

# ICT Sub Sector Study in Bangladesh

May 2005

**Published by:**

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**Acknowledgements:**

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## Abbreviations and Acronyms

ATM	Automated Teller Machines
BASIS	Bangladesh Association of Software and Information Services
BCC	Bangladesh Computer Council
BCS	Bangladesh Computer Samity
BPO	Business Process Outsourcing
BTRC	Bangladesh Telecommunications Regulatory Commission
BTTB	Bangladesh Telegraph and Telecommunication Board
CCNA	Cisco Certified Networking Associate
CNAP	Cisco Networking Academy Program
COMP TIA	Computing Technology Industry Association
DC	District of Columbia
DSL	Digital Subscriber Line
EU	European Union
HRD	Human Resources Development
ICT	Information and Communications Technology
IPR	Intellectual Property Rights
IRIS	Center for Institutional Reform and the Informal Sector, University of Maryland
ISP	Internet Service Provider
ISPAB	Internet Service Providers Association Bangladesh
IT	Information Technology
ITES	Information Technology Enabled Services
JOBS	Job Opportunities and Business Support, USAID funded project
NGO	Non-Governmental Organization
NRB	Non-Resident Bangladeshi
R & D	Research and Development
SMEs	Small and Medium Enterprises
US	United States
USAID	United States Agency for International Development
VC	Venture Capitalist
VOIP	Voice Over Internet Protocol

## Executive Summary

In October 2002 the Government of Bangladesh issued its National Information and Communication Technology (ICT) Policy stating the importance of this sector and referring to the designation granted by the Prime Minister as a thrust sector. With this document the government voiced the intention to utilize the ICT sector as a tool to increase the “socio-economic” development of the country. Looking across the border at India and its \$17 billion share of the global offshore Business Process Outsourcing (BPO) market and targeted employment of 4 million in 2008, it is easy to see the attraction and follow the line of thinking. However, entering the ICT sector and ensuring success, sustainability, and widespread benefit is far more complex than a simple declaration of intention.

JOBS/IRIS has been engaged in the promotion of ICT in the country since 2000 and as such is one of the first donor-funded projects to actively engage in this sector. Although Bangladeshi businesses are eager to embrace ICT, for various reasons the Government of Bangladesh has been slow to implement changes in the legal and regulatory framework that would foster ICT-led growth. Despite the constraints Bangladesh faces in adopting ICT, many partners including USAID, under the JOBS Project, have been able to provide state-of-the-art practical support in the areas of policy, governance, trade and human resource development.

- **e- Policy:** Assisting in the design and development of the IT Law, IT Policy, Action Plan, and greater ICT regulatory environment (intellectual property legislation, Secured Transaction Act), creation of a website for policy makers,
- **e- Government:** Posting of Ministry of Science and ICT forms on-line, creation of Bangladesh Law Commission website, training of 22 Law Commission officials on computer applications, basic networking, and website development and maintenance
- **e-Commerce:** Technical assistance for international trade fair participation, creation of Country Profile for use at ICT trade fairs, capacity building for industry associations, Business Linkage Program for building management skills and gaining access to the US market
- **e- HRD (Human Resource Development):** Country Coordinator for Cisco Networking Academy Program generating highly skilled professionals with internationally recognized certifications in networking and IT Essentials. 10 Academies, 700 + students, 150 + graduates

Despite these advances made so far, Bangladesh has a long way to go, with significant work yet to be done in e-Commerce, e-Governance, and e-Policy, and these are the “high-performance” areas. According to the “The Global Information Technology Report 2004-2005,” which was compiled under the auspices of this year’s World Economic Forum and ranks Bangladesh as 100 out of 104 countries on network readiness, it is the area of e-HRD that hurts Bangladesh the most and in which interventions can have significant, broad-based impact across all other areas in the ICT sector as well as across a myriad of other developing business sectors.

Cognizant of ICT’s importance to the growth of developing countries, and Bangladesh’s low ranking so far, this report strives to offer a literature review of ICT thinking in Bangladesh. Numerous reports have already been produced in the country analyzing the needs of the sector

and offering recommendations. Rather than re-analyzing, this report provides a recap of the issues and recommendations that have been discussed elsewhere by categorizing them according to e-Policy, e-Government, e-Commerce, and e-HRD.

In 2001 JOBS, in partnership with the Ministry of Planning and the Ministry of Science and Technology, coordinated the acclaimed “E-Commerce in Bangladesh: Potential and Policy Priorities” seminar, bringing together all key stakeholders in ICT. At the conclusion of this event, the seminar participants had produced 35 recommendations for capturing the potential of e-Commerce for Bangladesh. In 2002, at the “ICT Policy and Practice – Steps to the Future” seminar, in partnership with the newly expanded Ministry of Science and ICT and the Bangladesh Association of Software and Information Services (BASIS), those recommendations were revisited and progress was assessed.

The recommendations coming out of these two seminars have been combined with those from the secondary literature review, thereby enabling a comprehensive recap of progress made to date and required future steps in all four areas of ICT. While the final list of recommendations is rather long, this report posits that efforts can be concentrated most effectively in the area of e-HRD.

If Bangladesh is to join the IT revolution, a highly skilled and internationally recognized workforce is the first requirement. Without this, no amount of investment in economic growth activities will have a substantive impact in this country with a population of 135 million, a population density of 900 people per square kilometer, and more than 50 percent of that population under the age of 30. With expanded e-HRD options Bangladesh has the potential to not only “staff” domestic growth in the ICT sector as well as others, increasing exports and creating more jobs, but to also create skilled manpower as an export itself. The introduction of a comprehensive, ICT-focused, educational campaign would make it possible for the country to become a source of high value, skilled ICT workers, boosting the remittance levels, and offering opportunities to untold numbers of Bangladeshi citizens. IT directors in all sectors believe that there is a shortage of IT skills and given the local obstacles to traditional industrial development at a level capable of sustaining such a large population, a focus on the development of a skilled, ICT workforce would allow Bangladesh, both at home and abroad, to literally bank on one of its most underutilized resources – its huge population.

# 1. INTRODUCTION

In October 2002 the Government of Bangladesh issued its National Information and Communication Technology (ICT) Policy stating the importance of this sector and referring to the designation granted by the Prime Minister as a thrust sector. With this document the government voiced the intention to utilize the ICT sector as a tool to increase the “socio-economic” development of the country. Looking across the border at India and its \$17 billion share of the global offshore Business Process Outsourcing (BPO) market<sup>1</sup> and targeted employment of 4 million in 2008<sup>2</sup>, it is easy to see the attraction and follow the line of thinking. However, entering the ICT sector and ensuring success, sustainability, and widespread benefit is far more complex than a simple declaration of intention.

According to the “The Global Information Technology Report 2004-2005” which was compiled under the auspices of this year’s World Economic Forum, Bangladesh has been ranked 100 out of 104 countries in the “Networked Readiness Index Ranking” (Table 1). In 2003, Bangladesh was ranked 93 out of 102, and in 2002, we were ranked 77 out of 82. What does this tell us? Have we fallen in ranking from 77 to 100 since 2002. Not really! The picture is worse – we are not falling down in ranking but other countries have been added to the ranking matrix and they are bypassing us as they become a part of this mosaic. This latest of rankings paints a gloomy picture for Bangladesh and confirms yet again that in the new millennium, the ICT driven world moves at a fast clip, and standing still means that one is going backwards.

**Table 1: Networked Readiness Index**

	<b>Countries Ranked</b>	<b>Bangladesh</b>
<b>2004</b>	104	<i>100</i>
<b>2003</b>	102	<i>93</i>
<b>2002</b>	82	<i>77</i>

Source: The Global Information Technology Report 2004-2005

JOBS/IRIS has been engaged in the promotion of ICT in the country since 2000 and as such is one of the first donor-funded projects to actively engage in this sector. Although Bangladeshi businesses are eager to embrace ICT, for various reasons the Government of Bangladesh has been slow to implement changes in the legal and regulatory framework that would foster ICT-led growth. Despite the constraints Bangladesh faces in adopting ICT, many partners including USAID, under the JOBS Project, have been able to provide state-of-the-art practical support in the areas of policy, governance, trade and human resource development.

- **e- Policy<sup>3</sup>**: Assisting in the design and development of the IT Law, IT Policy, Action Plan, and greater ICT regulatory environment (intellectual property legislation, Secured Transaction Act), creation of a website for policy makers,

<sup>1</sup> From *NASSCOM-neoIT Study* as presented in “Six Things that Make the ITeS-BPO Industry Nervous”, Kasbekar, Chirag, February 2005, [www.domain-b.com](http://www.domain-b.com)

<sup>2</sup> “*Outsourcing and IT in India*”, *The Economist*, 23 April 2005, p.67

<sup>3</sup> E-Policy – The role of government in enabling the growth and success of the ICT industry

- **e- Government<sup>4</sup>**: Posting of Ministry of Science and ICT forms on-line, creation of Bangladesh Law Commission website, training of 22 Law Commission officials on computer applications, basic networking, and website development and maintenance
- **e-Commerce<sup>5</sup>**: Technical assistance for international trade fair participation, creation of Country Profile for use at ICT trade fairs, capacity building for industry associations, Business Linkage Program for building management skills and gaining access to the US market
- **e- HRD (Human Resource Development)<sup>6</sup>**: Country Coordinator for Cisco Networking Academy Program generating highly skilled professionals with internationally recognized certifications in networking and IT Essentials. 10 Academies, 700 + students, 150 + graduates

Much of JOBS success can be attributed to the inclusive and collaborative nature of the activities. In many areas of ICT, the Ministry of Science and ICT and partners have achieved quite a lot – contrary to what the overall ranking might suggest. In fact, the various sectors which contribute to the overall ranking indicate that progress has been made on many fronts. Table 2 - Bangladesh, Key Indicators, (following page) supports this assertion. In the areas of Policy, Bangladesh ranked low (97), but this report does not factor in the various successful initiatives which have changed the landscape, such as the compilation of the ICT Act 2005 and its approval by the Cabinet in February of this year, and the ongoing revision of the IPR Law.

Likewise under the category of e-Governance, the table shows that the government is making good strides and ranks favorably with a Government Readiness rank of 73, a Government Usage rank of 86, and other not-so-dismal sub-rankings in various categories: 56 in Government Prioritization of ICT (2004), 79 in Government Online Services (2003), 84 in Government Success in ICT Promotion (2004). In the same vein, consumers and businesses, the main beneficiaries of e-Commerce, fare well as evidenced in the sub-categories Buyer Sophistication (2004), Buyer Dynamism (2004), Broadband-DSL Internet Subscribers (2002-3) and Broadband Cable Modem (2002-3) where the corresponding scores were 81, 69, 65, and 60, respectively.

Despite the examples in the preceding sections, we have a long way to go, with significant work yet to be done in e-Commerce, e-Governance, and e-Policy, and these are the “high-performance” areas. It is essential that greater attention be paid to the factor/s which contributed to the low ranking – the areas of e-HRD, where education and training rankings were disappointing (Table 3).

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<sup>4</sup> E-Governance – The role of ICT in the practice and process of governing

<sup>5</sup> E-Commerce – The role of business and business-practice in establishing and profiting from the ICT industry

<sup>6</sup> E-HRD (Human Resources Development) – The role of a skilled workforce in the creation of an ICT sector and the adoption of technology, and how to build those skills



Table 2

# Bangladesh

## Key Indicators

Population (mn), 2003	147
GDP per capita (PPP US\$), 2003	1,768
Internet users per 100 inhabitants, 2002	0.2

RANK/104

### Environment Component Index 97

Market Environment	93
Political and Regulatory Environment	94
Infrastructure Environment	101
1.01 Availability of scientists and engineers, 2004	60
1.02 Venture capital availability, 2004	98
1.03 Sophistication of financial markets, 2004	91
1.04 Technological sophistication, 2004	93
1.05 State of cluster development, 2004	42
1.06 Collaboration in clusters, 2004	91
1.07 University/industry collaboration, 2004	97
1.08 Quality of scientific research institutions, 2004	92
1.09 Subsidies for firm-level R & D, 2004	90
1.10 Brain drain, 2004	100
1.11 Ease of access to loans, 2004	86
1.12 Administrative burden, 2004	93
1.13 Ease to start a new business, 2004	80
2.01 Effectiveness of law making, 2004	77
2.02 Laws relating to ICT, 2004	101
2.03 Effectiveness of judiciary, 2004	82
2.04 Intellectual property protection, 2004	100
3.01 Telephone mainlines, 2002	99
3.02 Secure internet servers, 2003	99
3.03 Internet hosts, 2003	104

### Environment Component Index 101

Individual Readiness	102
Business Readiness	101
Government Readiness	73
4.01 Quality of math and science education, 2004	92
4.02 Quality of educational system, 2004	95
4.03 Quality of public schools, 2004	97
4.04 Internet access in schools, 2004	101

## Networked Readiness Index Rank

Year (number of countries) Rank

2004 (104) **100**

2003 (102) 93

2002 (82) 77

### Readiness Component Index (continued)

4.05 Buyer sophistication, 2004	81
4.06 Buyer dynamism, 2004	69
4.07 Residential telephone connection charge, 2002	104
4.08 Affordability of Internet access, 2003	88
5.01 Investment in training, 2004	101
5.02 Availability of training services, 2004	103
5.03 Quality of business schools, 2004	96
5.04 Business investment in R&D, 2004	98
5.05 Business monthly telephone subscription, 2002-3	86
5.06 Business telephone connection charge, 2002-3	103
6.01 Government prioritization of ICT, 2004	56
6.02 Government procurement of ICT, 2004	96

### Usage Component Index 95

Individual Usage	95
Business Usage	96
Government Usage	86
7.01 Cellular mobile subscribers, 2003	100
7.02 Telephone subscribers, 2002	101
7.03 Public payphones, 2002	104
7.04 Telephone lines, 2002	98
7.05 Television sets, 2002	88
7.06 Broadband-DSL Internet subscribers, 2002-3	65
7.07 Broadband-cable modem, 2002-3	60
7.08 Internet users per 100 inhabitants, 2002	103
8.01 Prevalence of foreign technology licensing, 2004	80
8.02 Firm-level technology absorption, 2004	83
8.03 Capacity for innovation, 2004	102
8.04 Availability of new telephone lines, 2004	103
8.05 Availability of cellular phones, 2004	78
9.01 Government success in ICT promotion, 2004	84
9.02 Government online services, 2003	79

Source: Global Information Technology Report 2004-2005, World Economic Forum, P 113

	<b>Description</b>	<b>Rank/104</b>
1	Quality of education system, 2004	95
2	Quality of public schools, 2004	97
3	Internet access in schools, 2004	101
4	Investment in training, 2004	101
5	Availability of training services, 2004	103
6	Quality of business schools	96

Source: The Global Information Technology Report 2004-2005

Several studies over the course of the past five years have looked at the issue of IT and IT Enabled Services in developing countries. A number of those studies have focused on Bangladesh, and many of the recommendations made have addressed just these issues as

presented above. In the following report, the findings of these studies will be discussed allowing for the incorporation of JOBS ICT-specific experiences to date.

A brief Background section will provide an introduction to the terminology, sector history both global and domestic, and cursory coverage as to the potential of the sector going forward. In closing, the findings and the resulting recommendations will be presented.

## **2. BACKGROUND**

### **2.1. Terminology:**

In approaching any discussion regarding Information Technology or ICT it is essential to establish at the outset the parameters of technology and applications under consideration. The *EU Market Survey 2004: Computer Software and IT Services* does a commendable job of discussing in detail the myriad of areas and appropriate terminology incorporated under the “ICT” umbrella. Taken from the European Information Technology Observatory Table 4, below, outlines the most distinct division that is often used, between Software and Services:

**Table 4**

<b>Product</b>	<b>Definition</b>
Software Products	<ol style="list-style-type: none"> <li>1. System software, system infrastructure, application software</li> <li>2. Application software</li> </ol>
IT Services	<ol style="list-style-type: none"> <li>1. Consulting</li> <li>2. Implementation</li> <li>3. Operations Management</li> <li>4. Support Services</li> </ol>

A further important division is that between IT Services as defined above, IT Enabled Services (ITES)<sup>7</sup> and Business Process Outsourcing (BPO)<sup>8</sup>. Beyond the multitude of definitions for

<sup>7</sup> ITES can be defined as, “. . . services that are IT driven or require the help of IT infrastructure and resources . . .” and may include such things as online education, call centers, and transcription.

<sup>8</sup> BPO involves the distribution of IT-centered business processes to an outside company or individual that then manages the assigned processes. Human resources, marketing, and sales are a few examples of such processes that are commonly delegated in the BPO market. *EU Market Survey 2004: Computer Software and IT Services*, Center for the Promotion of Imports from Developing Countries, p. 14

specialized areas of the ICT sector, there are also numerous applications for these technologies, introducing such ideas as e-commerce and e-governance.<sup>9</sup> In this way it is easy to see how ICT in fact influences, or has the potential to influence, almost every aspect of daily life.

Having established the level of detail possible in these discussions, **reference in this report is to the ICT sector as a whole and is intended to incorporate all such definitions / areas of specialization as presented above.** Bangladesh, at its current level of ICT development benefits more from a broad definition placing the focus on interventions with impact across the board. As development of the sector progresses, more targeted and focused interventions will be necessary, but today, as the country starts its journey toward a productive ICT sector, a more inclusive approach allows for broad-based interventions that have an expanded scope of impact – across all areas of ICT as well as other business sectors.

We now turn to a brief discussion of the ICT sector as a whole, followed by specifics relating to the sector in the developing world.

## **2.2. ICT Sector:**

For the last 20 years people have been talking about “the IT revolution” but now it looks like that was just the warm up.<sup>10</sup> The 1990s saw a huge amount of investment in technology and technology companies, and 2000 saw the “dotcom meltdown” as performance failed to meet expectations. But ICT did not go away, if anything, the boom and bust served to focus the work going forward. “The frenzy of the dotcom years has gone, but the quiet work of harnessing the Internet to drive efficiencies in both business and government has, if anything, intensified.”<sup>11</sup> Though hard and fast numbers are difficult to find, the Center for Internet Studies was able to piece together information from multiple reports and predict a global market value for ICT of \$700 billion by 2005<sup>12</sup> and this may be a significant under-estimation as other sources predicted “top-level IT services” (hardware and software maintenance, consulting, etc.) to top \$1.3 trillion in 2004.<sup>13</sup> This is a sizeable market and one that the developing world can no longer afford to miss out on. Even a small piece of the action at this level could significantly impact the future of these nations.

Bangladesh has an IT industry estimated at a value of \$150 million and growing at an estimated 20% per year.<sup>14</sup> Though the extensive poverty in the country severely limits the adoption of ICT, the Bangladesh Association of Software and Information Services (BASIS), one of three ICT industry Associations in the country, states the following on its website:

- PC imports have grown by over 35% in the last five years
- Nearly 1 million Internet users in the country

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<sup>9</sup> In these areas the tools of ICT are applied in a manner to expand and enhance the work of commerce and governance, allowing greater access to health information, market prices, or train timetables and visa information.

<sup>10</sup> *It's a Flat World After All*, Thomas Friedman, New York Times Magazine, 3 April 2005

<sup>11</sup> *The 2003 e-readiness rankings*, The Economist Intelligence Unit Limited and IBM Corporation 2003, p.1

<sup>12</sup> *Obstacles to Developing an Offshore IT-Enabled Services Industry in Asia: The View from the US*, Coward, Chris. Center for Internet Studies at the University of Washington, 2002, p. 2

<sup>13</sup> Gartner Group Dataquest, IT Services Market Statistics, October 2000

<sup>14</sup> BASIS Country Report, [www.basis.org.bd](http://www.basis.org.bd), no date available

- Mobile phone use projected to grow from 3 million users to over 10 million in the next three years
- More than 350 companies with 15,000+ programmers and technical staff

Following personal interviews with the leadership of the three Associations (BASIS, Bangladesh Computer Society, Internet Service Providers Association) based on long-time familiarity with the membership and industry activity, it can be safely said that the ICT industry in Bangladesh is at a jumping off point. These businesses are ready to grow and contribute significantly to the national economy yet want for targeted support in order to make that shift happen in reality. In Bangladesh we find an active, committed and motivated private sector, a government that recognizes the value of ICT, and numerous donors looking for ways to facilitate the growth of the sector.

### 2.3. ICT Sector in the Developing World

The Indian success story, harnessing the Internet and creating an IT economy that has by all accounts single-handedly established a middle class in the country and by many accounts (though there are detractors) brought significant progress toward broader national development goals, is the dream for other developing countries around the globe. Why is this sector so attractive to those countries struggling to achieve a better future for their people? There are multiple reasons:<sup>15</sup>

- High income generating potential
- Labor intensive; a benefit for most developing countries that have low cost of labor
- Start-up costs relatively low compared to manufacturing
- Viewed as a mechanism for developing human resources
- Belief that participation in the outsourcing industry will enable eventual expansion of domestic ICT industry
- No physical transport infrastructure required
- Government belief that policies and strategies needed to promote this industry will have a trickle down effect for other segments of the economy
- Opportunity to establish new trade relationships – diversify
- Opportunity for foreign investment and partnerships
- Environmentally friendly with good working conditions
- Pride – participation in the global economy in a modern industry
- Worldwide shortage of IT workers

However, establishing a presence in the ICT sector, or even developing a sustainable domestic ICT industry, is not a simple task. Multiple elements must come together in a supportive collaboration to enable growth and sustainability. The environment for success has never been better than it is today; the challenge remains bringing all the stakeholders to the table to agree on the path forward.

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<sup>15</sup> *Obstacles to Developing an Offshore IT-Enabled Services Industry in Asia: The View from the US*, Coward, Chris. Center for Internet Studies at the University of Washington, 2002, p. 3

## 2.4. A Flat World: ICT as the equalizer and human resources as the driver:

Before going further, we should step back and take a look at the recent history which is making ICT the “great equalizer” and the world “flat”. In a recent article published in the New York Times Magazine, “It’s a Flat World, After All”, Thomas Friedman describes the three major stages that the world has gone through. In the first stage of Globalization (1492-1800), the world shrank from a “size large to a size medium” as countries globalized for resources and imperial conquest. In the second stage of Globalization (1800-2000) the world shrank from a “size medium to a size small” with the private sector leading the charge as companies globalized for markets and labor. In the third stage of Globalization (2000- present) which we are currently experiencing, the world has shrunk from “size small to size tiny” and the playing field has been flattened at the same time. The key difference between this third stage of globalization and those that came before is that this stage empowers individuals – *all* individuals, including the non-Western, non-white groups that were marginalized in stages one and two.<sup>16</sup>

There are a number of events and forces, ten to be exact, which have contributed to this “flattening” of the world. A brief look gives a sense of where we have come from and conjecture on where we are going. The *first* event was 11/9/1989, the collapse of the Berlin Wall which allowed us to think of the world as a single place. Six months after the wall fell, the *second* significant event took place with the launch of the Microsoft Windows 3.0 operating system. This helped to flatten the playing field by creating a global computer interface. The *third* event took place on 8/9/1995 when Netscape went public, bringing the internet alive and connecting the knowledge-base of the world.<sup>17</sup>

These three breakthroughs in people-to-people and application-to-application connectivity produced *six more flatteners* – six ways of collaboration on work and knowledge-sharing for companies and individuals. The *first* of these is “outsourcing”, where due to the interconnectivity of the world, work can be shifted to any place in the world where it can be done better and cheaper. The *second* is “offshoring” where, due to the ease of communication, businesses feel comfortable in shifting whole factory operations from one country to another. The *third* is “open sourcing” where people and companies work together and collaborate on line, creating products such as operating systems, for free. The *fourth* is “insourcing” where companies let other companies into their structure to take over certain specialized operations. For example, an accounting firm doing real time book-keeping for another firm by accessing their system. The *fifth* is “supply-chaining” where the global supply chain is linked for any individual company so that when one item is sold in the U.S. an order is simultaneously placed with the vendor in, say, China. The *sixth* form of collaboration is “informing” where the search engines such as Google, Yahoo and MSN now allow anyone and everyone to collaborate and “mine” unlimited data by themselves and from a common pool.

The last of the ten, overall flatteners is what Friedman refers to as “the steroids” - the wireless access and voice over internet protocol (VOIP) which act as a “turbo charge” to the previously

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<sup>16</sup> *It's a Flat World After All*, New York Times Magazine, Thomas Friedman, 3 April 2005

<sup>17</sup> *It's a Flat World After All*, New York Times Magazine, Thomas Friedman, 3 April 2005

listed forms of collaboration, allowing individuals to do any of them, anytime, from anywhere, with any device.<sup>18</sup>

So we now have the ten ingredients which have equalized the opportunity for all individuals, companies and countries to “play” in the new “flat” field. However, to play the game requires, above all else, trained individuals. Countries which develop their human capacity won’t have to leave home and go to the world – the world will come to them. We find ourselves today poised on the edge of unbelievable potential, and as discussed above, we are not alone in realizing this. The question becomes how to make that potential a reality for Bangladesh.

### 3. GETTING THERE . . .

Across the board – from the first to the last entry in the accompanying bibliography – there was agreement on the current obstacles facing growth of an ICT sector in developing countries such as Bangladesh. In a very general sense the issues of the role and profile of government, the importance of human as well as cost factors in business decisions and practice, and the skill base of the human resources available were the items of paramount and recurring importance in all studies.

#### 3.1. e-Policy:

In terms of government involvement in the development and sustenance of the ICT sector, current accepted and successful practice is firmly on the side of “less is more” while the main imperative falling to the government is the **creation of a facilitating environment**.<sup>19</sup> Such an environment cuts across several areas of government including education, commerce, finance, and communications. In many ways the role of government for the development of the ICT sector is no different than it would be for the development of any other business sector, and any improvements made will have beneficial effects across the entire spectrum of business. Though much has been accomplished that directly effects the ICT sector – the duty and tax free import of computer hardware and software, the full exemption from income tax, availability of loans at special interest rates and with no collateral requirements, and the provision of office space with special infrastructural support and preferential rental rates<sup>20</sup> – there is much yet to be done. In moving forward it is important that the government avoid the tendency to act as a substitute for private sector initiative and rather focus on creating an overall business environment conducive to ICT adoption and encouragement. The one area that demands a more hands-on government role is in, “...facilitating the entry of smaller, underprivileged players into the marketplace.”<sup>21</sup>

Of immediate importance is the **liberalization of the telecommunications industry** in Bangladesh – though an “independent” regulatory body was established in 2002, it needs to be truly removed from the influence of government – in order to reduce fees and increase competition to further drop costs and raise quality. The high costs of telecommunications is seen

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<sup>18</sup> *It's a Flat World After All*, New York Times Magazine, Thomas Friedman, 3 April 2005

<sup>19</sup> *Policy Reform Toolkit for e-Commerce and Development*, IRIS Center of the University Research Corporation, University of Maryland for USAID, 2003. p. 2

<sup>20</sup> *A Country Report by Bangladesh Association of Software and Information Service Software Companies in Bangladesh*, Tanvir Chowdhury, Global Amitech for BASIS, [www.basis.org.bd](http://www.basis.org.bd), no date available

<sup>21</sup> *E-Commerce and Development Report 2003*, United Nations Conference on Trade and Development, 2003. p.xxi

as one of the top constraints to ICT industry growth by all groups and individuals who have studied this issue in Bangladesh.

Of equal if not greater importance is the **adoption, implementation and enforcement of an IT Law**. Currently the ICT sector is operating with no legal or regulatory framework governing issues such as online payment and electronic signature. A draft of the law has been passed by the Cabinet and now awaits presentation to Parliament. A secondary element of the legal framework is the necessity for **enforced Intellectual Property Rights (IPR) legislation**, especially as companies try to access global markets. In the Carana Corporation study Information Technology Enabled Services: External Market Analysis carried out by Clarissa Dimacali for USAID the majority of the Case Studies of current (2002) firms involved in outsourcing of IT services noted IPR concerns as one of the primary constraints in doing business with Bangladesh.

The third issue that surfaced was that of Bangladesh's image abroad. To a large degree the country is either unheard of or, if it is known, the image is a negative one associated with lack of infrastructure, poverty, and rampant corruption. Effects of activities such as the ICT business promotion office set up by the government in Silicon Valley have had limited to no success, and may even have contributed to further tarnishing the image of the country. The issue of country image has many implications in terms of trust and the enforceability of legal instruments such as contracts and therefore figures largely into business decisions. Working to **create a strong, realistic, globally unified and positive international voice for Bangladesh in its missions abroad** supported by verifiable and accurate print materials, availability of representatives, and professional staff could have a significant impact on improving the image of the country abroad. However, it must reflect the true situation on the ground or it will simply underscore the problem.

The United States Trade Center of the American Embassy in Dhaka produces an annual Country Commercial Guide and the 2003-2004 edition has the following to say about the general role of the government in the economy:

“Bangladesh's industrial development has been hampered by a history of government intervention in trade and industry. Although over the past decade the (government) has enacted policies to diminish bureaucratic requirements and open the economy to private sector development, these efforts have only been partly successful . . . reforms such as privatization, encounter stiff opposition from vested interest groups, such as public sector labor unions, bureaucrats or opposition political parties. To date, Bangladesh's government has found this opposition difficult to overcome, and implementation of policy reforms has often been lacking.”

The guide goes on to say that, “Many government officials view their role more as controlling, rather than stimulating, commercial activity.” This is a common predicament within the governing structures of developing nations attempting to tap into the global ICT market. Competition amongst government agencies for regulatory control is common<sup>22</sup> and has the capacity if left unchecked, to dilute efforts for development of the sector to the extent that progress stops. **Recognition of a “Champion” for the ICT industry here at home**, a one stop

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<sup>22</sup> *The 2003 e-readiness rankings*, The Economist Intelligence Unit Limited and IBM Corporation, 2003

shop for the representational and decision-making needs of the government bodies and individuals concerned with this sector, would allow for the common good to prevail over the individual interests. The Bangladesh Enterprise Institute's Study of Bangladesh's Preparedness for e-Commerce as presented in draft in April 2005 is just one of the works recognizing the importance of such coordination. Such an initiative demands the recognition that in order for anyone to benefit significantly from the potential of the ICT sector, and as a precursor to the country capitalizing on the monumental benefits possible, the good of the whole must assume primary importance.

A final issue taken to task under the e-Policy heading is infrastructure. Having already addressed the issue of deregulating the telecommunications industry to encourage lower costs and increased competition among the telecoms, there remains the issue of basic infrastructure. Again, without exception all studies noted that infrastructure or lack thereof was a significant barrier to ICT development. "The technical infrastructure of Bangladesh has kept the country and the ICT sector from developing to its true potential."<sup>23</sup> It is here that several elements of the above discussion come together. "Several projects to improve the telecommunications infrastructure involving US firms have run into problems due to lack of respect for contract sanctity, corruption, and bureaucratic infighting."<sup>24</sup> **Good governance reforms and increased transparency** would enable marked improvements in this area and remove some of the obstacles to successful growth in not only the ICT sector, but other sectors as well.

### 3.2. e-Governance:

Continuing along the lines of good governance as introduced above, the development of the ICT sector also has marked impact on the act of governing itself. ICT allows for:

- Greater access to government information
- Increased efficiency of government agencies
- Improvement in government transparency
- Provision of online government services<sup>25</sup>

Essentially ICT can work as a tool for Bangladesh to cut costs and increase the efficiency and efficacy of government. Recommendations for improved e-Governance start with making current **government documents and forms available on-line** and extend to the provision of **licensing and registration processes, and benefits delivery via electronic transfer**. Additionally **electronic mail** would allow for easy and rapid communication and coordination between employees, between government officials and their constituencies, and between the donor community and their government counterparts, enabling a more timely and fully informed decision making process. In addition, these processes allow for much greater transparency in governance, an important consideration in the case of Bangladesh and the current number one ranking on Transparency International's corruption index. Returning briefly to the issue of country image discussed above, the most common response heard to the status of Bangladesh on

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<sup>23</sup> USAID/Bangladesh Information and Communication Technology Mission Opportunity Review, Academy for Educational Development, Metzger, Jonathan, 2000

<sup>24</sup> *Bangladesh: Country Commercial Guide 2003-2004*, United States Trade Center – American Embassy, Dhaka

<sup>25</sup> *Policy Brief on "Information and Communication Technology" CPD Task Force Report*, Centre for Policy Dialogue, 2001



the TI index is the one of flat-out denial, “It is not true.” Chas Cadwell, Director of the IRIS Center of the University of Maryland, stated facts quite bluntly in a presentation at the Bangladesh Enterprise Institute in February 2005. To paraphrase, Mr. Cadwell explained that regardless of the validity of the ranking, it creates a perception of rampant corruption, and the work of Bangladesh is in responding to this perception regardless of local opinion because for everyone else, the perception is the reality

Transparency in government is nowhere more important than in the procurement process.

**Posting of procurement documents and allowing electronic submissions** would make huge inroads against the current culture of corruption as well as positioning the government, potentially the largest single buyer of ICT services and hardware, as an “early” adopter, encouraging adoption elsewhere in the country.<sup>26</sup> If the private sector can successfully interface with the government (to be discussed at length below under e-Commerce) the procurement process can also be reformed to allow for greater impact on a developing domestic ICT market. The **streamlining and automation of business start-up processes** would also have a positive spill-over effect on other sectors as the “cost” (in terms of time) of doing business in Bangladesh would be significantly reduced.

Such “spill over” effects of e-Governance will be felt in every area of ICT as well as within the government itself. The government, inclusive of the armed forces, is arguably the biggest buyer and potential user of ICT hardware and services. As the government incorporates an increasing level and sophistication of ICT, it will act as the catalyst for ICT sectoral development. It will become the biggest buyer of hardware and software, and the biggest consumer of an ICT savvy workforce. Through this process the government will provide what is needed most for the ICT private sector – expanded opportunities to develop and provide services – essentially acting as a proving ground for local capacity.

The opportunities for government, and therefore the citizens, to benefit from ICT adoption are numerous, but the interventions must be clearly thought out and part of a comprehensive and fully supported planning process. It is a complex market and therefore demands complex and carefully coordinated planning with all stakeholders involved. 85% of government ICT initiatives fail, and at an estimated total of \$15 billion spent on government technology every year<sup>27</sup> that is an unacceptable loss, especially for developing economies. One way of increasing the odds for success is to have an active partnership between the government and the private sector for all planning and activities – neither group can do this alone.

### 3.3. e-Commerce:

- Internal and external communications
- Correspondence
- Contracts
- Electronic funds transfer
- Accounting functions

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<sup>26</sup> *Policy Brief on “Information and Communication Technology” CPD Task Force Report*, Centre for Policy Dialogue, 2001

<sup>27</sup> *Editorial*, Public Sector Technology and Management magazine, October 2004, [www.pstm.net](http://www.pstm.net)

- Buying and selling of goods and services
- Credit card payments
- Exchanging data without human interaction<sup>28</sup>

For the purposes of this report, the above definition will be expanded to fully incorporate the act of doing business in the ICT sector itself, beyond the simple utilization of available technologies to bolster business in all sectors. For the most part this means tapping into the “outsourcing” market as we will refer to the broader global ICT market. In this regard, the table below<sup>29</sup> firmly places Bangladesh in the “Beginners” category:

**Table 5: A Global Outsourcing “Map”**

<p><b>Leader</b></p> <ul style="list-style-type: none"> <li>• India</li> </ul>	<p><b>Beginners</b></p> <ul style="list-style-type: none"> <li>• Argentina</li> <li>• Bangladesh</li> <li>• Cuba</li> <li>• Ghana</li> <li>• Korea</li> <li>• Malaysia</li> <li>• Mauritius</li> <li>• Nepal</li> <li>• Senegal</li> <li>• Sri Lanka</li> <li>• Taiwan</li> <li>• Thailand</li> <li>• Turkey</li> <li>• Vietnam</li> </ul>
<p><b>Challengers</b></p> <ul style="list-style-type: none"> <li>• Australia</li> <li>• Canada</li> <li>• Chile</li> <li>• China</li> <li>• Czech Republic</li> <li>• Hungary</li> <li>• Ireland</li> <li>• Israel</li> <li>• Mexico</li> <li>• Northern Ireland</li> <li>• Philippines</li> <li>• Poland</li> <li>• Portugal</li> <li>• Russia</li> <li>• South Africa</li> <li>• Spain</li> </ul>	<p><b>Up-and-comers</b></p> <ul style="list-style-type: none"> <li>• Belarus</li> <li>• Brazil</li> <li>• Caribbean</li> <li>• Egypt</li> <li>• Estonia</li> <li>• Latvia</li> <li>• Lithuania</li> <li>• New Zealand</li> <li>• Singapore</li> <li>• Ukraine</li> <li>• Venezuela</li> </ul>

<sup>28</sup> *ICT Policy & Practice: Steps for the Future (presentation)*, Westby, Jody R., Conference on Information Technology Policy and Practice, 2002

<sup>29</sup> *EU Market Survey 2004: Computer Software and IT Services*, Center for the Promotion of Imports from Developing Countries, p. 70

The relevance of this standing is in the competition. At a seminar jointly sponsored by the World Bank and Development Initiatives, held in March 2005 and focusing on the possibilities for export diversification following the end of the Multi-Fibre Agreement, an apt analogy was drawn which is paraphrased here. If you are starting a new football squad on the vacant lot next to your house, the first match on the schedule should not be against Manchester United. The idea applicable here is to **know the competition and set yourself up for success from the beginning – know the playing field and be prepared with a plan to fit into it.** To date, the sole claim to a portion of the global e-Commerce pie for Bangladesh has been based on low labor costs. However, in addition to low labor costs, as well as the significant policy and governance issues discussed above, there are multiple human factors – manpower, management expertise, communications, culture and business acumen – that weigh heavily on outsourcing decisions as well as in the adoption of new technologies.<sup>30</sup>

The issue of manpower will be discussed at length, below, under e-Human Resources Development (e-HRD) so here the focus will remain on the soft skills as referenced above and lead into the relationship of the private sector, the industry associations and the government.

In 2002 the JOBS project was approached by USAID DC to manage the local logistics of a business development program called the IT Business Linkage Program. This program had been successfully piloted in Sri Lanka and USAID now felt it was ready to add Bangladesh to the equation. Essentially the program was founded on the premise that with a little guidance, knowledgeable support, and the opportunity to make high-level connections, IT businesses in these countries could successfully access the US ICT market. The program process introduced a US-based venture capitalist (VC) to the firms in Bangladesh and, after an extensive selection process involving an in-country visit by the VC, provided the means for the VC to work directly with those few (5-10) companies selected for participation. Following extensive preparatory work during which marketing plans, financial management tools, and management structures were created by the companies and vetted by the VC, the companies were invited to the US for a series of networking sessions and one-on-one meetings, personally facilitated by the VC, with Fortune 500 company executives.

The initial expectation of the activity was increased business, in a new market, for those companies participating. However, following the first round in 2002 (a second round has since taken place in 2004-2005) it became abundantly clear during the debrief upon their return to Bangladesh that the larger benefit was in the increased understanding on the part of the companies as to what factors were the greatest influences in US market outsourcing decisions; it was not cost alone, but rather an agglomeration of human and cultural factors that had the most significant impact. The Linkage Program helped these companies to learn that this was the case and provided the tools and guidance to effectively address this within their own structures. In the words of one participant:

***“We now have the confidence that we can compete on the global market. We always said we wanted to, but did***

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<sup>30</sup> *Obstacles to Developing an Offshore IT-Enabled Services Industry in Asia: The View from the US*, Coward, Chris. Center for Internet Studies at the University of Washington, 2002, pp. 12-18

*not have the understanding as to what that fully entailed. Now we have the tools and we know we can do it.”*

More of this type of understanding is needed, not only within the ICT sector, but within all sectors trying to establish themselves in the export markets. It is not enough to know that you can do it for less, you need to be able to prove that you can do it to the quality standards put forward, through a process and within a structure that the client can work with, and in a manner that the client can understand. An understanding of the importance of cultural connection, the relevance of organized and professional business practices, adherence to legal documentation such as contracts, and willingness to educate yourself to the business practices of the market you are trying to enter are essential.

In order for the benefits of an activity such as this to reach a broader audience a strong representative body is necessary. **Increased capacity of the business associations** would allow for a greater role in awareness raising, information dissemination (for both the membership as well as society as a whole) and **most importantly as an advocate** for the industry in relation to the government. There is no way the government can be expected to respond to the needs of the sector as a whole if the businesses themselves have no manner in which to directly and uniformly inform and educate the government as to what those needs are and why they exist. As government awareness is the lynch-pin in any strategy to move forward in development of the ICT sector overall, and especially in defining the distinct industries within that overarching moniker (such as software development and IT Enabled Services) where a country may or may not have innate strengths or weaknesses, it is essential that the private sector actively participate in every level of this discussion.

In closing, it is critical to support the development of the private sector and e-Commerce but it would be a grave mistake to focus on this area alone. Multiple false starts, the heavy investment in successfully ramping up the industry, the ongoing issue of the negative country image and its implications for growth potential, the lack of a critical mass that could then enable backward linkages and the fact that any benefits would be concentrated among a few high-performance companies all conspire to create a picture of high export potential but with no significant employment generation. Bangladesh to date rates itself a destination for outsourcing based solely on the low labor costs. This is an imperfect analysis as can be seen from discussions to this point as there are other, non-labor cost constraints that influence business decisions, and in relation to the competition, it is not an advantage specific to Bangladesh. In order for these challenges to be met and the real potential for both export development as well as increased employment opportunities to be realized through the ICT sector, and e-Commerce specifically, the issue of human resources must be placed more prominently on the policy agenda going forward. An uninformed and uneducated (in terms of ICT) government cannot create an effective and supportive policy environment, nor use the technologies available to their greatest potential in e-governance. A private sector that does not have a ready, skilled work force cannot grow or take advantage of emerging technologies. Without knowledgeable and empowered staff, the industry associations cannot adequately represent their membership or capably communicate the relevance of the industry to either the government or society.

### 3.4. e-HRD:

“Education and training are fundamental to the widespread and effective use of new technologies . . . Therefore, human resources development (HRD) is considered to be a core component of an ICT strategy and one of the most challenging bottlenecks for developing countries . . .”<sup>31</sup> To revisit for a moment Table 3 on page 2, we already know that this is an area of weakness for Bangladesh. A focus on human resources development is essential for the growth of the ICT sector in Bangladesh. Availability of a large pool of ICT professionals would provide Bangladesh a competitive edge for attracting ICT related business, provide the engine for e-commerce and e-governance initiatives, and offer a ready supply of qualified labor for overseas assignments, thus generating a substantial pool of Non-Resident Bangladeshi remittances – one of the largest sources of “hard currency” income for Bangladesh. Further, increasing the IT skill-level of the larger population will support growth in additional sectors as applications expand into all fields – health, agriculture, design, manufacturing, etc. – and new technologies evolve.

Currently there are over 40 Universities and 60 Colleges offering ICT course at the Bachelors and Masters levels. In addition, multiple commercial training centers such as Aptech and NIIT offer training, online courses, and certifications. By one estimate, these institutions taken together produce more than 5,000 ICT graduates per year – a number that is expected to rise to 10,000 in 2006<sup>32</sup>, while the government’s own figure stands at 30,000 ICT professional produced every year<sup>33</sup>. What to make of this, then, when an article appearing in the Bangladesh Observer<sup>34</sup> reports a decline in the number of those interested in studying IT and related fields due to lack of job opportunities? The article goes on to state that though businesses are hiring for IT positions, they are not hiring from within the IT-related academic fields due to a lack of practical skills and the absence of easily identifiable and consistent standards of performance – theory-based learning is not providing sufficient training to meet the needs of the skilled labor market. There is also a severe lack of qualified ICT professionals and lecturers. With experts predicting that 75% of all future jobs (60% of which will be in the IT sector<sup>35</sup>) will require computing skills, Bangladesh cannot afford to continue down the road of ineffective e-HRD.

Without exception, countries that are successful in the ICT sector have strong educational systems.<sup>36</sup> These systems, such as is found in India, produce an abundant supply of English speaking graduates with a degree of technical comfort, analytical ability and practical experience that enables easy entry into the workforce as a productive contributor from day one. Shortage of a quality, skilled pool of manpower is identified as one of the key obstacles to sector growth by all those that have addressed this topic. Table 3 presented on page two of the Introduction, from the Global Information Technology Report 2004-2005 bears this out. Bangladesh sorely lacks in the areas of education and IT training in the government school system as well as in the private

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<sup>31</sup> *E-Commerce and Development Report 2003*, United Nations Conference on Trade and Development, 2003. p.72

<sup>32</sup> ICT Task Force estimate presented in the report Information Technology Enabled Services (ITES) – Bangladesh, USAID Bangladesh and Carana Corporation, 2002

<sup>33</sup> Ministry of Science and ICT marketing material folder produced for the World Summit on the Information Society, Geneva 2003

<sup>34</sup> 29 June 2004

<sup>35</sup> [www.cisco.com/learning](http://www.cisco.com/learning)

<sup>36</sup> *The 2003 e-readiness rankings*, The Economist Intelligence Unit Limited and IBM Corporation, 2003

educational market. The private sector and academia are not the only parties aware of this issue, as quoted in a Ministry of Science and ICT publication (untitled) dated February 2003, “Possibly the single greatest policy priority for the development of ICT in the country is creation of computer literate manpower.”

Simply put, all recommendations for e-Policy, e-Governance and e-Commerce – the very ability of a population, country, or society to join the technology revolution and the resulting global economy – hinge on the presence of an IT savvy population and highly skilled workforce. Looking at e-HRD - the creation of said “workforce” - we can break the discussion into three separate but related ideas:

- Awareness - a level of knowledge and understanding as necessary for those in the position to make policy and set the course of government involvement
- User - a basic, practical level of knowledge of ICT necessary for those utilizing technologies such as email, internet, word processing, spreadsheets, Power Point, etc. in government, the private sector, and academia – across all sectors
- Professional - a level of knowledge for those designing, building and maintaining the complex structures of interrelated hardware, software and connectivity that are the backbone of the global information economy

All are necessary to support the growth of a domestic market as well as make inroads into the international market.<sup>37</sup> Various studies state divergent figures for the “trained” population, as previously mentioned, a span of 5,000 to 30,000 depending on the source. Regardless of the actual number, with a close look at this population of “trained” graduates relative to the three areas presented above we can discern the challenges, opportunities and benefits at each level as well as identify the key players important to any improvement.

The Awareness level of knowledge is of paramount importance in the creation of a supportive and sustainable enabling environment on the part of the government. Policy-makers must be educated as to the possibilities of ICT, as well as the limitations. Due largely to a lack of understanding at this level, competition between regulatory bodies for a share of the “golden egg” of ICT has led to fragmented, ineffectual and contradictory policy and regulatory structures that hinder the ability of anyone to fully realize the immense benefits of ICT. To a large degree the enhanced private sector advocacy role as well as the creation of a “Champion” office discussed above should, ideally, address the needs at this level of e-HRD development.

The User level presents the need for a collaborative effort among many partners. At this level of e-HRD, a tech savvy workforce, comfortable with the tools of technology and the benefits of their application, is created. Attention to, and investment in, the basic educational system as introduced at the outset of the e-HRD discussion - creation of practical user curricula, installation of hardware, software and internet connectivity at the primary and secondary level educational institutions, proper training of the teachers - would contribute to a larger population filling this second level of human resources. However, this demands the joint commitment of those

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<sup>37</sup> *Information Technology Enabled Services (ITES) – Bangladesh: Human Capacity Development (HCD)*, Carl Miller, Carana Corporation for USAID, April 2002

government bodies overseeing education as well as those overseeing ICT and communications. Evidence indicates a gap at this user level of knowledge and thus the need for further analysis of the basic education system and additional investment in the incorporation of technology curricula.<sup>38</sup> “Introducing computers into badly equipped schools with poor curricula will not produce better-educated citizens equipped for the challenges of the information society.”<sup>39</sup> Additionally, in order to maintain accurate and timely information on the subject at hand – to truly establish both the tools available at any given time, and the needs of the private sector businesses demanding the technical knowledge - there is a significant role for the industry associations as educators. The educational institutions cannot produce the “goods” - trained users and knowledgeable consumers - if the private sector does not clearly identify their “demands” - the skill sets needed and the array of products available.

At the Professional level of e-HRD, a focus on practical experience and high-level skills is lacking. There are few programs available that allow for measurable and objective assessment of knowledge<sup>40</sup> and there is now a drive on for adoption of international standards through internationally recognized certifications such as Cisco Certified Networking Associate (CCNA) and COMP TIA A+. In this area, the JOBS project has extensive first hand experience as the Country Coordinator for the Cisco Networking Academy Program (CNAP) in Bangladesh. The Cisco Sponsored Curriculum within CNAP respond to the lack of practical, hands-on training, offering hands-on lab exercises as a mandatory component in all courses and awarding an internationally recognized certification upon the successful completion of the certification exam at the close of studies. Not only do CNAP curricula offer the practical skills that are in demand, they also provide a certification structure that assures potential students and employers that stringent quality measures have been met and mastered – the measurable and objective standards mentioned above.

Table 6, below, gives a rough idea of the demand for skilled labor over the next few years. These estimates are based on knowledge gained through activity in the sector over the last four years as well as interviews with all three industry associations.

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<sup>38</sup> *Information Technology Enabled Services (ITES) – Bangladesh: Human Capacity Development (HCD)*, Carl Miller, Carana Corporation for USAID, April 2002

<sup>39</sup> *E-Commerce and Development Report 2003*, United Nations Conference on Trade and Development, 2003. p.74

<sup>40</sup> *Information Technology Enabled Services (ITES) – Bangladesh: Human Capacity Development (HCD)*, Carl Miller, Carana Corporation for USAID, April 2002

**Table 6: Estimated ICT Human Resource Demand over the Next Five Years**

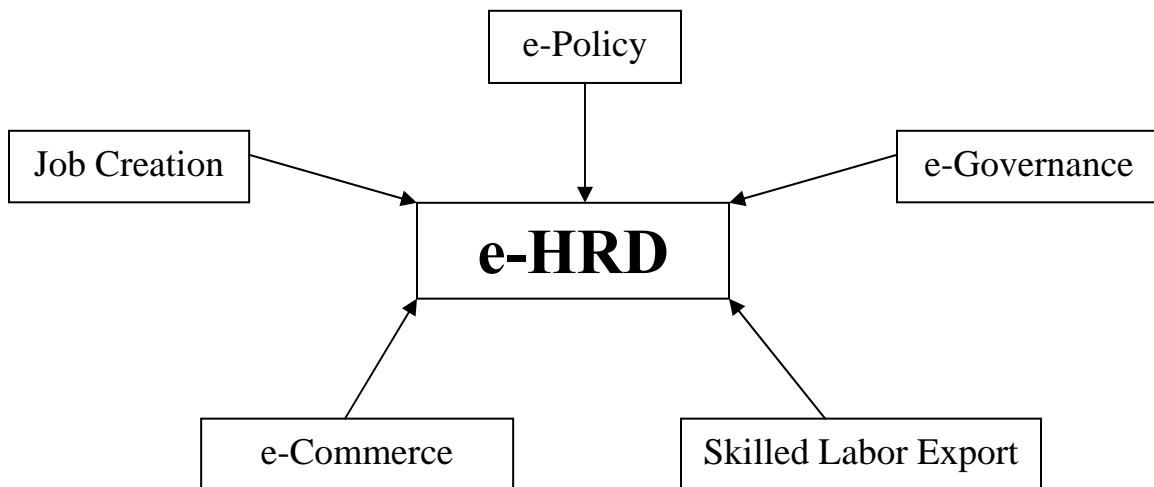
	<b>Sector</b>	<b>Number of Institutions (rounded)</b>	<b>Estimated Number of Professionals Needed</b>
1	Universities and Tertiary Institutions (2 @ each institute)	4000	8000
2	Secondary Schools (1 @ each)	10000	10000
3	Primary schools (1 @ each)	30000	30000
4	Government/armed forces (100 per Ministry, branches and its dept)	30	3000
5	Financial Institutions (1 per branch)	2000	2000
6	Telecomm Service Providers, ISPs, Cafes (per estimate of ISPBA)	10000	10000
7	Industry and other private enterprises (for large industries and ICT SMEs)	2000	2000
8	NGOs and Missions (1 per)	20000	20000
	<b>Total Need</b>		<b>85,000</b>

As JOBS worked with the government and private sector on issues of policy formulation, market access and capacity building of the ICT industry associations, discussions turned to overall obstacles to growth. Among the primary obstacles identified was lack of sufficient, skilled manpower (others such as cost of telecommunications, infrastructure, policy environment, country image, etc. have been discussed previously). Work to date has involved the educational institutions, the Ministry of Science and ICT and the industry associations and effort has focused on determining the need for this level of education and skill-building and defining the demand equation – who needs what and how to best get it to them – including government, businesses, students and educational institutions. Through experience as the leader of CNAP Bangladesh and in conjunction with discussions incorporating the above partners, JOBS has produced a new proposal for expansion of the Cisco program. The key aspects of this proposal focus on two of the major weaknesses identified through our work to date:

1. Lack of coordination between government bodies on the issue of HRD, leading to unfunded mandates in some places and funds languishing elsewhere for want of an implementation plan
2. Non-existent relationship between Academia and the private sector leading to multiple problems: no placement function so thus a lack of awareness as to the availability of human resources on the part of the private sector; no communication regarding training needs leading to ineffective training of students at the institutional level; no awareness on the part of trainers or students as to the realities of the ICT work world.



Development of the ICT industry is no “silver bullet” - there is no guarantee of success, and if success does come it will not be overnight. Bangladesh is starting from a disadvantage and competing against countries that are already in a better position. Many facets of ICT have been discussed and the major recommendations of multiple studies of the arena have been presented. After incorporating our experience to date, JOBS has arrived at the singular conclusion that **all paths to effective and sustainable ICT-led development lead first to e-HRD.**



HRD cannot be limited to the upper reaches of professional skill, but must also be broad-based and incorporate awareness and user basics. At the higher levels of training a focus on networking and operating systems allows for the advantages of the “flattening” of the world as discussed in the Thomas Friedman article. The Global Information Technology Report 2004-2005 provides evidence of the dire state in which Bangladesh currently finds itself in this regard. This is not to minimize the importance of the other factors which demand attention and focus but simply to point out that progress in these associated areas will be largely dependent on the success or failure of any e-HRD efforts. It is also our firm belief that this challenge – the development of skilled labor sufficient to provide the benefits of a growing private sector, export diversification, employment generation, and skilled labor export – cannot be met without a collaborative effort, including all stakeholders – government, private sector, Academia, international and regional organizations and donors. Investment in e-HRD is not simply an investment in the economic growth of a targeted business-interest, such as ready-made garments, but rather an investment in the future of the country. ICT has the ability to transform the way we govern, the way we learn, the very way we live each day, but only if we all know and agree how best to use it.

## **4. RECOMMENDATIONS, PROGRESS AND MOVING FORWARD**

In 2001 JOBS, in partnership with the Ministry of Planning and the Ministry of Science and Technology, coordinated the acclaimed “E-Commerce in Bangladesh: Potential and Policy Priorities” seminar, bringing together all key stakeholders in ICT. At the conclusion of this event, the seminar participants had produced 35 recommendations for capturing the potential of e-Commerce for Bangladesh. In 2002, at the “ICT Policy and Practice – Steps to the Future” seminar, in partnership with the newly expanded Ministry of Science and ICT and the Bangladesh Association of Software and Information Services (BASIS), those recommendations were revisited and progress was assessed. Here again we look at some of those 35 recommendations that, in keeping with the “big picture, broad impact” approach of this report, have the potential for far-reaching influence on the development of the ICT sector itself and other business sectors as a whole. A recommendation will first be presented, followed by a brief “Progress Report” utilizing the findings of the 2002 Seminar and additional sources to bring things as up to date as possible, and concluding with proposed actions going forward.

### **4.1. e-Policy**

#### **i. Privatize Bangladesh Telecommunication and Telegraph Board (BTTB)**

*Progress:*

- Licenses have been issued for mobile, satellite and fixed line telephone
- Satellite phones will be legalized
- Steps will be taken to convert BTTB into a Public Company

*Actions:*

- Privatize BTTB

#### **ii. Independent regulatory authority for telecommunications**

*Progress:*

- Under the Telecommunications Act, 2001, the Bangladesh Telecommunications Regulatory Commission (BTRC) was established as an independent regulatory authority, opening for business in 2002

*Actions:*

- Completely remove BTRC from the sphere of government influence in order to act as a proper, independent authority with jurisdiction over telecommunications

#### **iii. Legal framework established**

*Progress:*

- On 14 February 2005 a draft of the IT Act was passed by the Cabinet and now awaits presentation to Parliament

*Actions:*

- Continued pressure to adopt an IT Law for the country, incorporating a larger advocacy role for industry associations;
- Provide legal structure for electronic authentication, binding dispute resolution, cyber-crime, electronic transactions

#### **iv. Improved country image at home and abroad**

##### *Progress:*

- Regular commentary from political leadership dismissing negative reports as part of a conspiracy against the country
- Creation of an ICT promotion office in Silicon Valley, California. Mismanagement has only further influenced the negative image of Bangladesh

##### *Actions:*

- Create a strong, realistic, globally unified and positive international voice for Bangladesh through its Missions abroad.
- First acknowledge the extent of the problem, and then take visible action – talking and Task Forces without follow-up action only exacerbate the image problem

#### **v. Consolidated governmental approach to ICT here in Bangladesh**

##### *Progress:*

- ICT named a “thrust sector”
- Lack of consolidated office addressing ICT issues of national concern
- Competition amongst government agencies has fragmented the response and budget to such an extent that no greater good has been realized

##### *Actions:*

- Identification of a “Champion” for the sector here at home
- Commitment by all parties to coordinated interventions for the benefit of all
- Reduction of bureaucratic infighting
- Government officials taking an active role in increasing their personal awareness and knowledge of ICT (involvement of industry associations)

#### **vi. Address issues of corruption**

##### *Progress:*

- Third year running as Number 1 on Transparency International’s Corruption Index
- Actions:
  - Adoption of good governance reforms and increased transparency (governmental procurement system would be a perfect place to start)
  - Greater implementation of e-governance (see below)
  - Reform of the legal framework and enforcement of existing contractual legislation

## 4.2. e-Governance

### i. Faster, cheaper, more personalized and efficient service delivery through computerization of government

#### *Progress:*

- GOB has established a significant number of websites in different ministries
- BCC has put some of the government forms on a website, while JOBS has worked with the Ministry of Science and ICT to do the same
- Board of Investment and National Board of Revenue leading the pack with websites and sophisticated software applications
- No overarching strategy driving e-governance and lack of compatibility in systems causing some issues

#### *Actions:*

- Creation of a comprehensive e-governance strategy centralized and assigned to the “Champion” as referenced above
- Strategy should not be technology specific but rather purpose specific – technology does not need to be the same but it MUST be able to interface
- Create demand for e-services (role for the industry associations)
- Increase awareness at both the policy-maker level and within the general citizenry of the value of e-governance as a vehicle for other improvements

## 4.3. e-Commerce

### i. Computerization/efficiency of supporting systems (financial, telecommunications)

#### *Progress:*

- Numerous banks have been computerized and established ATM and related services, some shared across
- Banks lack the necessary computerized infrastructure to adequately support the needs of e-Commerce
- High cost Internet connectivity; Bangladesh has signed on to receive the submarine cable which is supposed to be operable by June 2005..

#### *Actions:*

- Set up infrastructure in banking systems for authenticating electronic identity, increase options for online foreign exchange mechanism, enable online payment and money transfers between banks<sup>42</sup>
- Public forum to establish distribution of access after submarine cable lands

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<sup>42</sup> DRAFT - Study of Bangladesh's Preparedness for e-Commerce (presentation), Bangladesh Enterprise Institute, April 2005

## **ii. Focus on factors beyond low labor cost that drive “outsourcing” decisions in favor of Bangladesh – the human factors and soft skills**

### *Progress:*

- A few companies have successfully broken into the markets of the US and Europe
- Focus for the most part stuck on the cheap labor aspect of Bangladesh with little consideration for sound and professional business practices and communications

### *Actions:*

- Awareness campaign (industry associations and government) - this issue demands much more attention as Bangladesh finds itself a beginner in the global e-Commerce game, and it is not the only player banking on a cheap and plentiful labor force
- Identify singular, marketable strength
- Programs that provide technical assistance in defining business skills and communicating and demonstrating their importance (industry associations)

## **iii. Capacity building of industry associations as advocates and educators**

### *Progress:*

- Each of the three industry associations has a website; marginal usefulness
- No structure for formalized advocacy
- Limited educational role
- Current structure and scope does not incorporate the level of representation necessary for a growing sector in a developing market.

### *Actions:*

- Build informed, knowledgeable and permanent association staff
- De-politicize association staffing
- Craft a formalized advocacy structure
- Target full participation of membership, not just Director and Executive level
- Create educational programs – print materials, advertising, seminars, press events, site visits – that promote the sector and educate the public, policy-makers, and the membership
- Generate demand in the market, knowledge in the government, and solidarity in the sector
- Act as a platform for learning events such as market access skills as discussed above or new technologies
- Initiate collaborations between academia and training facilities and the private sector to better measure demand for manpower and influence quality of training

## **4.4. e-HRD**

### **i. IT Training – target qualified labor over cheap labor**

#### *Progress:*

- Quantity
  - 1500 + institutes IT Institutes, 40 universities and 60 colleges have some ICT-related field of study

- Unreliable figures but somewhere between 5,000 and 30,000 trained people every year<sup>43</sup>
- Four former Institutes of Technology promoted to Universities of Engineering and Technology
  - Quality
    - No standardized curriculum
    - Private sector charges that training is of low quality and therefore of no value to them; there are not nearly enough trained people
    - Cisco Networking Academy Program (CNAP) established in 2003
    - Initial phases of coordination between government, private sector and academia to address.

*Actions:*

- Introduce international standard curricula with recognized industry certification where possible
- Create “training” pipeline from basic user level through specialist
- Expand CNAP institutions, students, and curricula offered
- Continue to work with all stakeholders in every manner possible to implement a coordinated strategy

**ii. Harmonize standards for training institutes**

*Progress:*

- Bangladesh Computer Council (BCC) has instituted grading system for IT institutes
- Actions:
  - Introduce training options that are beyond question – international standards with success measured externally
  - Allow market to determine an institutes viability and quality – decrease government involvement

**iii. Training the trainers by non-resident Bangladeshis (NRBs)**

*Progress:*

- CNAP introduction, where initial round of trainers is trained abroad and then return to Bangladesh to impart training to affiliated Academies; quality assessed through transparent, global, online management system
- No targeting of NRBs though there was a plan on the table through BCC in 2002
- Actions:
  - Expand CNAP program and add additional training modules that utilize the CNAP model
  - Build local capacity for quality training by limiting level of involvement by NRBs or any outside experts to the initial phase only

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<sup>43</sup> ICT Task Force estimate presented in the report Information Technology Enabled Services (ITES) – Bangladesh, USAID Bangladesh and Carana Corporation, 2002 and Ministry of Science and ICT marketing material folder produced for the World Summit on the Information Society, Geneva 2003

#### **iv. Government incentives to companies for on-the-job training**

*Progress:*

- MoSICT program that pays half the salary for a selected number of ICT interns
- Shift away from government lead and toward greater private sector role in initiating activities such as internships, mentorships, and “reality adjustments” for trainers
- Actions:
  - Secure the funding for MoSICT program
  - Create a transparent mechanism for reliable distribution of funds
  - Build private sector “advisory” group to formulate additional options
  - Form neutral “Placement Cell” to act as hub for activities

#### **v. Establish clear demand: numbers and skills sets**

*Progress:*

- Interviews with three industry associations to document private sector needs and targets
- First run through with Cisco formula to establish national demand parameters; numbers much higher than previously predicted
- Actions:
  - Work to further establish numbers on demand side, especially international markets
  - Search for specialized, standardized curricula that suit the needs of industry at home and abroad

## 5. CONCLUSION

It is clear that the overall economic growth of Bangladesh is only possible if the country capitalizes on its abundant human and intellectual resources, and develops “qualified labor” rather than the “cheap labor” that the country is famous for. Without this, it is our considered opinion that no amount of investment in economic growth activities will have a substantive impact in this country with a population of 135 million, a population density of 900 people per square kilometer, and more than 50 percent of that population under the age of 30. With expanded e-HRD options Bangladesh has the potential to not only “staff” domestic growth in the sector, increasing the sector’s exports and creating more jobs, but to create skilled manpower as an export itself. The introduction of a comprehensive, ICT-focused, educational campaign would make it possible for the country to become a source of high value, skilled ICT workers, boosting the remittance levels, offering opportunities to untold numbers of Bangladeshi citizens. IT directors in all sectors believe that there is a shortage of IT skills<sup>44</sup> and given the local obstacles to traditional industrial development at a level capable of sustaining such a large population (135 million), a focus on the development of a skilled, ICT workforce would allow Bangladesh to literally bank on one of its underutilized resources – its huge population.

In September 2000 Jonathan Metzger, then of the Academy for Educational Development, at the request of USAID Bangladesh, submitted the Information and Communications Technology Mission Opportunity Review. Over the course of the last four+ years, many successes have been documented and many of the recommendations noted in the Review have come to pass. However, many have not and the sector continues to struggle along failing to fulfill the full potential for the private sector, the government, and most importantly, for the citizens of Bangladesh. The recommendations put forward above will contribute to the success of the ICT sector in Bangladesh – growth here is a valuable tool in the struggle to increase the level of development in the country, to diversify the exports and to create sustainable employment – locally and globally – in a sustainable industry. Metzger closed his report with a telling quote from a local entrepreneur, a sentiment that still resonates today, “We missed the industrial age. We should not miss the information age.”

Today Bangladesh is presented with a window of opportunity; we have the tools and now is the time to use them, before the window closes.

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<sup>44</sup> *EU Market Survey 2004: Computer Software and IT Services*, Center for the Promotion of Imports from Developing Countries, p. 66



## BIBLIOGRAPHY

- Alliance for Global Business. *A Global Action Plan for Electronic Business, 3<sup>rd</sup> Edition*. July, 2002.
- Bangladesh Enterprise Institute. *DRAFT - Study of Bangladesh's Preparedness for e Commerce* (presentation). April, 2005.
- Carana Corporation. *Elements of a National Strategy for Development of an Information Technology Enabled Services Sector in Bangladesh*. USAID Bangladesh IT Enabled Services Project, 2002.
- Carana Corporation/Carl Miller. *ITES Bangladesh, Human Capacity Development*. USAID Bangladesh IT Enabled Services Project. April, 2002.
- Carana Corporation. *Information Technology Enabled Services - Bangladesh, Draft Document*. USAID Bangladesh IT Enabled Services Project.
- Carana Corporation. *ITES Bangladesh, External Market Analysis*. USAID Bangladesh IT Enabled Services Project. April, 2002.
- Carana Corporation. *ITES Bangladesh, Philippines Competitive Study of IT Enabled Services Industry*. USAID Bangladesh IT Enabled Services Project. April, 2002.
- Centre for Policy Dialogue. *Policy Brief on Information and Communication Technology, CPD Task Force Report*. Dhaka: August, 2001.
- Centre for the Promotion of Imports from Developing Countries. *EU Market Survey 2002 – Computer Software and IT Services*. December, 2002.
- Centre for the Promotion of Imports from Developing Countries. *EU Market Survey 2004 – Computer Software and IT Services*. May, 2004.
- Chowdhury, Tanvir, Global Amitech for BASIS. *A Country Report by Bangladesh Association of Software and Information Service Software Companies in Bangladesh*. <[www.basis.org.bd](http://www.basis.org.bd)>
- Coward, Chris. *Obstacles to Developing an Offshore IT-Enabled Services Industry in Asia: The View from the US*. Centre for Internet Studies, University of Washington: August, 2002.
- Dravis, Paul. *Open Source Software, Perspectives for Development*. InfoDev.
- Friedman, Thomas. *It's a Flat World After All*. New York Times Magazine. April 3, 2005.

- Gartner Group Dataquest. *IT Services Market Statistics*. October, 2000.
- Heeks, Richard. *Software Strategies in Developing Countries. Development Informatics Working Paper Series, Paper No. 6*. Institute for Development Policy and Management: June, 1999.
- ICT Business Promotion Council. *ICT in Bangladesh Brochure*.
- International Telecommunication Union. *World Telecommunication Development Report 2002 – Reinventing Telecoms, Executive Summary*. March, 2002.
- IRIS Center of the University Research Corporation International, University of Maryland. *Policy Reform Toolkit for E-Commerce and Development*. USAID Digital Opportunity through Technology and Communication (DOT-COM) Project – dot-gov Component. University Research Corporation International, 2003.
- Hossain, Najmul. *E-Commerce in Bangladesh: Status, Potential, and Constraints*. JOBS Program and IRIS. University of Maryland at College Park: December, 2000.
- Kasbekar, Chirag. *Six Things that Make the ITeS-BPO Industry Nervous*. NASSCOM neoIT Study. February, 2005. <[www.domain-b.com](http://www.domain-b.com)>
- Metzger, Jonathan. *USAID/Bangladesh Information and Communication Technology Mission Opportunity Review*. September, 2000.
- Ministry of Science and ICT, Government of Bangladesh. *National Information and Communication Technology Policy*. September, 2002.
- Ministry of Science and ICT and Bangladesh Computer Samity. *BCS Computer Show 2004*.
- Panagariya, Arvind. *E-Commerce, WTO, and Developing Countries*. May, 1999.
- Public Sector Technology & Management. Vol. 1.1. October, 2004.
- Teltscher, Susanne. *Globalization and WTO: ICT, Trade and Competitiveness*. Asian Forum on ICT Policies and e-Strategies. UNDP.
- The Economist. *Outsourcing and IT in India*. April 23, 2005.
- The Economist Intelligence Unit Limited and IBM Corporation. *The 2003 e-readiness rankings*. 2003.
- The Global Information Technology Report 2004-2005*. World Economic Forum.

UNCTAD. *E-Commerce and Development Report 2003*. New York and Geneva: 2003.

United States Trade Center – American Embassy, Dhaka. *Bangladesh: Country Commercial Guide 2003-2004*.

USAID. *Information and Communication Technology for Development: USAID's Worldwide Program*. Washington, DC: May, 2004.

Washington Technology Partners. *The Bangladeshi ICT Executive's Business Development Guidebook*. April, 2003.

Washington Technology Partners. *The Bangladeshi ICT Executive's Business Development Guidebook*. September, 2004.

Westby, Jody R. *ICT Policy & Practice: Steps for the Future (presentation)*. Conference on Information Technology Policy and Practice. 2002.

World Bank. *A Market Study on Diversification of Bangladesh Software Exports*. Bangladesh Export Diversification Project.