES industry are data, information and knowledge. The industry is often referred to as a "knowledge-based" industry; as such, the products and services provided are less tangible. For this reason, IT/ITES is referred to as the "Software and ITES" industry by the Bangladesh Association of Software and Information Services (BASIS) to specifically exclude IT hardware.

2.2 Segmentation

IT/ITES consists of broad segments, and service sophistication varies considerably in each. Table 1 below outlines few representative segments and associated services.

Table 1: Types of IT and IT-Enabled Services

IT Services		***IT-Enabled Services***
Application services	***Engineering services***	***Business process services***
Application development and maintenance • Application development • Application development integration and testing • Application maintenance *System integration* • Analysis • Design • Development • Integration and testing • Package implementation *IT infrastructure services* • Help desks • Desktop support • Data center services • Mainframe support • Network operations *Consulting* • IT consulting • Network consulting	*Manufacturing engineering* • Upstream product engineering - Concept design - Simulation - Design engineering • Downstream product engineering - Computer aided design, manufacture and engineering - Embedded software - Localization • Plant and process engineering *Software product development* • Product development • System testing • Porting/variants • Localization • Maintenance and support • Gaming	*Horizontal processes* • Customer interaction and support (such as call centers) • Human resource management • Finance and administration • Supply chain (procurement logistics management) *Vertical processes* • Banking • Insurance • Travel • Manufacturing • Telecommunications • Pharmaceuticals • Other *Knowledge process outsourcing* • Business and financial research • Animation • Data analytics • Legal process and patent research • Other high-end processes

3 SITUATIONAL ANALYSIS

3.1 Global Situational Analysis

Globally the IT/ITES industry is performing strongly and it is this success, paired with projected growth over the coming years, that draws the attention of ambitious countries such as Bangladesh, looking for opportunities to improve the lives of her citizenry. While the ongoing financial crisis is stirring things up, there are still potential benefits to be had, as companies look for new and different ways to cut their costs as a short-term priority issue, opening up the competition to new entrants gain a foothold in the market.

3.1.1 Global IT/ITES Industry Status

In addition to McKinsey's estimates quoted above (refer to graphical representation in Figure 3), Gartner Research (2007) estimates that the global market is expected to grow from $160 billion in 2007 to $235 billion in 2011. NASSCOM-Everest (2008) estimates the potential to be more than three times that, at $700–800 billion by 2012, out of a total cost base of $17 trillion for key industry verticals (refer to verticals described Table 1) in source markets (the U.S. and Europe predominantly). There are a variety of opportunities in the various segments of the market, including;

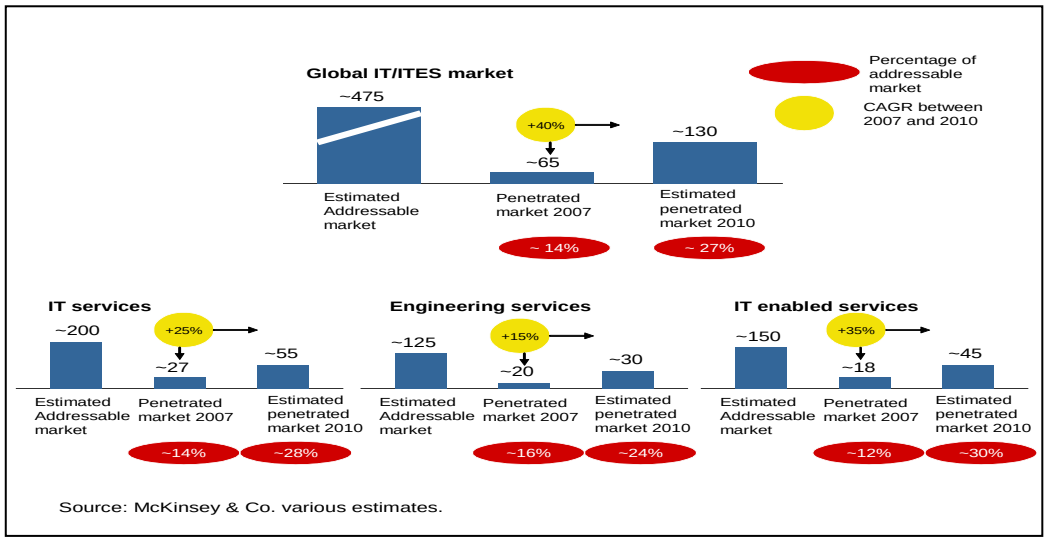
IT application services

- Traditional services (about $100 billion)
- System integration ($50 billion)
- Application development and maintenance ($43 billion)
- Consulting ($6 billion)

IT engineering services

- Mechanical design and production (about $45 billion)
- Embedded software ($40 billion)
- Plant engineering, ($35 billion)

Figure 3: Global Opportunities for IT Services and ITES (USD Billions)



3.1.2 Global Market Developments and Trends

Key changes are taking place in the global market as well as within the IT/ITES segments. Net private sector capital flows to developing countries are likely to fall to US $165 billion, down from US $900 billion in 2007 as reported by The Economist Intelligence Unit Limited in their Special Report March 2009.

Overall Market

- The current financial crisis will have negative impact on IT/ITES in the short term (2 - 3 quarters), resulting in lower and slower growth (six-to-nine month downward impact expected on BPO providers)
- Lower price as due to expected wage depression in the U.S.
- Lower demand as there is consolidation in the financial services industry, and as "clients become cautious in their discretionary spending and decision making cycles get extended"[4]
- Other verticals will be affected to a lesser degree, and healthcare and utilities for example, are expect to continue to grow as per the projections[5].
- However, it is expected that "the growth will be back" after these short term effects, and the IT/ITES industry is going to be a tool for recovery when this crisis is over

Market by Segment

- Many organizations are starting to look beyond low-value skills. Demand for application development work has increased and in some cases, replaced typical application maintenance work. However, maintenance work remains a strong entry-point to gain the confidence of new customers.
- Customer care/call center activities are growing rapidly as an offshore activity. Many companies consider call centers as part of their core services, since the quality of call centers can significantly improve customer satisfaction and increase business volume. Specialized product knowledge, as well as language skills to cater to the specific target audience is needed.
- Services which can be performed remotely, such as providing infrastructure remote monitoring or management services, are gaining momentum as possible use of offshore resources.

3.2 Competition

As stated earlier, McKinsey estimates the annual addressable market for IT services and IT/ITES to be $475 billion while less than 15 percent of that market is being exploited—about $65 billion in 2007. This large untapped market offers enormous opportunities for countries that meet its requirements. This section reviews established competitors as well as those countries emerging as competitors, just as Bangladesh prepares to enter the market.

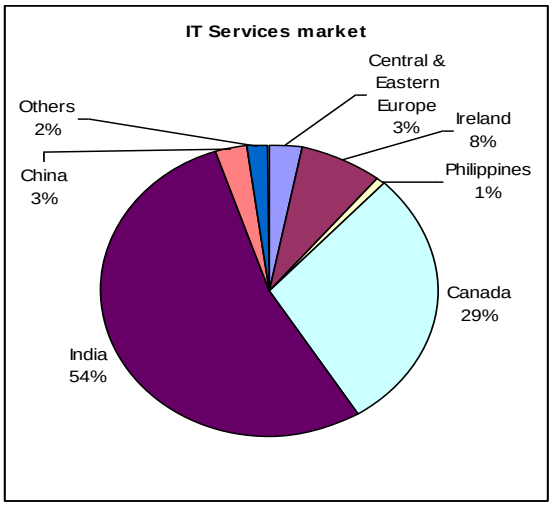
3.2.1**Wide Competition**

The competition is global in scope (refer to Figure 4 and 5), and Countries worldwide are competing for a piece of the lucrative IT/ITES business, and various consulting firms produce regular rankings of country attractiveness. Figure 6, for example, outlines A.T. Kearney's Global Services Location Index that is based on (i) financial attractiveness, (ii) people and skills availability and (iii) business environment. The

[4] http://www.americanbanker.com/btn_article.html?id=200809309F2H9QWZ; http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=55199
[5] http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=55199

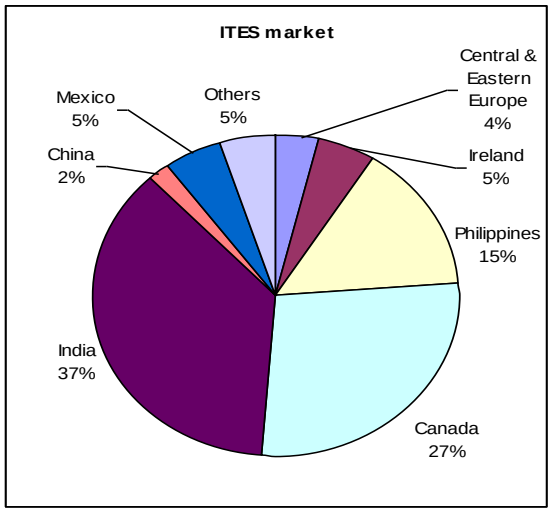
Many countries have improved their ranking and continue to emerge as possible IT/ITES destinations.

Figure 4: IT Services market



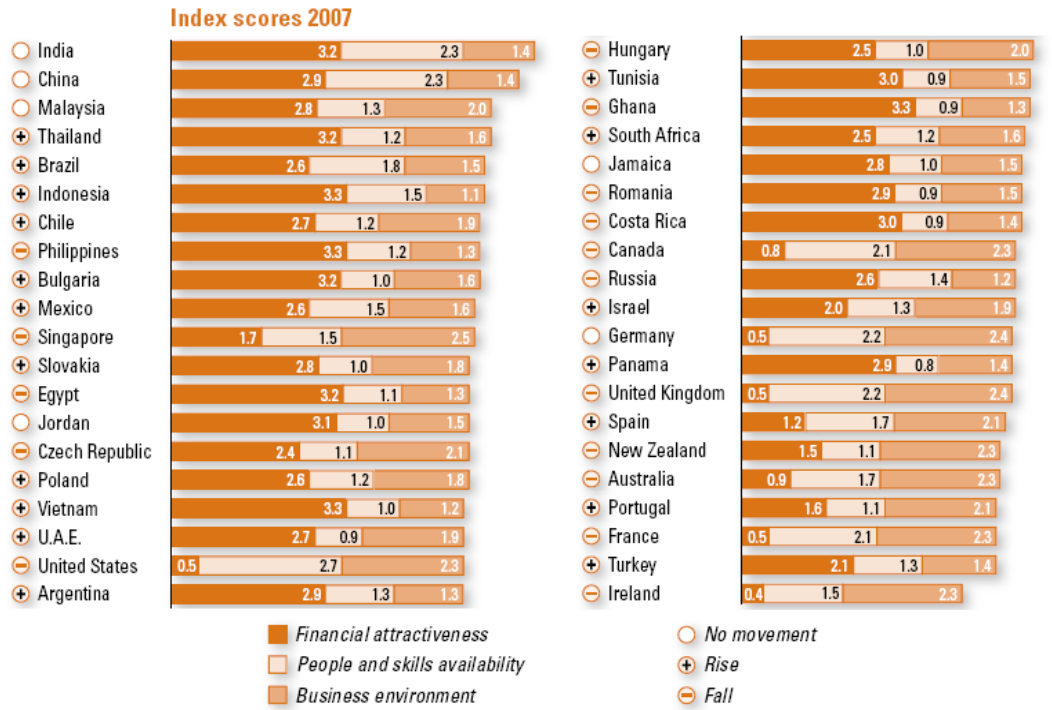
Source: Tholons 2006

Figure 5: ITES market



Source: NASSCOM-Everest, 2008

Figure 6: Global Services Location Index 2007



Source: A.T. Kearney's Global Services Location Index 2007

India is the global leader in IT/ITES, while the Philippines is also an established competitor. China and Mexico are both staking a claim in the IT/ITES market. Significant progress has also been seen in the Central and Eastern European Countries in the recent years.

3.2.2 Established Competitors

Figure 4 above clearly establishes the domination of India and the Philippines as the established competitors. For the purposes of this report, Canada is not considered as a competitor due to its status as a developed nation.

India

- Best known IT/ITES success story with total exports of $40.4 billion in 2007-2008
- $11.6 billion of domestic software services were also produced
- IT/ITES contributed to one quarter of the country's total exports and 5.5 percent to India's GDP
- Industry growing at 33.7 percent in 2007 (NASSCOM, 2008)
- Expected to reach $60 billion in IT/ITES exports by 2010, contributing almost 7 percent of India's GDP (NASSCOM-McKinsey, 2005)
- Has established itself as the global brand name for IT/ITES, but is challenged by exchange and labor cost inflation
- Has introduced policies and incentives to encourage female participation in the IT/ITES industry. Private sector companies have also adopted initiatives to develop the female workforce.

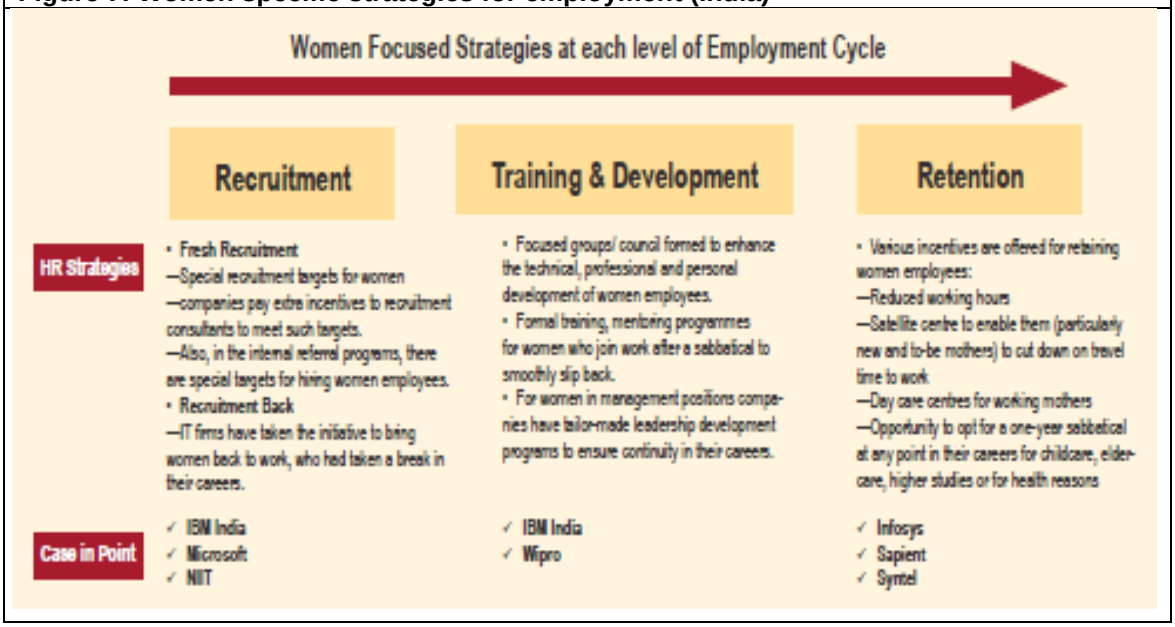
IBM Initiatives for Recruiting Women (India)

IBM India has specific targets at all levels for recruiting women.

1. **Bring Women Back to Work** – Targeted at not just finding and recruiting women, but also helping them to re-enter the workforce by providing mentoring and formal training.
2. **Indian Women Leadership Council** – To enhance the technical, professional and personal development of women employees.
3. **Taking the Stage** – To show women how to achieve a strong leadership presence when they speak in all situations. In addition, it regularly showcases successful women managers who often act as role models.

Source: NASSCOM Deloitte Study 2008

Figure 7: Women specific strategies for employment (India)



Source: NASSCOM-Deloitte, 2008

Philippines

- One of the top destinations for IT/ITES in the world
- Impressive industry growth with IT/ITES revenues on track to reach $6.8 billion in 2008 (The Philippine Star, 2008)
- Industry employed 345,000 people in mid 2008, up from 100,000 in 2004
- Projected to double its share of the global market from 5 to 10 percent
- Expected to achieve revenues of about $13 billion and direct employment of close to 1 million people by the end of 2010
- Call center services remain the largest segment in the local IT sector, accounting for around 63% of the sector's total workforce currently. This segment was recently targeted by the government as a key segment to support country's economic development.

3.2.3**Emerging Competitors**

Emerging competitors are defined as countries either entering the IT/ITES market for the first time or those that are making a concerted effort to increase their visibility and market share in the IT/ITES industry, positioning them as the most likely competitors for Bangladesh as they map their own entry.

China

- IT/ITES business is booming due to its proximity and cultural resemblance to neighboring countries
- Supported by the massive and growing domestic market. (JETRO).
- The total size of the domestic IT market is forecasted to increase from US$51bn in 2005 to around US$104 billion in 2010, representing a compound annual growth rate (CAGR) of 15%.
- IT services market is growing fast, and will continue to do so, achieving a sector CAGR of 20% between 2006 and 2010. The market rose to around US$9.3 billion in 2005, as banks, telecoms operators and manufacturers invested to meet the challenge of World Trade Organization (WTO) membership

Vietnam

- Increased visibility of the software industry after IBM opened its software service office in the Quang Trung Software Centre
- Japanese investors consider Viet Nam as one of the most effective destinations for software outsourcing behind China
- In 2006, the software industry generated US$350 million in revenue, of which $110 million was from outsourcing
- Currently around 750 software firms employing 35,000 people in software.
- Many companies have already received international quality control and standards certificates including CMMI-4 (Capability Maturity Model Integration) and ISO 9001.[6]

Pakistan

- Nascent IT/ITES industry, export revenues estimated to be approximately US$ 1.5 billion
- More than 1000 companies employing about 100,000 persons in IT/ITES
- Key client verticals are banking, capital markets and insurance, while its key service segment is in customer interaction and support
- Government is keen to pursue emerging opportunity, and the country compares favorably with India and the Philippines on some key incentives and labor costs, including facility with English language

[6] Source: http://www.business-in-asia.com/vietnam/vietnam_ict.html

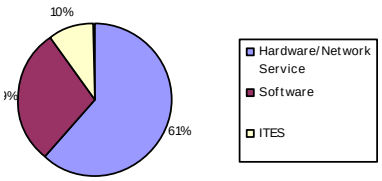
- 11 IT parks and 21 CMMi certified companies, with the number of certified companies expected to increase tremendously in the coming years
- Challenges include inadequate number of high-quality graduates and middle-management human resources. There is growing availability of broadband but relatively high cost by international standards. Favorable policies, but perception as a high-risk and politically unstable country.

3.3 Local IT/ITES Industry Status

3.3.1 Local Industry Status

The IT industry in Bangladesh, especially the IT/ITES industries, is relatively small compared to the size of the national population of 160 million, and the size of national economy at US$65 billion GDP in 2006. The statistics indicate that the IT/ITES industry in this country have been rapidly growing since 2002, but has floundered in recent years.

Figure 8: Scale of IT Market in Bangladesh (USD 300M in Total)



According to the BASIS survey in 2006, the total size of the IT market, excluding telecom, in Bangladesh was estimated to be US$300 million, out of which the IT/ITES industry share contributed to 39% or US$117 million.

- More than 400 IT/ITES companies are registered in Bangladesh and employ over 12,000 ICT professionals
- Export earnings from IT/ITES were USD 27.01 million in the fiscal year 2005-06 registering high growth of 113% from the previous year (2004-05). However, the growth rate has been negative in the years after and this could be due to various reasons, including the political instability and subsequent state of emergency which lasted for two years until it was lifted in December 2008, and the change in Bangladesh Bank's accounting methodology.

Table 2: Export Volume and Average Growth Rate

Export Value (US$ millions)	4.2	7.19	12.68	27.01	26.08	24.09
Yearly Growth Rate		71%	76%	113%	-3%	-8%

Source: Bangladesh Bank

- The major export market is North America, but recently many IT companies started export to EU countries and East Asian countries, especially to Japan
- About 100 companies export their products, and at least 30 of those companies are established through joint-venture with an overseas company or as an offshore development center (ODC) with 100 percent foreign capital. Most of these companies started their operations within the last two or three years, indicating that the Bangladesh IT/ITES industries have started to be focused overseas

The global IT/ITES market continues to grow and due to its large market size, there is huge potential for any country or competent company to grab additional market share. While several Bangladeshi companies have already been successful in penetrating the global IT/ITES market, generally, there has been a lack of concerted

effort at the national level to develop and launch an aggressive and coordinated plan to support further expansion of Bangladeshi interests. Many emerging competitors such as Pakistan have succeeded in expanding their profile in the IT/ITES market, despite the challenges, due to their strategic national planning targeting this industry. The negative growth rates during the year 2006-2008, as seen on Table 2 above, indicates that unless Bangladesh addresses some fundamental issues, this downward trend may continue.

3.3.2 Local Industry Trends

The level of awareness to prioritize obtaining international certification is starting to gain momentum in Bangladesh. With pioneering companies such as BIPL and Southtech, taking the lead in obtaining CMMi Level 3 status, several other companies have immediately followed suit. Many more have expressed their interest, which is a positive trend. However, these initiatives were driven primarily by individual companies, rather than as part of an effort towards achieving national goals.

According to several experts in the IT industry, Bangladesh has the capability for 50 IT/ITES companies to reach CMMi Level 3 certification and another 10 to obtain CMMI Level 4/5 by 2014. While this seems achievable, Bangladesh is already lagging behind significantly in implementing national level strategies to prioritize supporting individuals and companies obtaining international certifications.

Pakistan already has 21 CMMi Level 3 certified companies, with many more in the pipeline preparing for higher level certification status, two companies have also already achieved CMMi Level 5 certification. Vietnam has also recently achieved CMMi Level 4.

The number of certifications symbolizes the industry maturity and quality which directly equates to the probability for new international prospects to consider Bangladesh as an option.

4 BANGLADESH COMPETITIVE ANALYSIS

4.1 Competitive Analysis Framework

There are various types of competitive analysis frameworks used by the different consulting firms to assess the general competitiveness. While different categorizations are used in each model, the general agreement in the industry about the key factors determining the “locational competitiveness” include; availability of employable skills, competitive costs, quality of relevant public infrastructure and conducive business environment.

Table 3: Frameworks for Assessment of Locations for IT Services and ITES

AT Kearney's Global Services Location Index	*Gartner's 10 criteria*	*Hewitt's International Benchmarking Model*	*McKinsey's Locational Readiness Index*
People and skills availability • *Remote service sector experience and quality ratings* • *Labor force availability* • *Education and language* • *Attrition risk* *Financial attractiveness* • *Compensation costs* • *Infrastructure costs* • *Tax and regulatory costs* *Business environment* • *Country environment* • *Infrastructure* • *Cultural exposure* • *Security of intellectual property*	*Infrastructure* • *Power, telecommunications, transport* *Labor pool* • *Quality, quantity, scalability & work conditions* *Educational system* • *Quality, number of institutions, new grads in IT* *Cost* • *Labor, real estate, infrastructure & telecom* *Political and Economic Environment* • *Stability of government, corruption, geopolitical risks, Financial stability* *Language* *Government support* • *Promotional, institutional & education* *Cultural compatibility* • *Cultural attributes, adaptability, proximity, ease of travel* *Global and Legal Maturity Data and IP Security and Privacy*	*Infrastructure* • *Real estate* • *Telecom* • *Power* *Connectivity* *Talent* • *Availability* • *Quality* • *Cost* *General demographics* *Environment* • *Macroeconomic* • *Business environment* • *Geopolitical environment* *Clusters* *Incumbent IT/ITES industry*	*Quality of infrastructure* • *Telecom and network, real estate, transportation & power* *Talent* • *Availability, suitability, willingness, accessibility & trainability* *Cost* • *Labor, infrastructure & tax* *Market Maturity* • *IT/ITES employees as % of total service sector employment* • *IT/ITES as % of services GDP* • *Presence of industry association* *Risk profile* • *Regulatory, country investment, data protection* *Other incentives* *Environment* • *Government support* • *Business and living environment* • *Accessibility* • *Living environment*

4.2 Key Findings/SWOT Analysis

In order to best assess the current status and potential of the IT/ITES industry in Bangladesh, the four areas of interest are broken out into Strengths, Weaknesses, Opportunities and Threats below.

4.2.1**Talent**

One of the most significant strengths Bangladesh offers is a sizeable, young population that is ready to take on the world and needs sound guidance in how to do so most effectively. Cheap labor has long been a key draw for industry doing business in and with Bangladesh; now there is an unprecedented opportunity to transition to quality labor as well, offering an unbeatable combination of inexpensive and well-trained human resources.

The current global financial crisis and uncertain outlook expected to last for the coming years is driving many companies to explore possible new destinations to reduce costs. Bangladesh's low labor cost and availability of a vast and young human resource base are attractive and important factors for consideration but cheap labor alone is not sufficient incentive for prospective businesses that are already skeptical

and hesitant to take that first step. It is important to conduct a holistic SWOT analysis to identify the key strengths as well as to define a human resource development plan going forward.

4.2.1.1 Strengths

Labor Supply

Bangladesh has an active education sector, with 73 universities, out of which 21 are public and 52 private universities.

Table 4: IT Education Institutions in Bangladesh

Category	Number of Institutions
Number of universities offering IT-related programs	60 or more
Number of colleges and institutes offering IT-related programs	40 or more
Number of centers offering IT-related programs	300 or more

Source: BASIS Survey

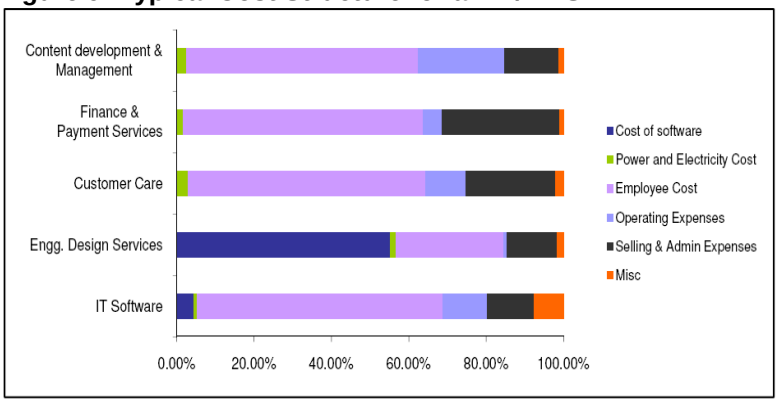
Bangladesh has an adequate human resource base for the IT/ITES industry:

- Young and trainable workforce with median of 23 years old
- Fairly well skilled with particular talents in software development
- Historically strong abilities in mathematical and logical analysis processes (DANIDA, 2006)
- Initiatives underway to introduce computer science at the secondary school level
- Several initiatives to develop suitable ICT talent. For example, MOSICT first introduced the National ICT Internship Program in 2003, in cooperation with the private sector. 60% of the salary/allowance subsidized, budget allocated for 1,000 interns per year (BASIS)

Labor Cost

Bangladesh has amongst the lowest IT/ITES labor cost in comparison to countries such as India, China and Pakistan. This is a major strength, as labor is the largest cost component across most IT/ITES segments. Due to the competitive wage structure, it can serve as a strong driver for attracting investments for cost arbitrage.

Figure 9: Typical Cost Structure for an IT/ITES Firm



Source: DFID, 2008

Table 5 below illustrates the wage difference and for the purpose of the comparison, selected rates from 1997 and 2007 are shown. In the United States, just in the last decade, the average wage in the IT sector has increased significantly and almost doubled. For example an average monthly wage for a programmer in the US in 2006

increased to USD 5460 USD in comparison to USD2700+ in 1997. A similar trend has been seen in India.

Table 5: Wage Rate Comparisons with India and U.S.

LEVEL (USD per month)	Bangladesh 2006	India 2007	India 1997	US 1997
Programmer	75 – 200	500 – 600	180 – 240	2700 – 3250
System Analyst	250 – 360	700 – 900	680 - 890	3800 – 4800
Project Manager	360 – 700	1200 -1800	900-1200	5000-6000

Source: DFID, 2008

Table 6: Wage Rate Comparisons with Competing Cities

	DHAKA	DALIAN	HANOI/ HOCHI MINH	BANGALORE	KARACHI	COLOMBO
Engineers *USD per month*	142 – 192	308-445	100-208	187-387	494	167-253
Managers *USD per month*	378 – 598	545-897	390-736	522-1020	1146	309-767

Source: DFID, 2008

4.2.1.2 Weaknesses

Despite the adequate supply in terms of numbers, talent availability is a major issue for the local industry. Quantity, quality and relevance are all elements that need to be addressed in order to overcome the immediate challenges to growing the IT/ITES industry at the projected rate.

Quantity

- Human resource supply is far from adequate for expanding the industry, or for attracting large operations
- No reliable baseline information needed to design holistic human resource strategy for the IT/ITES industry
- Brain drain by the local telecommunications industry
- Vocational training institutes do not have the capacity to produce skilled IT workers
- Lack of incentives to develop female IT workforce
- No informal or formal apprenticeship programs to equip youth with low-end skill sets to support the growth the IT/ITES industry
- Untapped labor pool in women as the estimated rate of female participation in the industry is estimated to be less than 10%

Table 7: Number of Graduates of IT-related Schools/IT Engineers in Bangladesh

Category	Yearly potential for newly recruiting workforce in Bangladesh	Number of newly graduated people
Graduates from computer science and software engineers	15,000	2,500
Graduates from IT-related fields and IT-related engineers	40,000	5,500

Source: BASIS Survey

Quality

- Lack of national policy to develop relevant resources to support the IT/ITES industry.
- Limited scalability of the talent pool, inhibiting the growth of the industry
- Uneven level of quality of educational institutions and curricula
- Limited exposure to IT education at the lower/secondary education level

- Fresh graduates lack sufficient skills, both technical and soft skills - Overall English proficiency is visibly lower in comparison to neighboring countries such as India and Pakistan
- Insufficient proficiency in English due to the education system's emphasis to use Bangla as a medium of instruction since a few decades ago
- Insufficient industry collaboration resulting in unsuitable skill sets
- Lack of awareness of IT as an effective interdisciplinary tool within the academic community, resulting in narrowly focused skill sets
- Limited scope to develop specialized skills sets in the software industry; due to the small size of the companies, programmers conduct multiple phases of development
- Relatively low revenue generation per employee in the IT/ITES industry: about US$10,000 (US$ 117 million/12,000 employees), lower than the average of US$ 20,000 per employee in India (Hewitt, 2007)

Relevance - Refers to suitability of qualifications and skills sets to support desired IT/ITES industry growth

- Acute shortage of project and team leaders/managers
- Key players representing the IT/ITES industry lack fundamental and critical soft skills, including negotiation skills and communication skills
- Lack of institutional capacity to acquire international certifications and limited number of internationally certified individuals; both technical and professional certifications
- Notable lack of capacity and awareness about the IT/ITES industry across government stakeholders. Resulting to no human resource strategy to develop the necessary talent pool to increase visibility on the international competitiveness ranking such as McKinsey's Locational Ranking Index
- Limited awareness regarding the value of international certifications and lack of coordination amongst all stakeholders, government, private sector and academia

Table 8: Summary of Talent Challenges & Underlying Reasons

Problems	Reasons behind
Unavailability of a pool of employees to be recruited	• Computer science course enrollment is declining • Better quality students opting for non-software industry (mainly Telecom and Banking)
High attrition rate	• High salary range in Telecom and Banking sector • Absence of structured HR policy in most software companies
Absence of institutional infrastructure for continued training	• Lack of 'finishing school' to groom fresh graduates • The curricula of training institutions do not match the industry needs

Source: DANIDA, 2006

4.2.1.3 Threats

- Bangladesh faces a big threat of "resource crunch" in the near future. Brain drain and attractiveness of other business sectors are reducing the number of professionals pursuing an IT career (DANIDA, 2006).
- Deteriorating quality of IT/ITES labor could affect the quality of industry output dramatically (DANIDA, 2006)
- Declining number of students for IT courses due to a perceived lack of employment opportunities
- Unrealistic salary and position expectations threaten industry stability

- Inability to staff industry for growth would undermine any expansion plan
- As a national priority, neighboring countries such as India and Pakistan focused on developing relevant talent and skill sets, including improving overall English proficiency and successfully captured significant market share in the call center industry. Bangladesh lacks such national education reform strategy, which could lead to the existing gap widening even further
- The negative perception of Bangladesh worsening as the lack of certified individuals and companies gets exposed while other countries continue to make progress in these areas

Bangladesh continues to struggle with a negative image – perceived lack of quality workforce, substandard output and failure to comply with international standards and guidelines. On the other hand, many countries recognize the importance of achieving various international certifications and have already incorporated action plans to set goals to obtain more certifications, as part of their national IT/ITES strategy. The following table lists certifications that could help improve such negative perceptions.

Many countries recognize the importance of achieving various international certifications and have already incorporated action plans to set goals to obtain more certifications, as part of their national ITES strategy.

To increase its visibility as top IT/ITES destinations, Bangladesh could focus on improving the Locational Readiness Indicators (LRIs) by adopting globally accepted certifications.

The certifications mentioned below are few examples which give potential investors assurance that consistent level of quality and process maturity exists.

Example	Description
eSCM	Framework for establishing, managing and continually improving sourcing relationships with clients
ISO 27001	Standard for information security management
CMMI	Process improvement approach that provides organizations essential elements of effective process for SW developers
ISOSAS	International occupational health and safety management and specification (e.g. OHSAS 18001)
Six Sigma	Business process improvement/design framework
TR 19	Business continuity management assessment framework
Vertical Oriented	
FSA	Standards prescribed by UK's Financial Services Authority
PCI	Security standards for the Payment Card Industry
LOMA	Certification by the Life Office Management Association (e.g. FLMI 280-Principles of Insurance)
IIA	Certification offered the Insurance Institute of America (INS21 for Property and Liability Insurance)
NASD	Insurance certifications by the National Association of Security Dealers
AHQ	Certification offered by the Academy for Healthcare Management (AHM 250)
TL 9000	Telecom quality management system developed by the QuEST Forum
Horizontal Oriented	
COPC 2000	Certification offered by the Customer Operation Performance for performance Management in customer-centric services
SAS 70	Auditing standard prescribed by the American Institute of Chartered Public Accountants (AICPA) (e.g. Type 1 and Type II audits)

Source: Nasscom/Everest Study

4.2.1.4 Opportunities

Some companies have performed well in certain IT/ITES segments. By replicating best practices and expanding on its strengths, low cost and abundant labor, Bangladesh has the immediate opportunity to gain further market share in the IT/ITES industry.

- Expanding awareness, internally and externally, of the potential in the Bangladesh labor pool can help the country gain momentum in their pursuit of IT/ITES business
- Tap into talent across the country by expanding IT/ITES businesses to other cities, districts or divisions (such as Comilla, Rajshahi, Bogra, Khulna). This may significantly increase the available supply of talents, contribute to balanced development and sustain the country's cost advantage
- Tap into female labor pool as the IT/ITES industry is gender-biased towards women, as their socially developed skills makes them better suited for communication, multitasking, and collaborative team work

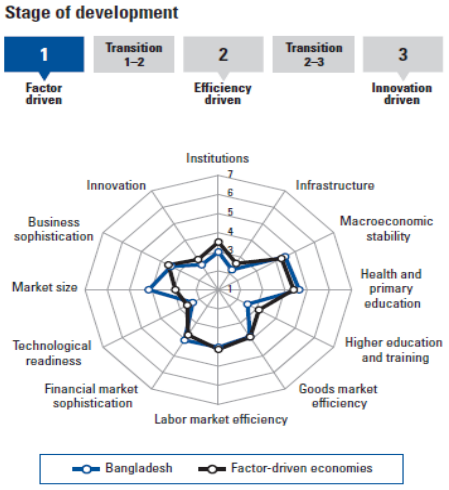
4.2.2 Infrastructure

A list of infrastructure related challenges exists in Bangladesh, several of which need to be addressed as priority actions for sustainable economic development to successfully take place across all sectors, including IT/ITES. Many of these fundamental issues are interlinked and add to the complexity of defining a way forward. This section examines the current status of the infrastructure available in Bangladesh.

Figure 10: Global Competitiveness Index

Global Competitiveness Index

	Rank (out of 134)	Score (1–7)
GCI 2008–2009	**111**	**3.5**
GCI 2007–2008 (out of 131)	107	3.5
GCI 2006–2007 (out of 122)	92	3.7
Basic requirements	**117**	**3.6**
1st pillar: Institutions	127	3.0
2nd pillar: Infrastructure	122	2.2
3rd pillar: Macroeconomic stability	101	4.5
4th pillar: Health and primary education	105	4.6
Efficiency enhancers	**97**	**3.5**
5th pillar: Higher education and training	131	2.5
6th pillar: Goods market efficiency	106	3.8
7th pillar: Labor market efficiency	107	4.0
8th pillar: Financial market sophistication	82	4.1
9th pillar: Technological readiness	126	2.3
10th pillar: Market size	53	4.1
Innovation and sophistication factors	**115**	**3.0**
11th pillar: Business sophistication	105	3.5
12th pillar: Innovation	122	2.5



Source: World Economic Forum, 2008. "Global Competitiveness Report"

4.2.2.1 Strengths

Broadband Connectivity Cost

The present cost of connectivity in Bangladesh is moderately competitive compared to Pakistan (refer to Table 9). Bangladesh Telecommunications Company Limited (BTCL), formerly Bangladesh Telegraph and Telephone Board (BTTB) sets the tone for the price of broadband in the country. There has been substantial reduction in

wholesale prices for bandwidth in recent months, translating into substantial reduction in retail prices as well.

Table 9: Monthly cost for 2Mbps connection in different countries (core to ISP)

Country	Monthly Rent (2Mbps dedicated line) in USD
Bangladesh	1225[7]
India	300[8]
Pakistan	930[9]

Bangladesh joined the Information Super Highway through submarine connectivity in 2006, through the SEA-MEAWE-4 consortium. As a result, the data transfer capacity went up to 14.78 gigabytes per second, 64 times higher than total capacity at the time of the initial installation in May 2006.[10]

Others

- Mobile teledensity at the end of 2007 stood at 22.9%, far exceeding the initial predictions of 10% by 2010 due to competition policy and deregulation[11]
- Among South Asian countries, Bangladesh offers the lowest mobile phone call rates (Raihan, 2009)
- Bangladesh is also competitive in other costs such as housing, electricity, water, gas and fuel charges (refer to Table 10 and Table 11).

Table 10: House Rent, Personal and Corporate Income Tax Rate Comparison

	DHAKA	DALIAN	HANOI/ HOCHI MINH	BANGALORE	KARACHI	COLOMBO
Housing Rent per Month (USD Monthly)	654 (Banani), 2182 (Gulshan)	3036	2100-3500	2048-3200	1280-7200	1500
Corporate Income Tax Rate *(%)*	40	25	28	30	35	15-35
Personal Income Tax Rate (Highest %)	25	45	40	30	0-25	5 -35 (7 slabs)

Source: DFID, 2008

[7] Bangladesh Telecommunications Company Limited www.btcl.gov.bd as of March 31, 2009.
[8] Bharat Sanchar Nigam Limited www.bsnl.co.in Rates from Business Unlimited Plan, as of March 31, 2009
[9] National Telecom – Official IT&T Services Provider, Government of Pakistan www.ntc.net.pk/tariffintnet.asp?menu_id=03
[10] "ICT for Development: Immediate Doables," by Ananya Raihan, Parallel Session 1, Centre for Policy Dialogue (CPD) Conference on Development with Equity and Justice; Immediate Tasks for the Newly Elected Government, 2009.
[11] Ibid

Table 11: Comparison of Utilities Rates[12]

	DHAKA	DALIAN	HANOI	BANGALORE	KARACHI	COLOMBO
Electricity Charges						
Rate per 1 Kwh	0.02 - 0.08	0.1	0.09-0.1	0.1	0.06-0.11	0.15-0.2
Water Charges						
Rate per 1 cu. M	0.36	0.7	0.47	1.54	0.39	0.45
Gas Charges						
Rate per 1 cu. m	0.03-0.12	0.2	1.18	1.43/kg	4.63/Mn BTU	1.34/kg
Fuel Charges						
Gasoline (1 lit)	0.97	0.7	0.81	1.29	0.86	1.17
Diesel (1 lit)	0.58	0.77	0.64	0.9	0.52	0.74

Source: DFID, 2008

4.2.2.2 Weaknesses

In general, the country is weak in terms of overall quality of infrastructure currently available.

- Lack of redundant broadband makes it highly challenging for IT/ITES businesses, especially for call centers that require uninterrupted connection
- High internet rates compared to neighboring countries
- Broadband speed, quality and reliability is inadequate. Submarine cable is still being streamlined via a national fiber backbone project
- Many ISPs maintain redundancy by using VSAT-based connectivity, which is prone to technical difficulties
- Unreliable electricity supply with no improvement foreseen
- Poor state of internet penetration: state monopoly, high price, inequity hinders access by rural and disadvantaged community (Raihan, 2009)
- Basic infrastructure including roads and airport connectivity is inadequate
- Lack of suitable office space; limited "Class A" office space

4.2.2.3 Threats

While there is ongoing debate about "Digital Bangladesh" and what precisely it entails, Bangladesh needs to simultaneously work on solidifying an image of "Connected Bangladesh" in order to participate in the rapidly growing global competition. Reliable power and connectivity are vital to achieving the goals and objectives identified for the IT/ITES industry.

- Lack of action in addressing infrastructure challenges will limit much potential growth opportunities for the IT/ITES industry
- Infrastructure challenges are more pronounced given that potential competitors such as Vietnam, Malaysia, Philippines and Pakistan

The Networked Readiness Index 2008–2009 Rankings

Rank	*Country*	*Economy Score*
46	China	4.15
54	India	4.03
70	Vietnam	3.79
85	Philippines	3.60
98	Pakistan	3.31
127	Nepal	2.85
130	***Bangladesh***	***2.70***

Total 134 Countries Ranked
Source: The Global IT Report 2008-2009

[12] As of Dec. 2008, based on information gathered by BASIS' Program Manager, the rates have increased slightly. Water consumption rate and sewerage service charge was US$0.55and commercial rate of electricity for medium size industry ranged from US$0.05 to 0.11.

have moved far ahead in all infrastructure measurement indices

4.2.2.4 Opportunities

While it is obvious that holistic, long term interventions are essential, it is also important to identify smaller initiatives which can be easily managed and quickly implemented. Such an option could be the specific objective to initially target the growth of one or two priority IT/ITES segments, or the establishment of an IT Park in Dhaka. To-date, the IT Park initiatives that have been discussed in Bangladesh have been disappointing in their failure to fully articulate and address the real challenges, the constant disagreements as to jurisdiction given the fragmented leadership on IT issues, and the insistence in promoting benefits that are of dubious value given the absence of a functioning national IT strategy. If a segment focus can be determined, the discussion quickly narrows to include only those relevant stakeholders for that specific line of business, making consensus that much easier to reach.

Challenges exist, but the idea has merit and can perhaps be investigated from a more innovative perspective in considering other opportunities for creating a defined zone for the IT/ITES industry. Concurrently, a study on export processing zones is being conducted, which may have implications for the IT/ITES industry.

4.2.3 Policy and Regulatory Environment

Since 1997, ICT has been a focus of government discussion and intervention and in 2002, ICT was declared a "thrust sector." With the recent election outcome, Bangladesh is once again promoting the potential of ICT for development through the "Digital Bangladesh" concept. Digital Bangladesh entails the following inter-related components, as proposed by Mustafa Jabbar, President of Bangladesh Computer Samity:

- Digital Government
- Digital Education
- Digital Business

Some progress has been realized, for example the passage of the ICT Policy in 2002 and the IT Act in 2006. However, much work remains to be done. This section examines the current status of the policy and regulatory environment in Bangladesh.

4.2.3.1 Strengths

With the Digital Bangladesh platform of the newly elected government, the country has reinvigorated its ICT related activities. Historically, the government has supported initiatives such as the National ICT Task Force headed by the Prime Minister. There are also institutional structures and support for IT/ITES development, including Ministry of Science and ICT, Bangladesh Computer Council, Ministry of Commerce, Export Promotion Bureau and Business Promotion Council, etc. In addition, the industry associations such as BASIS and BCS are active and enthusiastic.

Bangladesh also has the following strengths.

Competitive investment incentives and benefits

- Tax holiday for up to 7 years
- Low import taxes, and no customs duty and VAT for export oriented industries
- Income Tax exemption for expatriates/foreign technicians for several years
- Facilities for full repatriation of invested capital and profit
- ICT incubator program in place

Well rated by some analysts

- Next 11 emerging countries in the world (Goldman Sachs) [13]
- Will become one of the top 30 economies in the world (PriceWaterhouseCoopers) [14]

4.2.3.2 Weaknesses

Contrary to the perceived benefit of committed government institutions, lack of coordination and centralization in governance mechanisms has resulted in disparate and fragmented initiatives which impact IT/ITES industry development negatively. For example:

- High perceived level of corruption remains a source of concern for many potential clients interested in doing business in Bangladesh (refer to Figure 11).
- No specific incentives to boost the IT/ITES industry or attract foreign investments
- Mandates of MOSICT and the Ministry of Post and Telecommunications appear to overlap
- e-Government cell of the Chief Advisors' office not integrated with the ICT Task Force under MOSICT
- BPC, ICT Task Force, other e-governance and ICT bodies within the government do not have clearly defined mandates

Additionally, there are other areas of concern as discussed below.

Inappropriate laws and regulations

- Call centers have only recently been legalized as they require VoIP facilities
- Reinforcement of IPR, data protection and privacy related issues are inadequate

Challenges:
New International Call Center in Dhaka

Expected capacity in
12 months: 400 seats
24 months: 1200 seats

Lack of Broadband Redundancy:
Experienced downtime of up to 30 minutes just few weeks after they started operation. Due to the unreliability of the broadband, and VSAT not being a viable backup, they are planning to set up a redundant call center in the US or Latin America.

This option may be a viable interim solution, due to it relatively small operation, there are no long term solution to address this issue once they scale up their operation to the hundreds.

Cost of Broadband:
The cost of 2Mbps connection for a licensed call center is still prohibitive, ranging from USD900 to highest rate exceeding USD5000 a month.

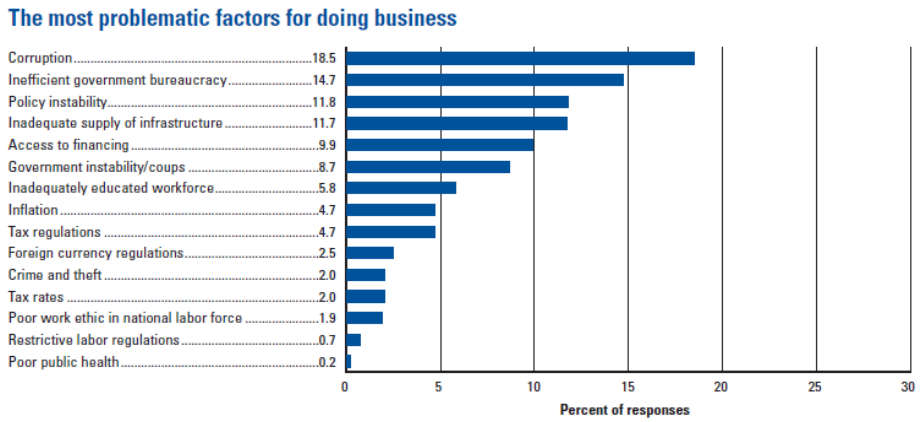
Negative Perception:
Bangladesh's deeply rooted negative perception related to political instability and corruption.

Environment/Quality of Life:
Overall work and living conditions, and other factors including traffic and pollution negatively impact the decision making process of the potential investors as well as clients.

[13] Source: BASIS http://www.basis.org.bd/toplink-details.aspx?idlink=2
[14] Ibid

- Up to six months to obtain the necessary licenses, approvals to legally establish a company
- Lack of enforcement for existing legislation
- Lack of e-transaction mechanisms. Central bank prohibits use of credit cards for on-line payment
- Weak judiciary

Figure 11: The Most Problematic Factors for Doing Business (Bangladesh)



Note: From a list of 15 factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

The Global Competitiveness Report 2008-2009 © 2008 World Economic Forum

Lack of financing options for IT entrepreneurs and IT firms

- Venture capital firms are almost non-existent, let alone technology industry oriented VCs.
- Many IT firms are SMEs with little in terms of fixed assets and as such do not qualify for standard commercial loans, neither have these firms succeeded in securing EEF funds from Bangladesh Bank. (DANIDA, 2006)

4.2.3.3 Threats

Failure to address the legal and regulatory framework will further undermine growth potential for the IT/ITES industry as the business environment will remain less than supportive. Foreign investment will turn to other competitors with more supportive policy and regulatory frameworks. Weak judiciary serves as a disincentive for foreign companies interested in entering contractual agreements with Bangladeshi firms.

4.2.3.4 Opportunities

There has been government interest in supporting the IT/ITES industry; it just has not been structured to properly support the industry growth. With strategic interventions, the IT/ITES industry could work with government to design and implement a holistic approach that meets the needs of both parties. Pakistan is a good model for reference.

Bangladesh also has a convenient time zone for doing business with the U.S., although this is not a unique strength compared with her regional competitors. However, with a well structured promotional campaign directed at both internal and external audiences, the benefits and incentives Bangladesh offers could attract more investment.

4.2.4 Industry Maturity, Risks and Industry Promotion

One of the obstacles hindering the growth of the overall IT/ITES industry is country's current negative perception as a whole, and the complete lack of a country profile as a potential IT/ITES destination. Global competition is fierce, with many countries aggressively competing for the offshore delivery of business processes. Several of the emerging competitors are perceived as more stable and are recognized business centers in the IT/ITES industry. These perceptions, paired with the sizeable national investments that many competitors are making in anticipation of capturing a portion of the untapped global IT/ITES market put Bangladesh in a tight spot. It is imperative for Bangladesh to accept and address this "*image crisis*" immediately. Without drastic measures to improve the overall perception, eliminate possible risks and reach a certain level of maturity, Bangladesh will quickly lag behind.

4.2.4.1 Strengths

Nascent markets are adaptable to new trends, allowing for adjustments to be made more easily as new opportunities are presented. In addition:

- No initiatives have been introduced to capitalize the young population, especially targeting the participation of youth and women in the IT/ITES industry. The young population can easily support the expansion of the IT/ITES industry, both through labor and as a local market for services
- Non-Resident Bangladeshis (NRB) – Bangladesh boasts one of the world's great diasporas, with Bangladeshis established all over the world. NRB associations exist in many cities across the developed world and can be utilized as promoters for the country and an ambitious IT/ITES industry
- Industry promotion – Increased level of interest and financial support for IT/ITES companies to participate in international fairs

4.2.4.2 Weaknesses

The global IT/ITES market is moving forward and expanding at a very rapid pace. For Bangladesh to enter the market and directly start gaining market share, it will need to address its weaknesses and quickly eliminate its negative perception/profile and gain the trust and confidence of potential clients.

- Lack of cohesive strategy and programs to effectively support overall industry promotion - no defined value proposition, target segmentation, branding effort, nor business development mechanisms
- Limited financial support for international fair participation. Historically, participant selection is not transparent, participants are unprepared and represent the country/industry poorly, and there is little to no follow-up, leading one to question the value of the exercise
- No existing profile of Bangladesh as an IT/ITES destination and no effort to improve the visibility or its value proposition
- Low confidence as viable IT/ITES destination due to consistent poor corruption index rankings (refer to Transparency International's ranking) and heightened security concerns after the recent mutiny

2008 Corruption Perceptions Index (CPI)

Ranking	Country
72	China
85	India
121	Nepal
121	Vietnam
134	Pakistan
141	Philippines
147	**Bangladesh**

Source: Transparency International

- Perceived as a disaster area prone to natural and man-made disasters and political violence and instability
- Known for low value-added exports, such as garments and unskilled labor
- Weak judiciary renders contracts and agreements vulnerable
- Absence of known, recognizable foreign companies in IT/ITES and small domestic market does not facilitate development of IT/ITES firms

4.2.4.3 Threats

The current global financial crisis may negatively impact the IT/ITES industry in Bangladesh far more than predicted by industry and analysts, since Bangladesh is a late entrant in the IT/ITES industry and still positioning itself to establish its unique, identifiable brand value. Rise of emerging competitors as they secure a higher market share of the international, outsourced services (BCS)

- China, Vietnam and similar countries as the industry prospect / potential for those countries is very similar to Bangladesh but they enjoy more stable political situations
- Lack of sound regulatory environment and policies will further widen the gap with existing emerging countries advancing forward

4.2.4.4 Opportunities

The current global financial crisis has triggered the trend of companies investing additional time in exploring new options to reduce costs. IT/ITES industry may look into diversifying the development base to cut back on risk levels. Bangladesh could play a key role in assisting these firms achieve their diversification objectives. The following are additional opportunities for Bangladesh.

- India and China moving to a higher strata of the global IT market, creating an opportunity for Bangladesh to capture the lower niches of the market that they leave behind (DANIDA, 2006)
- Cost of outsourcing to India and China is rising alarmingly making Bangladesh a viable option (S2-ICT)
- Many existing IT/ITES hubs are getting saturated and are not able to offer the same advantages as before, hence Bangladesh could attract some of the investments (DFID, 2008).
- Many sub-continental firms have been looking to expand internationally. Bangladesh could serve this purpose from both the market side as well as the development opportunity side (DFID, 2008)
- Recent developments in joint ventures and business collaborations among Danish and Japanese companies and Bangladeshi software companies could support growth in export earnings (DANIDA, 2006)

2008 Corruption Perceptions Index (CPI)

Ranking	Country
72	China
85	India
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147	**Bangladesh**

Source: Transparency International

5 NEXT STEPS/ RECOMMENDATION

5.1 Proposed Strategic Framework

In this section, some potential strategic focus points as well as possible options to best leverage existing competencies are discussed. A strategic assessment and competitive strategy table are presented to provide guidance in this process.

5.1.1 **Strategic Focus**

The market and SWOT analysis above provides a basis for developing Bangladesh's strategic focus for the IT/ITES industry. There are many opportunities in the IT/ITES market, and new entrants such as Bangladesh, have many paths they could follow. However, the majority of the Bangladeshi companies do not currently possess any discernible strategic competency or any particular combination of skills, process or knowledge that is of significant value. This is expected in a country with such a nascent IT sector. It is therefore essential for Bangladesh to identify its strategic direction and focus their resources. It is also important for Bangladesh to remain open to other possibilities as the IT/ITES industry is still nascent, and be ready to adjust as market needs evolve, i.e. *"To cross the river by feeling for the stones*" - Deng Xiao Ping

A variety of approaches can be taken to determine the strategic focus, but such approaches are only recommended to provide general guidance for the direction of the industry, and to let market mechanisms determine the focus areas rather than for governments to "pick winners".

The table below provides a simplified approach that will provide the required general guidance, but a detailed market and demand assessment should be conducted within a comprehensive program of industry development. In this approach, the focus areas are broken down by service segments, complexity, size of operation and by target market/customers; and the results of the market and SWOT analysis feeds into this process:

By Service Segments

- IT/ITES industry is very broad with multiple segments. It is not possible to target all segments and Bangladesh should prioritize potential segments upon careful consideration.

By Complexity

- Due to the current level of technological proficiency of talent, Bangladesh should target less complex projects. The country should build capacity and minimize the gap with international standards and then prepare itself to move up the ladder for more complicated projects in the close future.

By Size

- Smaller-scale operations in the short term are more realistic due to the lack of qualified resources to support large operations of 1,000 - 2,000 employees. However, Bangladesh could promote itself aggressively once talent availability increases.

By Market/Customers

- Focus on the typical big markets including U.S. and Europe since they have diverse needs.

- Concentrate on niche markets such as Scandinavian and Japanese clients and further strengthen its current competitive edge and its expertise

5.1.2 Strategic Assessment

Table 12 below outlines the various IT/ITES segments, and the initial assessment of their competitiveness and the attractiveness based on the SWOT analysis.

Table 12: Competitiveness and Attractiveness Matrix [15]

Market Segments	Competitive Position	Market Attractiveness
Software Development	**Medium to High** ▪ Good value talent for standard of software development (cost competitive and acceptable basic quality) ▪ Moderate supply of good quality computer science graduates ▪ Limited experience in complex solutions and advanced business practices/processes ▪ Bandwidth performance and redundancy not critical ▪ Lowest cost services for specialty customers due to good quality software development talent ▪ Mid cost, high quality customized services for particular industries or solutions that local firms have developed strengths in, such as garment manufacturing, pharmaceuticals, application testing/maintenance etc.	**Medium to High** ▪ Large market with various niche possibilities in terms of vertical applications, or lower-end development for less complex solutions such as: ▪ Web & mobile content development ▪ Back office software, Animation, Desktop publishing
Data Digitization, Processing & Conversion	**Medium** ▪ Abundant supply of inexpensive, low-skilled, production-oriented workers ▪ Short training time suits local labor dynamics ▪ Medium to high bandwidth requirements	**Medium** ▪ Large overseas market with high growth rates ▪ Crowded industry becoming very competitive and commoditized
Call Centers	**Low** ▪ Very low cost of labor and low attrition rates ▪ Insufficient supply of graduates with language skills for large scale operations (>500 seats to be cost effective)Insufficient level of English proficiency and soft skills ▪ Adequate bandwidth performance ▪ Untested segment as VoIP and call centers have only recently been legalized ▪ Lowest cost to attract large operations of 500 and above seats to be economical. Mass market offering with no particular vertical or horizontal focus	**Medium to High** ▪ Large but commoditized market ▪ Strong competition from incumbent countries such as Philippines

[15] Based on inputs from industry stakeholders and information gathered from various sources including "External Market Analysis for Bangladesh (USAID)

Animation, Multi-Media & Desktop Publishing	**Low to Medium** ▪ Supply of art graduates at relatively low labor cost ▪ Minimal investment in equipment for 2D ▪ Lack of domestic exposure to overseas entertainment limits creativity ▪ Low cost, mid quality services to customers ▪ Mid cost, high quality services to specialty customers to build up the country as the dominant specialist in these segments	**Low to Medium** ▪ Sizeable market with high niche potential ▪ Competitive market and late starter
Japanese and Scandinavian Customers	**Low to Medium** ▪ Very low cost of labor, but advanced language skills required ▪ Already has experiences and programs in place with Japanese and Danish companies ▪ High cost, high quality services in clients' localized languages and for niche applications	**Medium** ▪ Growing market that has limited destination options due to language requirements ▪ Strong competition from emerging countries such as China for Japan ▪ Potential to build strong niches by offering services tailored to clients' languages

5.2 Proposed Program to Develop the IT/ITES Industry in Bangladesh

What Next?

As has been established, there is no lack of demand in the IT/ITES industry, either globally or regionally. However, as has also been stated, there is significant competition for this growth, with many countries such as Pakistan and Vietnam contending for increased stakes. Without a well-focused and coordinated effort, Bangladesh will fail to realize the potential of this opportunity; the relative advantages of low labor costs and apparent government support for the IT/ITES industry could easily be lost if the very real challenges are not successfully met.

In addressing these challenges, it is important that the approach be coordinated, target specific issues to provide maximum impact, and have the support and buy-in of relevant stakeholders. To-date, the IT/ITES industry development activities in Bangladesh, while not without its successes, generally lacks widely accepted, centralized leadership or focus. This must change if Bangladesh is going to mount serious competition for an increase in market share.

Getting Started:

To start this process, relevant stakeholders from the government and business associations have identified key targets for the next five (5) years.

- The primary objectives of the proposed program is to:
    - Achieve yearly IT/ITES export revenues of USD $500 million in five (5) years' time. This will:
    - Generate over 30,000 direct, high value jobs in IT/ITES industry;

    - Drive yearly IT/ITES export growth rates of between 50% to 100%; and
    - Contribute an estimated 1% to Bangladesh's GDP; and
    - Catalyze rapid industry growth due to economies of scale in operations and significantly improved market visibility and perception.
- The additional objectives are to:
    - Achieve 25% in women's employment in IT/ITES
    - Increase youth employment by job creation for youths below 29 years old; and
    - Ensure placing within top 30 IT/ITES destinations as ranked by top consulting firms

These targeted objectives serve the purpose of providing a common focus going forward; a focus around which all stakeholders can gather and identify their own specific role(s) in making the vision a reality. The end goal of achieving USD500 million in IT/ITES export revenue, which the industry deemed realistic and feasible, was developed in consultation with various industry stakeholders. In order to achieve this target by the fifth year in a sustainable manner, the annual growth rate of between 50% and 100% for the following years were calculated accordingly.

The following recommendations address not only the most significant, existing weaknesses, but also build on existing strengths. Taking the approach of dividing activity into the short-, medium-, and long-term allows immediate action on those items where current strengths can be brought to bear, while also identifying areas of investment/intervention for longer term benefits.

The proposed program is based on this Analytical and Advisory Activity (AAA), completed during the period of 2008 to 2009, which contains comprehensive information, analysis, recommendations and experiences from diverse local stakeholders; and World Bank and international specialists. In addition, it leverages the National ICT Policy to the extent possible in terms of action recommendations, in order to align, drive, and focus effort with the stated objectives.

Overview of Proposed Program

The holistic and comprehensive five year program requires an estimated budget of about US$40 million, and the activities outlined in the following section supports the efforts of the public and private stakeholders in IT/ITES industry development.

The proposed program will focus on the following priority issues identified as a result of AAA. Hence the objective for each component is listed below:

- Talent - Ramp up the quantity and quality of relevant talent
- Promotion - Develop holistic and comprehensive marketing, communication, and promotional strategies, programs and plans; and build the business development capacity of the relevant institutions and industry.
- Infrastructure - Support and accelerate key infrastructure initiatives and projects
- Policy and Regulatory - Support short and long-term reforms in the institutional, legal and regulatory framework

The guiding principles for the formation of the proposed program are as follows:

- Maximize use of local knowledge, expertise and experience via close collaboration with a broad range of local stakeholders

- Maximize use of existing assessment, findings and analysis from previous studies; and strengthen it with additional research and analysis as necessary
- Utilize a strategic planning framework for a proactive, realistic and systematic approach to IT/ITES industry development
- Develop strategic roadmap and actionable programs with proposed activities, budgets and schedules for implementation

During the first year of the five year program, in 2010, *Program Phase 1* will set the stage for the five year program. Strategies and specific activities in the following areas will be identified and expected to commence; institutional capacity building, human resource development, industry promotion. Concurrently, Phase 1 focuses on achieving quick wins in policy, legal, regulatory and institutional reforms. A rapid disbursement mechanism will also be built-into the program to provide immediate support to promising activities, especially in the priority issues of talent development and industry promotion. Baseline indicators will also be established, and data collected for subsequent monitoring and evaluation activities.

Under *Program Phase 2*, which covers the second to the fourth year of the program (2011-2013), priorities and activities identified in the first year will be implemented, strengthening the overall capacity and increase Bangladesh's competitiveness in the global IT/ITES market. It is envisioned that the major activities for this phase will be related to talent development and industry promotion as the priority areas, in addition to catalyzing and supporting longer term reforms in governance. During this period, initiatives which require mid-long term interventions, such as infrastructure development, additional programs to support legal, regulatory and institutional reforms will also be implemented. Continuous monitoring of activities, outputs, and preliminary outcomes will also be carried out during this period in order to fine-tune and adjust the component activities as needed for results.

Under *Program Phase 3*, the final year of the program will be targeted for the completion of the defined activities and evaluation of the overall program.

5.2.1 **Program Phase 1**

Years 1 : Setting the Stage for Implementation				
Priority	**Activity**	**Description**	**Involved**	**Timeline (Year)**
Talent				
High	Implement Consultancy for IT/ITES Human Resource Development Plan	Engage professional skills development experts to prepare a comprehensive IT/ITES human resources development plan that takes into account the skills needs of each targeted segments, including software development, call center, data entry, etc.; and based on estimates from the demand assessment (refer below). In line with the National ICT Policy, it will assess skills availability and gaps, provide recommendations that enable closer collaboration between academia and industry, mainstream ICT literacy in the basic education system, build global standards in ICT education in universities, etc. The consultancy will also (i) Study and propose possible training subsidy programs based on international experiences and competition considerations; (ii) Assess and recommend on the feasibility of bringing in internationally recognized certification programs for software developers or foundational skills in ITES; (iii) Collect baseline data disaggregated by age and sex; and to formulate effective interventions targeting higher participation in each segment to support the growth of the IT/ITES industry; (iv) Map government agencies/Ministries, educational institutions, private sector businesses and donor community to identify the players and define the interests and competencies of stakeholders; *Indicative Immediate Action: Work with Director General of Technical Education to integrate existing, internationally accredited curricula into the national vocational training system.*	MOSICT, MOE	0 - 1
Industry Promotion				
High	Implement Consultancy for Industry Promotion	Engage professional marketing, communications, advertising, and branding firms to develop comprehensive and holistic marketing, communication and business development strategies, programs, and action plans for the IT/ITES industry based on the short to long-term strategic posture identified in the demand assessment (refer below). The comprehensive scope should include: (i) assessment, identification of and recommendations on strategies, programs and plans for segmented value propositions, target markets, multi-channel communication, advertising, branding, etc.; (ii) Leverage on the action items identified in the National ICT Policy, including possibilities such as the creation of a Bangladesh brand as top ICT outsourcing destination; convening major international IT/ITES conference in the country; creating industry clusters based on region, services, domain and technology focus for sales and marketing purposes, etc.; (iii) Propose business development and direct-marketing institutions and activities targeted for both external and internal growth,	MOC, MOI, BOI	0 - 1

		by delivering tailored programs for export (local companies) and investment promotion (foreign companies); (iv) Propose branding approaches that address the country's negative image, development of a suitable slogan to motivate industry development, leverage on non-resident Bangladeshis for business opportunities, improve the countries visibility and ranking in relevant publications, and advice on the feasibility of setting up a IT/ITES industry promotional agency in the government; (v) Develop strategies and programs for Internet marketing by local companies, including search engine optimization programs, and utilizing multi-channels such as sites for online video, social networking, blogs, etc.; (vi) Development marketing campaigns to attract women's participation in the industry (e.g. portraying successful women in IT/ITES, including managerial roles). *Indicative Immediate Action: Harness industry agreement to define a market segment (ie. GDS, Animation) based on existing strengths and ability to deliver high-impact, short-term results.*		
Infrastructure				
High	Implement Second International Cable Connection	License operators to develop a second submarine cable link to Bangladesh and/or a terrestrial link to Bangladesh from India. *Indicative Immediate Action: Design security strategy to protect initial cable network and adopt cost structure that encourages use of available bandwidth; incorporate lessons learned into feasibility study.*	MOPT and BTRC	0 - 0.5
Med	Implement Feasibility Study on IT Park in Dhaka	Commission short study to assess the viability of fast-tracking an IT Park setup in Dhaka, based on existing facilities such as the BCC Building or Janata Towers for example. In addition, to assess the feasibility of develop a program similar to India's Software Technology Park Initiative. *Indicative Immediate Action: Create promotional package that clearly outlines the value addition offered by an IT Park from the perspective of both infrastructure as well as creating a defined policy environment.*	MOSICT/ BCC, MOF, BOI	0 - 0.5
Enabling Environment				
High	Telecom Sector Reform	Implement quick wins in telecommunications reforms, especially with regards to lower International Private Leased Circuit (IPLC) and broadband prices to be internationally competitive and establishing quality of service guidelines and service level agreement principles and related enforcement mechanisms	MOPT, BTRC	0 - 1
High	Legal and Regulatory Reform	Draft and enact changes/improvements to the legal and regulatory framework, especially with regards to privacy, data protection, time to set up a company, women's participation in the industry, and other related laws and regulations. *Indicative Immediate Action: Reverse current Bangladesh Bank policy banning online credit card usage.*	MOL,MOSICT	0.5 - 1
Med	Short-term Industry Association Support	Develop industry associations' (BASIS & BCS) immediate capacity for short-term promotion, industry survey and training	MOSICT, BCC, BASIS, BCS	0 - 1
Med	Institutional Reform	Promote integration and assist in clarifying	Relevant	0.5 - 1

		mandates between various governance mechanisms based on global best practices for MOSICT and MOPT, ICT Task Force and e-Gov Cell	agencies	
Med	Policy Reform	Formulation of a national IT/ITES policy to guide industry development and promote an enabling environment for addressing the needs and priorities of the IT/ITES industry across multiple regions in the country. *Indicative Immediate Action: Incorporate IT Park in this policy as an independent policy environment much like current Export Promotion Zones.*	MOSICT, MOPT	0.5 - 1
Med	Local Industry Finance and Incubation	Development of facilities for financing and incubation of local companies. This should maximize leverage on existing programs/facilities, examine possibility of bringing in venture capital players, and takes into account gender and youth issues. The possibility of an incubator for women in IT/ITES could also be examined.	Relevant agencies	0.5 - 1
Others				
High	Implement Consultancy for Market and Demand Assessment by Segments	Engage marketing firms with specialization in this industry to conduct a general study on the markets and demand by segments, as it relates to Bangladesh. This consultancy should examine (specifically by key IT/ITES segments) the existing market size and trends, identify the strategic posture based on segments of comparative advantage, provide estimates of possible segment size for the country from Year 1 to 5, etc.	Implementing agency	0 - 0.5
High	Capacity Building for Implementing Agency	Build capacity and provide operational support to the implementing agency for the overall coordination, implementation, financial management, procurement, monitoring, reporting, evaluation and communication of program activities. This component aims at ensuring that the necessary building blocks exist to support the IT/ITES growth strategy and set the stage for the successful implementation of Components 2 and 3	Implementing agency	0 - 1
High	Capacity Building for Industry Certifications	Assess relevant internationally recognized certification programs for local companies (e.g. CMMi), and develop support program to assist these companies in achieving such certifications	Implementing Agency	0 - 1
High	Immediate scale-up for promising / on-going programs	Provide immediate technical and funding support to support promising new programs, or scale up on-going programs that have been proven to be viable - in order to establish quick wins and needed assistance to the industry, especially in the area of talent development and industry promotion. For example, the program could provide technical and funding support for the upcoming ICT Professional Skill Assessment and Enhancement Program (IPSAEP).	Relevant agencies	0 - 1
Med	Gender and Youth Mainstreaming	Study and development of comprehensive programs for encouraging higher participation of women and youth in the industry. The proposed programs should aim to increase visibility, voice, and participation of women and youths in the industry and institutions.	Relevant agencies	0 - 1
Low	Piloting of IT/ITES in second-tier cities and rural areas	Develop a pilot program for IT/ITES industry development trial in two second-tier cities, and at least 3 rural communities to promote and test balanced development. Pilot should preferably be conducted on a PPP basis	MOSICT, MOPT, BTRC, BTCL	0.5 - 1
Low	Others	Other development programs and action plans to address the other factors for competitiveness, including development of incubator programs and design of a results-based M&E system	Relevant agencies	0 - 1

5.2.2 **Program Phase 2**

Years 2 to 4: Full-scale Implementation, Mid-Long Term Reforms and Establishing M&E Mechanisms				
Priority	**Activity**	**Description**	**Involved**	**Timeline (Year)**
Talent				
High	Implementation of IT/ITES Human Resource Development Plan	Implementation of the human resource development plan. Possibilities include: - Development of IT/ITES skills set standards, training curriculum and training institutions accreditation mechanism - Amend the education curricula to include English and basic computer knowledge, and provide funding support and teacher training etc. - Implement initiatives targeting youth and females to better prepare their smooth entry into the IT/ITES workforce and fine tune strategy based on monitoring and evaluation results. Possible activities may include, skills development, management and leadership training specifically for women and youth, developing mentoring programs, working in collaboration with women's business associations. - Create an enabling environment for youth and females by proving training to local firms to introduce gender equity in the workforce - Establishment of a linkage program between educational institutions and ICT businesses, including the provision o f Matching Grants to eligible educational institutions, for the purpose of reflecting business and operational experience into the IT/ITES training curricula - Provision of Matching Grants to eligible public and private institutions to develop and implement IT/ITES training programs - Provision of scholarships or grants to increase female enrolment in IT education and equal participation of women in the industry - Executing other medium and long-term IT/ITES education activities	MOSICT, MOE	2 - 4
Industry Promotion				
High	Implementation of marketing , communication and business development plans	Implementation of marketing, communication, and business development plans. Possibilities include: - Promotion of value proposition for each target segment and market via relevant channels - Targeted and customized advertisements and publicity activities online, in events, appropriate print media, consulting firm's reports etc. - Production of marketing collaterals such as presentations, booklets, brochures etc. - Establish institutional functions and strengthen capacity in business development to attract investments, including major regional/international IT/ITES	MOC, MOI, BOI	2 - 4

		conferences etc. - Assistance programs and training of local firms in marketing/business development functions for export promotion, such as identifying their value proposition, target markets, promotional strategies, qualifying, prospecting, proposing and closing opportunities with potential clients. Enhance program management skills and assistance in obtaining internationally recognized certifications		
Infrastructure				
High	Support the development of IT parks	Based on Year 1 study, to promote the development of IT Park on a PPP basis if feasible, or assist in implementing program similar to India's Software Technology Park initiative	BCC, MOF, BOI	2
Med	Support to telecom sector initiatives and projects	Support the existing telecommunication sector reform effort with a focus on broadband in terms of: - Enforcing the mechanisms developed for service and quality level requirements - Establishing service, price and quality competition in the broadband market - Completing the fiber backbone infrastructure etc.	MOPT, BTRC	2 - 4
Enabling Environment				
Med	Implementation and support for enabling environment	Support to the local IT/ITES private sector through: - Provision of a Matching Grant to an eligible public or private institution to develop a shared software testing facility for the purpose of assisting local small and medium enterprises to obtain international quality certification such as CMMi - Provision of Matching Grants to eligible networks of business incubators and similar institutions to support the incubation and development o f new businesses with IT/ITES-related activities - Capacity-building and operational support to BASIS and BCS to nurture existing small, medium and large IT/ITES companies and catalyze the country's IT/ITES industry - Reduction of company registration procedure and duration through single window offerings - Ensure women's SMEs or cooperatives have access to the capacity building and operational support for SMEs - Set up of IT park in Dhaka as a IT/ITES hub on a PPP basis	Relevant agencies	2 - 4
Others				
High	Capacity Building for Industry Certification	Based on study above, implement program to support local companies in achieving internationally recognized certifications	Implementing Agency	2 - 4
Low	Building and Implementing M&E systems	Implementation of M&E system, including: - Invest in the capacity to perform M&E at the MoSICT and industry association level - Conduct ongoing M&E to provide timely feedback for program adaptation and scaling up	Implementing agency	2 - 4
Low	Piloting of IT/ITES in second-tier cities and rural areas	Set up pilots, preferably on a PPP basis. Monitor progress and conduct midterm assessment to refine model for scale up if	MOSICT, MOPT, BTRC, BTCL	2 - 4

		possible.		
High to Low	Others	Implementation of other programs and activities identified in Year 1.	Relevant agencies	2 - 4

5.2.3 Program Phase 3

Year 5: Completion of Implementation and Conducting the Evaluation				
Priority	**Activity**	**Description**	**Involved**	**Timeline (Year)**
	Final Implementation	Complete implementation of components above	Relevant agencies	5
	Evaluation	Conduct the evaluation exercise based on the possible outcomes and indicators below	Relevant agencies	5

5.3 Implementation Arrangements

As evidenced from the experience of other countries, the Government has a key role to play in supporting the IT/ITES industry. In Bangladesh, there have been fragmented efforts made by the Ministries of Science and ICT and Commerce. Given that the ICT sector in Bangladesh is handled by a number of Ministries and Agencies with overlapping mandates, there has been no single agency to focus on undertaking the development of the IT/ITES industry, which is strategic in nature and of higher complexity than others.

There is a need in Bangladesh to have a single agency responsible for the development of Bangladesh's IT industry. The Government approved IT Policy of 2009, envisages the establishment of an ICT Industrial Development Authority, responsible for a number of functions, including facilitating the development of the IT industry in Bangladesh. Until such time however, the program should be implemented jointly by the Government and the private sector. An option for implementation of the program follows.

5.3.1 National Program Steering Committee (NPSC)

A high level national program steering committee (NPSC) would serve as the overarching decision making body for the program. The composition of the NPSC should be a mix of representatives from the government, private sector and academia and could include the following:

- Secretary, Ministry of Science and ICT
- Executive Director, Bangladesh Computer Council
- Executive Director, Proposed ICT Professional Skill Assessment and Enhancement Program (IPSAEP)
- Chairman of the Bangladesh Association of Software and Information Services
- Chairman of the Bangladesh Computer Samity
- Chairman of the Bangladesh Association of Call Center Operators
- Joint Secretary, Economic Relations Department (ERD), Ministry of Finance
- Joint Secretary, Ministry of Post and Telecommunications
- Joint Secretary, Ministry of Commerce
- Two Representatives from academia – government and private sector universities
- Director, Investment Promotion Board, Ministry of Commerce
- The Program Director

The Terms of Reference for the NPSC would be to:

- Oversee the implementation of the overall program, coordinate and facilitate decisions to improve the enabling environment for IT/ITES industry development
- Provide advice, operational guidance and corrective action to the Program Implementation Team (PIT)
- Resolve issues and conflicts that may emerge during program implementation
- Assess and review program implementation and be responsible for its final delivery
- The NPSC could meet every three months. It could also co-opt members and advisors as required. Honorariums would be provided to committee members.

5.3.2 The Program Implementation Team (PIT)

The Program Implementation Team (PIT) would be responsible for overall program implementation, management and monitoring. It would oversee all program activities, including program performance, quality of deliverables, monitoring and evaluation. The PIT would be responsible for: (i) hiring consultants, and ensuring quality delivery of tasks; (ii) the financial management of the program; (iii) recommending policy decisions relevant to program implementation; and (iv) ensuring the monitoring and evaluation of Key Performance Indicators of the program.

The program implementation team would consist of a program director, a financial management specialist, a procurement specialist, and program experts in the areas of (i) talent development; (ii) industry promotion; (iii) enabling environment and (iv) infrastructure. In addition, representatives with the expertise in gender and youth development may be considered to specifically address higher participation of women and youth in the industry. The PIT would consist of highly qualified individuals with program management and domain expertise and would be hired from the market and provided competitive market based remuneration.

6 ANNEX

6.1 List of Documents and Reports Considered

- Asian Development Bank, 2007. "Bangladesh Quarterly Economic Update- Quarterly Economic Review - BPO Section"
- A.T. Kearney, 2007. "Offshoring for Long Term Competitive Advantage: The A.T. Kearney Global Services Location Index"
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Main Industry Stakeholders

Ministry of Science and Information and Communication Technology (MOSICT)

- Established to harness the potential of the IT industry, channel government support for the growth of the industry, and work as the hub to spread IT around the country.

Ministry of Commerce (MOC)

- *Export Promotion Bureau (EPB)*: The goal of the organization is to promote export trade and improve plan and policies helpful to the private sector, including the "demand-side" of the ICT (including IT/ITES) industry

- *Business Promotion Council (BPC)*: For export promotion and capacity building activities, and mandated to look after the "supply-side" of the ICT industry. The council had organized programming training, IT expositions and IT literary studies.

Bangladesh Computer Council (BCC)

- Main objective is to ensure the effective application and expansion in the use of IT. As such the BCC has been formulating appropriate policies and implementing them since its inception. This includes the development of the hi-tech park in Gazipur.

Board of Investment (BOI)

- Established to promote and facilitate investment in the private sector both from domestic and overseas sources, with a view to contributing to the socio-economic development of Bangladesh. It is headed by the Prime Minister and is a part of the Prime Minister's Office.

Bangladesh Association of Software and Information Services (BASIS)

- The national association for software and IT related services companies of Bangladesh. Formed in 1997, the association has been working on a vision of developing a vibrant local software and IT service industry in the country, increasing IT awareness in the society, and creating an enabling environment for the software and ITES industry of the country so that it can flourish by rightly utilizing the huge market potential – both at home and abroad. The association currently has over 260 members, and its member companies account for majority of the revenues generated by the software and IT Enabled Service (ITES) industry in the country.

Bangladesh Computer Samity (BCS)

- The voice of ICT industry of Bangladesh and the national association of the ICT companies in Bangladesh. BCS was established in 1987 with eleven members. The ICT industries of Bangladesh comprises distributors, dealers, resellers of computer and allied products, locally assembled computer vendors, software developers and exporters, internet service providers, ICT based educational institutions and training houses, ICT embedded services providers etc. The total number of members stands 646 at present.