STRATEGY & ROAD-MAP OF BCC FOR STRENGTHENING IT/ITES INDUSTRY OF BANGLADESH

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Acronyms

a2i	Access to Information
ADB	Asian Development Bank
ADDS	Application Development and Deployment Software
APAC	Asia Pacific
Apps	Application
AS	Application Software
ASYCUDA	Automated SYstem for CUstoms DAta
AVP	Audio Visual Presentation
B2B	Business to Business
B2C	Business to Consumer
BACCO	Bangladesh Association of Call Center & Outsourcing
BASIS	Bangladesh Association of Software and Information Services
BBS	Bangladesh Bureau of Statistics
BCC	Bangladesh Computer Council
BCS	Bangladesh Computer Samity
BD	Bangladesh
BEIOA	Bangladesh Engineering Industry Owners' Association
BFSI	Banking, Financial Services and Insurance
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BHTPA	Bangladesh Hi-Tech Park Authority
BIPC	Bangladesh Internet Professionals Community
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
BoD	Board of Directors
BPM	Business Process Management
BPO	Business Process Outsourcing
BTEB	Bangladesh Technical Education Board
BTMA	Bangladesh Textile Mills Association

CAGR	Compounded Annual Growth Rate
CCA	Controller of Certifying Authorities
CEO	Chief Executive Officer
CSS	Cascading Style Sheets
CST	Central Sales Tax
CUET	Chittagong University of Engineering and Technology
CxO	Chief (any executive level) Officer
DGHS	Directorate General of Health Services
E & Y	Ernst & Young
EC	Executive Committee
EDB	Economic Development Board
eGIF	e-Government Interoperability Framework
EHR	Electronic Health Record
ERP	Enterprise Resourse Planning
F&A	Finance and Accounting
FAO	Finance & Accounts Outsourcing
FTE	Full Time Employees
FTFL	Fast Track Future Leader
FTZ	Free Trade Zone
FY	Financial Year
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GIC	Global In-house Centre
GMP	Goods Manufacturing Practice
HSC	Higher Secondary Certificate
HTML	Hyper Text Markup Language
IBPAP	IT and Business Process Association Philippines
ICT	Information and Communications Technologies
IELTS	International English Language Testing System
ILL	Internet Leased Lines
IoT	Internet of Things

ISPAB	Internet Service Providers Association of Bangladesh
IT	Information Technology
ITeS	Information Technology enabled Service
ITO	Information Technology Outsourcing
KPO	Knowledge Process Outsourcing
LICT	Leveraging Information and Communications Technologies
M & A	Merger and Acquisition
MFI	Micro Credit/ Micro Finance
NASSCOM	National Association of Software and Service Companies
NBR	National Board of Revenue
NESS	National E-Services System
NGO	Non-government Organization
NHRDF	National Human Resources Development Fund
NICTC	National ICT Centre
NOS	National Occupation Standard
NRB	Non-Resident Bangladeshi
NSDC	National Skills Development Corporation
NSP	National Payment Switch
ODC	Offshore Delivery Centre
PHP	Personal Home Page nka Hypertext Preprocessor
PKSF	Palli Karma Sahayak Foundation
PoC	Proof of Concept
PPP	Promote Public- Private Partnership
PR	Public Relation
R & D	Research and Development
RMG	Ready Made Garment
RPL	Recognition for Prior Learning
RTI	Right of Information
SaaS	Software as a Service
SAP	Structural Adjustment Program
SASEC	South Asian Sub Regional Economic Cooperation

SEIP	Skills for Employment Investment Program
SEO	Search Engine Optimization
SERP	Search Engine Result Page
SIF	Service Innovation Fund
SMAC	Social, Mobility, Analytics, Cloud
SME	Small and Medium Scale Enterprise
SOX	Sarbanes–Oxley Act
SQL	Structured Query Language
SSC	Secondary School Certificate
STP	Software Technology Park
SWOT	Strength, Weakness, Opportunity, Threat
TCS	Tata Consultancy Services
TOEFL	Test of English as a Foreign Language
TVET	Technical Vocational Education and Training
UGC	University Grant Commission
UK	United Kingdom
UKCES	UK Commission for Employment and Skills
UNDP	United Nation Development Program
USA	United States of America
USAID	United States Agency for International Development
VAT	Value Added Tax
VC	Venture Capital
WHO	World Health Organization

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Executive Summary

This engagement, "Consultancy Services for Developing Strategy, Planning and Statistics Gathering for IT/ITES Unit" - Contract Package # S2", under the aegis of Bangladesh Computer Council (BCC), Information and Communication Technology Division, Ministry of Posts, Telecommunications and Information Technology (MoPTIT), Government of the People's Republic of Bangladesh, is part of the Leveraging ICT for Growth, Employment and Governance Project.

The objective of this assignment is to develop an IT/ITES industry development strategy and roadmap for Bangladesh, and collect industry relevant statistics for use by public and private sectors. Developing strategy for Bangladesh as the global IT/ITES market is the key objective against highly developed and rapidly developing sophisticated and competitive market. This engagement focuses on the strategy and road map to help the country to focus its resources on the greatest IT/ITES opportunities, align the efforts of the public and private sectors, help the country to be opportunistic in business development, and focus on IT/ITES niche markets where Bangladesh has a sustainable competitive advantage.

Framework and Methodology

Tholons Location Assessment Framework & Foundation Pillars Framework for IT/ITeS Industry Building) and the research methodologies are utilized in this report to assist in the development of the Bangladesh IT/ITeS sector, are dependent on the availability of accurate and updated data information. The data used in this report was collected through two key method: **A) Primary Research**, Tholons interviewed various stakeholders in Bangladesh. These interviews included representatives from government, service providers, associations, and private sector companies in this space. Data gathering was also carried out to determine market and labor pool availability, quality, and scale, so as to validate analyses. **B) Secondary Research,** Tholons conducted secondary data-gathering mainly through desk research of government websites, multilateral agency websites, national statistics websites, industry reports, as well as various news reports.

Stakeholder Engagement

As part of the primary research conducted, Tholons and Aon Hewitt executed on-site missions to gather insights and perspectives from Bangladesh's IT/ITeS industry stakeholders. The goal of which was two-fold; to analyze the current conditions of the industry, and to learn from the 'stakeholder perspective,' of the *perceived interventions* that are needed to develop the country's

IT/ITeS sector. Accompanied and facilitated by BCC/LICT personnel, the key IT/ITeS stakeholders were interviewed during the Consultant Team's first on-site mission across various locations in Dhaka City, Bangladesh. During this phase Industry Development Workshop Framework was designed and is represented in figure 4 of the main report.

Industry Statistics

The goal of the proposed survey activity is to be able to gather the most relevant (and accurate) data, necessary to construct a *valid market size* of the current IT/ITeS industry of Bangladesh *(Refer to Appendix A)*. Tholons recommends that the data collection and formation of industry statistics align to a process that works with major industry association to improve the sanity and validity of data in phases. Interviews with major association and key industry players could be used in forecasting the industry numbers.

The statistics gathering from industry players have been helpful in analysis of current position of Bangladesh IT/ITeS industry - Analysis of local industry capabilities with global market demand, competitive analysis on the country's services outsourcing landscape through identification of relevant competitors along with inherent advantages/disadvantages relative to competitors, develop accurate industry data set to help determine proper industry size and composition, identification of critical roadblocks hindering the development of IT/ITeS sector.

ITeS Industry Survey

The objective of the Industry Survey is to build an accurate or indicative composition of the industry, including key metrics such as revenue, headcount, process capabilities, market focus, among others. The Industry Survey is also intended to determine qualitatively, the strengths and challenges faced by IT/ITeS service providers in the country, as viewed by stakeholders and industry players. Survey Methodology captures data for three main topics of interest for Bangladesh: Company Profile – Industry Defining Statistics such as Revenues, Headcount, etc., Location Insights – Strengths, Challenges of being located within Bangladesh and Bangladesh as a Service Delivery Location – Operational Challenges and Projections.

A total of 69 IT/ITeS company respondents completed the survey. According to preliminary estimates, this represents approximately 15% to 20% of the Bangladesh IT/ITeS sector, according to total revenue contribution. The outcome of facts gathered in the survey has provided insights on company profile and IT/ITeS Industry Composition.

Comparative Analysis

Comparative Analysis was performed to identify Bangladesh's stand on the factors - Talent, Quality and Scale, Cost, Class-A Infra / IT Parks, Labour Law Policies, Ease of Doing Business, Business Catalyst, Tax Incentives and Single Window Clearance.

Global Outsourcing Market for IT/ITeS industry has been propelled by various internal and external trends, including increasing client demand complexity, emerging IT/ITeS services geographies, shifts toward bundled contracts, and the emergence of new, technology-fueled verticals. Tholons has provided several facts on Global IT Spend, ITeS Section Spend, IT Services Segment spend, Industry Vertical Growth in IT/ITeS Spend and Global IT/ITeS Spend by Region.

Domestic Industry and Adoption of IT

Bangladesh's ICT sector's recent trend has impacted the demand for ITO and BPO services in the domestic space. Growing number of Internet users and adoption, has led to greater connectivity and access for millions of consumers. As such, IT/ITeS companies have capitalized on this newfound market opportunity, by developing web-based services and content that include specialized portals, listing services, e-Commerce, e-Learning, payment intermediary services and development of web applications based on cloud/Software as a Service (SaaS) delivery models. The local ITO sector has likewise capitalized on the development of mobile apps.

Few challenges were identified for industries in Bangladesh to adopt IT: Transforming the processes of any given industry to use of technology is complex, The cost of deciding on the technology implementation and maintenance is significant and in most cases does not justify the returns in the short to medium term, there is always a pressure and ease of continuing to use easily available low cost labor pool, most large system implementation requires multiple departments and functions to work and justify the investment, most IT projects run over budget and time line.

IT/ITeS Development Goals and Initiatives

Bangladesh in the current government are committed to Digital Bangladesh and leveraging IT/ITES for achieving sustainable development goals (UNDP), creating employment for all and moving Bangladesh towards a developed economy. The election manifesto of 2008, laid the foundation for Digital Bangladesh and defined goals for 2021. The 26 point election manifesto of 2014, takes the Digital Bangladesh much forward and defines goals for a developed Bangladesh by 2050.

Some of Bangladesh's development strategy from ICT is laid out in chapter 12 of the 7th Five Year Plan: ICT and economic growth, contribution to exports, online transaction and payments infrastructure, ICT infrastructure, ICT and education, Digital Bangladesh ICT initiatives, ICT

connectivity, Bangladesh's progress in financial and investments, ICT tax structure in South East Asia. Indicators of ICT infrastructure (internet) progress, promote economic growth, development of ICT infrastructure and service capacities, investing in R&D, develop and strengthen ICT skills base, Digital Bangladesh and gender policy and one Bangladesh vision.

Competitive Landscape

Under competitive landscape, Tholons comparison of delivery service locations tabulates the country with its competitor nations on elements – population, workforce, tertiary graduates, entry level BPM salary. Average English proficiency scores was compared and analyzed. Global competitiveness infrastructure scores were outlined on sub-segments such as transport infrastructure, quality + overall infrastructure, quality of roads and others.

Case study on STPI, significance of policies and incentives, comprehensive set of support services for potential locators and national occupational standard (NOS) has been detailed with recommendations.

Bangladesh's recent announcements on IT policy and incentives are very progressive and puts Bangladesh at par or better with policies and incentives that currently exist in other competitive countries like India, Philippines, Vietnam, Myanmar or Sri Lanka. The policies on Hi-Tech Park and building of STPs is also very encouraging and aimed at driving business growth - providing for a very healthy public private partnership. These policies and opportunities should also be marketed to foreign investors. Most competitive countries have seen investments in early days from Japan, Singapore and Middle-East.

Target Market

Global outsourcing market opportunity is dominated by United States followed by UK and Europe as a region. USA constitutes around 60% of total IT/ITeS market and UK, the second largest market in this segment should be the target market. Existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, are good landing spots for Bangladesh developed applications. Japan's IT services market was pegged at US$211.4 billion in 2014, driven by the BFSI and Manufacturing sectors. India, with export revenues of over $87 Billion has a robust growth. IT/BPO industries in India continues to look for talent and expertise. Within India, in tier II cities in India are keen to explore options in Bangladesh and Srilanka. Tholons strongly recommend pitching to top 50 IT/ITes companies in India including the MNCs and GICs. Middle East is a natural target market given the cultural affinity and a market

that has significant untapped potential. It also has the potential to be a platform for accessing the African market which is highly under-developed and has immense potential.

Niches

Tholons identified Niches are categorized into three main segments – Product / Business Opportunity, IT Opportunity, ITeS/BPO Opportunity.

Product / Business Opportunities/Niches	IT Opportunities/Niches	ITeS / BPO Opportunities/Niches
• RMG Captives / GICs • Services for Businesses owned by NRB's abroad • Local Bangladesh IT Assets	• Digital Technology (SMAC) • Application Support and Maintenance • Freelancers in Digital and Social Media • Testing Services • Telecom IT	• Finance and Accounting (F&A) • Telecom BPO • Supply Chain Management • Medical and Insurance Claim Processing • Mortgage and Title Insurance Processing

Data Collection Methodology

As an emerging outsourcing destination, it is also imperative for Bangladesh to be aware of its inherent capabilities, and how best to leverage on these proficiencies. Having a robust data collection framework can assist with this task, as it allows stakeholders to *keep track and monitor* industry output and delivery performance, with the collection and analysis of industry growth metrics (i.e. revenue, headcount, sub-sector performance).

Data collection framework is represented in a tabular format under table 13 that captures details on IT exports, higher education institution metrics, people metrics, industry metrics and freelance segment data. Table 14 captures details on primary data gathering on industry survey that results in company growth performance, service delivery profile and perceptions.

Strategy and Roadmap for IT/ITeS Industry Development

Tholons developed specific developmental action items, segmented according to three distinct phases - *Near, Mid, and Long-term*. These action items aim to provide the Government of Bangladesh and corresponding IT/ITeS stakeholders, a *pragmatic guide* that aims to enhance the current position of the country's services outsourcing industry, while laying the foundation longer-term sustainability and growth.

Figure 13 and Table 12 in the detailed report explicit the action item for **Near (1-2 years)** touches on mission and vision setting, lead outsourcing agency development, Bangladesh outsourcing industry profiling, industy-academy alignment and short-term policy framework. **Mid (2-4 years)** touches on talent development, infrastructural support, develop enabling infrastructure and market promotion plan, Long Term (5+ years) touches on process and service delivery innovation, long term strategy and policy planning and continuous marketing.

Proposed "Lead Industry Agency Organization Hierarchy", where the board directors and executive committee framework is laid out.

Key Recommendation

Title	Description
STP	• The STP entity should set way to make an effective and seamless single window clearance system to enable, support and promote exports of software, BPO and professional services. The STP scheme should provide various benefits to the registered units, including 100% foreign equity, tax incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting. • STP should effectively implement a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through nodal agency. It should run like the best of private organizations focused on the needs of the hundreds and thousands of IT and BPO companies mushrooming.
Comprehensive set of support services for potential locators	Bangladesh can take industry leading learning by identifying talent in IT/BPM from across the globe that would be interested in moving to Bangladesh on client engagement / sabbatical. However, this

	would require identifying, prior discussion and funding models to help locators find this service seamless and cost effective. Bangladesh should provide R&D grants and subsidy to cover the cost of talent acquisition and hosting.
	• Engage with marque clients in IT/BPM on specific engagements • Review the business need and identify up to five clients • Map the requirement for talent at mid to senior management • After a talent gap analysis, identify talent that needs to be acquired and made available in Bangladesh • Draw a list and initial agreement with identified talent and a cost assessment • Provide grant and subsidy for the first year to cover the delta in talent cost to make it competitive and attractive for the lead locator to be incentivized to locate the program in Bangladesh.
National Occupational Standard (NOS)	• Determining of various quality and proficiency standards that exist, and identifying the particular standard, that is *relevant to Bangladesh or its labor market* can be a significant advantage for the fledgling service outsourcing sector of the country. For instance, if the local industry ambitions to provide product design or engineering support services to outsourcing nation, then local providers should be abreast of the *National Occupational Standards* of that nation. This type of deliberate *'market orientation'* can likewise provide Bangladesh a definitive advantage over other low-cost, emerging destinations.
Marketing and Promotion Plan	The marketing plan should address near, mid and long term plan and roadmap with specific recommendations, content and support for the following activities: • Branding and Marketing for Bangladesh • Comprehensive Digital Marketing • Development of Audio and Visual Marketing Collaterals • Media and Public Relations • Media, Public Relations and Press Releases

	- Recommend, develop and support key Events both inside and outside Bangladesh to include the first in-country event for the industry and other events outside to target clients, investors, industry best practices/networking and innovation/entrepreneurship.
	
	In terms of events marketing and promotion, there are three classifications of events that Bangladesh should focus on:
	
	- **Client Centric –** This is where service providers and key stakeholder in Bangladesh have the best opportunity to meet and network with prospective clients in the targeted client countries.
	  o Japan - Japan IT Week
	  o Middle East - Gitex Event
	  o UK - Gartner Business Process Management Summit
	  o US - World BPO/ITO Forum & International Outsourcing and Shared Services Forum
	
	- **Industry Best Practices/Networking Events –** These events predominantly have service providers, analysts and few clients. This is a good opportunity to understand industry best practices, share the Bangladesh value proposition and network with analysts, clients and ecosystem partners.
	  o India - NASSCOM India Leadership Forum
	  o Philippines - International Outsourcing Summit
	- **Innovation and Entrepreneurship –** These are events focused on innovation, startups and innovative products. With the digital technology becoming the way of life for future IT/ITeS, participation in these key events become critical.
	  o India - NASSCOM Product Conclave
	  o US (Silicon Valley) - TieCon Global, Y-Combinator Demo Day and 500 Startup Demo Day

Fill Data Gap	Data collection and formation of industry statistics align to a process similar to as follows: - Work with major industry association to improve the sanity and validity of data in phases. - Membership fees could be based on the revenue.

	• After 3 years, the industry association could ask for audited revenues and employee head count etc. • Primary interviews with major association and key industry players could be used in forecasting the industry numbers.
Class-A Infrastructure Cost	• Actions need to be taken to bring the cost of operations down to make it competitive. Providing subsidize Class-A space or subsidy for the same and providing 100% tax break for IT/ITES employees for the next five years, would make a significant impact to competitiveness of Bangladesh. • Bangladesh should offer subsidized space / subsidy to ensure global competitiveness of infrastructure costs for operations in Bangladesh till the time IT parks are available.
Target Market	• The competitive landscape and existing socio-economic relationship of Bangladesh, the following markets are attractive: US UK, Middle East, India and Japan. Existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, are good landing spots for Bangladesh developed applications. • Bangladesh IT/ITeS providers should focus on building capabilities in alternative client markets such as India, Netherlands, Middle East and Japan where existing diplomatic relations can be leveraged and markets are not as saturated and competitive. Clearly identifying and then utilizing these alternative client markets will definitely be a key catalyst in developing Bangladesh's IT/ITeS industry as these provide an opportunity for providers to display capabilities in the global market. • Pitching in top 50 IT/ITes companies in India including the MNCs and GICs.
Implementation of Open Innovation Platform	• Bangladesh should orient the connecting startup program for open innovation, where Venture Capital (VC), Angels, Accelerators, Industry, Startups and Universities come together

	• Run a competition to select 5 start-ups which are focused on biggest opportunities and key challenges of the industry (B2B) • These 5 start-up go to the silicon valley for three months and they will be based out of one of the technology plug and play accelerators where there are already other countries, other startups, other corporates in that ecosystem *In our recent discussion with industry & government stakeholders, there seems to be a significant interest and alignment to implement such a program. Estimated Cost: $150,000 to $200,000*
Talent/Skills Development	• Bangladesh should review and revise education curriculum to include industry relevant content like Data Analyst and Digital Skills etc. • Establish a common technology network and platform across secondary educational institutions. This shared technology platform should improve the quality of secondary education, leveraging technology, to prepare and produce better-qualified students for the tertiary level. • Develop alternative cities outside of Dhaka to augment the country's talent pipeline.
Tax	• Bangladesh does provide Tax Incentives Exemptions and Duty Free Import of goods. However, the process implementation is not seamless and requires simplification and clarity. Advance Tax should be abolished.
IT/BPM	• Growth and Promotion of Bangladeshi IT/ITES/BPO companies through Promotion & Marketing and directed Business Development. The LICT Program has the marketing and promotion initiative along with other relevant program to address the same. • Implement Bangladesh Preferential Market Access (at least 30%) for the Govt. projects and Tenders. • Encourage IT/ITES/BPO Clusters – Provide Add-on incentives in the form of capital investment.

	• Additional incentive such as providing land at very subsidized rate and in good IT Park location to companies for creating jobs. • Provide special incentives for Rural ITES/BPO set up. *Bangladesh's recent announcements on IT policy and incentives are very progressive and puts Bangladesh at par or better with policies and incentives that currently exist in other competitive countries like India, Philippines, Vietnam, Myanmar or Sri Lanka. The policies on Hi-Tech Park and building of STPs is also very encouraging and aimed at driving business growth - providing for a very healthy public private partnership. These policies and opportunities should also be marketed to foreign investors. Most competitive countries have seen investments in early days from Japan, Singapore and Middle-East.*
Capacity Building	• Create a lead IT/ITES Academy. One example is to create a Finance and Accounting Academy similar to Srilanka's CIMA Institute. • Co-location of secondary and tertiary IT/ITES Academy Centers. • Develop Master faculty members per year for IT/ITES Academy Centers. • Adopt a Common Assessment Program for IT/ITES Centers. • Create a database of unique biometric profile of IT/ITES professionals.
Innovation	• Develop patents in the ICT domain. The BCC/ICT Division program could provide support and knowledge on developing and patenting IP. • Encourage public/ private supported R&D labs in emerging ICT Centers across Bangladesh. • Create financial eco-system through ICT innovation fund to support start-ups. • Create Bangladesh ICT Innovation Fund with contribution from private and public financial institutions.
Entrepreneurship Development & Mentoring	• Set up a virtual open innovation platform to bring in universities, accelerators, incubators, angels, seed funds,

	venture capitalist, government, key industry players and start-ups together. • Create a program to identify Innovators and Entrepreneurs every year and provide incentives, like sending five start-ups to silicon valley for 3 to 6 months. • Promote Incubation Network facilities as part of Innovation centers and make the Angel funds available through a centralized ICT fund. • Subsidized memberships for start-ups to industry/trade bodies. • Set-up events, road shows, creativity hubs etc., for start-ups. • Guaranteed government ICT purchases from start-ups. • Make software licenses available on pay per use basis. • Partner with BASIS, BACCO and related sector bodies to create the Start-up Program. • Encourage the entrepreneurship in Education through Networked Incubation Centers. • Providing Early Stage/idea2conept (Proof-of-Concept) funding • Providing Capacity Building though International visit and workshops. • Providing support for incentives and concession to freelancer communities to turn them into businesses. • Creating Start-up Cell's/Online Portal and Hotline Support

Introduction

Bangladesh, as a recently emerging global IT/ITeS player, enters a landscape wherein highly established locations such as India and the Philippines have already proven success in their respective niches and a vast number of players in Asia, Latin America, and Eastern Europe have also risen to become notable competitors in the IT/ITeS space. To be able to properly guide the development trajectory of Bangladesh, it is necessary that a thorough investigation of the current global landscape and the context in which it plays a role in is done.

Despite the highly competitive nature of the sector, the global services outsourcing market has seen consistent growth patterns wherein IT/ITeS, both in terms of horizontals and verticals, have grown not only in complexity but also in demand. The inception of the sector initially was driven by cost efficiency requirements, but the IT/ITeS industry has evolved to become even more crucial to corporate bottom lines – contributing to improvements in efficiency, output, and even process innovations. It is this continuous evolution (and growth) that has opened up the supply-side market for various players to enter and thrive, with each player ambitioning to establish their own niches in the vast services outsourcing landscape.

It is therefore important in this early stage of development that Bangladesh align the developmental path of its IT/ITeS sector, towards the most relevant trends in the global services outsourcing market. This way, the country may better understand the immediate opportunities it can take advantage of given its current situation. This report will evaluate Bangladesh's current IT/ITeS industry, identifying closest term opportunities matched with global market trends. Further, this report will also analyze Bangladesh against its foremost competitors in the IT/ITeS market, drawing comparisons among their inherent qualities to determine potential *success factors for Bangladesh* as a services outsourcing destination. Lastly, this report will also outline Industry Statistics which are essential to monitor industry growth and development, and the associated institutions from which to draw these data sets from. Overall, this report is intended to serve as a general overview of potential opportunities and country competitors, laying the foundation for succeeding sections, and deliverables of the Bangladesh IT/ITeS Industry Development Strategy.

Report Framework

This report framework is structured around seven sections, describing the methodology, data templates, data collection, country analysis, competitive landscape, global market overview, potential target market and segments, industry statistic, strategy plan, roadmap and way forward.

Figure 1: Report Structure and Sections

Section 1	Methodology
Section 2	Country Analysis
Section 3	IT/ITeS Industry Survey
Section 4	Competitive Landscape
Section 5	Bangladesh as a viable IT/ITeS Destination
Section 6	Strategy and Roadmap for IT/ITeS Industry Development
Section 7	Data Collection Framework & Industry Statistics
Section 8	Consolidated Report
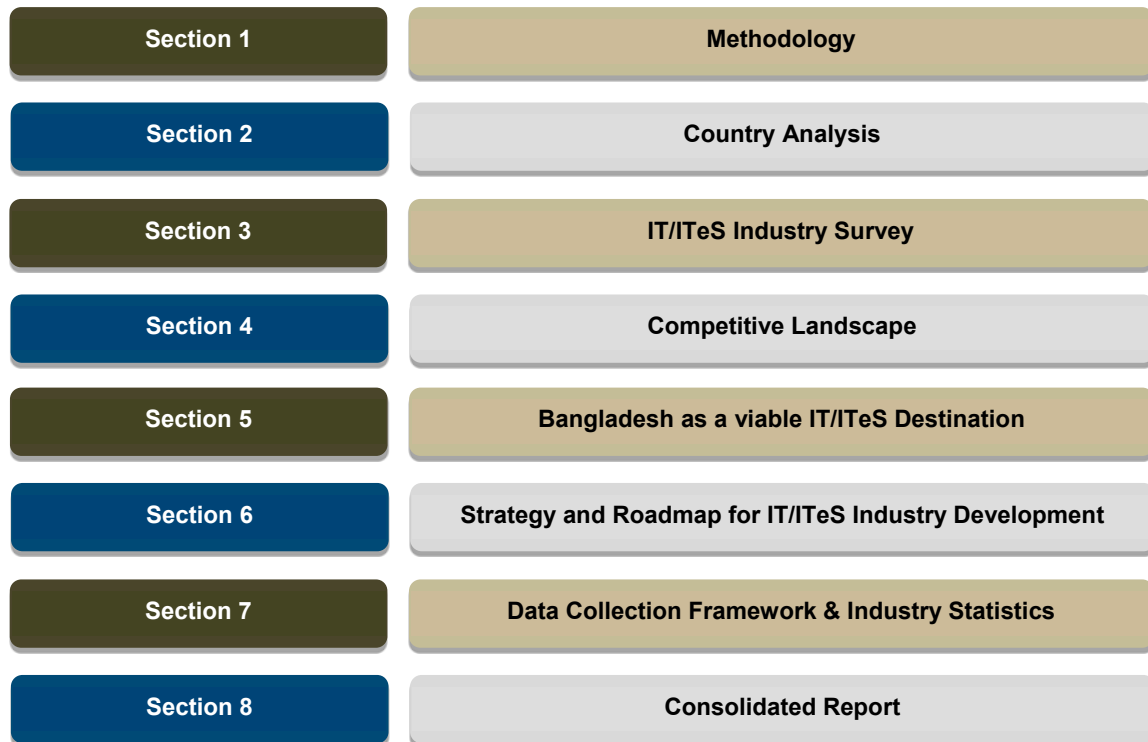
Section 1: Methodology

This section identifies the general frameworks to be used in analyzing Bangladesh as an IT/ITeS destination. These frameworks will become guiding principles, not only under this component, but also in succeeding components of the Industry Strategy. Also, this section outlines the context in which previous exploratory actions and analyses were done e.g. on-site missions, workshops, stakeholder interviews, surveys and other data collection.

Section 2: Country Analysis

This section identifies and analyzes Bangladesh's inherent characteristics as a services outsourcing destination, leveraging on the findings of the Consultant team's data gathering activities outlined in the Methodology section. This section analyzes the economic conditions and

development of the country, its risk conditions, the IT/ITeS industry growth and its current profile, significant projects and initiatives being undertaken in the country and lastly a survey with the companies currently in the country to show the standing of these companies, relative to the IT/ITeS industry in Bangladesh.

Section 3: IT/ITeS Industry Survey

This section covers survey methodology and analysis from the survey result drawn out of the IT/ITeS associations and companies. It also touch bases on the company profile, industry composition alongside quantitative insights.

Section 4: Competitive Landscape, Comparative Analysis, Global Outsourcing Market Overview and Potential Target Segments

Given the preceding Country Analysis, Bangladesh will then be analyzed as against other countries in the IT/ITeS space composed of established outsourcing destinations, regional competitors, and similarly profiled locations. This section cover on few case studies supporting the subject and comparative analysis. It provides an overview of the global IT/ITeS Market, identifying the sector's current composition and relevant service lines and process group trends, which are determining the distinct market opportunities in the sector. This section will reconcile the preceding section findings to identify the *most relevant opportunities* for Bangladesh in the IT/ITeS space, combining various components such as the country's inherent characteristics and advantages, current industry profile, and global market demand including potential target segments.

Section 5: Bangladesh as a viable IT/ITeS Destination

Location advantages, risks and cost factors are discussed in this section. It also portrays on primary target market, digital opportunities, open innovation platform, niches and capability and opportunity profile.

Section 6: Strategy & Roadmap, Way Forward and Marketing & Promotion for IT/ITeS Industry Development

This section will detail the strategy plan, roadmap and identify the next steps of the deliverable including review and dissemination plans moving forward from delivery of the report. It will also determine the next phase of the Bangladesh IT/ITeS Industry Development Strategy. Recommendations and directions are provided here that forms the strategy and roadmap for this engagement. Lead industry agency organization hierarchy, recommendations on STP,

comprehensive set of support services for potential locators, national occupational standards, creating employability and marketing promotions are explicitly detailed in this section.

Section 7: Data Collection Framework & Industry Statistics List

Data collection and the Industry Statistics List section will identify key statistics highly needed for Bangladesh to track industry growth and market itself internally and externally. The statistics laid out in this section will also identify corresponding institutions from which best to source industry-relevant data from.

Section 8: Consolidated Report / Summary on Strategy and Roadmap for Bangladesh's IT/ITeS Industry Development

This section stands as Deliverable 6 – Consolidated Report on Strategy and Roadmap. It highlights on the abstracts running from Section 1 through 7.

Methodology

Tholons will utilize its proprietary and industry leading methodologies and frameworks to analyze data and prepare this report. This methodology and approach aim to build a comprehensive discussion on the existing IT/ITeS landscape of Bangladesh – assessing its competitive landscape internally and externally, identifying potential target segments, and analyzing the ecosystem gaps that need to be addressed in order to build a more responsive IT/ITeS industry.

Tholons Location Assessment Framework

The Tholons Location Assessment Framework will be utilized as the foundation framework for this study. This framework enumerates the various components that contribute to the overall competitiveness of a location, in terms of services outsourcing. Likewise, specific case studies and best practice implementations may also be discussed to better illustrate the characteristics of a viable outsourcing destination.

The Tholons Location Assessment Framework utilizes six distinct categories which are seamlessly interdependent to one another in providing an adept evaluation of locations for services delivery. Each category comprising further sub-categories allows for deeper and more thorough analysis of each location, investigating both micro and big picture trends. This methodology is advantageous as it gives a holistic view of assessing a location and what it can offer as a services outsourcing destination. The following are the six major categories of the Tholons Location Assessment Framework:

It must be noted that the Tholons Location Assessment Framework is *not* a benchmarking or scoring platform, where numerical values are generated to gauge the viability of a location. Rather, it is an industry-specific (and proprietary) framework that serves as an *assessment guide* that allows for the comprehensive evaluation of a location, and its viability as a services outsourcing destination.

Further, the Tholons Location Assessment Framework is not intended to 'score' the ecosystem components of a location, with the operative term used to describe the Framework, being *"assessment"* as opposed to 'benchmarking,' 'index' or 'scoring' platform.

Figure 2: Tholons Location Assessment Framework
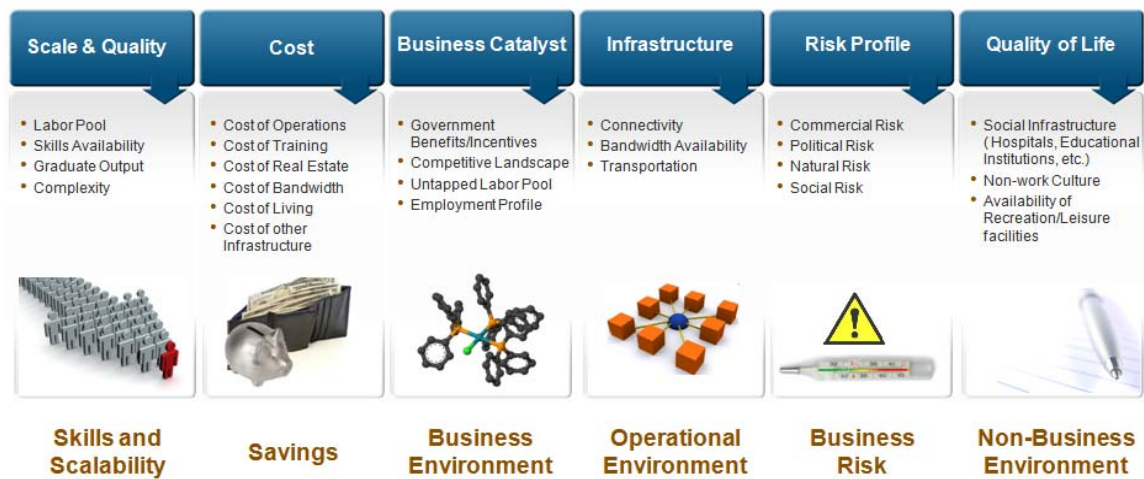
This framework will focus on the specific service delivery characteristics of Bangladesh, while considering the *underlying factors* that drive or inhibit the growth of the country's IT/ITeS industry. For instance, it would not be enough to identify and rely on the country's advantage in labor cost, if there are other ecosystem factors found (i.e. socio-political risk, talent scale, and business environment) that may be inhibiting overall industry growth, thereby negating the talent cost advantages that was initially proposed. Thus, a comprehensive study of these components, not in isolation but in conjunction with each other, under the Location Assessment Framework, will lead to a more holistic view of the drivers and inhibitors of the country's IT/ITeS sector.

Supporting Frameworks

Further, given this study's underlying objective of *industry building*, a focus on identifying development inhibitors is needed to determine the critical roadblocks to sector development. The analysis of these inhibitors roots from the accurate identification of the current IT/ITeS landscape, the industry's overarching goals. As such, supporting frameworks (see Figure 3 below) may be utilized in this study to more efficiently arrive at the *industry building objective* of the study. These supporting frameworks may be utilized as a discussion guide by the Consultant Team (i.e. to better elaborate on concepts, ideas and analysis) and can likewise serve as a point of reference for the IT/ITeS stakeholders of Bangladesh.

For example, during the Consultant Team's second On-Site Mission conducted in Dhaka City at the ICT Division office, senior personnel of the Consultant Team provided a supporting developmental framework (see Figure 3 below) that may be considered when *conceptualizing* the idea of 'industry building.' The purpose of these supporting frameworks is not to deviate from

previously accepted frameworks, but simply, to substantiate and support *those* accepted frameworks. Hence the designation *'supporting'* frameworks.

Figure 3: Foundation Pillars Framework for IT/ITeS Industry Building

IT/ITeS Industry Goals

Education | Employment | Entrepreneurship

Foundation Pillars for IT/ITeS Industry Building
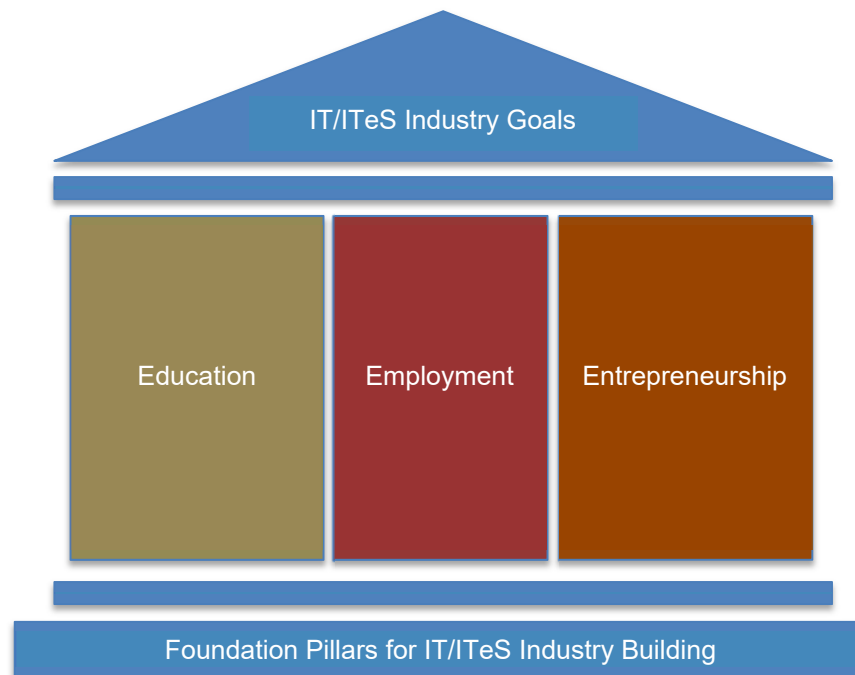
Source: Tholons Research, 2015

As seen in the illustration above, the achievement (output) of IT/ITeS industry goals can be the *performance indicators of success* when developing a sector. In the IT/ITeS context, these usually comprise of specific metric-based goals such as increasing sector headcount, export revenue figures, and GDP contribution. In the figure above, the process of goal setting is considered to be the necessary first-step, from which all pillars are envisioned to support and contribute towards. The Industry Goals should in fact, be the *shared goals* of the various developmental pillars.

In the supporting framework above, the three major pillars identified as key areas that can catalyze industry development are Education, Employment, and Entrepreneurship. These three pillars are equally relevant in the context of Bangladesh, with feedback from stakeholders echoing a similar sentiment that whatever IT/ITeS goals the industry sets, must be properly supported by first addressing the various gaps found across the three foundation-building pillars.

Education, in the above framework is also represented in the Tholons Location Assessment Framework under the Scale & Quality category, and plays an essential role in industry

development. As service providers rely on a location's labor force and their corresponding skill sets to deliver outsourced services – the *quantity and quality* of a location's talent pool can largely determine, the capability of a location to host outsourced services operations and can likewise determine the specific market segment which it can provide such services to.

When analyzing the suitability or 'fit' of a location to host a particular outsourced service group, it is widely accepted that course disciplines within the tertiary educational system typically often have corresponding service lines and groups that they are more aligned to or have greater propensity to fulfill. For instance, graduates of healthcare aligned courses are *most compatible* to provide KPO (health information management) or BPO (medical transcription) services.

As the Employment pillar in Figure 3 shows, and for a location to achieve its respective IT/ITeS industry goals, employment generation should be nuanced on providing long-term opportunities across the *entire* sector. This pillar is equally dependent on the Education pillar, as augmenting the talent pipeline by producing more quality graduates, likewise increases opportunities for gainful employment in the IT/ITeS space. Further, diversifying the talent pipeline can effectively expand the service delivery capabilities of a location, which again, increases employment opportunities. It must be noted, that for long–term employment opportunities to be present, *local capabilities must always be attuned with global skills requirements*. This condition is especially true for the services outsourcing sector, where client skill requirements often are more stringent than the basic skills capabilities in most emerging delivery locations. As such, a collaborative platform across industry stakeholders, government, and educational institutions should be present, to ensure that this necessary 'education-employment alignment' is continuously upheld.

There are two salient considerations when viewing the Entrepreneurship pillar. First, with the rising global demand for outsourced services and the rise of emerging outsourcing destinations, there is perpetually increasing competition among global industry players (both established and emerging). Second, in instances where talent and cost considerations between competing locations are equal, *other fiscal considerations* often become key determinants for the service provider.

In such cases, strong government advocacy is often needed to sway the decision of investors and service providers to consider (or favor) a location over another. This can be done by providing aggressive fiscal levers and incentives such as tax holidays, set-up assistance, support for employee recruitment, start-up subsidies, etc. Additionally, deploying similar *growth-inducing benefits* towards an existing IT/ITeS sector can help develop an industry ecosystem that is fiscally responsive to the growth requirements of the industry. In this progressive scenario, an *entrepreneurial environment* is created, where government lays the foundation for capital investments to succeed and where private sector willingly invests in the industry, as the opportunity for capital gains are made attainable.

Finally, the frameworks (i.e. Tholons Location Assessment Framework & Foundation Pillars Framework for IT/ITeS Industry Building) and the research methodologies to be utilized in this report to assist in the development of the Bangladesh IT/ITeS sector, are dependent on the availability of accurate and updated data information. The data used in this report was collected through two key methods:

1. **Primary Research** - Tholons interviewed various stakeholders in Bangladesh. These interviews included representatives from government, service providers, associations, and private sector companies in this space. Data gathering was also carried out to determine market and labor pool availability, quality, and scale, so as to validate analyses.

2. **Secondary Research** - Tholons conducted secondary data-gathering mainly through desk research of government websites, multilateral agency websites, national statistics websites, industry reports, as well as various news reports. (see Appendix B)

Stakeholder Engagements

As part of the primary research conducted, Tholons and Aon Hewitt executed on-site missions to gather insights and perspectives from Bangladesh's IT/ITeS industry stakeholders. The goal of which was two-fold; to analyze the current conditions of the industry, and to learn from the 'stakeholder perspective,' of the *perceived interventions* that are needed to develop the country's IT/ITeS sector.

Accompanied and facilitated by BCC/LICT personnel, the following key IT/ITeS stakeholders were interviewed during the Consultant Team's first on-site mission, during the week of September 6 – 11, 2014, across various locations in Dhaka City, Bangladesh:

Table 1: Companies, Institutions & Stakeholders Approached During the First On-Site Mission

Company/Institution (In Alphabetical order)	Personnel
Bangladesh Association of Call Center & Outsourcing (BACCO)	1. Ahmadul Hoq, President 2. Wahid Sharif, Managing Director (Digicon) 3. Abdur Rahman Shawon, Executive Coordinator
Bangladesh Association of Software and Information Services (BASIS)	4. Shameem Ahsan, President 5. Russel T. Ahmed, SVP 6. Sami Ahmed, ED
Bangladesh Computer Council (BCC)	7. Fokhruz Zaman, Component Team Leader IT/ITeS
Bangladesh Computer Samity (BCS)	8. Mustafa Jabbar, Former President
Bdjobs.com	9. A. K. M Fahim Mashroor, CEO
CSL Software Resources	10. Md. Rafiqul Islam Rowly, Managing Director
Data Edge	11. Md. Asifuzzaman, Managing Director
DataSoft	12. Mahboob Zaman, Managing Director 13. M. Manjur Mahmud, Director & COO
DigiCon	14. Azmal Haque Azim, Director 15. Gourab Gupta, Consultant – Quality 16. Sourav Prasad, Principal Consultant
Dohatec	17. Luna Shamsuddoha, Chairman 18. Md. Nazmul Huda, CEO 19. Most. Fahmida Akter, Team Lead eGov 20. Md. Masudur Rahaman, RA Administrator
Elance-oDesk	21. Saidur Mamun Khan, Country Manager
Graphic People	22. Imtiaz Ilahi, Managing Director

Internet Service Providers Association of Bangladesh (ISPAB)	23. Nackshab Omar Rabbani, Director 24. Sharful Alam, COO (aamra) 25. Md. Emdadul Hoque, Secretary General 26. Subrata Sarker Shuvra, Treasurer
Millenium Information Solution	27. Mahmud Hossain, Managing Director
Prime Minister's Office	28. Anir Chowdhury, Policy Advisor
SouthTech	29. Syed Mamnun Quader, Managing Director 30. Md. Mizanur Rahman, EVP 31. Khan Rifat Salam, Senior Research Consultant
University of Dhaka, Institute of Business Administration	32. Dr. Syed Ferhat Anwar

Source: Tholons & Aon Hewitt On-site Mission (September 6-11, 2014. Dhaka City, Bangladesh)

Relevant insights were provided by the various IT/ITeS stakeholders during the first on-site mission and discussions were made regarding perspectives on the growth of the IT/ITeS sector in the country, substantiated by the professional and personal experiences of the stakeholders, including opinions on the shortcomings of the IT/ITeS ecosystem. The identification of *common and critical industry pain points* was one of the most salient outputs of the stakeholder interviews.

Bringing the discussions further, a dialogue initiative was proposed by the Consultants Team during the first on-site mission, since the need for an alignment in the priorities and goals of the various IT/ITeS industry stakeholders was raised as a concern during initial discussions. An *Industry Development Workshop Framework* was developed to attain this goal:

Individual Stakeholder Discussions
(First On-Site Mission)
- Identification of Bangladesh Value Proposition
- Identification of 3 Big Picture Goals
- Identification of 3-5 Critical Concerns

Primary Stakeholders

BASIS & BACCO

BCC

Service Providers

ISPAB

Academe

BCS

Consolidation of Discussions and Creation of Draft Proposition, Goals, and Critical Concerns
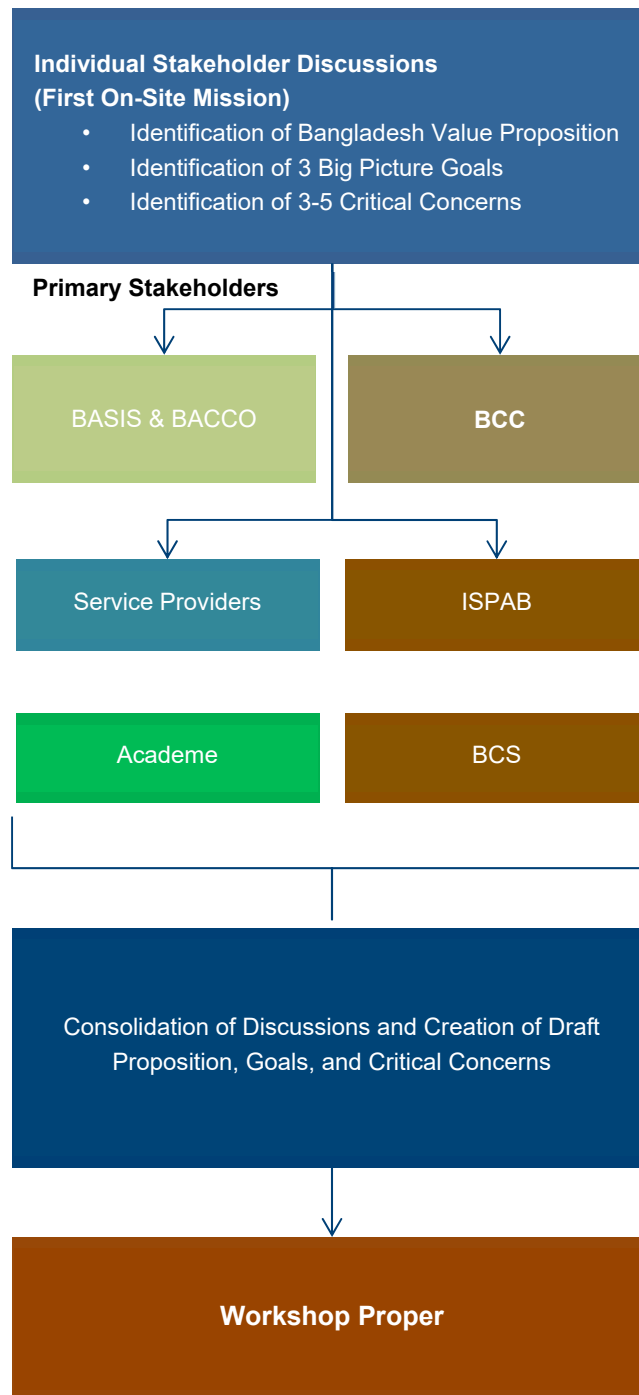
Workshop Proper

Source: Tholons Research, 2015

Specifically, and drawing insights provided by stakeholders during the first on-site mission and the Industry Development Workshop proper. It was surmised that the three big picture goals to have revolved around industry stakeholders needing to:

1. Improve the overall IT/ITeS Ecosystem
2. Improve the Marketing & Promotion Efforts of the IT/ITeS sector
3. Improve and expand the country's Talent Pipeline

Moreover, the critical concerns, which correspond to the three industry developmental areas mentioned above, are explained in more detail in proceeding sections of this study.

The Workshop Framework provides a platform and approach to initiate stakeholder discussion, with the final objective of creating a unified message for Bangladesh's IT/ITeS industry. The initial step of approaching each stakeholder individually was done through the Consultant's first on-site mission *(Refer to Appendix B – Table 9).* This *goals setting stage* was aligned with the industry association goals, as set forth by the major industry associations namely the Bangladesh Association of Software and Information Services (BASIS), Bangladesh Association of Call Center & Outsourcing (BACCO), as well as government institutions such as Bangladesh Computer Council (BCC). These were then consolidated by the Consultant Team, with aims of finding the *common stakeholder goals.* The summary value proposition, goals, and critical development concerns were then drafted and handed out to the stakeholders during the Workshop for all parties. The various stakeholders were then given the opportunity and encouraged to provide their discussion points.

The culminating activity of this investigation was conducted through the "*Uniting Visions*" Industry Development Workshop, organized and moderated by the BCC, held on the 17th of January, 2015 at the Chitra Room of Pan Pacific Hotel, Sonargaon. Attended by 24 stakeholders, the industry development workshop was comprised most major industry associations. BASIS and BACCO, as the two largest IT/ITeS sector industry associations with the most sufficient coverage of the industry, acted as primary stakeholders providing the main insights on industry vision, needs, and goals. Government and academe stakeholders also provided the necessary support to the IT/ITeS industry. The Workshop was spearheaded by the Consultant Team, serving as a third-party facilitator.

The underlying objective of the workshop was for all stakeholders to agree on 'broad stroke' goals and allow for the sharing and creation of ideas which may be used to drive sector-specific initiatives, and priority development areas. It aimed for the stakeholders to agree on "One Bangladesh" visions, objectives, goals, and timelines, align the "One Bangladesh" strategy with the larger "Digital Bangladesh" vision, identify development areas for the growth of the IT/ITeS sector and finally draw inputs from participants on the identified five priority development areas:

1. One Bangladesh Vision

2. Human Capital
3. Infrastructure
4. Demand Creation
5. Business Policy & Legal

Further, industry association representatives discussed their respective focus goals as well as their current initiatives for industry and sector-specific development.

Industry Statistics

Lastly, creating an IT/ITeS industry data foundation remains a cornerstone deliverable of the Bangladesh IT/ITeS Industry Development Strategy project. While industry surveys have already been carried out and several databases already exist (e.g. e-Gen Bangladesh IT/ITES Industry Survey 2014, BASIS Software & IT Services Catalog 2014), there have been noticeable lapses in the proper execution of these surveys and industry stakeholders have likewise questioned the integrity of the data collected in these exercises. The goal of the proposed survey activity is to be able to gather the most relevant (and accurate) data, necessary to construct a *valid market size* of the current IT/ITeS industry of Bangladesh *(Refer to Appendix A)*. In our experience of doing similar engagements over the last 2 decades, it is very natural for such data gaps to exist. Over the course of the next 5 years, we recommend that the data collection and formation of industry statistics align to a process similar to as follows:

1. Work with major industry association to improve the sanity and validity of data in phases.
2. Membership fees could be based on the revenue.
3. After 3 years, the industry association could ask for audited revenues and employee head count etc.
4. Primary interviews with major association and key industry players could be used in forecasting the industry numbers.

The survey was and should be executed in the future in partnership with the various industry associations in Bangladesh such as BASIS, BACCO, BCS, and ISPAB. Each association's executive team should be involved in disseminating the survey, sending out e-mail notices and conducting follow-up calls. This way, the survey will be most efficiently delivered to the stakeholders. In addition, each industry association identifies at least 10 IT/ITeS service providers to prioritize receiving responses from. Essentially, these top providers (from each industry subsector) will be most significant (largest) contributors to Bangladesh's IT/ITeS sector. Thus, the responses and insights from these major players proves to be extremely useful.

In addition to executing the survey, the strategy of consolidating existing industry data from various agencies was agreed upon by the stakeholders. BCC provided assistance to the engagement team in order to obtain relevant and precise industry data through the facilitation of meetings and provision of authorization to the Consultants in acquiring data from various sources. A maximum level of support and cooperation from BCC and other industry agencies such as BASIS, BACCO, and ISPAB will always be needed, since the data gathered and the result of the industry data foundation will rely on their output. Consequently, the Consultant Team will also always request access to additional relevant data from other government departments and agencies such as Ministry of Education, Ministry of Labor, etc.

For the secondary data gathering, Tholons gathered data from different organizational bodies (both local and international). Statistics coming from BANBEIS with regards to do the University graduates and field segmentation were crucial in identifying the IT/ITeS specific graduate output. Other significant data incorporated in the Study, were also derived from the e-Gen and Bangladesh Bank databases. BASIS has also provided highly relevant statistics data and information material, ranging from sector-specific data, industry policies, and related statistical information of the country IT/ITeS industry.

This deliverable includes discussion on the following coverage areas:

1. Analysis of current position of Bangladesh IT/ITeS industry
2. Analysis of local industry capabilities with global market demand
3. Competitive analysis on the country's services outsourcing landscape through identification of relevant competitors, and inherent advantages/disadvantages relative to competitors
4. Develop accurate industry data set to help determine proper industry size and composition
5. Identification of critical roadblocks hindering the development of IT/ITeS sector

Based on the above objectives and outputs, specific recommendations were developed which will help assist the government and industry stakeholders in exploring feasible and pragmatic approaches to take in developing the country's IT/ITeS industry.

Country Analysis

Macro-Economic Overview

Bangladesh, which emerged as an independent nation in 1971, is a lower middle economy of South Asia. Bordering the Bay of Bengal between Myanmar and India, with a population of 160 million, the country's competitive labor cost structure, and a resilient and steady growing economy offers promising opportunities for investments, especially in services outsourcing, pharmaceuticals, and other labor-intensive industries such as agriculture and garments manufacturing.

Bangladesh has broadly seen sustained economic growth in recent years. The Bangladeshi economy however, has shown resilience in the face of the global economic turmoil. In the past decade, the economy has grown at approximately 6% per annum, and human capital development has coincided with economic growth. Poverty dropped by nearly a third, coupled with increased life expectancy, literacy, and per capita food intake. The World Bank reports that more than 15 million Bangladeshis have been elevated from poverty levels since 1992.[1]

Trade liberalization has been one of the major policy reforms carried out by Bangladesh since the 1980s, implemented as part of the national economic reform program, that is, the structural adjustment program (SAP) was initiated in 1987. Since then, trade liberalization and export promotion have remained as central elements of Bangladesh's trade policy. This liberalized trade policy combined with duty and quota-free access has boosted Bangladesh's exports to grow more than nine times between 1990 and 2009. During this period, the share of exports in GDP tripled from 5.5% to 17.4%. The United States and the EU remain as key export markets, taking almost two thirds of Bangladesh's total exports. The total value of imports has similarly increased six-fold between 1990 and 2009. This has put negative pressure on the overall balance of trade, which has grown from about 6% of GDP to 7.77% of GDP.[2] The country's export and import position for the period beginning 2010 are presented in Chart 1 below:

[1] World Bank, 2015
[2] Bangladesh Economic Update, World Bank, 2012.

Chart 1: Bangladesh Total Volume of Exports and Imports
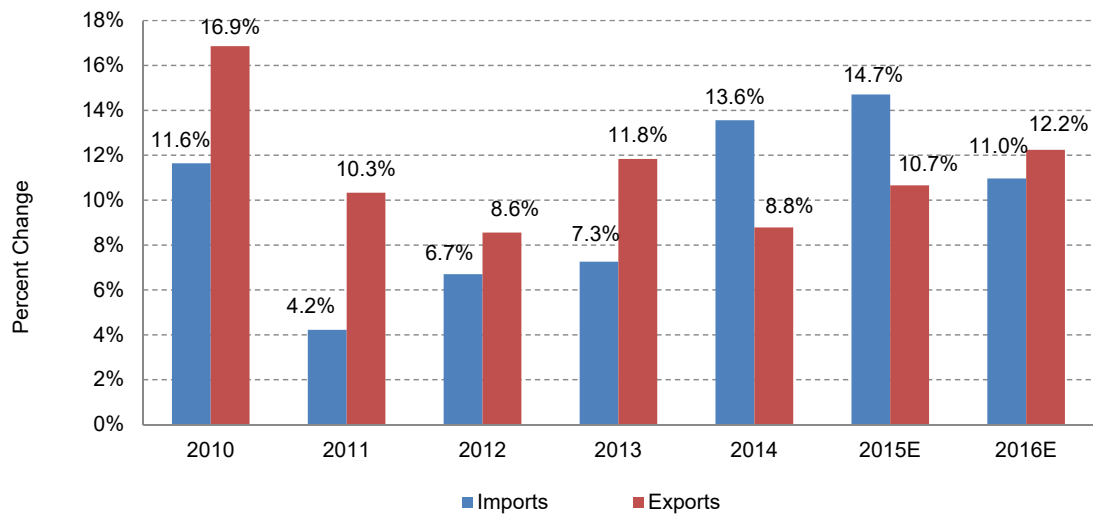
Source: IMF-WEO, 2015

Since 1992, garments have been the country's primary export; comprising 81.69% of total exports. Today, Bangladesh has emerged as the second largest exporter in the global garments market. Related to this sub-sector, the economy is also doing relatively well in the exports of finished leathers goods.

The RMG Industry in Bangladesh is a great example of leadership and should be used to demonstrate what Bangladesh is capable of and has achieved. Top 100 global brands have put their trust and businesses in Bangladesh. This industry has reached the pinnacle on a solid foundation of quality, scalability, on time delivery, cost competitiveness to become the trusted partner of these global brands.

In our view, given the trust that these Top 100 apparel brands have placed in Bangladesh and the various large manufacturers, it is very opportune to have a focused strategy that leverages the brand that RMG has already built. There are lot of parallels that can be drawn by looking at the journey of the RMG industry in Bangladesh. The strategy for IT/ITES will take learning and will leverage the RMG industry for its development.

Bangladesh government provided subsidy on the input i.e. material for the RMG industry, to enable a new industry be able to be competitive. The implementation of back-to-back LC was also a very innovative way to help make the process seamless and cost effective. These concerted efforts and measures were critical to the nurturing and growth of an industry that today is the largest exporter for Bangladesh and the second largest producer of RMG after China.

Similar to RMG industry, trained and skilled resources are the input in the IT/ITES industry - which currently becomes expensive because of the lack of experienced IT/ITES resources. These

resources are in short supply. Similar to the RMG industry, the input i.e. IT/ITES resources cost can be subsidized by waiver or reduction of personal income tax - thereby bringing the cost down and making Bangladesh competitive.

Among the Top 100 apparel brands in Bangladesh, the following brands have the most opportunity for leveraging and impacting the IT/ITES industry.

However, expertise in garments manufacturing has not been replicated in other export sectors, and its export portfolio remains heavily skewed towards the garments sector. Conversely, though the garment manufacturing industry benefits from abundant and skilled labor in the country, the same rational is not easily applied to the country's services outsourcing sector. That is, though the garments industry benefits from an abundant supply of labor with 'basic labor skills,' the services outsourcing sector requires a much more refined talent pipeline, with technical skills sets and proficiencies (i.e. IT, process, domain, language, etc.). As such, stakeholders must be sensitive to the idea that export capabilities in a particular industry sector (e.g. garments manufacturing), because it uses the same types of input (human resources) as another industry (e.g. IT/ITeS), that both will generate similarly successful outcomes.

Further, the garment industry in the Bangladesh is today an established (and lucrative) economic sector. With numerous multinational companies in the garments industry with large manufacturing facilities in Bangladesh - *GAP, H&M, Disney Apparel, among others* - the country, and the local IT/ITeS sector could capitalize on the existing presence of these entities by enticing multinationals to consider creating global in-house center (GIC) in the country. Why not *provide the opportunities and incentives to these large companies*, to have Bangladeshis not only manufacture their

garments, but also to fulfill the Finance & Accounting and/or back office work in the country as well? Following this path, also would contribute to further diversification of the country's economic profile.

However, there are also numerous lingering hurdles to achieving this, such as internal concerns which have put the country's *infrastructure and socio-civic conditions under international scrutiny. These conditions, could possibly affect the image (of having operational presence in Bangladesh) of these garment manufacturers in the broader, external market.* Having said this, Tholons maintains that there remain opportunities, for current garment manufacturing companies to be enticed to at least consider establishing their captive delivery centers in the country.

Chart 2: Bangladesh GDP at Current Prices (2010-2016)
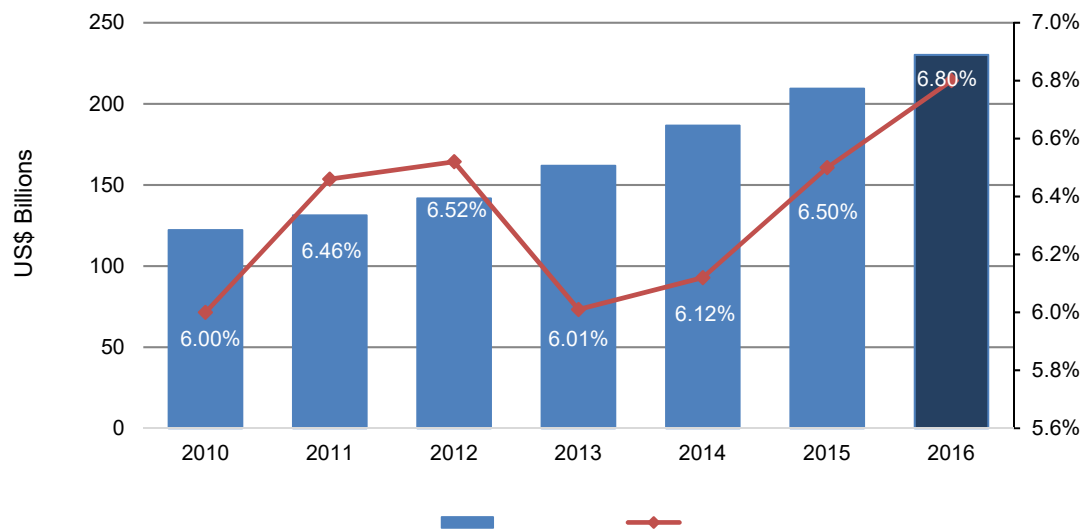
Source: 7th Five Year Plan

Bangladesh's economic performance in 2008 and 2009 was somewhat erratic, pegged at 6.0% and 5.0%, respectively.[3] However, beginning 2010, the country began to show more stable growth, with GDP stabilizing above the 6.0% mark. The country was noted to have weathered global economic turmoil during this period, buoyed by a healthy garments exports sector. GDP growth rates were slightly higher in 2010-2011 due to strong performance in agriculture and non-farming sectors, along with an increase in public spending. In 2010, one of the key sectors which registered dramatic growth the Telecommunications sector, driven by adoption in mobile Telecommunications

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[3] World Bank, 2015.

technologies. Six mobile telephone companies reportedly added 16.2 million new subscribers during the year, or a total subscriber base increase of 31% in a single year.

GDP growth moderated from 6.46% in FY2011 to 6.01% and 6.12% in FY2013 and FY2014, respectively. Sectoral performance underpins probable lower growth during this period. Among the sectors, industrial growth was sluggish due to slack external demand.

Growth in government consumption and investment has been fairly satisfactory. However, private sector demand for consumption and investment appears to be rather weak as credit to the private sector grew only by 6.9% in FY2014 against 13.6% growth in the period of FY2012. Amidst the backdrop of steady external demand and sectoral performance of the domestic economy, the Bangladesh Bureau of Statistics (BBS) projects GDP growth of 6.5% for FY2015 and around 6.8% in FY2016, respectively.

Chart 3: Bangladesh GDP Composition (2015)
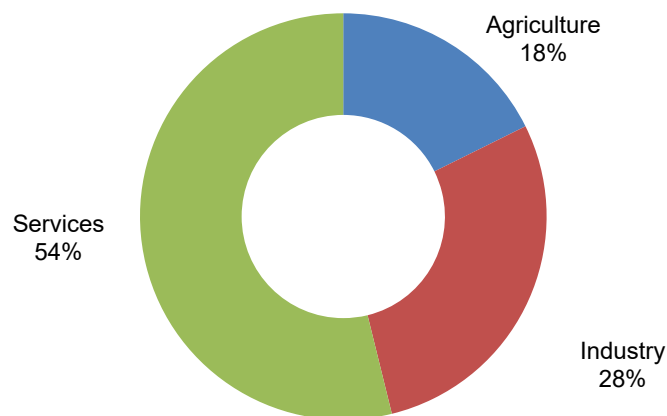
Source: World Bank, 2015

Chart 3 above shows the sector contributions of the Bangladesh economy. More than half of GDP is generated by the Services sector, but nearly two-thirds of Bangladeshis are employed in the Agriculture sector. The share of the service sector in GDP is 54% while Industry's share is 28% and Agriculture's, 18%. GDP contribution in the country has historically been led by the Services sector, due in part to the innovativeness of entrepreneurs, duty-free access to many developed markets, and most importantly, an abundant supply of cheap labor.

To further illustrate the performance of the broad Services sector, Bangladesh's total Commercial Services exports grew from US$947 million in 2009 to US$1,876 million by 2013, as seen it Table 2 below, growing at a compounded annual growth rate (CAGR) of 15% during the period. The total

services export sums up to over US$3.2 Billion as of 2016. In terms of Commercial Services exports, Bangladesh ranks moderately in comparison to most other South Asian countries. The regional market is largely driven by India, the region's largest economy, followed by Sri Lanka, Pakistan, Maldives, and Bangladesh. As previously implied, diversifying the country's exports portfolio could be a definitive means to not only expand export markets, but likewise, augment export revenues as a whole. *The diversification of the country's services exports offerings, is one of the key economic benefits that can be realized though the development of a more robust services outsourcing industry.*

Table 2: Total Commercial Services Exports (US$ millions at Current Prices)

	2009	2010	2011	2012	2013
Afghanistan	1,854	3,053	3,392	2,998	-
Bangladesh	947	1,203	1,388	1,307	1,876
Bhutan	53	67	80	97	123
India	92,137	116,460	138,161	145,648	150,926
Maldives	1,538	1,804	1,999	2,010	2,372
Nepal	601	584	775	769	962
Pakistan	2,532	2,944	3,386	3,222	3,284
Sri Lanka	1,874	2,454	3,062	3,773	4,657

Source: WTO Trade Profiles, 2015

Note: The WTO defines Commercial Services Export in the following: (a balance of payments based statistic) other commercial services refer to communication, construction, insurance, financial, computer, information, other business, and cultural and recreational services, and royalties and license fees.

Given its current inclination towards the garments exports sector, economic stakeholders must be able to properly manage the foreseen challenges of the sector. Increasing minimum wages, increased operating costs brought about by stricter adherence to international safety and labor standards, (as brought about by several high-profile incidents in the industry), as well as heightened competition from other emerging economies in Asia – all have the propensity to affect industry trajectory and long-term performance. The country's garments sector may also face some moderate displacement on external demand, as some buyers shift operations to alternative destinations, in response to the recent industrial accidents. The short-term dynamics of the sector will reflect the interplay of these two challenges – *rising production costs and possible shifts in external demand.*

IT/ITeS Sector Overview

The current IT/ITeS industry profile of Bangladesh positions the country as an emerging services outsourcing destination, currently capable of providing services exports in the ITO space, albeit in a smaller scale currently, and with future capabilities of delivering larger-scale BPO services.

The country has distinct supply-side characteristics that if properly utilized, can catalyze more progressive IT/ITeS movement in the country. However, much of this is predicated upon the concerted efforts of stakeholders to not only continue the current momentum of the industry, but likewise, to drive the industry further, and increase both service delivery capacity and capabilities.

The following sections will shed light to the current state of Bangladesh's IT/ITeS sector as well as the initiatives spearheaded by the government and industry stakeholders, aimed at stimulating sector growth. IT/ITeS industry data utilized in this section, was derived from BASIS and their resource databank. The Consultant Team *also considered* other sources of statistical information such as the e-Gen Bangladesh IT/ITES Industry Survey 2014, and official data provided by Elance-oDesk of Bangladesh. These data sources were then utilized to validate and provide further perspective of IT/ITeS industry composition. The data utilized in this section is also intended to be updated and ascertained as more recent data is taken through the Industry Survey exercise.

The IT/ITeS sector of Bangladesh has grown considerably in recent years. Today, it counts more than 1,500 registered IT/ITeS service providers employing over 250,000 ICT professionals. Total IT/ITeS revenue generated by the country reached approximately US$600 million for the period 2013-2014, with export revenue accounting for US$250 million including the freelance outsourcing segment.[4] The export revenues have steadily increased and reached $444.8 million for the period 2014-15 (Ref. 7th Five Year Plan). Industry estimates have pegged the ITO sector to witness significant growth and as having the potential to emerge as a leader in services export. Though the country's BPO sector has continued to grow, it has remained focused on servicing the domestic market. Though this may be the current scenario, Tholons believes that there lies opportunity for both the ITO and BPO (particularly for non-voice BPO services) spaces to expand more aggressively in the global market. As previously implied, for this to happen, specific supply-side inhibitors must be addressed.

Recent trends in the country's ICT sector has also impacted the demand for ITO and BPO services in the domestic space. For example, the growing number of Internet users and adoption, has led

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[4] BASIS Software and IT Service Catalog, 2014. Tholons Research and Estimates, 2015.

to greater connectivity and access for millions of consumers. As such, IT/ITeS companies have capitalized on this newfound market opportunity, by developing web-based services and content that include specialized portals, listing services, e-Commerce, e-Learning, payment intermediary services and development of web applications based on cloud/Software as a Service (SaaS) delivery models. The local ITO sector has likewise capitalized on the development of mobile apps.

As derived from BASIS membership data, the majority of ITO service providers in the country specialize in the Customized Software Development and IT Enabled Services service groups, comprising 56% and 17% of BASIS members, respectively. *As of December 14, 2015 - BASIS counts 986 member companies under its fold.*

Chart 4: BASIS Member Companies 2014 – Service Group Specialization
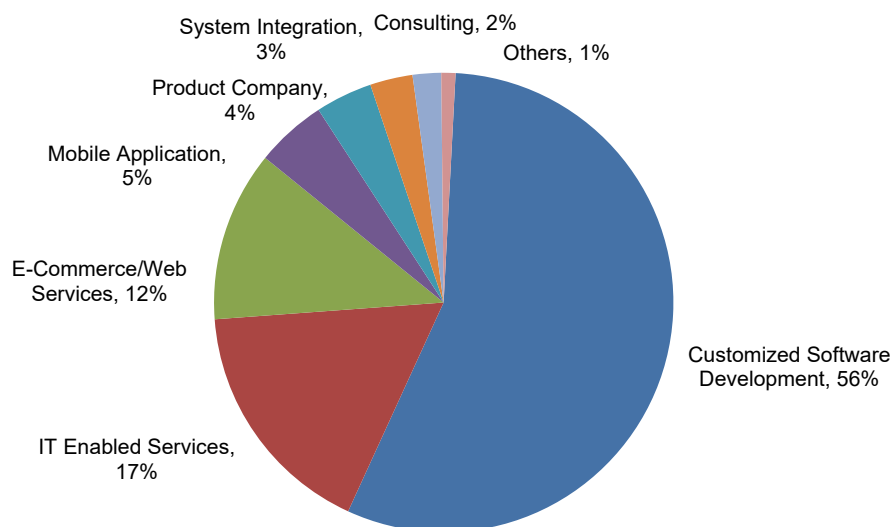
Source: BASIS Software & IT Services Catalog, 2014

Chart 4 above shows a salient finding in that more than half of BASIS members are clustered in the Customized Software Development subsector. Even at this early stage of industry development, this affinity towards Customized Software Development, provides indication of the country's inherent market inclination as a services outsourcing destination – that is, its capabilities in the *ITO* space.

IT Enabled Services comprise a substantial 17% of BASIS members, a composition likely driven by services providers who have a *mixed service delivery portfolio*, consisting of contact center, back-office, and finance & accounting services.

Currently, the majority of Bangladesh IT/ITeS providers, as found by BASIS, depend on the domestic market as a primary revenue source, with 63% of members focused on providing services

to local industries. Local demand is reported to be driven by companies seeking to improve business processes and adopt global 'IT Best Practices,' a relatively recent trend, only beginning to spread in the country. In a 2014 survey carried out by BASIS of around 110-member service providers, the majority of providers delivering services to the domestic market were focused on developing business application solutions including ERP, Accounting Software, HR Software, Sales Automation, and Inventory Management systems, among others.

From a vertical perspective, the Banking and Finance sector continues to be the primary market for IT/ITeS providers. Though the country's banking software market has been historically dominated by foreign solutions providers, recent growth in the country's financial industry has led BFSI organizations to increase procurements of locally developed BFSI solutions and services. Further, with increased stringency in the regulations of micro credit/micro finance (MFI) institutions demanding higher operational efficiencies, a number of companies have started engaging in this untapped market.[5]

Chart 5: BASIS Member Companies 2014 – Vertical Specialization
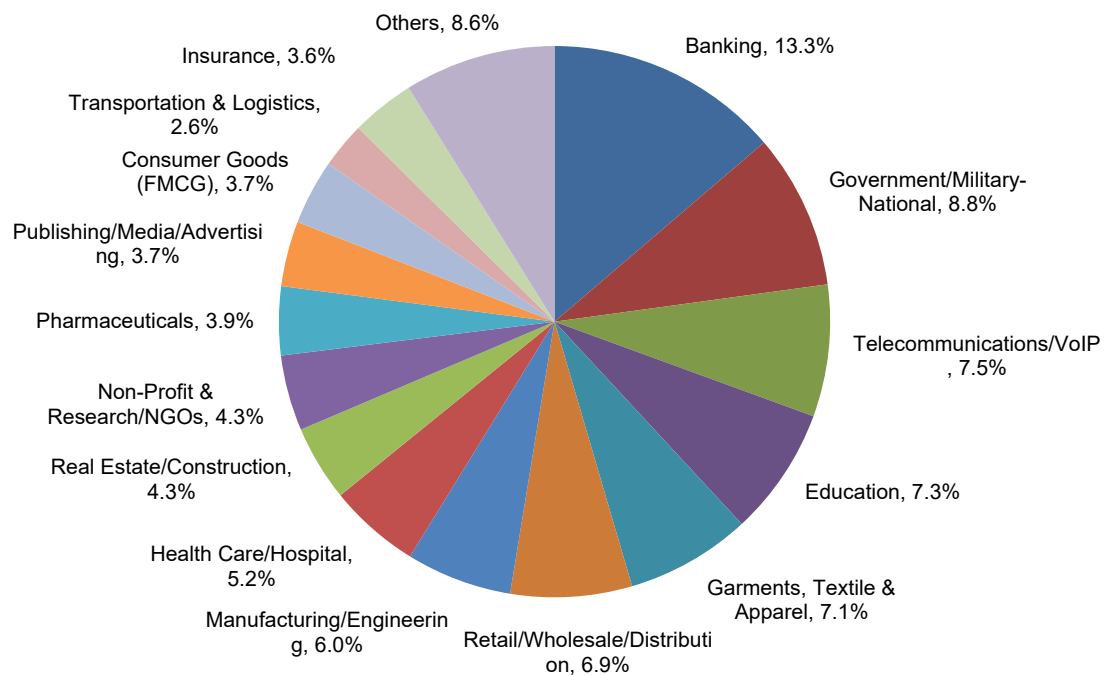
Source: BASIS Software & IT Service Catalog, 2014

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[5] BASIS Software and IT Service Catalog, 2014.

Following the Banking & Finance sector, are ITO solutions and services provided to the Government and Telecommunications sectors. Procurement of ITO services by these sectors are noted by providers to have been driven by recent initiatives of the national government to more aggressively adopt modern IT practices, which includes increasing Telco ICT capacity, implementing e-Governance solutions, and the digitization of government processes such as registrations, renewals, and other forms of data-driven documentations. These two sectors are expected to be driving forces in the domestic market, across the mid and long terms, and for as long as the nation continues its ongoing process of OCT adoption.

Further segmenting its member composition, BASIS estimates that its industry subsector is comprised of an estimated 400 export-oriented IT/ITeS providers. Geographic market focus gravitates towards the traditionally established services buyer markets, namely the USA, UK, and Canada.

Chart 6: BASIS Member Companies 2014 – Geographical Markets of export-oriented Members
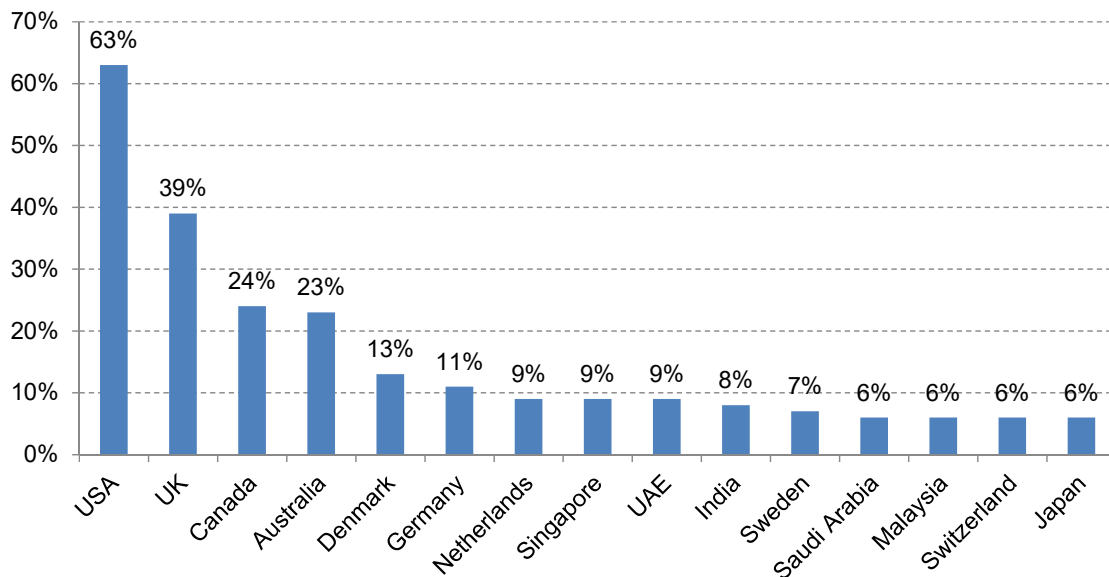
Source: BASIS Software & IT Service Catalog, 2014

While the top three export geographies represent the traditionally large, Western client markets for services outsourcing, Bangladesh IT/ITeS providers should also focus on building capabilities in *alternative client markets* such as India, Netherlands, and Japan where existing diplomatic and trade relations can be leveraged and markets are not as saturated and competitive. Proper identification and focus on these alternative client markets can further catalyze the development of the Bangladesh IT/ITeS industry, as these alterative buyer markets can diversify the service

delivery portfolio of existing IT/ITeS providers, and likewise allow greater market opportunities for smaller service providers, who would otherwise have difficulties penetrating large client markets such as the US, UK and Canada.

Table 3: Export Segments of the IT/ITeS Industry in Bangladesh (2013)

Export Segments	Number Employees	Revenues (US$ millions)
Online Marketplace based Freelancers	30,000	45
Offshore Development Centers or Joint Ventures	3,000	40
Organically Growing Software Product Companies	1,000	35
Organically Growing Indigenous Service Companies	5,000	30
Direct Offshore Employment	700	20
Freelancing Turned to Companies	500	5
Total	**40,200**	**175**

Source: Interviews with BASIS, elance O Desk, Accenture, BCC, Dr. Rokonuzzaman, Tholons Research and others

Table 3 above shows a recent industry segmentation undertaken by BASIS, profiling the country's IT/ITeS labor pool and each segment's corresponding export revenue contribution. These various segments have varying roles within the industry ecosystem, and logically, would also have differing growth potentials, from both a domestic and export market perspectives. Technology activist and published writer, Dr. Rokonuzzaman, further categorizes the sector segments in Bangladesh.

Offshore Development Centers (ODCs) or Joint Ventures also known as Captives are service delivery centers created to process coding and testing services to support the software development work of overseas parent companies. However, few (if any) of these facilities, from a headcount perspective, have been able to sustain high levels of growth in Bangladesh. This is largely attributed to the still developing, and *still constricted talent pipeline* in the country. This sector is seen as having high growth potential in the country *provided* that significant investments and capacity-building initiatives are made to augment the talent pool, and develop a more capable IT/ITeS workforce for these *potentially large* ODCs.

Organically-growing Indigenous Service Companies comprise homegrown providers that were established in the early 1980s. Mostly consisting of small companies which started leveraging their own foreign contacts to begin the export of software development services. Many of these companies continue to service the domestic market. For these types of companies, especially the small-mid-sized companies who have remained *small since inception*, it is perceived that lack of *exposure to international management best practices and access to capital funding* – have been the key barriers for growth. (Reference: Three Decades in Review of Software Industry of Bangladesh, Dr. Rokonuzzaman).

There is also a classification for *Software Product Companies*, few of which also started in the 1980s in Bangladesh. This segment was pioneered in 1986 by Machine Dialogue, a provider which developed business applications for the export market. The company's success was attributed to it being able to close a deal with the Volvo Motor Company, for the development of ERP software. Since then, Bangladesh expertise in developing similar software products have gradually improved, and the number of small solution developers have likewise emerged. Moderate growth potential is seen for this segment with specific needs in workforce quality, niche marketing initiatives, and access to capital, all being requisites to fuel growth. Similar to the Indigenous Companies, lack of exposure to external markets and best practices are seen as a hindrance for the Product Companies. Further, for the smaller providers in this group, employee migration becomes an equally pressing concern for sustaining operations.

The *Direct Offshore Employment* group is also an emerging segment in Bangladesh's IT/ITeS sector. This is a relatively new employment classification, which entails a foreign company directly recruiting local individuals on their payroll. Approximately 500-1,000. This is one segment which is considered as having high potential but similarly faces challenges with the unavailability of skilled talent, required for appropriate scale. Likewise, awareness of this type of employment is relatively low, and potential employees may still prefer for more *'traditional employment models,'* in more structured operational environments.

A recent and key development in Bangladesh's IT/ITeS sector has been the rise of the *Freelance sector*. This group primarily consist of individuals who do specific tasks as posted by employers on online portals/marketplaces. Given its *rapid growth* in the past few years, Freelancing has also been considered as a key component, driving the overall growth of the Bangladesh IT/ITeS sector. The segment can be grouped into two major categories;

First are *Freelancers* which have successfully transitioned to becoming companies themselves. With decreasing prices of computer hardware, broadband connection, and relatively basic skills requirements, thousands of aspiring university students and graduates have started exploring *bidding opportunities for micro jobs in the online market place*. Capitalizing on these available (and abundant) opportunities – it is estimated that more than 50 high performing Freelancers have

crossed the barrier to develop their own *micro-enterprises*, exporting ITeS products and services to the global market. This number is expected to rise, for as long as the Freelance ecosystem in Bangladesh remains uninhibited, and as exposure and awareness of the Freelance opportunities spreads among the youth segment of the country.

Second are *Online Marketplace based Freelancers*, or individuals who directly do the employers tasks on their own. Access to the *global job market,* or Internet based jobs, has given the youth of Bangladesh an opportunity to demonstrate and showcase their IT/ITeS capabilities on an international platform. The dominant freelance platform in the country, *Elance-oDesk*, counts over 30,000 active Bangladeshi freelancers; most of these are part-timers, with a significant percentage being tertiary students. From 2010 to Q1 of 2014, a reported *435,249 jobs were awarded to Bangladeshi freelancers from Elance-oDesk market place alone.*[6]

Chart 7: Annual Revenue per Person for each IT/ITeS Segment
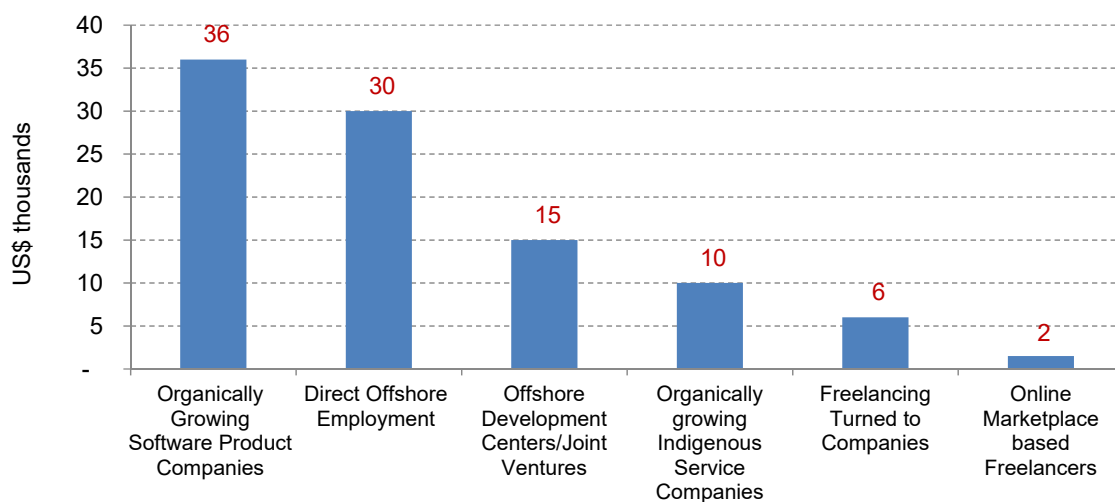
Source: BASIS Strategy for Increasing Export and Software and Services, 2014

As seen on Chart 7 above, there is a noticeable fluctuation in the estimated per person revenue between the IT/ITeS segments in the country. As shown by the revenue earned by *individual freelancers*, the lower revenues generated can be explained by the very nature of *freelancing,* wherein the bidding process drives the costs of outsourced tasks down, with the *lowest bidder* often winning the bid. Further, with relatively low skills requirements for these types of micro-jobs, per person revenue is expected to remain on the low-end of the price spectrum of outsourced services.

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[6] Elance-oDesk, Inc., The Online Work Revolution: The Role of Bangladeshi Freelancers, 2014

At the same time, while per person revenue may be low, revenue total for Online Marketplace based Freelancers (see Table 3) is the highest among all segments, attributed to the *ease of entry* for Freelancers when joining the marketplace, and their subsequently high volume.

Tholons observes that there is definitive (and growing) opportunity to transition portions of the freelancer segment into more formalized corporate-type entities. As previously noted, there are already over 50 enterprises have been created from the freelancer segment.

With shared experiences and commonalities across individual freelancers, distilled from similar delivery standards and client requirements – *freelancers are in fact, similar yet individual business units* – who have great possibilities to consolidate and evolve to become larger, more formidable service provider entities. Consolidating or shoring up capable freelancers, into larger service provider units could also help alleviate some of the industry fragmentation issues. Finally, transitioning into the more traditional 'corporate model' could also convey a positive image of IT/ITeS in general, as aspiring ITeS talent, could see work in the freelance platform as a viable stepping stone to establishing their own IT/ITeS companies. This transition can also stimulate much needed *entrepreneurial spirit* in the sector, and allow for more aggressive participation of the private sector in the IT/ITeS industry.

Chart 8: Freelance Revenue Earnings by Segment in US$ millions (2010 - 2014)
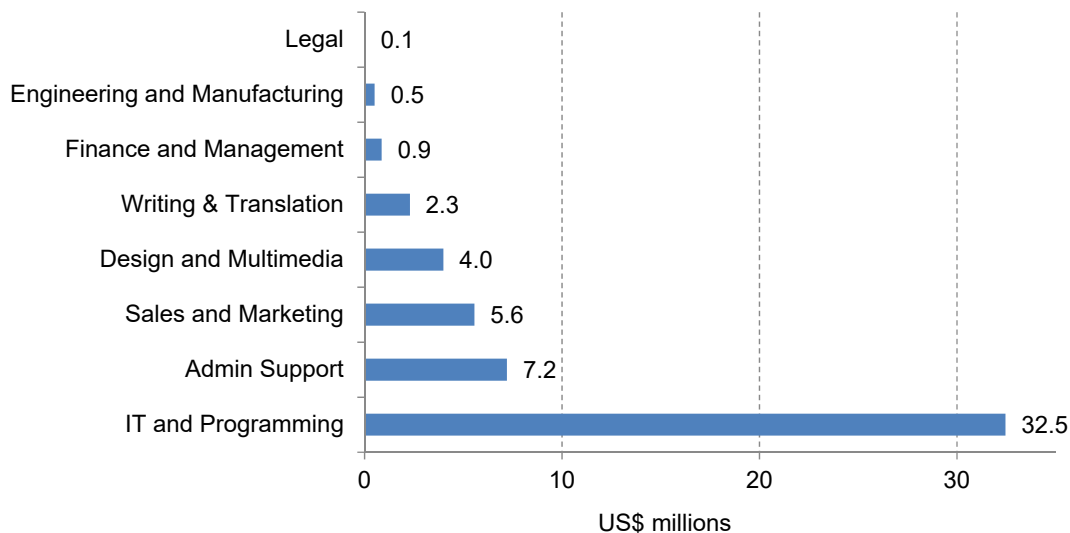
Source: The Online Work Revolution, Elance-oDesk, 2014

From 2010 to the first quarter of 2014, Elance-oDesk recorded 435,249 jobs awarded to Bangladeshi freelancers, with the country contributing 5-7% of the total working hours of the 8

million freelancers in 180 countries.[7] The highest paying segments in the Freelance sector were Architecture and Engineering, Management and Finance, and lastly, Legal Services.

Chart 9: Freelancer Average Hourly Rates per Process Segment in US$ (2013)
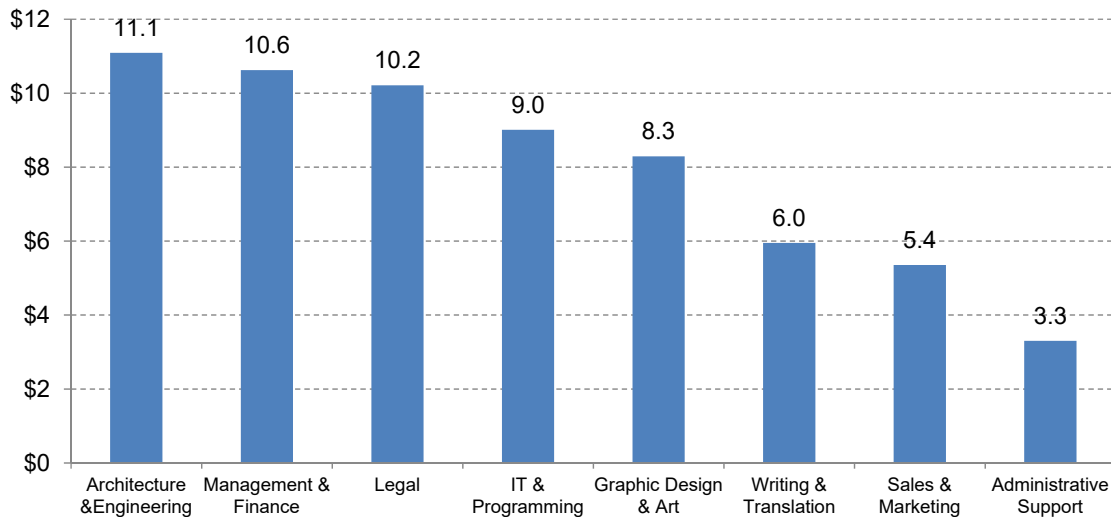
Source: The Online Work Revolution, Elance-oDesk 2014

As with the trend for IT/ITeS providers, freelancers also identify the US, UK, and Australia as top geographical markets.[8] Top segments of freelancing services are Software and ITeS firms, Media Services, Training and Educational Institutions while service offerings mostly include web design, data entry, technical writing, search engine optimization (SEO), and e-Commerce application development.[9] The most *in-demand* skills reported in the country are:

1. SEO
2. WordPress
3. PHP
4. HTML
5. CSS
6. Data-Entry
7. MySQL
8. Internet Research

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[7] The Online Work Revolution, Elance-oDesk, 2014.

[8] Elance-oDesk, 2014.

[9] Data Collection of Bangladesh IT/ITES Industry, BCC, 2014.

9. Social Media Marketing
10. Adobe Photoshop

While the Freelance sector has provided definitive contributions to the country's ITeS industry, the freelancer sector will eventually need to transition itself (or at least portions of itself) towards a more *formalized state* if the industry as a whole, intends to move beyond its current value chain. If this transition does not occur, then the freelancer market will simply expand, while the formalized or corporate service provider sector will remain composed of small, fragmented entities. Moreover, in this scenario, both the freelancer and corporate providers will be relegated to taking smaller, lower value contracts from the global services outsourcing market, as larger service buyers and providers, will remain hesitant to deal with locations that are unable to provide large, long-term scale capabilities.

As such, and with regard to the country's Freelance sector, the Bangladesh Internet Professionals Community (BIPC) can play a critical and enabling role in pushing for the necessary changes in this particular sector. The BIPC can stand as the collective and unifying body for freelancers. Among other proposed developmental initiatives, the group can help in ensuring that services provided by local freelancers are at par with global standards. The group can also create more formalized supply and demand channels (i.e. a structured supply-chain system), that can also contribute in standardizing billing rates across freelancers – allowing for greater protection and development of the local freelance workers.

Highlighting one of the initiatives of BIPC, in November 14, 2014, the organization launched a day-long conference for freelance professionals. The conference was inaugurated by State Minister of ICT, Mr. Zunaid Ahmed Palak, MP. The conference was the first one in the country and naturally due to the large number of freelancers in the country, it drew a wide audience comprising of web designers, software developer, graphics designer, etc. The purpose of the event was to showcase the ongoing capability of the country in the Freelancing space, and to further motivate the attendees. During the event, the weaknesses of the country in the sector were also discussed and proposals on how to address these hindrances were provided. Such conferences and events serve a great role in rallying the capabilities of the freelancers and also a medium where freelancers can voice their concerns and suggestions for furthering the growth of the sector.

Tholons firmly believes that for industry fragmentation to be effectively addressed, that a certain degree and level of consolidation must occur, across and between the freelance and formal sectors of the Bangladesh IT/ITeS industry.

Domestic Industry and the adoption of IT

Domestic Industry

Recent trends in the country's ICT sector has also impacted the demand for ITO and BPO services in the domestic space. For example, the growing number of Internet users and adoption, has led to greater connectivity and access for millions of consumers. As such, IT/ITeS companies have capitalized on this newfound market opportunity, by developing web-based services and content that include specialized portals, listing services, e-Commerce, e-Learning, payment intermediary services and development of web applications based on cloud/Software as a Service (SaaS) delivery models. The local ITO sector has likewise capitalized on the development of mobile apps.

Currently, the majority of Bangladesh IT/ITeS providers, as found by BASIS, depend on the domestic market as a primary revenue source, with 63% of members focused on providing services to local industries. Local demand is reported to be driven by companies seeking to improve business processes and adopt global 'IT Best Practices,' a relatively recent trend, only beginning to spread in the country. In a 2014 survey carried out by BASIS of around 110-member service providers, the majority of providers delivering services to the domestic market were focused on developing business application solutions including ERP, Accounting Software, HR Software, Sales Automation, and Inventory Management systems, among others.

From a vertical perspective, the Banking and Finance sector continues to be the primary market for IT/ITeS providers. Though the country's banking software market has been historically dominated by foreign solutions providers, recent growth in the country's financial industry has led BFSI organizations to increase procurements of locally developed BFSI solutions and services. Further, with increased stringency in the regulations of micro credit/micro finance (MFI) institutions demanding higher operational efficiencies, a number of companies have started engaging in this untapped market.[10]

Challenges for industries in Bangladesh to adopt IT

1. Transforming the processes of any given industry to use of technology is complex.
2. The cost of deciding on the technology implementation and maintenance is significant and in most cases does not justify the returns in the short to medium term.
3. There is always a pressure and ease of continuing to use easily available low cost labor pool.

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[10] BASIS Software and IT Service Catalog, 2014.

4. Most large system implementation requires multiple departments and functions to work and justify the investment.
5. Most IT projects run over budget and time line.

The Seventh Five Year Plan Reform Activities

The 7th Five Year Plan (Chapter 12) is a significant step in accelerating growth of Bangladesh and impact the domestic economy by bringing in e-governance, e-services and applying IT across commerce, agriculture, manufacturing, education and eventually leading to realize the vision of a true Digital Bangladesh. Some of the activities in the plan relevant to domestic IT are as follows:

Reform Activities

1. To ensure better service delivery and combat tax evasion, usage of a Unique Identifier for Income Tax i.e e-TIN, Customs and VAT is implemented.
2. Online TIN registration system linked with the National Identity Card Database has been implemented.
3. Online VAT registration and Return Submission has begun in June 2015.
4. Introduction of e-payment for Income Tax, Customs Duty and VAT through debit, credit and other prepaid cards.
5. e-Filing system for income taxes on a limited scale.
6. e-TDS (Electronic Tax Deduction Source) management system.
7. Use of Alternative Dispute Resolution (ADR) to reduce number of revenue-related litigations.
8. Introduction of Centralized systems for online submission for assessment and tax refund of VAT and Income Tax
9. Implementation of ASYCUDA World with a view to processing customs data in major customs stations leading to a paperless management system in near future.
10. Inclusion of transfer pricing procedures in Customs law.
11. Provision of higher training to revenue officials at home and abroad to improve their level of efficiency.

Source : Ministry of Finance - Domestic IT Section

Enhance Education Quality through ICT

Bangladesh aims to reform curriculum, enhance teacher's capacity building, prioritize ICT literacy for students in tertiary education by using ICT effectively.

1. One-Stop Centres - help desks, information and service delivery system emphasises on formal, non-formal education, Technical education, distance learning, healthcare management, telemedicine, agriculture (e.g. pesticide, high-yielding cropping), disaster management (e.g. preparedness), self-employment creation, government services, human rights protection and so on. Digital Centres are envisaged as information dissemination and service delivery outlets for rural and peri- urban citizens. Such centres are to be run with participation of private sector and non-government organisations for efficient operation and socio-economic viability.

Strengthening healthcare for the poor through ICT

1. Healthcare management - The Ministry of Health will bring in place a e-monitoring system that will be established to monitor attendance. e-Monitoring systems will be established to monitor attendance, absenteeism and quality of service delivery. Health education will be provided to service providers using ICT. Medical faculties will be connected to address remote medical needs.

2. Healthcare services - absenteeism and quality of service delivery. Health education will be arranged to service providers using ICT. Medical faculties will be connected to address remote medical needs.

Health and demographic information - National data on health indicators will be consolidated and updated. The electronic health record (EHR) being prepared by the DGHS will be developed to maintain an integrated system. The geographical database will be completed. Health data would be standardized using the CCDS and cooperation among large health facilities in disease surveillance ought to be strengthened.

Digital Technology and Connected Industry

With the emergence of digital technology and business opportunity there is a significant unmet demand for digitally enabling businesses across the industries. Major IT/BPO service providers are experiencing scorching growth which in most cases is 3-5 times the average growth rate of the company. Bangladeshi IT/BPO companies should skill and deploy business development and delivery capabilities to:

1. **Social Media, Cloud, Interactive and Design:** There are opportunities in enabling various social media feeds and putting a process to communicate with consumers and stakeholders. Also the mode of interaction and design elements are significantly changing

with the increase use of smart devices. A significant number of freelancers in Bangladesh have the expertise and are capable of plugging into this opportunity.

2. **Big Data and Analytics:** Companies are now designing for analytics and are putting in a lot of money to get actionable insights on their product, on their competition and for ideas for new business and services. One of the major IT firm based out of India is keen on tapping into the great analytical resource pool available in Bangladesh. However, this being one of the high demand, fast growing and high margin business, there will be interest from other IT/ITes firms in India to come to Bangladesh for the same.

3. **Mobility/Apps:** There is already a significant use of smart devices. Devices across all industries are becoming mobile. Medical devices being used by patients are increasing using mobility, same is the case with devices being used on manufacturing floors, sales force team in the team and consumers are using their smart phones for one and all things. This has given rise and a need to develop Apps for each such function. Freelancers, small and medium enterprises would be placed well to develop a business just in App development and testing.

4. **Content Management:** Digital Content needs to be made available automatically, real time and at high velocity. Be it text, images, catalogue, audio, video or interactive content – there is an opportunity to use platforms to be able to configure and deliver the same to clients. This is akin to "Y2K" opportunity.

5. **IOT/Embedded Devices:** Internet of Things (IoT) is increasingly growing and become significant both in business and personal world. Broadband Internet is becoming widely available, the connectivity cost is decreasing significantly. More devices are being connected to internet for having a controlled operation and execution of task(s). The scale of progression of having more and more devices connect to internet is expected to grow in a larger scale enabling people to device and device to device giving way to endless opportunities and creating a connected industry. Embedded devices have become very efficient in size, power usage and cost. These devices can be implanted across manufacturing floors in factory machines, in hazardous mines, oil rigs, under ocean, race cars and surveillance. These devices have the ability to transmit data through Wi-Fi and in real time. Knowledge of devices and the specific industrial process and the ability to develop embedded software will be a key niche expertise. These skills are in short supply even in countries like US, UK, Europe, Japan and other places including outsourcing destinations like Philippines, Eastern Europe China and India and thereby lies the opportunity.

Digital is any technology that connects people and machines with each other or with information. It is transforming and cutting through all small-mid-major industries. This transformation has the potential to retool global industry to influence over global economy. Transformation is a whole scale

change to the foundation components of a business – from its operating model to its infrastructure. What it sells, to whom and how it goes to market. A transformation programme touches every function of a business – from purchasing, finance, human resource, operations, technology, sales and marketing.

Some big global consultancies like PwC, DeLoitte and Accenture manage transformation programmes on behalf of large businesses. To transform a large organisation takes a significant amount of time, a huge amount of resources and a cross-functional set of business skills that are typically only found in global consultancies such as these.

Traditional ICT products and services cannot drive growth. There is a need to evaluate the strategies and options toward a focus business needs, innovation and transformation. Digital is now impacting each and every industry. This will be the way that today and future IT will be adopted by the industry.

Some of the connected IT Industry opportunities

1. Government Citizen Services
2. e-services
3. Healthcare
4. Financial Services
5. Education
6. Manufacturing
7. IoT
8. ERP for Supply Chain Management
9. Travel and Hospitality
10. Retail and Consumer
11. Manufacturing
12. Design
13. Marketing
14. Construction
15. Book Keeping and Accountancy
16. Agriculture
17. Music and Film Industry
18. TV, Cable, Satellite

Digital Forces with limitless possibilities

In the recent past, digital technologies and development towards creating more intelligent enterprises have given rise to increased use of automation, robotics, artificial intelligence and cognitive computing across industries and businesses.

The country should capitalize on the significant impact of automation of basic processes in the business. It hastens the delivery of the project thus the service can be delivered to larger amount of clients. There are companies like AUTOMATE ANYWHERE, who are automating the basic transaction processing like F&A, Claims processing etc. There is also a virtual workforce management system by BLUE PRISM, which is able to manage the software robots thereby creating a hybrid workforce of "BOTS" and "HUMAN BEINGS" as service agents. This will definitely have an impact mid to longer term on the BPO business.

Another good example would be *Amelia,* by IPsoft – is a virtual agent that functions as a call center operator. Amelia can be deployed straight from the cloud in a fraction of the time. The Artificial Intelligence learns as it works and provides high-quality responses in various languages. The new development on Amelia has improved her memory, contextual comprehension and emotional responsiveness. This project is getting close to passing the Turing test. This test requires that a human user must not be able to distinguish the machine from a real human being.

IBM's WATSON is emerging as a significant product in cognitive computing. Few of the large global audit firms are starting to feed reams of audit data to Watson so as to have a comprehensive, un-paralleled audit support for their audit teams. Very soon such capability will be far superior to what can be done by experienced auditors.

Digital has emerged as a significant game changer and disruptor to all businesses including IT/ITes. The global IT/BPO spend of $2.4 Trillion is being impacted by digital. There is an additional $14.4 Trillion opportunity being created by the combination of increased revenues and lower costs that will migrate among companies and industries from 2013 to 2022, due to Digital Technologies. Some examples on adoptions of IT across industries:

Consumer Goods

Virtual Realty
- Train employees on specific skills, customer and field service using virtual realt

Digital Operating Model
- IoT will drive evolution of supply chains, smart factories and distribution. Eg: Omni-Channel Support, Agile Supply Chain, Customization at Scale, Future Workforce

Omni-Channel Retail
- Provide platform for small retailers to offer profitable niches in e-commerce
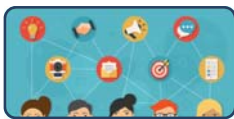
Personalization
- Products, marketing and in-store experience needs to be personalized

Digital Trend
- CRM across channels to experience, design and grow with customers

Consumer Data Flow
- Shift to digital customer interaction models and leveraging of consumer and enterprise data will create disintermediation opportunities

Living Services
- Brands need to transform mundane task into consumer delight, creating "Living Services"

Healthcare

Patients Demand More
- Patients are demanding more sophisticated, transparent, affordable, seamless and personalized service

Outcome Economy
- IoT (Embedded Sensors) and Artificial Intelligence are creating digital health enterprise facilitating a WOW patient engagement and clinical collaboration

Platform Revolution
- Mobility is enabling minute-by-minute tracking of health and activities. Platform is able to analyze data from disparate sources – wearable, phone, glucometer and pulls out report

Collaboration
- Purchasers (Govt, Employers, Individuals) will decide and direct payment to the entities providing best value, be it clinical team, sporting goods company, nutrition counselor or health solution provider

Intelligent Enterprise
- Embedded devices will perceive its user running fever, diagnose illness, advise right healthcare provider

Workforce Reimagined
- Surgeons to use wearable devices to get real-time access to data from monitoring equipment that enables more informed decision-making

Fitness and Wellness
- New entrants such as wearable makers Nike, Fitbit and Jawbone are carving paths into a fitness and wellness market worth $267 billion in the U.S. annually

Mobile Health
- Wireless technology to improve access to health for people around the world replacing visits of nurses and doctors

Digitization/Big Data
- Insurance companies are using big data, analytics and population insight to change how policies and plans are created

Retail

IoT

- Intelligent devices – from shipping containers to shopping carts – are already a part of daily lives and expected to continue to grow at an accelerated pace

Wearable

- Ownership of consumer wearable – intelligent eyeglasses, watches, footwear, apparel – is expected to double year over year by 2016

Changing role of store

- Retailing is significantly moving online and the role of physical store will significantly change

Deomographic Shifts

- Digital Natives – ages 18 to 24 interacted with retailers via social media at a rate far more than global average

Cost Convergence

- Luxury brands introduced accessible items in order to boost profits and satisfy shareholders. As a result, consumers developed a taste for luxury

Social Networks

- Ubiquity of social media spread across – family, friends, politics, journalism and marketing. It has led many assume that social media platform a highly robust vehicle

Banking

Digital Banking
- Banking is fast becoming a consumer-to-business (C2B) industry. It defines clear digital agendas, allocate right investment, new digital business and key process

Fintech Boom
- New entrants have relied on innovative technology and business models to force their way into the industry and take bites out of profit pools like payments and wealth management

Re-Regulation
- Government regulations and policies have been eased out for entry to banking sectors

Connected Commerce
- Remote secure and frictionless commerce everywhere

High Competition
- New, technologically-enabled forms of competition and the regulatory agenda limit banks' privileged access to customers

Demographics
- Growth of emerging markets, as well in combination with aging of population having the big effect

Compliance
- The compliance function can smooth the way for financial enterprises and help avoid reputational risks as they push further into the ever-increasing digital world

Data Analytics
- Banks should also use analytics to exploit their treasure trove of customer data and match the experience provided in other industries

Electronic Payments
- Technology enabling new payments providers to rival banks' convenience

Re-Engineer Value Proposition
- Consolidation could be the natural response by traditional banks, but regulatory conditions may preclude this approach. Banks are, therefore, likely to end up having to re-engineer their own business models and customer value propositions

For a country like Bangladesh, it is imperative that they go for connected industry as a way to adopt new technology across all industry.

IT/ITeS Development Goals and Initiatives

Bangladesh in the current government are committed to Digital Bangladesh and leveraging IT/ITES for achieving sustainable development goals (UNDP), creating employment for all and moving Bangladesh towards a developed economy. The election manifesto of 2008, laid the foundation for Digital Bangladesh and defined goals for 2021. The 26 point election manifesto of 2014, takes the Digital Bangladesh much forward and defines goals for a developed Bangladesh by 2050, in the words of the Prime Minister, *"Now we are looking beyond 2021, extending our view to the year 2050, when Bangladesh will be recognized as a well civilized and developed country with all its acquired virtues"*. IT/ITES and Digital Bangladesh initiatives will play a big part in achieving the vision of the current government, as the Prime Minister quoted *"Electricity will reach every household, unemployment will be reduced to zero with crore of young people getting employed, health care for all will be ensured, trade and commerce will expand significantly, communication system will completely be transformed, planned cities and townships will grow up, the capital city of Dhaka will be free of traffic jam and shall turn into a uniquely beautiful mega city and digital Bangladesh will step into prosperity and progress[11]"*.

Further validating its support for the development of the country's IT/ITeS sector, the Bangladesh Government has laid out concrete plans to bolster the goals and objectives of *Digital Bangladesh through their 7th Five Year Plan*. The campaign's overall aim is to adopt IT practices and tools on a wide scale to enable economic, cultural, and social development. As part of this nation-wide initiative, particular focus is given to greater adoption of e-Governance and e-Services solutions. These identified priorities would consequently increase ICT adoption, in a similar fashion to private sector demand (and adoption) for IT/ITeS products and solutions. Likewise, greater ICT adoption across national institutions would also provide fresh opportunities for IT/ITeS providers in the country, not only to expand market reach, but also to develop and hone their service delivery capabilities. While the current situation shows Government as already being a significant source of revenue for providers, the more aggressive promotion of IT/ITeS and ICT adoption in the country is expected to be a boon for the sector, opening up further opportunities in the mid and long term.

Today's Global economy is primarily driven by knowledge, digital technology and innovation. It's heartening and visionary to see Bangladesh adopt a vision for Digital Bangladesh in 2008 and the current 7th Five Year Plan is an excellent step to realize the objectives of Digital Bangladesh and use ICT to accelerate growth and empower citizens. The next few sections will summarize the

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[11] Bangladeshi Awami League Election Manifesto - 2014.

development strategy of ICT in Bangladesh, as laid out in chapter 12 of the 7th Five Year Plan. The policies and institutions can be grouped into the following 3 dimensions:

1. Economic incentives and institutional arrangements to support the creation, acquisition and conversion of knowledge into usable form.
2. A body of skilled professionals in science and technology that can lead the research and innovation and adapt knowledge to the local circumstances.
3. An effective and efficient Information & Communications Technology (ICT) system that can disseminate knowledge and apply to practical applications for all its citizens.

According to the latest available (2012) ranking of the Knowledge Economy Index (KEI), Bangladesh was ranked at 137 out of 146 countries. Upgrade of the ranking can be achieved by spending on research and development and increasing the availability of skilled professionals, adoption of ICT and a portfolio of digital and technology.

1. Developing human resources ready for the 21st century.
2. Connecting citizens in ways most meaningful to them.
3. Taking services to citizens' doorsteps.
4. Making the private sector and market more productive and competitive through the use of digital technology.

The Seventh Five Year Plan has laid a very progressive and relevant policy and regulatory framework for Digital Bangladesh as below

Digital Bangladesh's Policies & Regulatory Framework

1. ICT Policy 2009, now updated to ICT Policy 2015
2. Right to Information Act 2009
3. Perspective Plan
4. ICT Act 2013 (amended)
5. Strategic Priorities of Digital Bangladesh
6. Cyber Security Policy 2010
7. Information Security Policy Guideline 2014
8. Rural Connectivity Policy Guideline 2010
9. Broadband Policy
10. Mobile Keypad Standardisation Policy
11. Guidelines for Utility Bill Payment
12. e-Krishi Policy

13. National e-Governance Architecture
14. Mobile Banking Policy Guideline
15. National Telecom Policy 2010
16. Guidelines on Mobile Financial Services (MFS) for the Bank
17. Secretariat Instructions 2014 (amended)
18. Proactive Information Disclosure Guidelines 2014
19. Innovation Team gazette
20. National Portal management gazette
21. Hi-Tech Park Authority Act 2010
22. ICT Fellowship and Donation Policy
23. Guideline for Private STP 2015

ICT and Economic Growth

In Bangladesh, the tele density increased from less than 4% to 78 per cent between 2004 and 2014. This robust growth in the last decade can be attributed to the phenomenal uptake of mobile phones – from 5 million to 116 million (more than 70 per cent of the population) – alongside robust growth in the number of internet subscribers which stands at 36 million today, or nearly one-quarter of the population, from less than a million a decade back.

Contribution to Exports

Starting from a low base, ICT export earnings have gained some momentum during the Sixth Plan, growing from $ 246.5 million in FY2010 to $444.8 million in FY2014 (Figure Below). This is an encouraging sign and with concerted efforts, this can be a major source of export earnings during the Seventh Plan.

ICT Exports Trend in Bangladesh ($ Millions)

Financial Year	Export (in $ Millions)
2010	246.5
2011	349.6
2012	520.7
2013	349.5
2014	444.8

Online Transaction and Payments Infrastructure

1. Usage of ICT in e-transactions, e-commerce and e-procurement has been made possible through the amended ICT Act 2006.
2. Provision for digital signature through appointing the Controller of Certifying Authorities (CCA).
3. The Bangladesh Computer Council (BCC) has been issued license as the CA for issuing digital certificates to the government organizations.
4. The Right to Information (RTI) Act 2009 has taken effect in order to make information easily available.
5. Bangladesh Bank has already inaugurated the National Payments Switch (NPS) to facilitate interbank electronic transactions that will support online and mobile based financial transactions of customers.

ICT Infrastructure

1. To support the development of the ICT industry, Bangladesh Hi-Tech Park Act was passed in 2010. Subsequently, Bangladesh Hi-Tech Park Authority (BHTPA) was established in 2010 for creation, management, operation and development of hi-tech parks across the country.
2. Bangladesh's first university based incubator is being established at the campus of Chittagong University of Engineering and Technology (CUET). This incubator will help to bridge the gap between ICT industries and academia for fostering meaningful research, innovation, entrepreneurship, job creation, and industry ready human resource development. IT training incubation centres in different places have also been proposed.
3. As a part of the Twelve (12) IT park Project, STP/HTP/IT parks have been proposed in Mohakhali IT Village, Silicon City Rajshahi, Electronic city Sylhet, Comilla, Chittagong, Cox's bazar, Gopalganj, Jamalpur, Mymensingh, Sylhet, Rangpur, Khulna, Barisal & Nator District.

ICT and Education

1. Teacher-led Digital Content Development - Creating and sharing multimedia contents through a Teacher's Portal (https://www.teachers.gov.bd/), which is a central repository for e-learning content of teacher training and for all students.
2. Bangladesh National Library Modernization Project - digital library infrastructure, collect materials for full-text digitization, permanent store, create digital data storage, online data transfer, automatic binding and conservation measures to scientific and research.
3. ICT vocational training and skills transfer - 4 MMCs have been set up in each of the 64 technical teachers training institutes. Bangladesh Open University (BoU) has undertaken an initiative to launch e-learning/online Programme.

Digital Bangladesh ICT Initiatives

1. Service Innovation Fund (SIF) - goal to establish a USD 50 million fund - an effective capacity building tool for the recently formed Innovation Teams in all Ministries, directorates, divisions, districts and upazilas to learn by experimenting with service delivery innovation prototypes. Ultimately, a culture of innovation within the government will emerge.

2. E- Citizen Services - The Board of Investment (BoI) has allowed online registration and work permit for foreign investors and online tax filing has been introduced by the National Board of Revenue (NBR), alongside submission of online income tax returns, VAT and income tax payments.

3. Digital Bangladesh Programme - e-tendering and e-contract management have been integrated through e-GP (Integrated e-GP).The e-GP has increased participation of organizations/individuals in tender submission.

4. e-services and m-services (mobile services) in the areas of agriculture, health and services sector have been introduced by public and private sectors.

5. "Mobile phone health care" Programme - 18 hospitals have introduced telemedicine services. A total of 800 health institutions have received computer supplies and have been brought under the internet service.

ICT Connectivity

1. Installation of tele-Centre/community e-centres with internet facilities across all unions. tele density was 70 per cent in 2015. Bangladesh is on-track to achieve 90 per cent tele density by 2021- a key long- term strategic goal of the Perspective Plan.

2. Focus is on allocation of research and development (R&D) alongside broadband penetration (both in terms of access and availability).

3. South Asian Sub Regional Economic Cooperation (SASEC) - High-speed fibre optic cable network is expected to become ubiquitous by 2017.

4. Installation of Wireless Broadband network for   (4G, LTE) is under streamline.

5. Bangladesh officially joined the submarine cable 'SEA-ME-WE-5' to get connected to 1,300 GBps of additional bandwidth.

Bangladesh's progress in Financing and Investments

Financing and Investment

Allocation	2014 - 2015		2013 - 2014		2012 - 2013		2011 - 12		2010 - 11		2009 - 2010	
	PROJECT (%)	BUDGET (BDT in Billions)	PROJECT (%)	BUDGET (BDT in Billions)	PROJECT (%)	BUDGET (BDT in Billions)	PROJECT (%)	BUDGET (BDT in Billions)	PROJECT (%)	BUDGET (BDT in Billions)	PROJECT (%)	BUDGET (BDT in Billions)
ICT Sector	0	5.14	0	5.74	0	3.76	0	3.23	0	3.45	0	2.69
ICT related institutions	0	1.19	0	15	0	4	0	0.35	0	0.25	0	0.23
Programmes under the revenue budget	0.016	0.77	0.03	12.3	0.034	0.96	0.037	1.08	0.037	1.62	0.02	1.21
Development projects	0.063	32.29	0.07	31.77	0.049	28.04	0.061	26.4	0.061	19.84	0.05	17.44
ICT Entrepreneurship	0	0	0	0	0	0	0	0	0	2	0	2
Total		39.39		64.81		36.76		31.06		27.16		23.57

Source: Seventh Five Year Plan: FY2016 - FY2020

ICT Tax Structure in South East Asia (Comparative Analysis)

Taxation for ICT

Country	Broadband Tax			Wireless Tax			Consumer Product Tax			Consumer Product Tariff	Business Use Product Tariff
	Base	Extra	Total	Base	Extra	Total	Base	Extra	Total	Total	Total
Bangladesh	15	45.5	60.5	15	114.1	129	15	0	15	17.7	14.1
India	12	0	12	10.3	0	10.3	13	0	13	1	15
Nepal	13	20.5	33.5	13	53.5	66.5	13	2	15	0.2	0.8
Pakistan	20	2.4	22.4	16	4	20	0	0	0	15.1	8.7
Sri Lanka	15	3	18	12	20	32	12	0	12	2	1.9

Source: Seventh Five Year Plan: FY2016 - FY2020

Indicators of ICT Infrastructure (Internet) Progress

Connectivity across regions

Country/Region	Mobile Subscriptions		Internet Users		Fixed Bandwidth Subscriptions	
	2005	2013	2005	2013	2005	2013
Bangladesh	6.29	74.43	0.24	5.75	0	0.97
India	8	70.78	2.39	12.58	0.12	1.16
China	29.84	88.71	8.52	42.3	2.83	13.63
SriLanka	16.85	95.5	1.79	18.29	0.11	1.99
Vietnam	11.29	130.89	12.74	39.49	0.25	5.62
Developed	82.1	120.8	50.9	78.3	12.3	27.5
Developing	22.9	90.2	7.8	32.4	1.3	6.1
World	33.9	92.5	15.8	40.4	3.4	9.8

Source: Seventh Five Year Plan: FY2016 - FY2020

Promote Economic Growth

Convert ICT to a major source of export earnings: The government's target is to expand ICT exports to $5.0 billion by FY2020. Policies will need to focus on expanding ICT infrastructure, improving incentives by lowering taxes on ICT products, greatly expanding the ICT skills base and investing in ICT- related research and development.

1. **Promote public-private partnership (PPP) -** Transformation of strategic priorities from agenda into action requires significant resource mobilisation, which is currently inadequate. Making e-service delivery a reality through active participation of private sector under PPP is Digital Bangladesh's vision.

2. **Establishing Technology Parks -** Bangladesh's ambitious target to achieve US$5.0 billion through exports by 2020, needs an appropriate IT/ITeS business ecosystem in place. To support this, Hi-Tech parks and STPs will be established in the country. Business Process Outsourcing (BPO) centres will be set up in district and sub-district level. Steps will be taken to gradually convert the potential Union Digital Centres into Business Process Outsourcing centres by providing high speed connectivity and other necessary infrastructure.

3. **Creating an Innovation Ecosystem and Startup Incubation -** To support Tech-Startups in Bangladesh, an innovation ecosystem comprising of required infrastructure, well trained human resources and supportive policy regime are being established.

Development of ICT Infrastructure and Service Capacities

Strengthening the Enabling Environment

1. **Reliable and Secure Infrastructure -** ICTs require reliable infrastructure comprising of powerr, high-speed internet connection and appropriate equipment at a minimum to be functional. When service delivery and businesses become dependent on ICTs.

2. **Policy and legal framework -** Institutionalise ICT-based service delivery, administration and business productivity in order to scale up innovation.

3. **Incentives for private investments -** To incentivise private sector investments into ICT infrastructure and e-Services, reforms are necessary in taxation. The present level of high taxes on ICT is a substantial constraint on private investment in ICT infrastructure and use of ICT services. Subsequently the taxes are being reduced to make Bangladesh a competitive place for additional FDI inflows into the ICT sector.

4. **Public financing -** Digital Bangladesh's vision in expanding ICT exports will ultimately require large public investments in ICT fixed infrastructure, ICT-related R&D and skills development. The ICT Policy allows the provision for a percentage of the revenue budget and development budget to be used for ICT- based expenditures. Many large projects have ICT components which can be more effectively designed and sourced often by pooling funds or sharing plans and activities. Mechanisms may be devised for a whole-of-government approach in ICT implementation especially when connectivity, hardware and software infrastructure components are concerned. Since a large portion of ICT activities are funded by development partners, more aid effectiveness can be obtained by coordinating across development partners as well.

5. **Partnerships -** For both service delivery and industry development, partnerships within the government, with non-state and global actors, can be helpful at least in terms of resource mobilization. There is a great value to be gained by striking partnerships across government organisations - infrastructure sharing, expertise sharing, complementary

implementation, etc. Partnership with private sector may bring in private investment through PPP arrangement where the risk is shared across the partners. Partnership with reputable international companies has the additional benefit of developing the brand image of Bangladesh.

Investing in R&D

The government will continue its efforts to develop the software capabilities through ICT Technology Parks. Private investment in software development is being promoted through public research grants and tax incentives. Provision for necessary public funding will be made to commercialize and scale up of the new and innovative products and services developed through R&D initiatives in both public and private sectors.

Develop and Strengthen ICT Skills Base

The 7th Five Year Plan, details objectives and plans to develop and strengthen the ICT skills base for both the domestic and international outsourcing markets. Some of the actions as part of the plan are:

1. Expanding supply of scientific and technical education
2. Increase R&D spending
3. Encourage IT student enrolment
4. Student loans and scholarships
5. Strengthening vocational stream
6. Expanding IT employable pool

Digital Bangladesh and Gender Policy

The 7th Five Year Plan, calls for a much greater inclusion and participation of women as part of Digital Bangladesh. Government should work to increase enrolment of female students in ICT courses and foster a gradual increase of the female workforce in the ICT industry. Women are prioritised in Vision 2021 and also in the Digital Bangladesh component.

There are complimenting initiatives in the country that support the overarching goals of Digital Bangladesh 2021. One such platform that was conceived through the collaboration of industry stakeholders (BCC, Bangladesh ICT Division, and BASIS), is the *One Bangladesh Vision.* Conceptualized in 2014, the One Bangladesh is dedicated to the development of the country's IT/ITeS sector. The Vision is spearheaded by BASIS.

One Bangladesh Vision

The One Bangladesh Vision targets the year 2018 for the country to achieve specific IT/ITeS developmental goals. The following are the priority goals of the One Bangladesh Vision as it relates to the nation's IT/ITeS sector:

1. To train and create employment for 1 million software & IT/ITeS professionals
2. To expand Internet penetration and bring connectivity to 10 million people yearly
3. For Software, ITeS and BPO sector to reach export revenues of US$1 billion
4. For Software, ITeS and BPO sector to contribute 1% of GDP

BASIS has led numerous industry development initiatives such as workshops, industry seminars and conferences, and industry research studies. These activities are aimed at not only to support the One Bangladesh Vision, but also to catalyze industry growth.

The organization has also developed a strategy paper, laying the plans for each of the four aspirational goals of the Vision. The strategy paper was developed with consultation and guidance taken from industry experts, academicians, and related subject matter experts, who were asked to analyze and present their professional recommendations for each of the target goals. The strategy paper presents a clear outline of current industry status, and will help determine the necessary actions, or next steps, required to realize the four priority goals.

For instance, during an Industry Development Workshop on January 2015, BASIS and the BCC/LICT, hosted key industry stakeholders and briefed them on the specific dynamics of the One Bangladesh Vision. The hosts also emphasized the need for concerted and continuous efforts across all relevant stakeholders, if the Vision's goals were to be realized. Further in this workshop, BASIS highlighted several international companies (Fenox Feature Capital, Investment AB Kinnevik of Switzerland, SNT Classified, Rocket Internet of Norway, etc.) that have since invested in the country, validating the growing IT/ITeS capabilities and potential of the sector.

The One Bangladesh Vision possesses overarching implications for the country, transcending not only the IT/ITeS industry but also the nation's social fabric. For instance, though the country is actively pursuing ways to alleviate poverty, developmental hindrances remain, impeding the speed of social reconstruction. In this Vision, there is an opportunity to develop a particular sector (IT/ITeS), which in turn has the potential to positively contribute to specific socio-economic concerns of the nation (i.e. job creation, ICT adoption, and diversification of the economic base).

BASIS has also crafted specific industry-enabling strategies and directives, aimed at stimulating IT/ITeS sector growth and preparing the sector to capitalize on both domestic and global market opportunities. Some of these strategies include directives on the following development areas:

1. Academic research support targeting pre-commercial R&D for product development
2. Purpose built infrastructure spread throughout the country

3. Packaging and promoting IT/ITeS companies to secure strategic investment partner
4. Training to professionals, management, and senior students in the fields relevant to the IT/ITeS industry
5. Risk capital finance and advisory services to support the product development, and commercialization
6. Increase in Broadband penetration to foster freelancing services
7. Large scale IT infrastructure policy shift to remote infrastructure monitoring and managed service delivery

BASIS has provided general recommendations on how to improve the state of the country's ICT sector. In the BASIS directive entitled, *Strategy for Increasing Export and Software and Services*, [12] the association provides a condensed strategy on how to accelerate sector growth and enumerates the following considerations:

1. **Infrastructure** – The country must focus on providing suitable infrastructure for piloting and scaling up operations. Furthermore, freelancers must be supported through significant changes and upgrading of the bandwidth connectivity. As a matter of fact, the power situation in the country has improved when compared to 3-4 load shedding a day in 2008. Power outrage has not been an issue from past couple of years. Software and Technology parks like the one in BDBL are connected to national power grid while letting 40+ companies enjoy uninterrupted power supply since 2002.

2. **Strategic Partners** – Promotion of 200 export oriented organically growing indigenous companies to strategic partners for equal participation. Foreign partners will provide a continuous flow of guidance and much needed capital investment for upgrading delivery capacity.

3. **Human Resource and R&D Capacity** – Establishment of industry certified training facilities. Also, upgrade university education for providing training in management of technology, innovation, product, IPR Law, and enterprise growth. Align academic R&D towards pre-commercial product development.

4. **Advisory, Promotion and Risk Capital** – Develop a capacity for offering advisory services for productivity improvement, product development and positioning of individuals/enterprises in the higher segment of the value chain.

5. **Cluster Approach** – The approach of local distribution of value chain to enable multiple firms contributing to the production of outputs to be sold to foreign clients. This form of approach presents several advantages such as, reduce transaction cost and growing

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[12] Strategy for Increasing Export and Software and Services. BASIS, 2014.

career path for individual professions since as the time goes by the person benefit from the learning curve

6. **Ecosystem** – For each cluster, ecosystem elements will be identified, these elements will be strengthened and frictions of interactions between them will be reduced.

7. **Public Policy** – Public policy for encouraging private investment, cluster development, and strengthening ecosystem in software, service and ITeS should be pursued. Government should provide consistent research grants to universities to support pre-commercial research on products and services.

In public sector space, the BCC is at the forefront off Government efforts to develop the nation's ICT ecosystem. As sourced from the BCC, the Council's main activities are (not limited to):

1. Encouraging and providing support for ICT related activities.
2. Formulating national ICT strategy and policy.
3. Creating standards and specifications of ICT tools for government organizations according to their necessity.
4. Working for human resource development in ICT sector.[13]

Further, the specific aims and objective of the BCC can be classified into the following functional categories:

1. Promote the effective application & Expansion of ICT.
2. Develop Human Resource for effective use of ICT.
3. Formulate & Implement National Strategies and Policies regarding Computer & ICT.
4. Cooperate with the Government and other agencies to implement the Objectives of the National ICT plans.
5. Advice and Encourage the Government and other agencies for the use of Computer & ICT.
6. Determine the Standards and Specification for Computer and ICT at the National level.[14]

Leveraging ICT (LICT) on the other hand is a project of Bangladesh Computer Council (BCC) under ICT Division launched in 2013. This project aims to leverage and develop the emerging IT capabilities of the country. Some of the foremost objectives of this projects are:

1. Catalyze the growth of Bangladesh's IT/ITES industry for employment creation and export diversification.

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[13] Bangladesh Computer Council (BCC), 2015.

[14] Ibid.

2. Cater to the needs of public sector's modernization through development of policies, guidelines, e-government interoperability framework (eGIF) and capacity development of the government.

3. To expose local IT and ITES capabilities in to global market leading to improved global awareness and perception of Bangladesh for IT and ITES business

4. To make available shared IT hosting and remote conferencing facilities for use of GOB agencies to policies, fix appropriate standards and guidelines for enterprise architecture and information security

The BCC also participates in various (specific) ICT development projects, such as the Info-Sarker Project. This project is an extension of the BanglaGovNet project being implemented by the BCC through Korean EXIM Bank Credit. In this project, all government Ministries and Divisions, 64 Deputy Commissioner Offices, and 64 Upazillas, are to be connected under a central ICT Backbone network. This network will be administered and managed through the establishment of the NICTC (National ICT Centre) at the BCC. Phase II of the project aims to provide improvements on government efficiency, transparency, effectiveness, and quality of services, through expansion of the network and facilities established under the BanglaGovNet project. The project will be promoted under the Preferential Concessional Loan from the Government of China, with specific project objectives including:

1. To expand the government wide network to be established under Phase-I BanglaGovNet Project to all the District and Upazilla level offices throughout the country.

2. To improve government efficiency and promote interaction between ministries/divisions, departments, districts and Upazillas by construction of government ICT network infrastructure.

3. To use ICT system within the public administration to improve efficiency, accountability and transparency, reduce wastage of resources, enhance planning and raise the quality of services.

4. To maximize the automation of work processes through integrated information management system utilizing National E-Service System (NESS).

5. To ensure seamless resource and information sharing between government organizations and improve delivery of services to the citizen.

Also among other initiatives, Access to Information (a2i) is a UNDP and USAID supported program. As defined by a2i, the overall objective of the project is to provide support in building a digital nation through delivering services at the citizen's doorsteps. The program aims to improve quality, widen access, and decentralize delivery of public services to ensure responsiveness and transparency. The program aims to:

1. Introduction of m/e-services
2. Capacity development of service providers
3. Promoting innovation in public service delivery
4. Creating an enabling environment for e/m-services delivery[15]

Such initiatives, if implemented properly, can significantly contribute towards the development of the country's IT/ITeS sector, and more importantly, allow for greater ICT adoption across the entire populace.

Local Bangladesh IT Solutions and Assets

Bangladesh's local IT firms have developed solutions and IP assets and are doing remarkably well by providing solutions to not just local but also international clients. Some of the recognized names that are doing a remarkable job in this line are:

Company Name	Solution Line	Synopsys
TigerIT Bangladesh Ltd.	Biometrics and Information Technology	It is one of the leading software companies in Bangladesh, pioneering in biometrics and is a world leader in Automated Fingerprint Identification System (AFIS). Tiger IT is one of the few companies worldwide to develop an NIST certified AFIS, and the first among the South Asian countries. We feel proud to represent Bangladesh at the forefront of biometrics and information technology.
Dohatec	e-procurement, e-governance & procurement management	Dohatec is an independent software vendor (ISV) and technology firm developing solutions for enterprise clients in North America, Asia and Europe for nearly 25 years. We provide enterprise software and IT services to fulfill needs in niche markets to discerning corporations, institutions and government agencies. Dohatec products have been deployed by multinational organizations and governments to support millions of end-users. Dohatec's team of professionals bring decades of technical expertise, experience in IT project management and process development to improve productivity and increase the bottom line for our clients. Built upon trust and a commitment to being solutions driven, we bring value to every relationship.
Reve Systems	Mobile VoIP and IP	REVE Systems is a Telecommunication & Software Solution provider. It has a wide assortment of products, ranging from backbone infrastructure to peripheral products, including

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[15] Access to Information (a2i) Programme, 2015.

	Communication Platforms	middleware. The company today holds a leadership position in Mobile VoIP, Softswitch & Billing and Bandwidth Optimization solutions. The company serves customers in over 78 countries, served to 2600+ VoIP and telecommunication service providers.
(BAT) Business Automation Ltd.	Hajj Management System	This project is initiated by the Ministry of Religious Affairs (MoRA) to facilitate Hajj Management with effective use of IT in Managing & controlling the Hajj Agencies, Pilgrims and related information and provide support to Ministry and all Hajj Offices at Dhaka and KSA under the Hajj Policy. The main objective is to smoother the operation, reducing time in papers processing, supplement other government agencies in managing their works & providing better services to the pilgrims for Bangladesh.
Data Soft	Microfin Mobility Solutions	Datasoft is an ISO 9001-2008 certified leading software product and services company established in 1998. They have a track record of delivering innovative and cost-effective technical services to corporate and public sectors providing services to some of the Fortune 500 companies on the service lines such as e-payment, customs house automation, port IT operations, commercial bank automation and over 3000 microfinance banks in SaaS model on a private cloud.
Millennium IT	Automation of Financial Products	Software company serving over 14 years. Specialists product and software solutions. Two feature products – Abadil and Sylvia are solutions providers for Islamic Banking Solution and Human Resource Solutions respectivel. On the service lines the support extended is – Design Services, Tools Development Services, Prototype Development Services, PTesting and QA Services.
Bangladesh should continue to find local companies who have done significant work in Bangladesh and they are ready to take the solutions to out-countries.		

Most common nature of work

Outsourcing	Digital	Local Solutions
This is a typical outsourcing which forms the bread and butter of countries like India, Philippines and others. This space is very competitive but provides opportunity at large scale.	Digital is transforming the industry and is key to bringing in innovation into the industries. Digital will increasingly become a larger part of the IT/ITES industries.	This kind of work will definitely bring revenue even though these are platform and product base and thereby will not result in a significant number of employments.
Bangladesh should pursue all the above three however we should also realize that outsourcing is the one which will put most number of people towards employment.		

List of ICT Incentives - Recent Policy Announcements

- Tax holidays

  - ICT/ITES/IT: During FY2016, government has further extended 100% tax holiday facility for the Information Technology Enabled Services (ITES) and Nationwide Telecommunication Transmission Network (NTTN) sector till 30 June 2024 from the earlier 30 June 2019.

- 100% Repatriation allowed on dividends and capital

- Depreciation allowances: Accelerated depreciation for new industries is available at the rate of 50%, 30% and 20% for the first, second and third years respectively, on the cost of plant and machinery.

- Duty free import of construction materials, machineries, office equipment and spare parts, raw materials and finished goods etc. (IT Parks)

- Relief from double taxation

- Exemption from dividend tax

- Accelerated depreciation on machinery or plant allowed

- Duty & quota free access to EU, Canada, Norway, Australia etc. [16]

- 100% foreign ownership permissible

- No cap on foreign and local investment

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[16] Bangladesh Export Processing Zones Authority (BEPZA)

Talent Pool Analysis

A necessary building block for building a sustainable IT/ITeS industry is the quantity and quality of human resources. While different educational facets and corresponding metrics may be utilized to analyze a labor force - *in the context of services outsourcing* - a location's tertiary graduate profile often provides accurate indication towards possible expertise and outsourcing niches of a location. In this section, data points on Bangladesh's secondary and tertiary graduate pools are analyzed to identify the potential service delivery capabilities of the country.

Secondary Completion

Bangladesh has one of the largest secondary school systems in the world.[17] In recent years, the country has made marked progress in improving access to secondary education. According to a report by the Asian Development Bank (ADB), the number of students enrolled for secondary level in Bangladesh has tripled since 1980. Further, the growth in the number of girls' enrollment has increased dramatically, attaining 114% gender parity index. On the other hand, the number of secondary education institutions in the country had doubled. As of 2014, a reported 19,684 institutions were offering Junior, Secondary, and Higher secondary education.[18]

While access to secondary education has significantly improved, *secondary level completion* on the other hand, seems strained to keep pace with global averages. As seen on Chart 10, the total graduates of SSC, HSC, and HSCBM have increased at a CAGR of 10% from 2008 to 2013. However, despite the rise in figures for the period, completion actually plateaued from 2012 to 2013 with secondary graduates remaining the same. Moreover, with an average enrollment of 28 million students for lower and higher secondary levels, the completion rate registered is quite low.

One of the reasons for low completion rates at the secondary level is the high dropout rate of students, specifically for girls in Bangladesh, who are more likely to drop out than boys.[19] Economically depressed areas in the country recorded the highest dropout rates, with 16.3% for girls and 10% for boys.[20]

Moreover, only primary education is universally free in Bangladesh, while tuition is collected from students at the secondary level. Apart from this, most secondary schools are privately managed.

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[17] Proposed Loan for the Second Teaching Quality Improvement in Secondary Education Project, Asian Development Bank, March 2012.
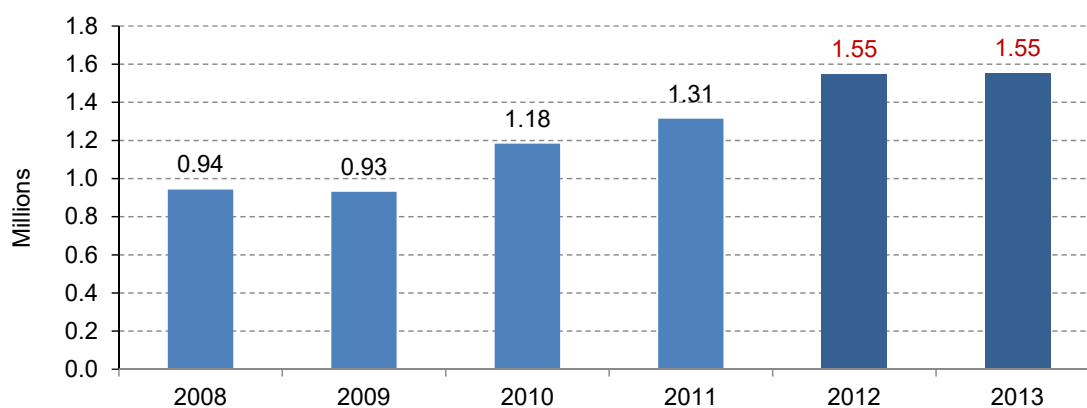
[18] BANBEIS.

[19] UNICEF, 2014.

[20] UNESCO World Data on Education, 2011.

Hence, lower income families are often not able to afford sending their children to secondary schools. Also, low income households tend to spend less on tuition and school fees. This gives indication to why only 28% of the 113 million secondary school aged population are currently enrolled in secondary education.[21]

Chart 10: Secondary and Higher Secondary Education Completion (2008 - 2013)

1. Tertiary Level

Tertiary education in Bangladesh takes place at 37 government, 80 private and 3 international universities. Secondary education is concluded with a public examination leading to Secondary School Certificate (SSC) then a Higher Education Secondary Certificate (HSC). The latter is the basis for acceptance to university (tertiary) education, though not all HSC holders are admitted to the university or program of their choice. Currently, there are 112 universities and 3,985 colleges in Bangladesh. As seen on Chart 11, the total number of enrollees for both university and college institutions has gradually increased, with a CAGR of 13% during the period.

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[21] UNESCO Institute of Statistics, 2008-2012.

Chart 11: Tertiary Education Enrollees (2008 - 2013)
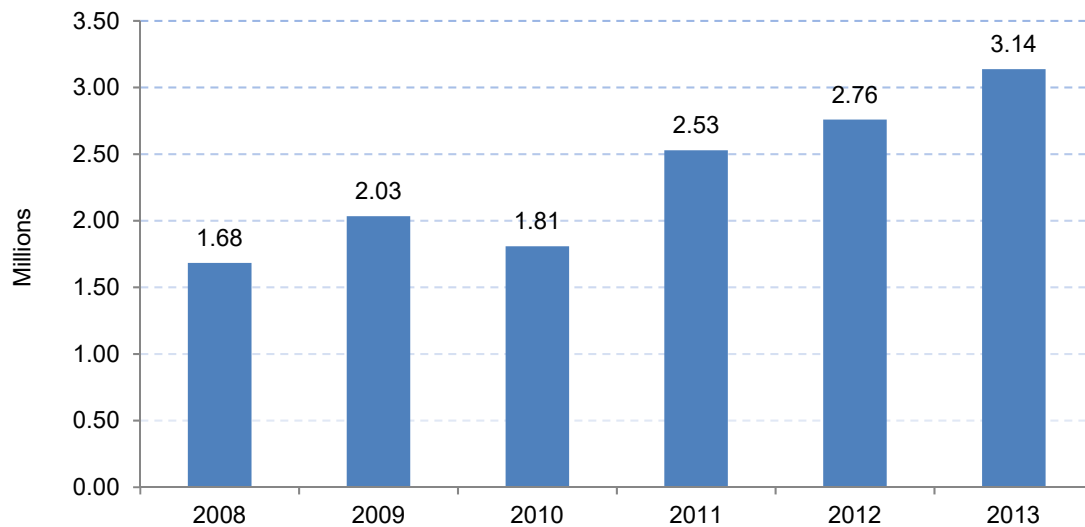
Source: BANBEIS, UNESCO, 2013

Despite increasing annual tertiary graduate figures, access to higher education remains very limited, with government expenditures allocated to tertiary education only 0.12% of the total education budget.[22] The role of private sector has been crucial to filling this gap, and ensuring the well-being of the country's tertiary educational system. The relevance of the private sector has only grown since the *Private Universities Act of 1992* was passed.

On a positive note, public universities continue to be developed outside of Dhaka City. According to the *Annual Education Survey,* there are currently 112 universities in Bangladesh – 34 (31%) public, and 78 (69%) private. The average number of students in public university was 13,369 while only 5,118 in private universities. Further, as seen on Chart 12, total tertiary graduates from both public and private universities continue to increase, at a CAGR of 19% across the tracked period. Public and private institutions increased at a CAGR of 19% and 17%, respectively.

However, tertiary participation of Bangladesh is not as inclusive as would be ideal for a developing nation. For instance, in 2012, only 19% of the total population ranging from 20-24 years old was enrolled in universities or colleges. Socio-economic hardship of student families is attributed to be the primary factor for the low participation rates. This sub-optimal level equates to less than 1% of young adults in Bangladesh attending tertiary education.[23]

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[22] World Bank, 2014.

[23] UNESCO, 2014.

Chart 12: Total Tertiary Graduates (2010 – 2013)
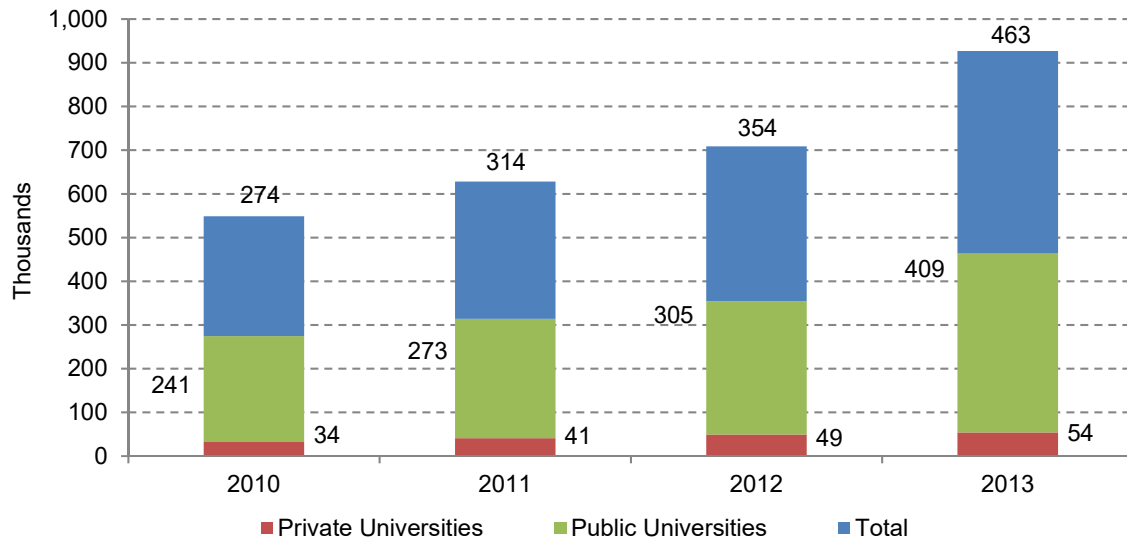
Source: University Grants Commission (UGC) Reports, 2013

As seen on Table 4 below, from 2010 to 2013, the *selected tertiary graduate pool* that can be tapped for IT/ITeS services has grown at an average of 27%. It is important to note that graduate output that directly pertains to *Information Technology and Computer Science* disciplines are not tracked by BANBEIS, but they have explicitly stated that these *most probably* are recorded as Engineering talent. On the other hand, graduate output of Business Management and Finance showed a healthy CAGR of 38% while Social Sciences follows with a CAGR of 18%. The Engineering discipline had the lowest growth rate of 7%.

Table 4: Public Universities Academic Field Output Segmentation (2010 – 2013)

Year	Humanities	Business Mgmt. & Finance	Sciences	Engineering	Medicine	Law	Social Science	Agriculture
2010	88,798	48,254	31,212	5,656	3,568	2,571	59,679	983
2011	83,551	57,936	36,894	5,923	3,433	4,784	80,000	838
2012	104,806	74,167	38,205	6,389	6,287	3,796	70,086	1,332
2013	126,955	128,127	38,127	6,952	5,138	5,003	97,715	1,266

Source: University Grants Commission (UGC) Reports, 2013

With a healthy number of graduates in Business Management and Finance, industry stakeholders should take advantage and continue to build competencies around *BFSI–related services*. As will be discussed in later sections of this study, the global FAO market is also one of the more established, and lucrative services outsourcing markets.

However, the output of engineering graduates, from which IT talent is parcel of, is quite low. One of the reasons learned behind this condition, was the elevated levels of competition during the HSC. As the HSC score is required for admission to first-degree courses such as Medicine and Engineering, and if the student's HSC score does not meet score requirements, then the student is not admitted to the program. Hence, the HSC score greatly affects the selection process to tertiary education. *While current industry profile suggests that inherent expertise and potential of the Bangladesh IT/ITeS sector lies in providing ITO Services, the low graduate output from the Engineering discipline should raise a cautionary red flag to industry stakeholders.*

Though the tertiary output of a location often reflects the future-potential of the location to scale its IT/ITeS sector, an equally crucial consideration, especially in developing nations such as Bangladesh, is the quality and/or employability of graduates. In such emerging locations, the skill sets of the labor pool should more closely match the specific skills and technical requirements of the IT/ITeS provider. In situations where the graduate output of relevant courses is low, and the talent pipeline is narrow - *as in the case of Bangladesh* - service providers would be forced to increase operating expenses to provide additional training and employ more aggressive (and costly) employee acquisition and retention programs.

Therefore, it is vital for industry stakeholders to implement *capacity and output building initiatives*, which can directly increase tertiary graduate output, and particularly for courses that are aligned with the specific services outsourcing segments the country is targeting (e.g. ITO, non-voice BPO, FAO). In order to do that, HSC scores should first be improved, to increase the acceptance rate of tertiary aspirants. Second, it is necessary to improve the access to universities and colleges, across the entire country, and not just centered on Dhaka City. *If these capacity and building initiatives are not achieved in the short-term, then the country's IT-ITeS sector will continue to face scale limitations, further negating its precariously few competitive advantages.*

2. Technical and Vocational Education

Technical Diploma and Vocational Education are not for students who are strictly not into academic education. Government ensures to have the course curriculum that interest students while at the same time address job fulfillment. There is no Technical Vocational institution in primary level of education. This program is designed in three phases under two major levels of secondary from grade 9 onwards and tertiary levels. The certificate base vocational courses starts from secondary level and prepare skilled manpower spanning 1 to 2 years of program.

Diploma courses prepare diploma engineers at the polytechnic institutes spread over 4 years of duration upon completion of secondary school certification examination. Bangladesh Technical Education Board (BTEB) grants affiliation to the technical institutes. It helps in conducting examinations for the students on different courses opted by students and certifies.

LICT's Skills Training

LICT under the aegis of ICT Division has made training as an objectives towards skilling and tuning future ready workforce with its intensive skilling program:

1. **Top up IT Training:** This is an IT Services Skilling Training Program. The program targets Non-IT and It graduates and train them for jobs in IT outsourcing (ITO) services industry segment. Country's major Universities and Training Institutions work closely with Ernst & Young (E & Y) to cater training for 10,000 trainees and place 60% on the job. The program subjected to cover on the following skills:
   - Software Development
   - Computer Programing Languages – PHP, Objective C, SQL, Android Java, Java Script, Java Ruby, Python etc.

   The program also accounts to cover on disruptive technologies. To be eligible to enroll in this program, the candidate should be from a science / engineering background with successful completion of CSE/IT, Physics, Chemistry, Mathematics, Bio-chemistry, Statistics, Population Science, etc.

   The activities covers:
   - Training program on software/IT for CSE/science graduates
   - Arrange the necessary infrastructure (e.g. Hardware/Software/Connectivity) for training at selected preferable public university campuses
   - Development of curriculum, courseware/content, and assessment tools
   - Hiring and training of faculties (faculties from existing universities/institutes and others)
   - Student enrollment and training delivery

   Top up IT Training will adopt an internationally recognized software developer certification program linked to leading global academic institution. The program essentially engages in faculty training program to improve the quality of faculties for teaching IT. The faculty training program is further encouraged to train women master trainers in parallel to male master trainers.

2. **Foundation Skills:** Skills over 20,000 ITES professionals that meets global standards in global market. It provides training grants to companies with the criteria of meeting

minimum set of skills developed and hired. Foundational work skills are fundamental to creating a competitive ITES labor force as these are generic for virtually all its sub-segments, including BPO and micro-work. These skills address areas such as cultural sensitization, basic PC and data skills, interpersonal communication, and a good professional attitude in general. The goal is to create a talent pool that can cater to the requirements of the global industry, besides helping to enhance the quality of the workforce for a range of domestic sectors. Integration of assessment and training for faster results based on individual's need.

An anchor institution is commissioned to house the program partnering with leading international companies for training the trainers and provide quality assurance for trainers and students.

3. **Online Outsourcing (OO) Training and Employment Services for IT/ITeS:** This program is to carry out training and mentorship leading to Online Outsourcing (OO) for Bangladesh youth and women. The program targets to train 10,000 and is an IT Services Skilling Training Program. Online outsourcing (also referred to as "crowdsourced labor", "paid crowdsourcing", or "freelancing/elancing") is the contracting of third party workers and providers (often overseas) for IT, business process, and/or knowledge based services via Internet based marketplaces. These online task marketplaces enable clients to outsource their paid work to a global labor pool of remote workers and/or enable performance, delivery and payment for such services online. Examples of such marketplaces include Upwork, Freelancer, Amazon Mechanical Turk, CrowdFlower, etc.

4. **Fast Track Future Leader (FTFL):** This program is targeted in building 1,000 future leaders for IT/ITeS Industries of Bangladesh. LICT in collaboration with IT and ITES industries selects trainees for FTFL program as per skill demand in the area of software development, BPO and IT/ITeS related management. The training is provided according to the company's need for a duration of 6 months. Upon successful completion, the trainees are employed by the companies.

Industry Association's Skills Training

Skills for Employment Investment Program (SEIP), Finance Division, Ministry of Finance, Government of Bangladesh's initiative towards transforming and developing unskilled and semi-skilled workforce into a production workforce in priority sectors and to support government institutes, private companies, non-government organizations, industry skills councils and industry

association for meeting the target. SEIP to provide assistance for skilling 1.25 million youths by 2021 in the focus sectors.

Objectives of SEIP Program:

1. Design program for skilling and up-skilling fresher and existing workforce to enhance productivity and growth of priority industry sectors
2. Impart skills training linked to employment opportunity
3. Implement training providers network development, endorsed by industry for providing excellent training to meet employers industry standard
4. Development program for trainers and assessors and a management leadership program for training provider management
5. Strengthen capacity of Bangladesh Technical Education Board (BTEB) in approving training providers registration process, course accreditation and monitoring quality assurance and implementation procedures of training providers
6. Support the training providers for capacity development to ensure quality training delivery mechanism
7. Establish and institutionalize a credible recognition of prior learning (RPL) system
8. Support the National Skills Development Council (NSDC) and key government ministries to strengthen institutional arrangements and coordination to enable the Technical and Vocational Education and Training (TVET) system to meet policy objectives within a coherent skills development framework
9. Support the establishment and operationalization of a National Human Resources Development Fund (NHRDF)

Breakdown of individuals training in priority sectors and skills

1. BACI - Bangladesh Association of Construction Industry
2. BACCO - Bangladesh Call Center Operators' Association
3. BASIS - Bangladesh Association of Software and Information Services, BB = Bangladesh Bank, BEIOA - Bangladesh Engineering Industry Owners' Association, BGMEA = Bangladesh Garment Manufacturers and Exporters Association
4. BKMEA - Bangladesh Knitwear Manufacturers and Exporters Association
5. BTMA - Bangladesh Textile Mills Association
6. NGO - Non-government Organization
7. PKSF – Palli Karma Sahayak Foundation
8. SME - Small and Medium Scale Enterprise

Risk Overview

Although Bangladesh has often been perceived by external audiences as a country marred by political turmoil, corruption and natural calamities, recent improvements across responsible institutions and the high profile success of the country's exports garment industry, have encouraged investors to revisit and reconsider Bangladesh as a viable location to undertake business operations. This developing economy offers a unique investment climate in comparison to other South Asian economies, in particular because of its dense and large population base. Further, with regards to the country's emerging IT/ITeS sector, it is strategically (and favorably) situated beside India, the former being the world's preeminent leader in the services outsourcing arena. In spite of some of these seemingly favorable advantages, Bangladesh is also saddled with what is regarded to be a generally difficult business environment. The country needs to make significant strides to improve its ranking of 174 in the World Bank's Ease of Doing Business Index for 2016. However, Bangladesh has graduated as per World Bank to a middle income country now – 5 year ahead of target.

Natural Risk

Bangladesh is exceptionally vulnerable to natural hazards, with a long history of catastrophic natural disasters. Between 1980 and 2008, it experienced 219 natural disasters, causing over US$16 billion in damage. The predicted effects of global climate change, especially of rising sea levels, is expected to compound these impacts.[24] However, for over a decade now, the country has aggressively developed and implemented a proactive disaster management and risk reduction platform, with the help of World Bank and United Nations Development Program (UNDP). The results are apparent in the fewer number of lives and livelihoods destroyed by natural disasters. Today, Bangladesh is considered by many as a global leader in disaster and risk reduction management. For instance, the country has now established *disaster-focused institutions* such as the *Flood Forecasting Warning Centre*, which develops and implement pilot projects to reduce vulnerability, while developing disaster (i.e. floods) policy and planning guidelines.

In the early 2000s, the Bangladeshi Government established the *National Disaster Management Council* along with coordinating structures that coordinated civil society organizations and local government authorities. UNDP supported this consolidation through the multi-donor *Comprehensive Disaster Management Program*. This allowed Bangladesh to become a pioneer among developing nations, in prioritizing disaster risk reduction in its national fiscal agenda.

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[24] UNDP, 2015.

Socio- Political Risk

Beyond natural risk, another element which directly impacts the viability of a location as a services outsourcing destination, is the presence of socio-political risk. The Consultants defines socio-political risk as the likelihood or presence of government or bureaucratic inefficiencies, societal tensions, inadequate legal systems, domestic/international tensions – that can present adverse conditions towards businesses and society in general. Political risk comprises the overall stability of government, the effectiveness of international trade and diplomatic relations, the reliability and integrity of a country's legal system and its relationship to business infrastructure, the efficacy of government bureaucracy, and the relevance of government economic policies.

Commercial Risk

Commercial risk is defined as the likelihood of commerce related disturbances or disruptions to occur in a location. Typically, these risks are rooted from the fundamental weaknesses in a country's financial system, and can induce adverse effects and/or conditions for business. Commercial risk evaluates the state of the domestic economy and institutional disturbances that negatively impact businesses, as well as prospects for growth and stability.
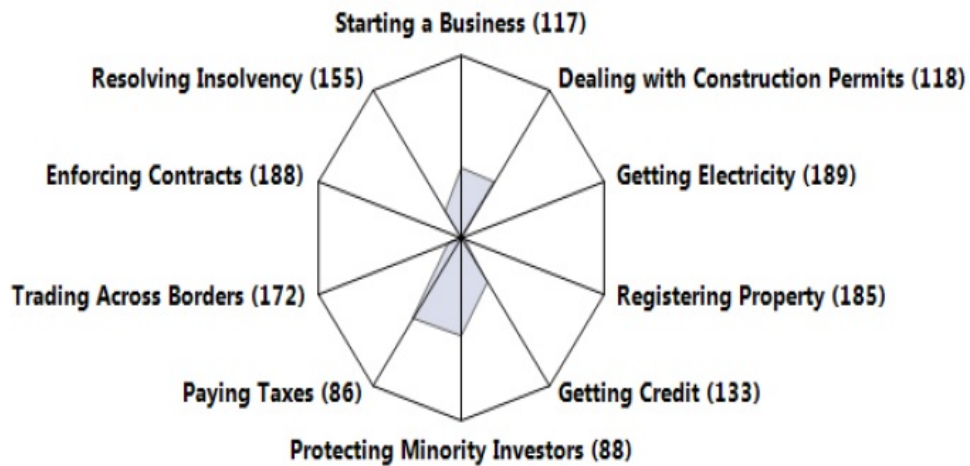
Growth has remained moderate for Bangladesh since 2014, when Prime Minister Sheikh Hasina was reelected in January 2014. The resulting political and social troubles that have transpired *post elections,* have had a negative impact on both domestic and international fronts of the economy. On a more favorable note, overseas remittances from migrant workers have continued to fuel domestic spending, while the agricultural sector, which employs half of the active population, has remained buoyant. The World Bank notes that although remittances for Bangladesh in 2014 was a robust US$14 billion, this was actually a 2.4% decline over 2013 figures.[25]

Moreover, due to these socio-political incidents, a number of public infrastructure projects have been postponed. Revisiting and implementing these projects would have a tremendous positive effect in boosting economic activity. Private investments, too, will continue to flow at a cautious pace, for as long as social and political instability persists. Whilst exports have not been adversely affected by incidents of unrest (e.g. hartals, political demonstrations, labor strikes) of recent years, they have nonetheless affected the external perceptions, of an otherwise improving domestic situation. The garments export sector for instance, which accounts for approximately 80% of total exports, already reeling from the negative image created by the collapse of the Rana Plaza building in April 2013, took another hit with the drastic 77% increase in minimum wages in November of the same year – a reaction induced by the building collapse.

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[25] Word Bank, Remittances to developing countries to stay robust this year, despite increased deportations of migrant workers. April 11, 2014

Figure 5: World Bank Doing Business Rankings, 2016. The Business Environment – Bangladesh

Starting a Business (117)

Resolving Insolvency (155)

Dealing with Construction Permits (118)

Enforcing Contracts (188)

Getting Electricity (189)

Trading Across Borders (172)

Registering Property (185)

Paying Taxes (86)

Getting Credit (133)

Protecting Minority Investors (88)

Note: (Scale: Rank 189 center, Rank 1 outer edge)
Source: World Bank Doing Business Report, 2016

IT/ITeS Industry Survey

As part of the objectives of the Industry Strategy for the Bangladesh IT/ITeS sector, it was deemed necessary by the Consultants and the BCC/LICT to engage the country's industry stakeholders with an Industry Survey. The overall objective of the Industry Survey was to build an accurate or *indicative composition* of the industry, including key metrics such as revenue, headcount, process capabilities, market focus, among others. The Industry Survey was also intended to determine qualitatively, the strengths and challenges faced by IT/ITeS service providers in the country, as viewed by stakeholders and industry players. Tholons acknowledges the crucial roles which BASIS

has played in fulfilling the survey. The guidance and support provided by BASIS ensured not only the veracity of the survey, but likewise provided the Consultants much needed insight and direction into the local IT/ITeS industry.

This section details the survey methodology, respondent profile, and the succeeding results and analyses.

Survey Methodology

The survey was designed to capture data for three main topics of interest for Bangladesh:

1. Company Profile – Industry Defining Statistics such as Revenues, Headcount, etc.
2. Location Insights – Strengths, Challenges of being located within Bangladesh
3. Bangladesh as a Service Delivery Location – Operational Challenges and Projections

Given the above data scope, a comprehensive data set of both quantitative and qualitative data can be drawn from the sector. The questions and choices which appear in the survey have also been consulted with the relevant government and industry stakeholders.

Industry Survey Results

A total of 69 IT/ITeS company respondents completed the survey. According to preliminary estimates, this represents approximately 15% to 20% of the Bangladesh IT/ITeS sector, according to total revenue contribution. It must be noted that some of the survey questions, and corresponding results, may show less than 69 respondents. This was due to some respondents deliberately not answering particular questions presented in the survey.
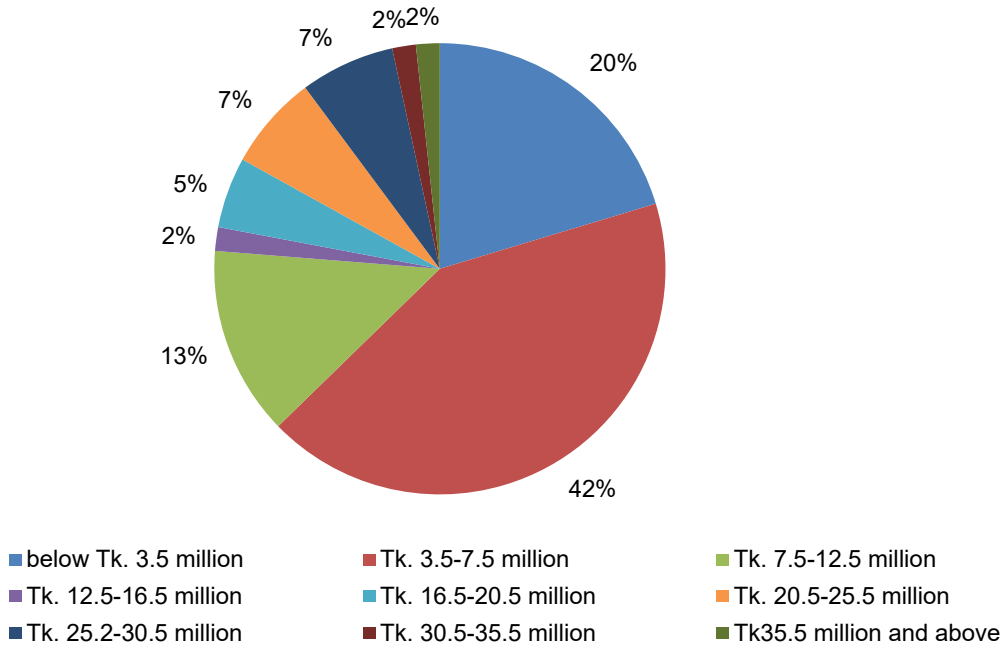
Company Profile

Chart 13: Company Age

16 Years and Above
14%

0-5 Years
37%

11-15 Years
17%
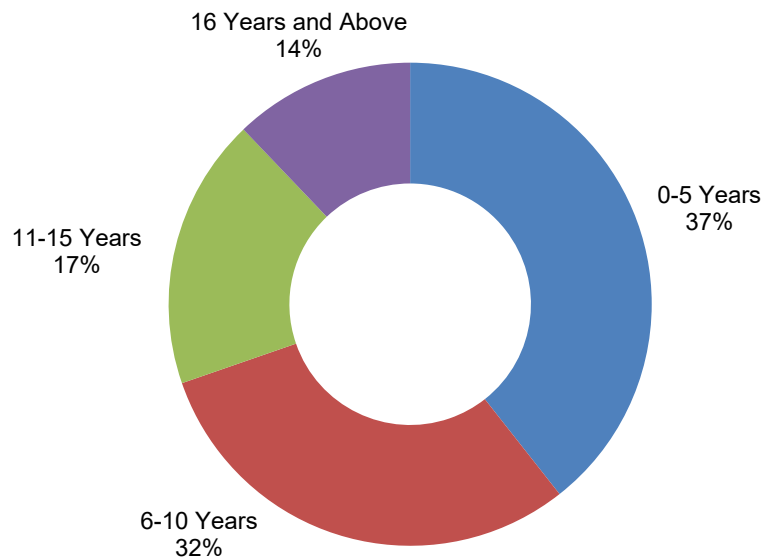
6-10 Years
32%

Note: Total 66 Respondents

Chart 13 above shows that majority of IT/ITeS company respondents are relatively 'young,' with the 0-5 Years bracket comprising 37% of respondents, and 32% at 6-10 Years, or 69% of all respondents being companies that have been operational in 10 years or less. This validates the assumption of the Bangladesh IT/ITeS sector of being a relative newcomer in the global services outsourcing landscape. Given this, a total of 31% of respondents belong to the 11 Years and above bracket, may of such companies rooted from the early pioneering years of Bangladesh's technology hardware sector.

Chart 14: Initial Capital Invested to Start Company

Pie chart legend:
- below Tk. 3.5 million — 20%
- Tk. 3.5-7.5 million — 42%
- Tk. 7.5-12.5 million — 13%
- Tk. 12.5-16.5 million — 2%
- Tk. 16.5-20.5 million — 5%
- Tk. 20.5-25.5 million — 7%
- Tk. 25.2-30.5 million — 7%
- Tk. 30.5-35.5 million — 2%
- Tk35.5 million and above — 2%

Note: Total 59 Respondents

Moreover, 42% of the respondents used an initial capital amounting to Tk. 3.5 – 7.5 million while at least 21% companies had put up with a capital of below Tk. 3.5 million. This result of the survey denotes that initial capital investment for starting an IT/ITeS company is relatively low in Bangladesh. This low cost of entry is a favorable sign for potential investors and entrepreneurs, given the low-cost of entry, and the relatively high potential for returns.

**Chart 15: Sources of Funding to Start Company**
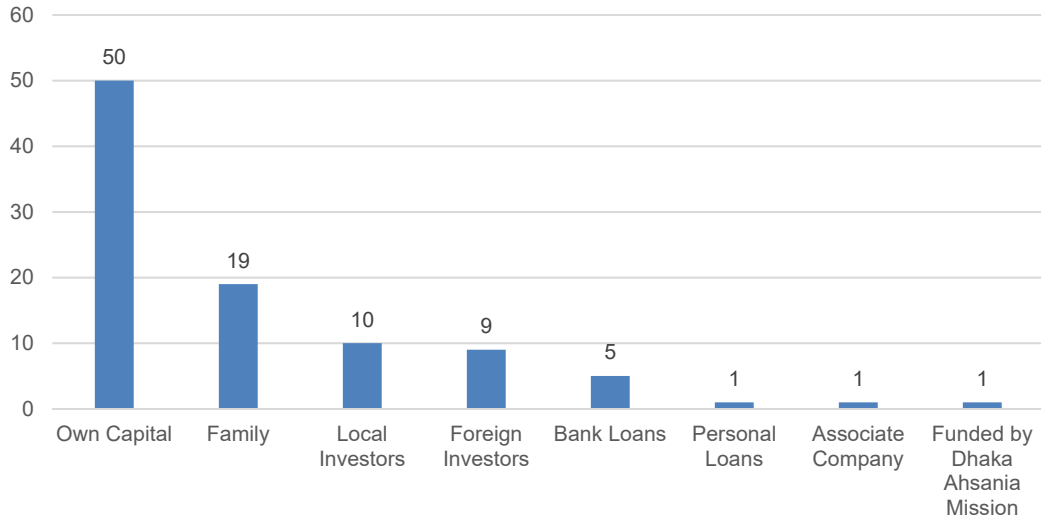
Note: Total 69 Respondents

Additionally, it was also learned that initial funding for Bangladesh IT/ITeS companies mostly came from the own capital of the company founders, with 74% stating they have done so. That said, those who have sought to utilize other sources of funding have primarily gone to family, foreign investors, and local investors. Bank loans were a minor source of funding with only 6% utilizing this source as it was suggested that bank requirements are often not aligned with IT/ITeS business models (i.e. revenue streams), and with banks often not able to fully comprehend the nature of operations, and business case of IT/ITeS companies. This makes it difficult for Bangladesh service providers and IT/ITeS startups to secure loans from more traditional financial institutions such as banks.

## IT/ITeS Industry Composition

Chart 16: IT/ITeS Revenues Source
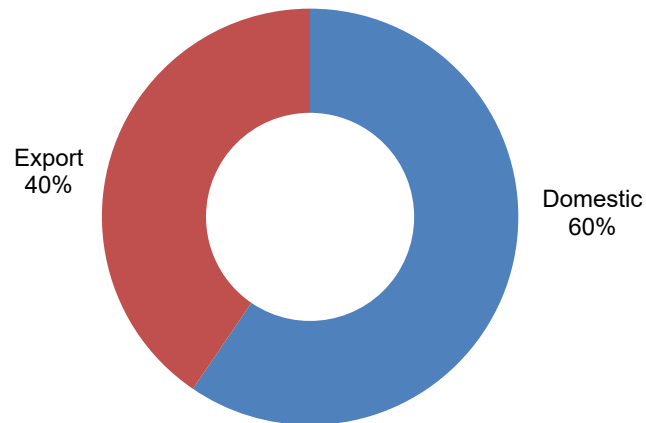
Note: Total 62 Respondents

Aggregate revenue for the industry survey respondents totaled to around US$96 million, which represents an estimated 15% of the country's total IT/ITeS sector revenues. From the survey respondents, US$39 million comprise export revenues compared to domestic revenues of US$ 57 million. As it currently stands, domestic revenues are 46% larger than export revenues. The largely domestic oriented sector implies two major points. First, that IT/ITeS adoption in the domestic market has been rapidly rising, and second, that the local IT/ITeS sector, still faces ecosystem challenges which are hindering it from building a more formidable international (export) presence.

Further, Bangladesh's image as a *relative newcomer* in the global services outsourcing arena, may also play a role in the smaller share of export revenues. Typically, in more established outsourcing destinations, export revenues would be a priority segment when developing the industry, as the export segment has a greater capacity to provide higher billing rates (and consequent revenue), and likewise has a greater capability to diversify service delivery portfolios, because of a more varied demand from service buyer markets.

Despite a smaller share for export oriented services, the survey shows that respondents estimate roughly US$65 million in export revenues for 2016. The projection represents ~70% growth for total export revenues over the previous year, and indicates a very optimistic view by industry players on how the IT/ITeS sector will perform in export space. (This figure is not indicative of actual projections in itself, but an estimate or gauge, of the sector's optimism on the export market.)

Chart 17: Primary Service Lines


KPO
5%

BPO
31%

ITO
64%
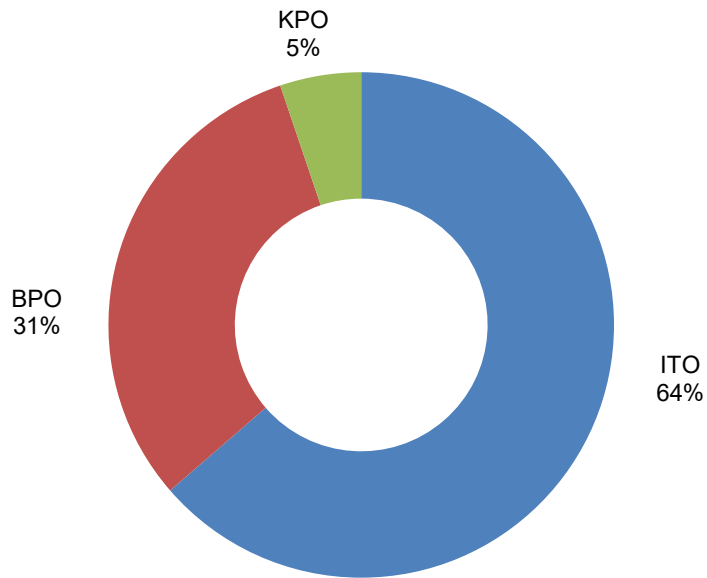
Note: Total 69 Respondents

Chart 17 above shows the major services outsourcing segments in the country. According to the survey, 64% of respondents were focused delivering ITO services, followed by the BPO segment with 29% and KPO segment trailing at 7%. This is further validated by previous on-site missions wherein the majority of respondents interviewed were in fact from the ITO space, with most confirming that the inherent strengths of the country's IT/ITeS labor force could be found in software development processes. Though the BPO sector remains an important segment of the Bangladesh services outsourcing market, it has remained largely domestic focused. Tholons believes there lies sustainable market opportunities in the domestic BPO (both voice and non-voice) space, due to strong demand from the government, BFSI, Telco and retail sectors. *However, in the context of export-oriented BPO services, Tholons believes that the most viable opportunities for the country would be centered on non-voice BPO services (e.g. graphic & content design/editing, data processing, etc.)*

Chart 18: Active Process Group Areas
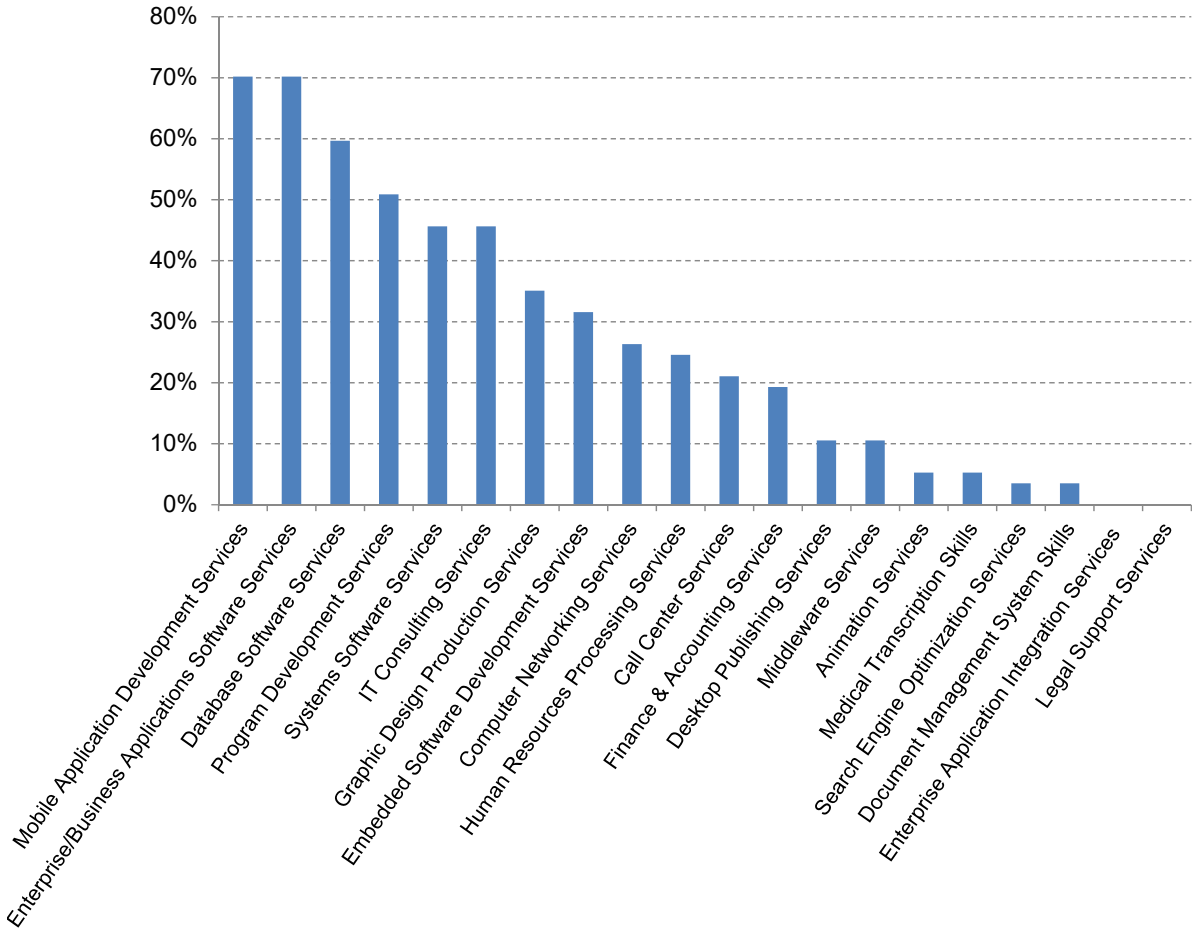
Note: Total 69 Respondents

When respondents were asked on which service and process groups their companies were currently providing, the survey showed that Mobile Application Development, Enterprise/Business Application Software Services, Database Software Services, and Program Development - to be the major process groups being provided by Bangladesh service providers. This again supports previous findings regarding the country's inclination towards the ITO segment.

**Chart 19: Primary Industry Vertical Markets**
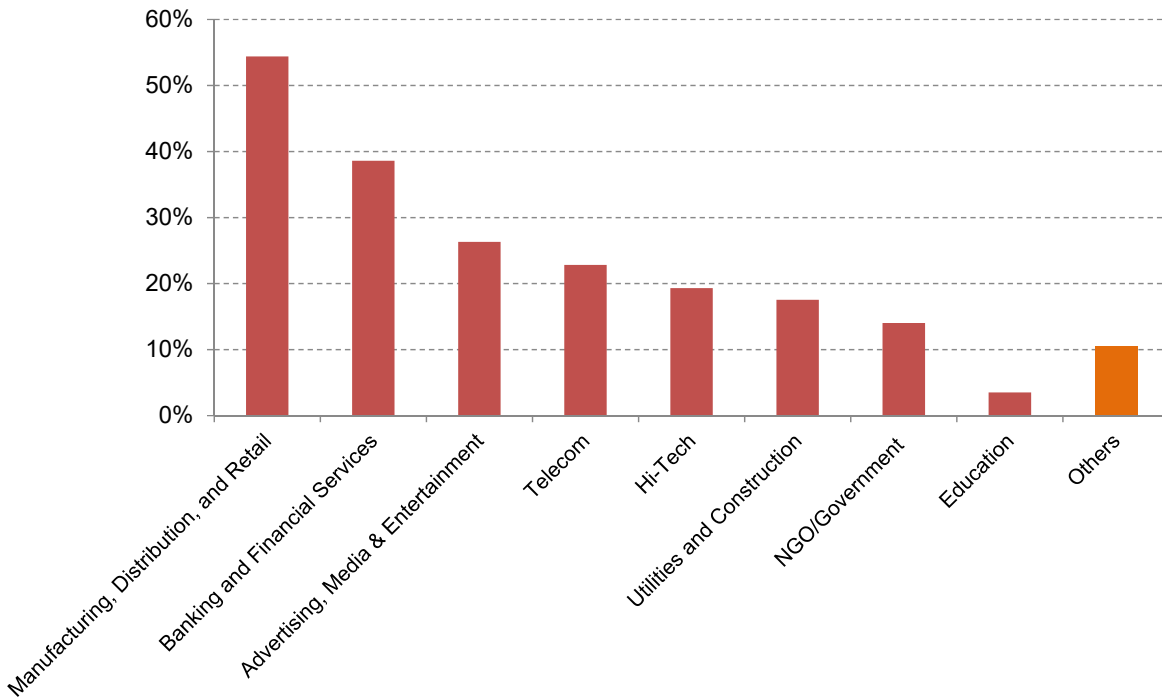
Note: Total 57 Respondents

Survey results also show that primary market focus, by vertical, revolve around the Manufacturing, Distribution, and Retail vertical, with 54% of respondents indicating they are providing services to this particular industry sector. As previously analyzed, there lies great opportunities in the Banking and Financial Services space, with 39% of respondents identifying market focus for this sector. Finally, and as the population continues to increase its consumption of media, there will remain sustained demand coming from the Advertising, Media and Entertainment sector, which already records a healthy 26% share of respondents.

In terms of headcount, the average size of IT/ITeS companies which responded to the survey was 54 people per company. Several companies employed as little as five people, and others, upwards to 250 employees. Based on the survey, only seven companies or 12%, have over 100 FTEs (full-time employees) and nine companies have at least 50 people. Further, at least 46% have 20 and below employees. Hence, most of the IT/ITeS companies in Bangladesh are small or medium-sized, and as seen on Chart 20 below, ITO Services, IT Products, and Application Development, cumulatively accounts for more than 70% of total employee segmentation.

Chart 20: IT/ITeS Headcount Split
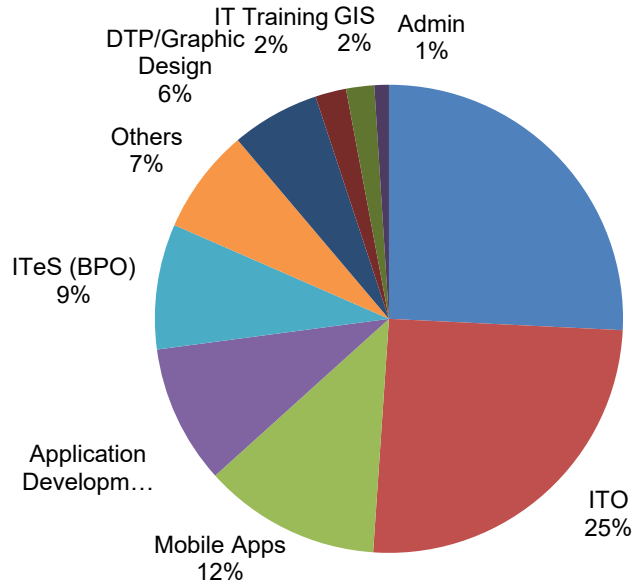
Note: Total 57 Respondents

**Chart 21: Annual Attrition per 100 FTEs**
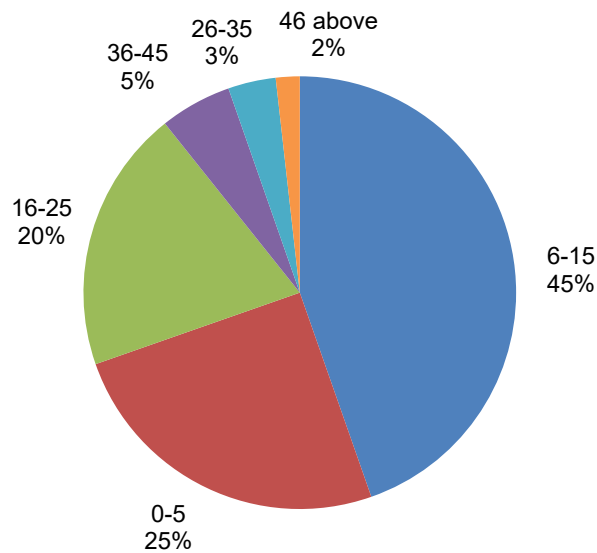
Note: Total 57 Respondents

It is also worthwhile to look at the average annual attrition rate for Bangladesh IT/ITeS companies. In Chart 21 above, 45% of respondents, from the 57 respondents who replied to this particular question, reported that in a calendar year, they averaged roughly 6-15 employees leaving the company, while another 20% indicated of having 16-25 FTEs leave annually. *This should be a*

noted concern for Bangladesh IT/ITeS stakeholders, especially since the average headcount size of IT/ITeS companies is only 54 FTEs. Thus, if we take the median of the 6-15 FTE group, and assume that 10 FTEs are leaving companies that are only 54 FTEs in size, we can project that total attrition for the calendar year to be in the range of 20%. This is an elevated figure, given the current state of the Bangladesh IT/ITeS sector, and the inclination towards ITO, which typically has a lower attrition rate than BPO. Finally, only 14 respondents, or 25%, report of having an average of 0-5 FTE attrition annually.

Chart 22: Geographic Market Focus
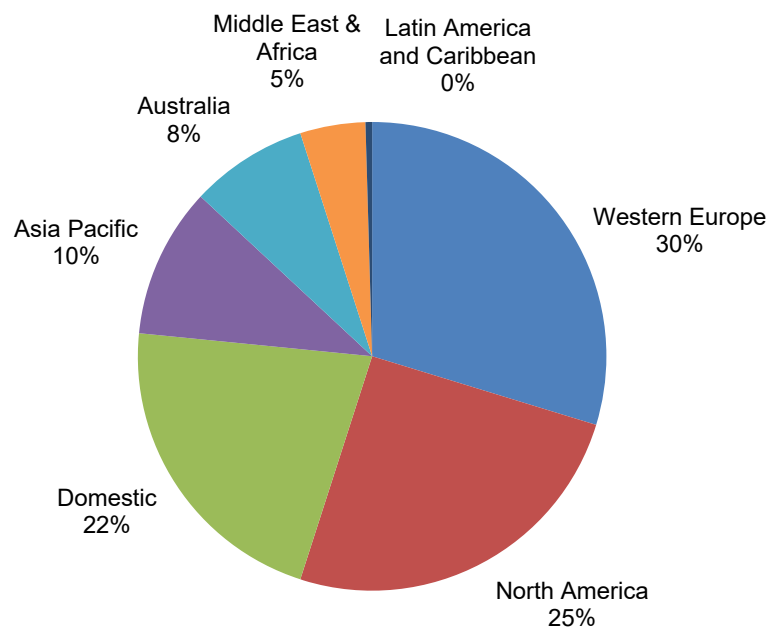

Note: Total 69 Respondents

In terms of Geographic Market focus, the Western European region represents the largest geographical target for Bangladesh IT/ITeS providers at 30%, with North America following closely with 25% of respondent voice.

The focus on the European market is attributed to several factors. First, the North American buyer markets of US and Canada have historically been dominated by large, established offshore provider destinations such as India and the Philippines – making North America a crowded market, with fleeting opportunities for smaller providers. Current demand can still allow (and sustain) market share growth of Bangladesh service providers on the region, but they will find difficulties penetrating this highly selective, and mature service buyer market, at least in the short term. Second, the focus

on Western Europe may be attributed to the country's established diplomatic and trade relations with specific countries such as Denmark, Netherlands, and the UK. Given the fact that many of the country's IT/ITeS providers started out by leveraging existing corporate and professional relationships to build their client bases, it is not surprising that Western European countries have been a primary focus market for Bangladesh service providers.

Beyond the provision of outsourced services internationally, the domestic landscape is also experiencing healthy uptake, with 20% of processed services being procured domestically. The largest service buyers in the country include the BFSI, Government, Retail and Telco sectors.

Chart 23: Language Capabilities and Focus
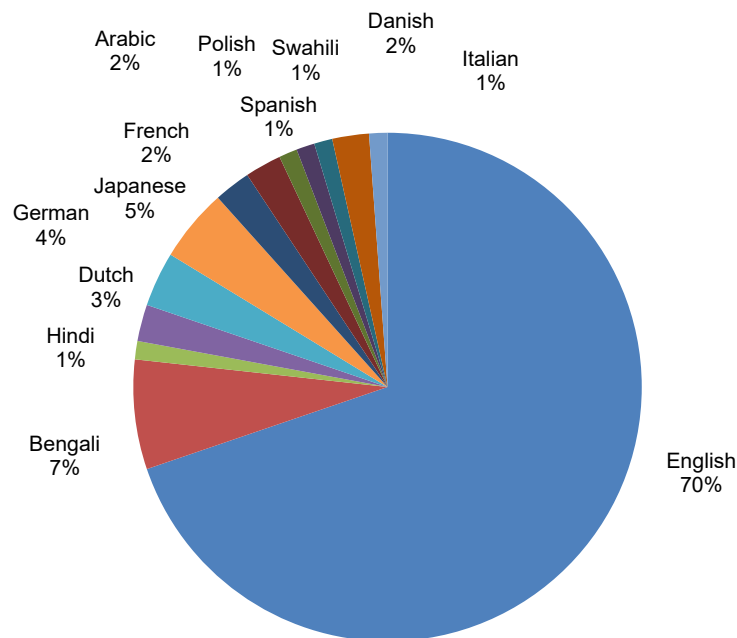
Note: 66 Total Respondents

As discussed in the previous section, the linguistic platform for the country in the context of outsourced services is English, with 70% of the surveyed companies saying they offer (or provide) English-based services. With most of its clients based in *English-speaking or English-capable* markets, such as Western Europe and North America, local industry stakeholders should ensure that the talent pipeline for *English –proficient talent* is properly taken care of, and capable of meeting industry demand and requirements.

English is then followed by Bengali, and then by Japanese. While the succeeding language capabilities may indicate 'remote capability' in providing services in those linguistic markets, industry stakeholders must be careful not to dilute the core language competencies of the local IT/ITeS sector. For instance, *should capital and training resources be used to develop 'fringe capabilities' in Dutch, French and Spanish, or would these resources be better spent focusing on improving English training and proficiencies in the country? A dispersed market focus, even in the context of language, is a detriment to the development of the country's still emerging service outsourcing sector.*

Chart 24: Average Salary Range for Entry-Level Employees (0-1 year experience)
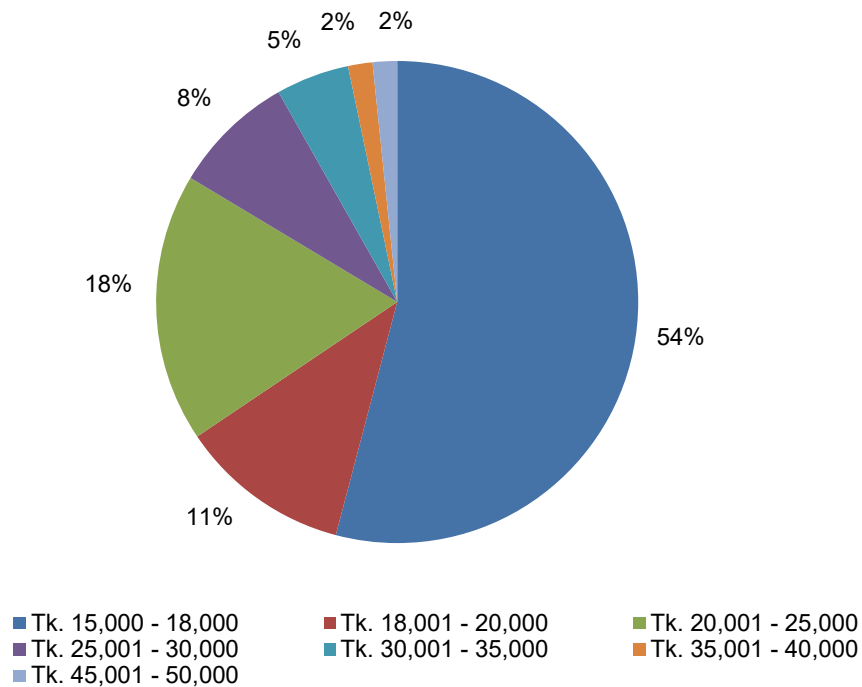
Note: 62 Total Respondents

Among the surveyed companies, 54% answered that the average salary rate ranges from Tk. 15,000-18,000 (US$190 – US$210). AS previously noted, this is one of the prominent advantages of Bangladesh - its favorable cost arbitrage – and will likely be a consideration that will attract investors and potential locators at *first glance*. However, it must be noted that although many potential locators will find the cost savings in the country attractive, local industry stakeholders should not be fixated on building the country's general value position around cost. *If the country becomes known simply as a 'low cost destination for outsourced services' then there is a very real danger that market reach of the local IT/ITeS industry becomes limited, attracting only low-value,*

low cost outsourced processes. This is especially relevant in the context of the country's services outsourcing industry, which is showing competencies in high-value ITO work.

Qualitative Insights

For the following charts (25, 26, 27), interview respondents were asked to rank various ecosystem components according to perceived degree of importance. These components are generally accepted as the components affecting industry performance and growth in the country. Each component was given an equivalent score for each rank:

1. Rank 1 - 3pts (most important)
2. Rank 2 - 2pts (somewhat important)
3. Rank 3 - 1pt (least important)

As such, components that are ranked as 1 are determined to be 'most' important to the respondents, and given a corresponding score of 3, while a Rank of 3, was considered 'least' important, and given a lower point score of 1.

The primary propositions of Bangladesh are its low labor costs and large talent pool. Respondents echoed the belief that Talent Cost & Availability of raw talent as being one of the definitive strengths of the country's IT/ITeS sector. Government incentives and regulations ranked second as more progressive reforms, such as tax incentives have been introduced in recent years to stimulate industry movement. On the other hand, market access ranked quite low, as many respondents voiced their concerns regarding the oftentimes-fragmented marketing and promotion initiatives that the IT/ITeS industry has been subject to. *Many respondents shared the common observation that external (international) marketing and promotion activities often seem scattered, with resource allocation not being optimized.*

**Chart 25: Perceived Strengths of Bangladesh IT/ITeS Sector**
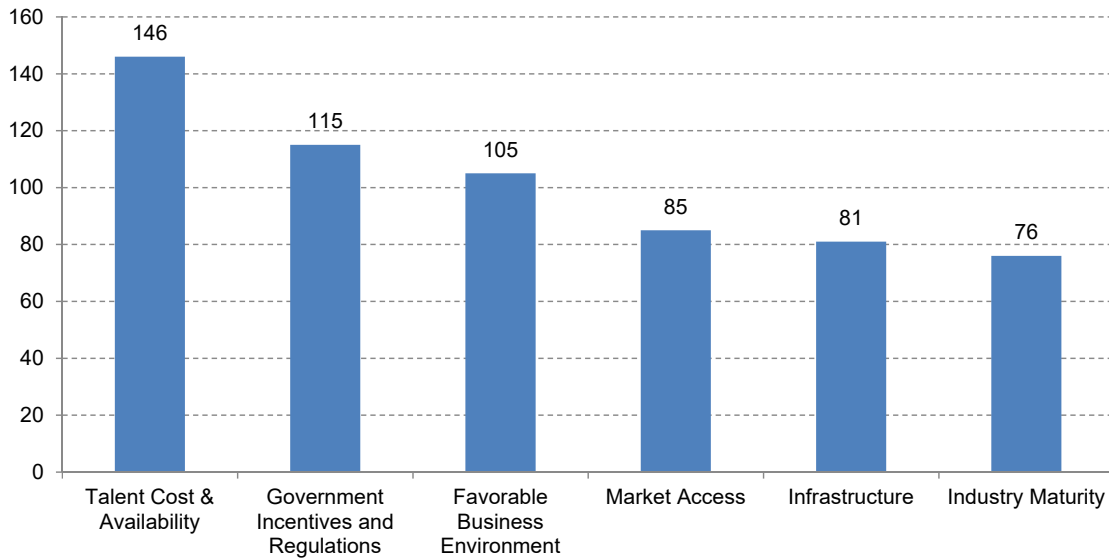
Note: Total 69 Respondents

The Industry Survey also asked respondents on the internal/ecosystem risks that they feel could negatively impact their own operations as well as the performance of the IT/ITeS sector as a whole. Results showed that Attrition & Instability and Industry Bodies & Government to be the major concerns of the industry players. With high attrition rates, companies are subject to higher operating (labor) costs due to higher costs of employee acquisitions, training and retention. The latter also indicates that the participants consider the government to have insufficient support which may result to the difficulty to move within institutions and the lack of dialogue on its side to address key problem areas of the industry.

Chart 26: Perceived Ecosystem Risks & Challenges
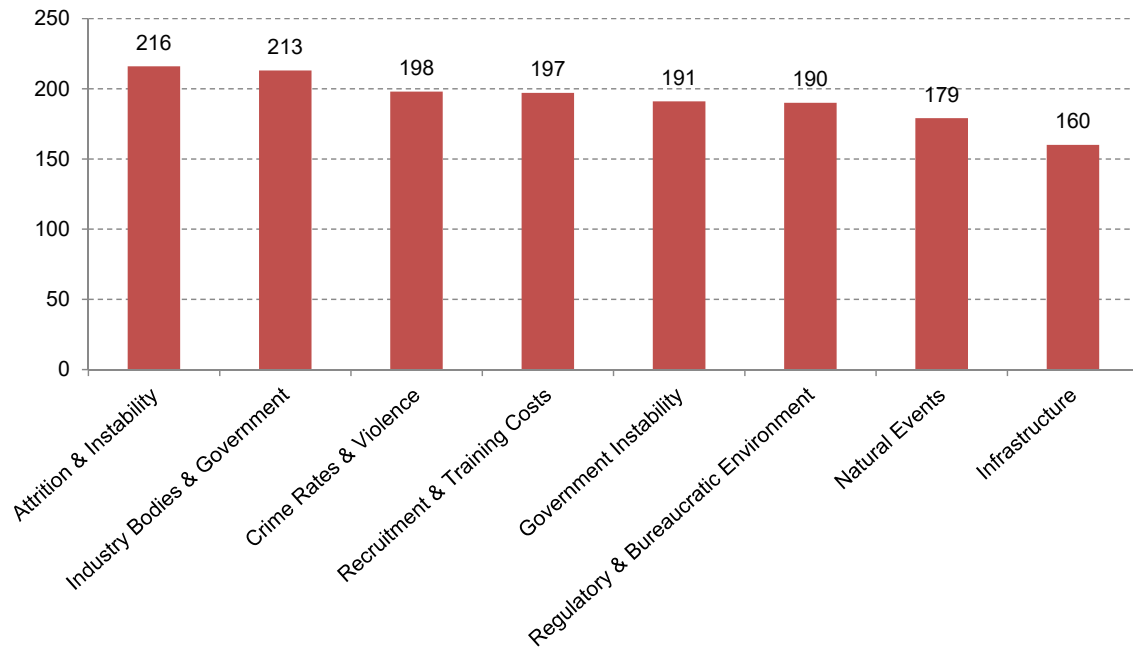
Note: Total 66 Respondents

It is interesting to note that the top two responses for both the Perceived Strengths and Perceived Risks questions, reflect different sides of the same components. While Talent Cost & Availability is seen as a strength, operational experience shows that maintaining employees remains difficult due to a myriad of factors such as migration and *career jumping*. In the same way, while incentives and regulations are currently seen as a perceived strength, industry bodies and government are also seen as risks most likely due to a seeming lack of *institutional support* with companies stating that very minimal benefits are seen from industry memberships and government.

Chart 27: Perceived Operational Challenges
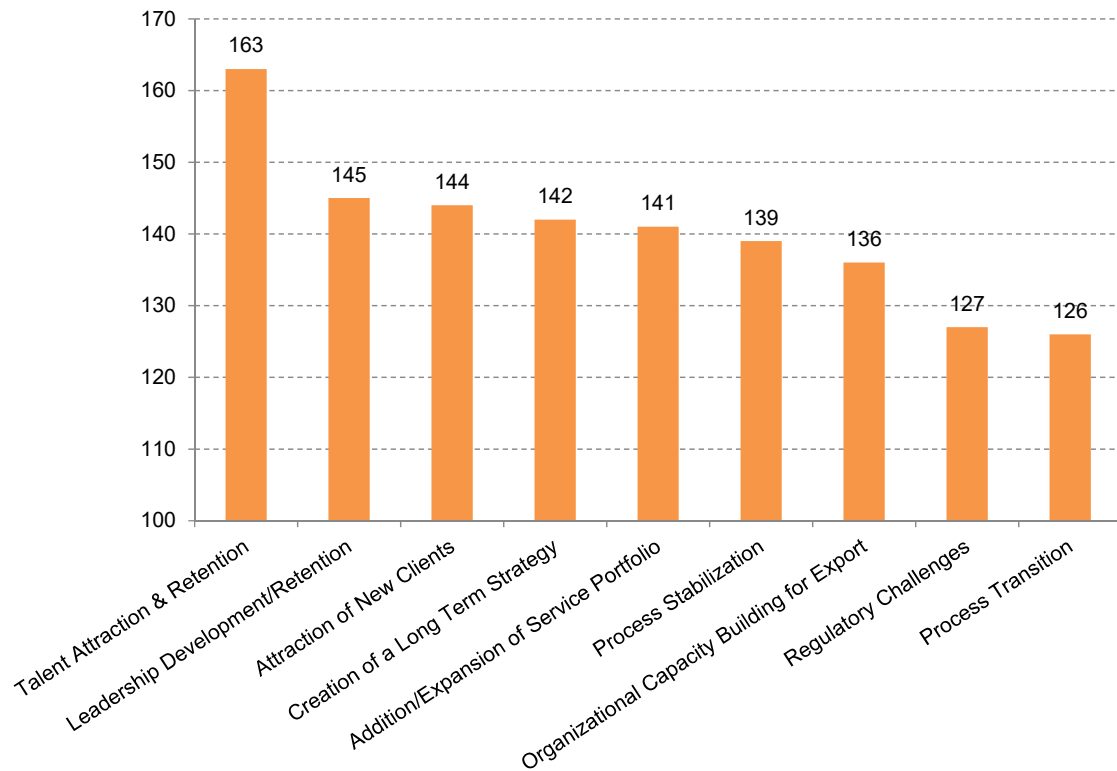
Note: Total 66 Respondents

Talent Attrition & Retention is one of the major perceived (and observed) risks, affecting operations of industry players, and as supported by the results of Chart 27 above. This is followed by Leadership Development & Retention which can also be linked to the cause of attrition – continuous shifting of jobs due to high market demand of talent with significant experience in the industry. *If these two operational inhibitors are left unabated, then there is a very real danger for IT/ITeS industry development to stall, as there is a net loss of talent (through labor migration), while at the same time, the local talent pipeline becomes even more restricted, as new managers are not being cultivated at the required rate. This scenario could induce a state of atrophy for the sector.*

Chart 28: Technical Skill Requirements Needed/Preferred by IT/ITeS Companies
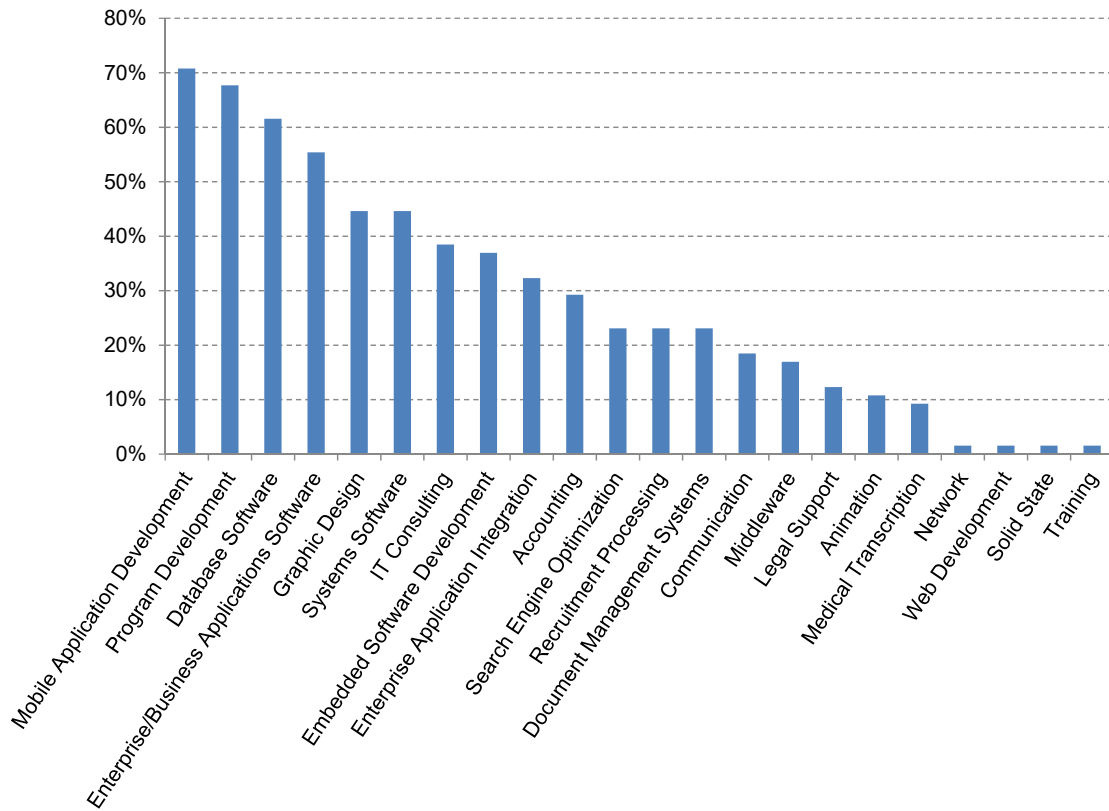
Note: Total 66 Respondents

Findings have also shown that the primary technical skills requirements needed by 71% of respondents was Mobile Application Development Skills, while Program Development Skills followed at 68%. In relation to a previous question, Mobile Application Development Services, indeed matches the most 'in demand' technical skill requirement on Chart 28. Further, the composition of technical skills requirements above, supports the finding that the majority of respondents are focused on providing ITO services, one of the perceived core-competencies of the Bangladesh services outsourcing sector.

Chart 29: Soft Skill Requirements Needed/Preferred by IT/ITeS Companies
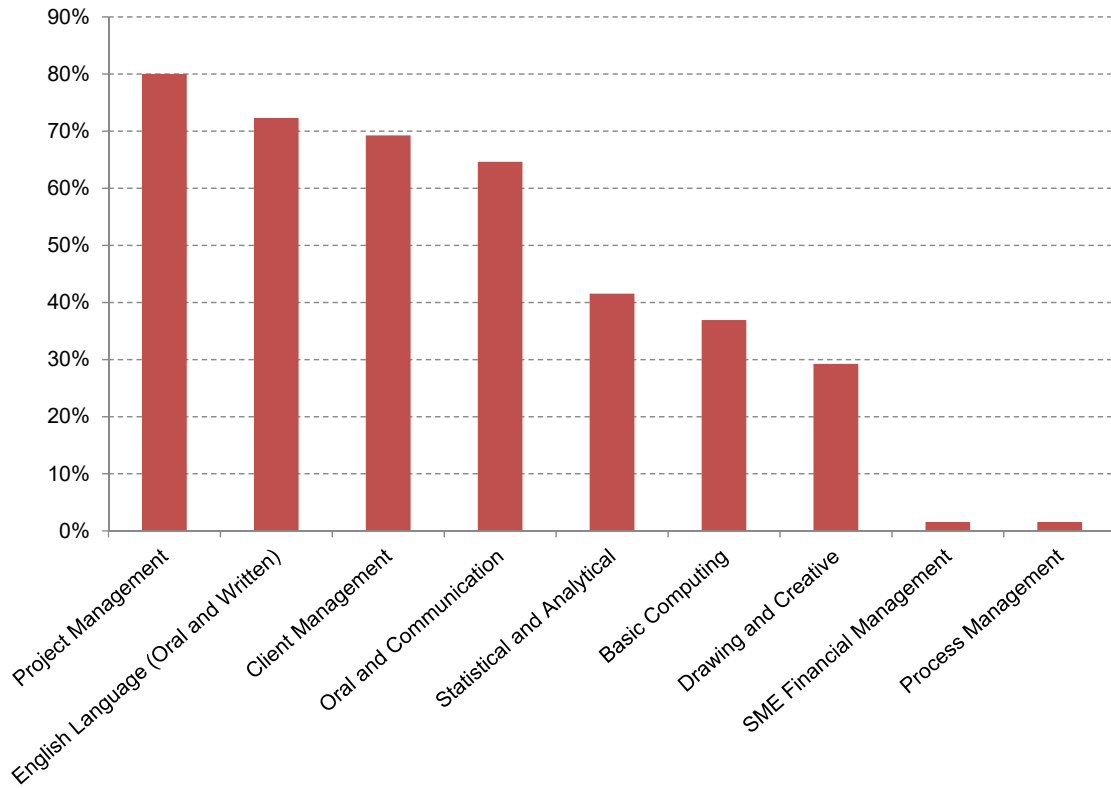
Note: Total 57 Respondents

Meanwhile, 80% of survey respondents said that Project Management Skills were one of the main soft skills required from the talent pool. *72% said that English Language (Oral and Written) Skills should also already be in place for potential hires. Further, and as the local IT/ITeS industry expands its footprint in the global arena, English communication skills and universally accepted Project Management skills and certifications will be in increasingly important requisite for IT/ITeS providers in Bangladesh.*

Chart 30: Perceived Difficulties in Hiring Talent
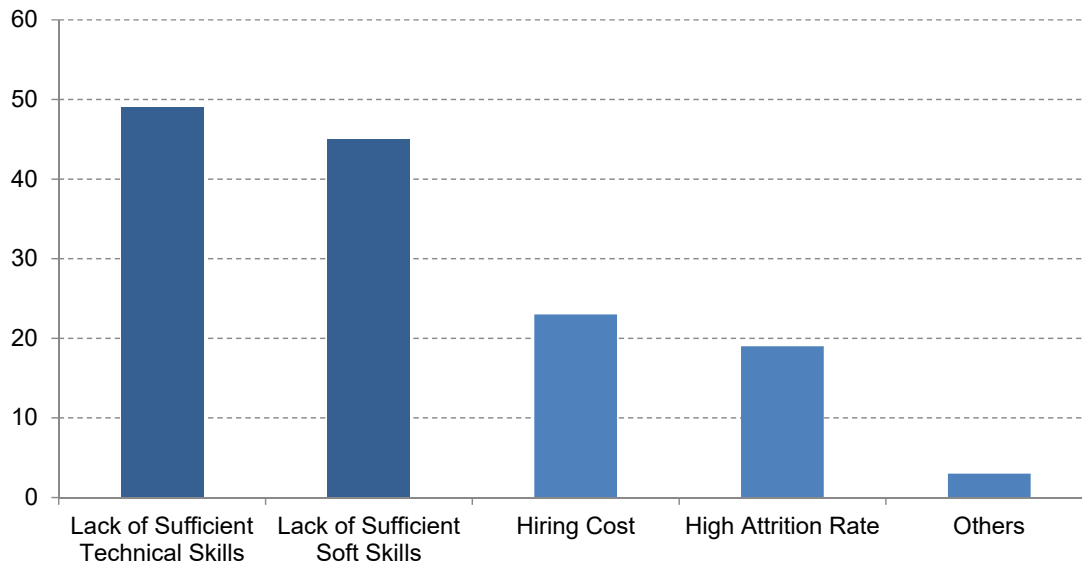
Note: Total 65 Respondents

According to survey results, IT/ITeS companies in the country found that Lack of Sufficient Technical Skills to be the primary hurdle when hiring potential employees. In Chart 30 above, respondents identified the lack of both Technical (49 of 65) and Soft Skills (45 of 65) to be the primary barriers for employment when trying to hire talent.

Chart 31: Growth Projections for Operations

Bar chart showing growth projections with vertical axis from 0 to 35:
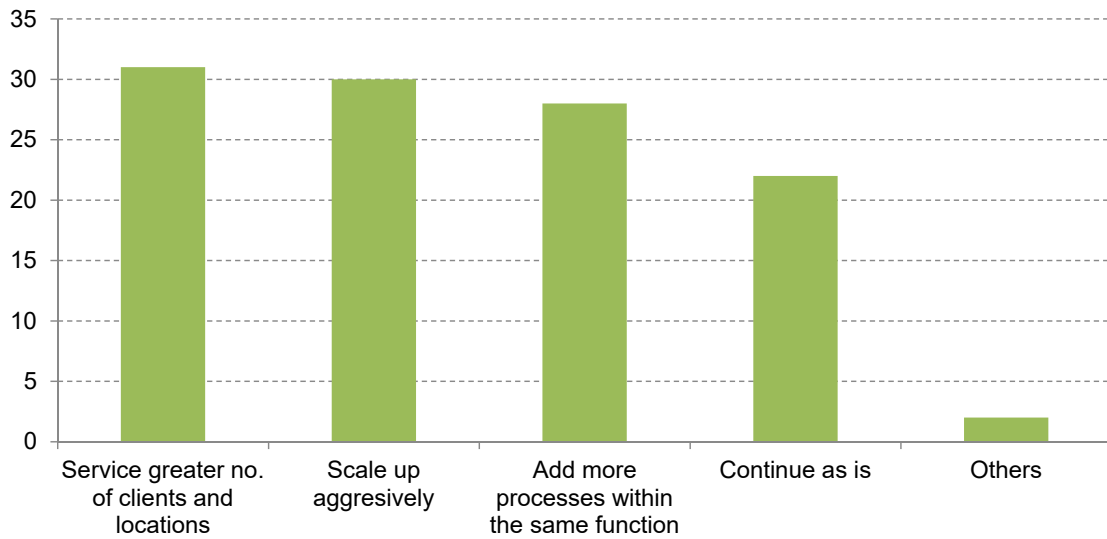- Service greater no. of clients and locations: 31
- Scale up aggresively: 30
- Add more processes within the same function: 28
- Continue as is: 22
- Others: 2

Note: Total 65 Respondents

For the growth projections, 48% respondents wanted to expand their service offerings to a greater number of clients and locations. Moreover, 46% also wanted to scale up aggressively and 43% would want to expand their service/product portfolios. However, in relation to their *expansion goals*, respondents also made mention that for any of these expansion plans to materialize, that there must first be the availability of sufficiently skilled talent in the country. Respondents again voiced their valid concerns regarding labor migration and industry fragmentation – two conditions which are directly hindering growth ambitions for many local IT/ITeS providers.

Competitive Landscape

Table 5: Comparison of Delivery Service Locations (select)

Country	Population (in millions)	Workforce (in millions)	Tertiary Graduates	Entry Level BPM Salary (in US$/ month)	Entry Level ITO Salary (in US$/ month)	Rental Costs (CBD, Class A, US$/Sq.ft./month)
Bangladesh	160	77	463,000	110 – 250	210 – 350	1.0 – 2.0
India	1,267	481	4,000,000	145 – 320 120 – 200 (T2)	280 – 480 220 – 300 (T2)	0.6 – 1.5 0.5 – 1.0 (T2)
Philippines	100	42	570,100	250 – 500 200 – 400 (T2)	345 – 750 300 – 500 (T2)	1.0 – 2.0 0.8 – 1.5 (T2)
Sri Lanka	21	8	27,000	250 – 450	650 – 850	0.7 – 1.1
Mexico	123	58	535,200	850 – 1,350	1,600 – 2,300	1.8 – 2.9
Costa Rica	4	2	44,500	1,200 – 1,500	1,500 – 1,900	1.6 – 2.1

Source: Tholons Research & Estimates 2015, World Bank 2014, UNESCO 2014

The Bangladesh IT/ITeS sector, while showing a unique set of advantages and disadvantages in terms of its services outsourcing capabilities, relies heavily on its inherent qualities of scale and cost. This is a *similar proposition* to more established outsourcing destinations such as India and the Philippines. In this nascent stage of development, it is important to gauge the country's capabilities against its peer group in the global outsourcing landscape to determine key growth drivers and likely inhibitors.

Relying on a large population to fuel its service outsourcing industry, a total population of nearly 160 million skews favorably to the youth sector, or those aged 25 years and below, comprising nearly 50% of the entre populace. Undoubtedly, a large population is a significant benefit and consideration for locators, as a wide labor pipeline allows greater opportunities to scale operations. This has been primarily why India, the Philippines, and to an extent China have all experienced success in the outsourcing arena. Further, an elevated number of tertiary graduates also shows the propensity to replenish the workforce with fresh talent, necessary to offset the effects of labor migration and industry saturation.

Despite this inherent volume advantage, Bangladesh has yet to prove that its current workforce possess the level of skills proficiencies required by global service providers. The young and motivated workforce show great potential as still malleable resources, but greater focus is needed to re-skill and up-skill a wider segment of the population, particularly in basic IT/ITeS-relevant competencies such as English & communication proficiencies and soft skills. In English specifically, Bangladesh's must improve in both aspects of capacity and proficiency. As the IT/ITeS sector, is *global by nature*, English as a platform for communication is paramount requirement for both global clients and providers.

The following average English proficiency scores gives indication of how Bangladesh compares to its peer-group. While the IELTS and TOEFL are self-selected tests and not necessarily representative of *average population proficiencies*, it nonetheless provides a reasonable platform for comparison.

Table 6: Average English Proficiency Scores (2013)

Country	IELTS Proficiency Mean Scores (Out of 7)	TOEFL Mean Scores (Out of 100)
Bangladesh	5.9	79
India	6.0	91
Philippines	6.8	89
China	5.7	77
Sri Lanka	6.4	85
Mexico	6.4	86

Source: IELTS, 2013. TOEFL, 2013.

As can be seen in Table 6 above, Bangladesh test-takers have performed considerably lower than its peer group, with only China scoring lower. The gap against established outsourcing destinations India and the Philippines are significant, with a 15% differential in both IELTS and TOEFL. In both tests, Bangladesh test-takers scored lowest in Reading sections.

In terms of operating costs, Bangladesh's relatively low cost is one of the country's main value propositions compared to the more established and emerging outsourcing locations. The significant young talented labor pool in Bangladesh is available at lower salaries compared to other established outsourcing destinations. The country has one of the cheapest overall operational costs in Asia with entry level salary costs, at times, nearly 50% cheaper than India and the Philippines. Again, as cost remains one of the primary considerations of service providers, Bangladesh will have an advantage compared to established destinations like India, Philippines, and Sri Lanka.

Also, a necessary part for the development of a country's outsourcing industry is the state and availability of physical and Telco infrastructure. It is the foundation from which the reliable delivery of IT/ITeS services is centered upon. Infrastructure includes transportation facilities such as airports, roads, and public transportation systems that would provide labor pool mobility. Moreover, the availability of IT parks and Free Trade Zones are also considered as a defining factor for outsourcing destinations as these reflect the commitment of a country in supporting IT/ITeS locators. In the context of services outsourcing, the availability of a robust and redundant telecommunications platform, and widespread access to leased line connections, are all crucial requisites.

To date, a *well-developed infrastructure* is an ecosystem component that needs to be addressed in Bangladesh. Most successful outsourcing destinations including Philippines, Eastern European Countries, Srilanka and others have aggressively built world-class infrastructure facilities, including IT parks and FTZs. Even smaller, emerging players such as Sri Lanka, have made Class A office spaces readily available, and numerous privately owned IT/ITeS parks are already in place in the ecosystem. Overall, infrastructure facilities in Bangladesh need to meet-up global standard. The country generally has dated physical infrastructure in the capital Dhaka. Office spaces and IT parks for locators are generally lacking and transportation facilities also need further improvement for better labor pool mobility. In the *2014-2015 Global Competitiveness Report* for example, Bangladesh score in the Infrastructure Pillar is a below.

Table 7: Global Competitiveness Report - Infrastructure Pillar Scores 2014 - 2015

Infrastructure Component	Score (out of 7)			
	Bangladesh	India	China	Sri Lanka
Transport Infrastructure	2.7	4.5	5.0	4.1
Quality of Overall Infrastructure	2.8	3.7	4.4	5.0
Quality of Roads	2.9	3.8	4.6	5.1
Electricity and Telephony Infrastructure	2.1	2.6	4.3	3.9
Quality of Electricity Supply	2.5	3.4	5.2	4.8

Source: World Economic Forum, Global Competitiveness Report, 2015

The availability and quality (or lack) of the above identified infrastructure components are definite pain point for current IT/ITeS providers, and this sorry state will only be magnified as the sector grows and infrastructure becomes strained. Conversely, large providers will continue to balk at choosing the country, for as long as the environment is not conducive for operations.

Intermittent disruptions in data connectivity, electrical outages, likewise contribute to the larger underlying problem of a dated and strained physical infrastructure. Such events have caused prolonged operational downtimes and can have a severe impact on a provider's capability to delivery outsourced services to external clients. Further, according to the country's major service providers, current Telco infrastructure is still not capable of delivering the otherwise *ideal connectivity uptime of 99%*, with connection fluctuations inducing irregularities in the provision of services. Traffic congestion has also been a longstanding problem in the country with the vast majority of established IT/ITeS providers needing to spend additional costs to offset or mitigate the wasteful effects of daily traffic gridlock.

These identified infrastructure issues ultimately have the potential to dampen Bangladesh's cost advantages as IT/ITeS providers will need to invest significantly in redundancy, prevention and mitigation platforms and systems.

Furthermore, and in a more pragmatic perspective, Bangladesh could provide more support services to potential locators. The absence of recruitment service for current and potential locators, business set-up windows, and international channels for investment facilitation among – are some of the basic industry-building implementations that have not been present in the country's IT/ITeS space. These are fundamental services that aid in investor decisions to establish delivery centers in a location. *A strong support system for investors, especially for an emerging and relatively*

unfamiliar location such as Bangladesh, may spell the difference for a locator to ultimately make the decision to locate in the country.

A Case Study on STPI in Effective & Seamless Single Window Clearance

Software Technology Parks of India (STPI) established in 1991 with a singular focus to enable, support and promote exports of software, BPO and professional services in India. The STP scheme provided various benefits to the registered units, including 100% foreign equity, tax incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting.

This single entity made the most difference in the exceptional growth and attractiveness of India's IT/ITES industry by effectively implementing a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through this nodal agency.

Even though it was a Government organisation - it ran like the best of the private organizations focused on the needs of the hundreds and thousands of IT and BPO companies that were mushrooming.

Indian Government Ministers and officials now proudly say that the best thing we did was "stay out of the way". The implementation was seamless, fast and corruption free because of strong leadership from the likes of N. Vittal, Secretary of Department of Electronics, Mr. BV Naidu, Director STPI and others. The rapport and support STPI enjoyed of all the industry leaders was exceptional.

There were other numerous things done for example introduce competition on connectivity by introducing and providing the same through STPI centres. STPI was the first to provide a 1 Megabyte data link via satellite to a private customer in India. It became the agency to cut bureaucracy, provide infrastructure, bandwidth and any other governmental support that was required.

Today, NASSCOM as the single industry body, drives the agenda for the industry both internally and externally - but way back in 90s and early 2000s - it was STPI!

A Case Study on significant policies and incentives - Myanmar

Myanmar has announced policies for industry giving the industries tax holidays for both investors as well as developers and repatriation benefits. Myanmar is providing significant incentives for the

growth of IT/ITES industry. The benefits given by the government of Myanmar are on an aggressive path towards growing businesses. The incentives are similar to Bangladesh, however there seems to be a greater momentum in Myanmar.

In the non-IT/ITES sector, across industry groups, there is greater clarity and simplification of incentives whereby 100% tax holiday for seven years for all companies and 100% tax holiday for eight years for developers has been given. The implementation is made seamless by all concerned departments like Tax, Exercise, Custom, Telecom and Local Authorities understanding the incentives. The single window of clearance Myanmar Investment Commission (MIC) is the prime and overall approver of this providing transparency, clarity and ease of implementation.

Land use has been granted under an initial lease of up to 50 years and renewable for a period of an additional 25 years. Developers/investors may rent, mortgage, or sell land and buildings to another person for investment purposes within the term granted with the approval of the management committee concerned.

A Case Study – Comprehensive set of support services for potential locators

Singapore's Economic Development Board (EDB) and the BioTech/Pharmaceuticals industry is a great example of how Singapore put a comprehensive set of support services for potential locators like GlaxoSmithKline, Roche, Novartis, Takeda and others. In addition to providing the infrastructure, EDB also provided R&D grants and facilitation in labs and universities. Key element of the service, six years ago was recruitment services to get talent from across the globe.

Bangladesh can take industry leading learning from this model by identifying talent in IT/BPM from across the globe that would be interested in moving to Bangladesh on client engagement / sabbatical. However, this would require identifying, prior discussion and funding models to help locators find this service seamless and cost effective. Singapore provided R&D grants and subsidy to cover the cost of talent acquisition and hosting.

1. Engage with marque clients in IT/BPM on specific engagements
2. Review the business need and identify up to five clients
3. Map the requirement for talent at mid to senior management
4. After a talent gap analysis, identify talent that needs to be acquired and made available in Bangladesh
5. Draw a list and initial agreement with identified talent and a cost assessment
6. Provide grant and subsidy for the first year to cover the delta in talent cost to make it competitive and attractive for the lead locator to be incentivized to locate the program in Bangladesh.

Tholons estimates that this delta cost that needs to be covered could range from USD 300,0000 to USD 500,000 per client. A budget of USD 1.5 million to USD 2.5 million should be able to cover and lay the foundation for moving a core group of five clients into Bangladesh. This program can be aligned with and will augment the CEO Outreach Program.

As previously mentioned, Bangladesh has centered efforts in developing ICT adoption in the country and the ICT industry in particular, through the *'Digital Bangladesh'* campaign. While an overarching country goal to adopt and utilize technology in the country's government and business sectors, it provides complementary support to the IT/ITeS industry through initiatives such as the use of ICT enabled education and the establishment of an incubator in Dhaka to support ICT based industries. Also, in developing local ICT talent, government has launched the *'National ICT Internship'* program which will develop the professional capabilities of ICT employees. Likewise, worth mentioning is the *LICT's Top-Up IT Training* initiative - an IT Services Skilling Training Program. The program targets Non-IT and It graduates and train them for jobs in IT outsourcing (ITO) services industry segment. Country's major Universities and Training Institutions work closely with Ernst & Young (E & Y) to cater training for 10,000 trainees and place 60% on the job. The LICT facilitates the Foundational Skills for ITES Segment program, which aims to *develop the foundational skills of 20,000 ITES professionals in a way that is closely aligned with the requirements of global markets, and provide training grants to companies meeting a minimum set of skills development and hiring criteria, and support the GOB's existing National ICT Internship Program administered by BCC.*[26]. *3. Online Outsourcing (OO) Training and Employment Services for IT/ITeS program is to carry out training and mentorship leading to Online Outsourcing (OO) for Bangladesh youth and women. The program targets to train 10,000 and is an IT Services Skilling Training Program. Also, Fast Track Future Leader (FTFL) program targeted in building 1,000 future leaders for IT/ITeS Industries of Bangladesh. LICT in collaboration with IT and ITES industries selects trainees for FTFL program as per skill demand in the area of software development, BPO and IT/ITeS related management.*

Though government's current initiatives *do provide* direct support to the IT/ITeS industry, the *Digital Bangladesh vision can be viewed as the unifying and common platform from which 'all things IT/ITeS related' can leverage and complement their developmental strategies on.*

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[26] Bangladesh ICT Division. Leveraging ICT for Growth, Employment and Governance is a project of Bangladesh Computer Council (BCC) under ICT Division.

A Case Study – National Occupational Standards (NOS)

There are various quality and proficiency standards which exist, and identifying the particular standard, that is *relevant to identified geographic or labor market* can be a significant advantage for the fledgling service outsourcing sector of the country. For instance, if the local industry ambitions to provide product design or engineering support services to the United Kingdom, then local providers should be abreast of the *National Occupational Standards* in the UK. This type of deliberate *'market orientation'* can likewise provide Bangladesh a definitive advantage over other low-cost, emerging destinations.

National Occupational Standards (NOS) are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding.

1. NOS are National because they can be used in every part of the UK where the functions are carried out.
2. NOS are Occupational because they describe the performance required of an individual when carrying out functions in the workplace, i.e. in their occupation (as a plumber, police officer, production engineer, etc.).
3. NOS are Standards because they are statements of effective performance, which have been agreed by a representative sample of employers and other key stakeholders and approved by the UK NOS Panel.

NOS are developed for employers by employers through the relevant Sector Skills Council or Standards Setting Organization.[27]

Comparative Analysis

Bangladesh's recent announcements on IT policy and incentives are very progressive and puts Bangladesh at par or better with policies and incentives that currently exist in other competitive

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[27] The UK Commission for Employment and Skills (UKCES). National Occupational Standards (NOS), 2015.

countries like India, Philippines, Vietnam, Myanmar or Sri Lanka. The policies on Hi-Tech Park and building of STPs is also very encouraging and aimed at driving business growth - providing for a very healthy public private partnership. These policies and opportunities should also be marketed to foreign investors. Most competitive countries have seen investments in early days from Japan, Singapore and Middle-East.

Given these competitive policies and incentives - these would be much more effective if Bangladesh would implement a seamless "single window clearance" agency like the STPI of India that really helped fuel and catalyse the Indian industry in 1991. Software Technology Parks of India (STPI) established in 1991 with a singular focus to enable, support and promote exports of software, BPO and professional services in India. The STP Scheme provided various benefits to the registered units, including 100% foreign equity, tax incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting.

This single entity made the most difference in the exceptional growth and attractiveness of India's IT/ITES industry by effectively implementing a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through this nodal agency.

Even though it was a Government organisation - it ran like the best of the private organizations focused on the needs of the hundreds and thousands of IT and BPO companies that were mushrooming. There were other numerous things done for example introduce competition on connectivity by introducing and providing the same through STPI centres. STPI was the first to provide the first 1 Megabyte data link via satellite to a private customer in India. It became the agency to cut bureaucracy, provide infrastructure, bandwidth and any other governmental support that was required.

Also, standing orders should be implemented for labour laws which waive few stipulations that are irrelevant or need to be altered for this industry. Example of things that should be addressed with this waiver are : overtime work, women working at nights, labor unions, waiver from paper attendance and other legacy stipulations that should be removed in today's global working environment.

Comparative Analysis Chart

Comparative Component	India	Philippines	Vietnam	Myanmar	Bangladesh
Talent Quality & Scale	●	●	◕	◐	◐

Factor					
Cost**	Excellent	Average	Excellent	Good	Good
Class-A Infra / IT Parks	Excellent	Excellent	Average	Average	Poor
Labour Laws & Policies	Excellent	Excellent	Good	Excellent	Good
Ease of doing business IT/ITeS	Good	Excellent	Good	Excellent	Average
Business Catalyst	Good	Excellent	Average	Excellent	Average
Tax Incentives	Average	Good	Good	Excellent	Excellent
Single Window Clearance	Excellent	Excellent	Good	Excellent	Average

Legend:

Rating	Symbol
Very Poor	○ (empty)
Poor	(quarter filled)
Average	(half filled)
Good	(three-quarter filled)
Excellent	● (full)

The big successful outsourcing destinations like India and Philippines owe a lot to few factors that helped them achieve the growth and become sunshine industries of their respective countries:

1. Formulation of industry leading tax, incentives, regulatory policy framework
2. Seamless "Single Window" implementation
3. A strong industry body like "NASSCOM" and "IBPAP" that can act as a "Single" and "Strong" voice of the industry
4. Strong participation of Private investors in building the IT Parks - some in PPP model, but mostly done by local and global investors
5. India was driven significantly by "Scale of qualified talent" and Philippines by "Cultural Alignment" with the Americans

**Cost here is defined as – cost of salary, cost of A-class infrastructure, cost of training, cost of living, cost of bandwidth, cost of real estate etc.

Global Outsourcing Market Overview

Outsourcing Market Demand

In the last ten years, the global IT/ITeS industry has been propelled by various internal and external trends, including increasing client demand complexity, emerging IT/ITeS services geographies, shifts toward bundled contracts, and the emergence of new, technology-fueled verticals. According to NASSCOM, in 2014, the marked increase in global ICT adoption bolstered the growth of the international outsourcing market by 8.5% to reach a market size of nearly US$140 billion. This was further fueled by the surge in global IT spending which was pegged upwards to US$2.3 trillion in 2013. The IT Services and BPM categories specifically garnered a total spending of US$ 823 billion representing 36% of global IT spend.[28]

**Chart 32: Global IT Spend 2014 (in US$ billion)**
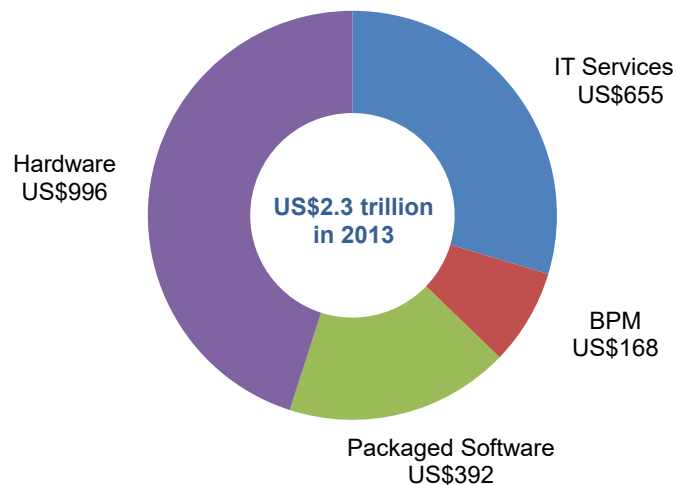
Source: NASSCOM Strategic Review, 2014

The IT Services sector spends saw notable growth of 3.1% in 2013 as more companies adopted and integrated Social, Mobile, Analytics, and Cloud (SMAC) technologies within current applications and services, while spend in Packaged Software posted the highest growth among all sectors at 5.9% to reach US$392 billion. Global BPM spending, experienced moderate growth of 5.7%, though this could be expected given the level of commoditization that is occurring in this space. Growth across sectors is expected to be fueled by current ICT trends such as increased

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[28] NASSCOM Strategic Review, 2014.

adoption of virtualization, automation, and transition towards cloud-based systems - not only by the enterprise segment, but likewise with increasing regularity from the SME sector.

Chart 33: IT Sector Spend Growth (in US$ billions)
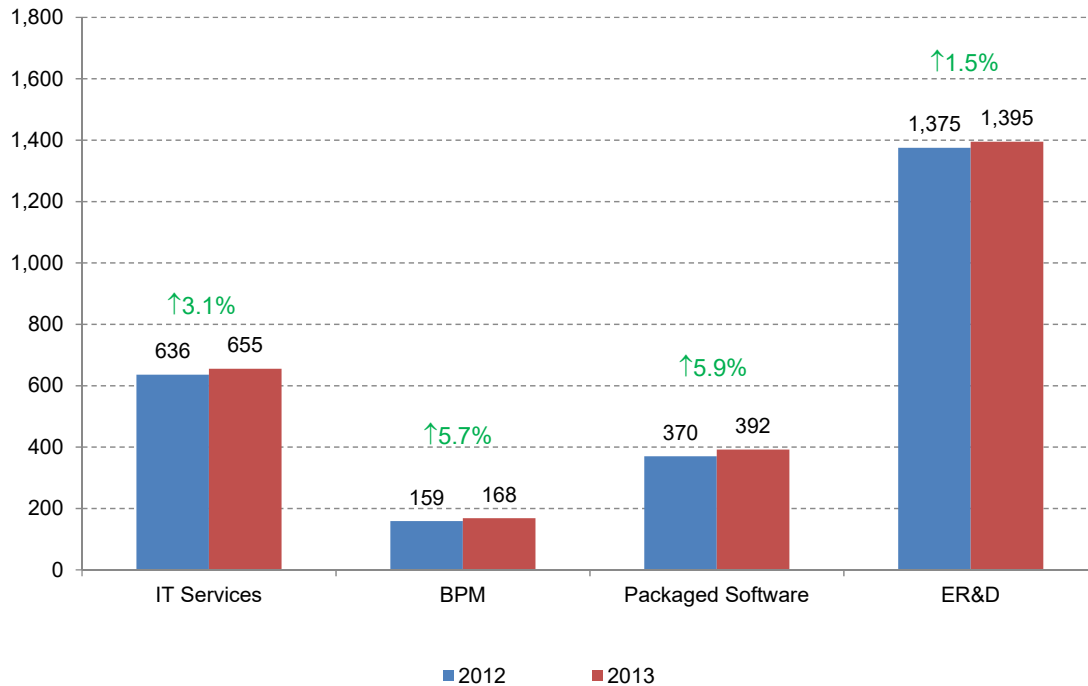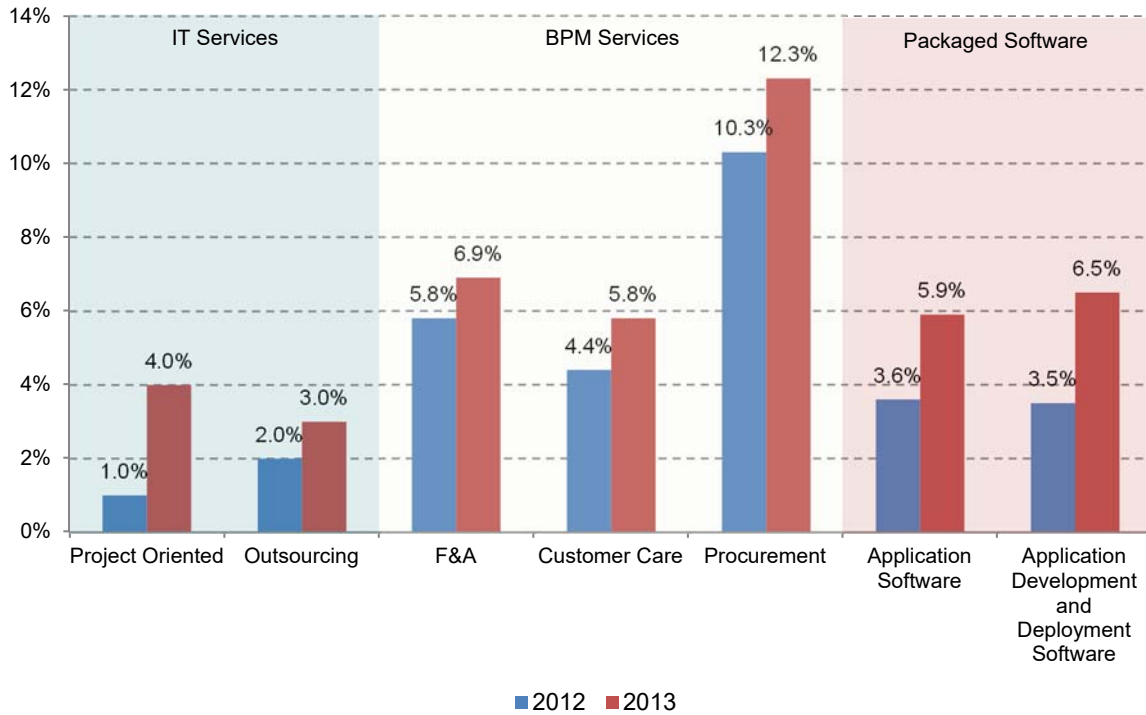

Source: NASSCOM Strategic Review, 2014

A potential target for Bangladesh can be surmised from the IT Services, BPM, and Packaged Software sectors as growth figures signify ongoing and even rising growth in demand. In fact, all segments under these three sectors posted positive growth rates from the previous year, showing a general market optimism in procuring IT/ITeS products and services. *The IT Services sector should be regarded as a focus area for Bangladesh, given the country's identified capabilities (and proficiencies) to provide ITO services.* With a predominantly ITO centered services landscape in the country, this should be a primary addressable market for the local industry.

Likewise, similar and specific market opportunities can be found in the Application Software (AS) and Application Development and Deployment Software (ADDS) segments under Packaged Software. With Bangladesh IT/ITeS service providers showing strong capabilities in Product Development for both external and domestic markets, locally rooted expertise in developing solutions and applications for BFSI (Microfinance) and Manufacturing (Garment) sectors, should be further honed, and if feasible, brought to external markets.
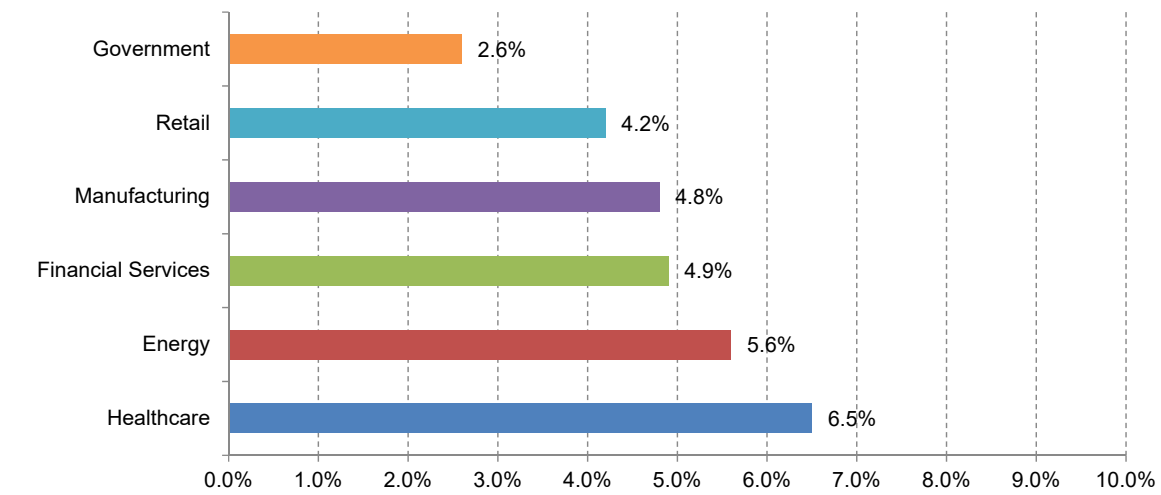
Chart 34: IT Services Segment Spend Growth

Source: NASSCOM Strategic Review, 2014

Further validating these opportunities, Chart 35 below shows vertical-specific IT Services spending growth across the globe for 2013. In particular, the Manufacturing and BFSI sectors maintained their cumulative 15% share of global IT-BPM spend, by growing 4.8% and 4.9%, respectively. It is expected that these two industry sectors will continue to avail (and increase) procurement of outsourced services globally. For Bangladesh IT/ITeS providers, this industry vertical trend should create both domestic and export market opportunities.

Chart 35: Industry Vertical Growth in IT/ITeS Spend (2013)

Horizontal bar chart showing industry vertical growth:
- Government: 2.6%
- Retail: 4.2%
- Manufacturing: 4.8%
- Financial Services: 4.9%
- Energy: 5.6%
- Healthcare: 6.5%

Source: NASSCOM Strategic Review 2014

The current global economic scenario is also responsible for revitalizing the services outsourcing market. Despite the remaining vestiges of the debt crisis, Europe is finally making progress from recession to recovery as higher export demand drive emerging markets in the region. The gradual recovery of the developed European economies is also part of the overall optimistic outlook for the region, though the world precariously awaits the effects of the current slowdown of the Chinese economy, and the repercussions this may have to the global economy as whole. More specifically, the recovery of emerged economies may result to a tightening of global liquidity that will affect the Asia Pacific countries – especially for economies that are dependent on global trade.

Despite that, demand from Asia Pacific's services outsourcing market had progressed well in 2013. The region had registered the highest growth in global IT-BPM spending amounting to 6% to represent 20% of the total share. Exports had also been a key driver for the Asia Pacific region, especially for India and China, wherein services exports to the United States and Europe had gained momentum.

The growing strength of India, not just as an IT/ITeS services destination, but as a market in itself signifies an added opportunity for Bangladesh as its current cost proposition puts it lower than that of India at a range of 30-40%. Leveraging these cost plays may be an immediate opportunity for Bangladesh as Indian players may be seeking avenues to diversify cost exposures. In addition to India, the traditional North American market could still serve as a target market for Bangladesh, as it remains the largest consumer market for IT-BPM services, comprising 46% of total global spend (see Chart 36).

Chart 36: Global IT/ITeS Spend by Region 2014
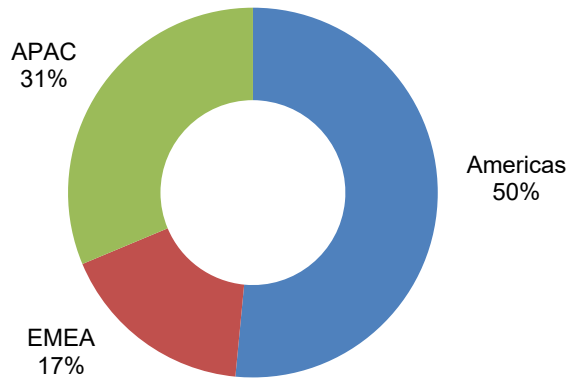
- APAC 31%
- Americas 50%
- EMEA 17%

Established Outsourcing Destinations

In terms of providing outsourced services, the Asia Pacific region represents the largest collective share globally, led by India, the Philippines, and China (albeit domestic in nature). The Latin America and the EMEA regions have recently emerged to become more prominent provider clusters, and are capitalizing on near shore service buyer markets to fuel growth.

Figure 6: Global IT-BPM Service Outsourcing Market Segmentation 2014 (supply-side)

- US$~11 billion
- ~US$9 billion
- US$~15 billion
- ~US$18 billion
- US$87 billion
- *Rest of World: US$13 billion*

Today, established outsourcing destinations such as India and the Philippines continue to post positive growth rates, even in their current mature stages. According to the IT and Business

Process Association Philippines (IBPAP) for example, the country's IT-BPM industry has since breached its target of 1,000,000 FTEs, and now generates nearly US$20 billion in services exports revenue, with the dominant BPO sector contributing to an estimated 70% - 80% of this figure. The Philippines outsourcing industry has in fact become a driving force for the national economy, contributing 6.2% of GDP, and targeted to reach 10% in the near-term, if current growth trajectories are maintained.[29]

One of the biggest contributors to the continued growth of the Philippines outsourcing industry is the continued support of government and industry institutions such as the IBPAP, the latter which pursues various targeted initiatives including; developing legislative and financial policies, lobbying for sector interests, promoting the Philippines as a global services destination to investors, and addressing gaps in human capital. While the country's inherent capabilities – talent scale, relatively low cost, and cultural affinity to Western markets – were already established at the early onset, these supporting institutions played a key role in its subsequent rise as a *global* IT/ITeS destination.

Currently, the Philippines is seeking further growth and expansion across non-traditional services outsourcing sectors, in an attempt to *move the industry up the value chain*. These strategies to further improve industry positioning are still largely based on the country's inherent capabilities. While the initial country branding indicated the strength of Philippine talent in English and thus voice-BPO, more recent investigations showed an under-utilized talent pool in other technical fields such as the medical and legal fields. As such, the Healthcare Information Management outsourcing (HIMO) industry is now gaining prominence as the country seeks to utilize its vast repository of certified health practitioners. In 2013, the HIMO sector generated US$998 million in revenues, while employing an estimated 66,000 FTEs, representing an expansion of 114% from 2012.[30]

This example may be considered by Bangladesh stakeholders when analyzing the supply-side dynamics of the country. That is, what type of labor, and technical expertise, does Bangladesh currently have, that it can offer to the global services outsourcing market? For this to happen, a thorough investigation of talent output and quality of that output should be done to identify the country's true value propositions. Further, *this type of evaluative and monitoring exercise is best done by local industry stakeholders*. The ration for this, is that ultimately, it will be the local stakeholders who will have sole-responsibility of the local IT/ITeS industry, and for them to have a full grasp (and understanding) of the sector, they themselves, will need to comprehend the nature and composition of the industry's talent pipeline.

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[29] IBPAP, 2014.

[30] Healthcare Information Management Outsourcing Association of the Philippines (HIMOAP), 2014.

Currently, the Bangladesh IT/ITeS industry may be best positioned to pursue opportunities in the non-voice BPM space and the provision of ITO services. Bangladesh may likewise draw from the experiences and challenges which its neighbor, India, faced in building its now formidable IT/ITeS industry. The country finds itself in a similar position to India's early years of industry development, where a vast population and low cost were present, yet inhibited by insufficient infrastructure, talent development platforms, and a generally underdeveloped business environment. Addressing these conditions will be key for developing the Bangladesh IT/ITeS sector. *The potential of the country as an IT/ITeS destination definitely exists, but concerted effort among private and public institutions, the academe, and industry associations must first be in place to collectively accept and resolve the myriad of developmental issues present in the industry (and country) today.*

Potential Target Segments

As previously mentioned, global outsourcing demand in IT Services, Packaged Software, and BPM Services all point towards potential opportunities for Bangladesh as IT/ITeS segments experienced optimistic growth for the period 2012-2013 with all segments surpassing previous year growth figures. The 'low-hanging fruits' for the Bangladesh IT/ITeS industry can be found in the IT Services (ITO) and Packaged Software sectors.

Chart 37: Segment Spend Growth (2012-2013)
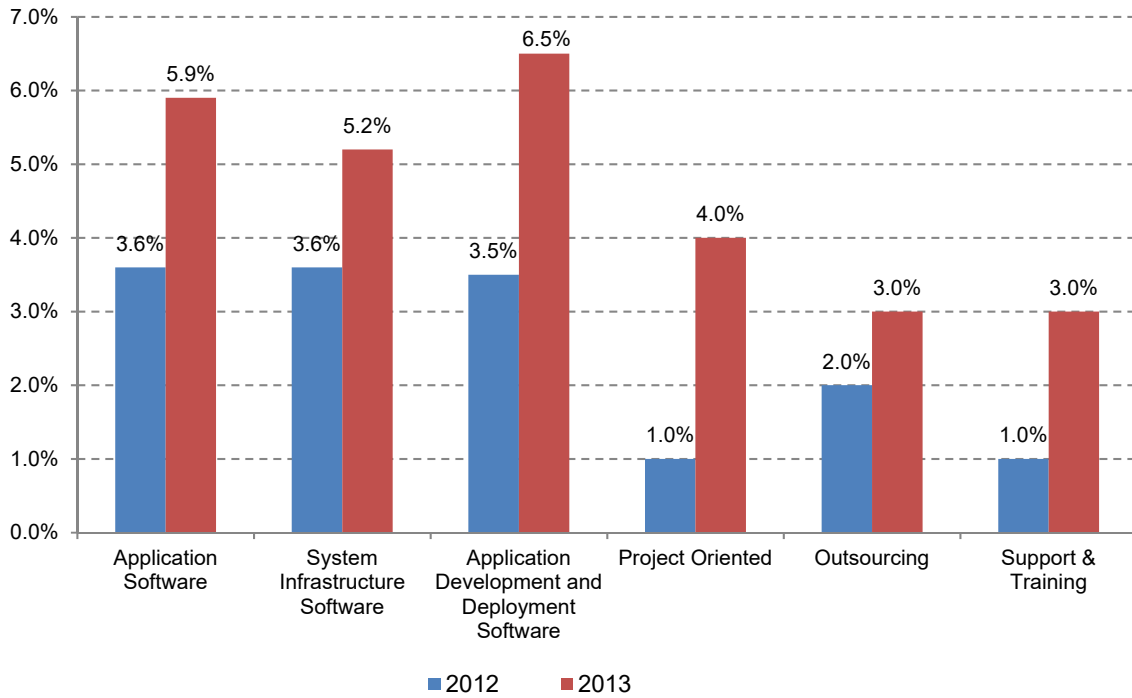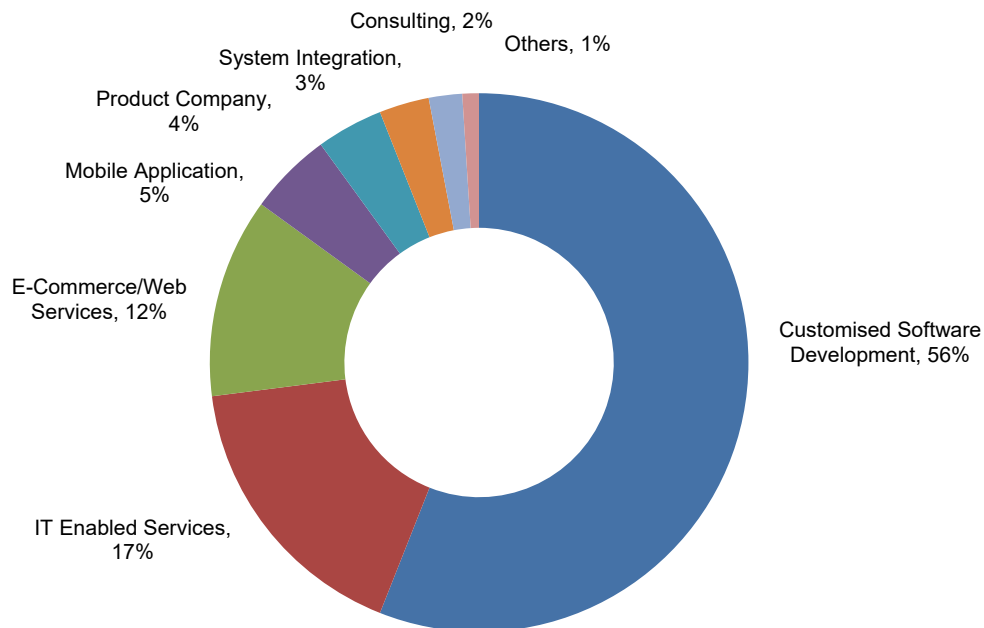

Source: NASSCOM Strategic Review 2014

IT Services garnered a total of US$655 billion in market spend, representing a 30% share of global IT/ spend. Package Software garnered US$392 billion in spending, comprising 18% of total market share. In the case of Bangladesh, there is a huge potential for the country to harness these trends within the global landscape. According to BASIS, among its *estimated 986 member companies*,[31] a significant majority is involved in Software, specifically Customized Software Development.

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[31] BASIS Members Directory: No. of members: 986 Companies (as of 14th December 2015)

Chart 38: BASIS Member Companies Business Specialization

Consulting, 2%

Others, 1%

System Integration, 3%

Product Company, 4%

Mobile Application, 5%

E-Commerce/Web Services, 12%

IT Enabled Services, 17%

Customised Software Development, 56%

Source: Software & IT Services Catalog, BASIS, 2014

The current Bangladesh IT/ITeS landscape, being mostly comprised of providers specializing in Customized Software Development and IT Enabled Services, puts itself in line with global outsourcing demand. In fact, BASIS records an estimated 400 companies already doing IT/ITeS export activities from Bangladesh with the US, UK, Canada, and Australia as major client markets. Furthermore, Bangladesh IT/ITeS providers should also focus on building capabilities in alternative client markets such as India, Netherlands, Middle East and Japan where existing diplomatic relations can be leveraged and markets are not as saturated and competitive. Clearly identifying and then utilizing these alternative client markets will definitely be a key catalyst in developing Bangladesh's IT/ITeS industry as these provide an opportunity for providers to display capabilities in the global market.

Another definite key market for Bangladesh is the emerging domestic IT/ITeS market. The country's IT/ITeS providers, largely depend on the domestic market as a major source of revenue with 63% of members focusing solely on local industries driven by private sector companies seeking to improve business processes and adopt IT practices. *With local markets starting to increase IT adoption rates and implement IT best practices, service providers should continually look inward for opportunities in the sector particularly in the Banking & Finance, Government, Manufacturing and Telecommunications sectors.*

Bangladesh as a Viable IT/ITeS Destination

The Bangladesh IT/ITeS industry is considered to be in a nascent stage, wherein *significant ecosystem improvements* are necessary, for industry to take form and develop in a more progressive manner. In order to develop the nation of Bangladesh as a *viable services outsourcing destination*, current and potential location advantages of the country must be expounded upon. These factors will also aid in establishing the value propositions of the sector, then leading to the proper identification of the focus outsourcing niches that the IT/ITeS sector will have the likeliest probability to succeed in. Analysis of the strengths and capabilities of Bangladesh and niche focus segments opportunities will provide the plan and roadmap to develop skillsets and service provider capabilities.

This proceeding section intends to specifically identify Bangladesh's location advantages as an emerging outsourcing destination. Objective is to identify the segments that the IT/ITeS sector should focus on, particular niches that can be used as long-term target market opportunities, and to align service provider capabilities in Bangladesh. A proposition on Bangladesh as an IT/ITeS destination will also be conceptualized in a preliminary Strategy Framework and Roadmap, showing the action items or steps, necessary to catalyze IT/ITeS industry development.

Location Advantages, Risks and Cost Factor

Table 8: Bangladesh IT/ITeS Industry SWOT

| Strengths	Weaknesses
• Large population base of ~160 million people show potential for the establishment of a scalable IT/ITeS sector. • Significant support from the Prime Minister's office for IT/ITES Industry. • Produces approximately 460,000 tertiary graduates each year. [32] • Attractive Digital Dividend (50% under age 25). • LICT already has an excellent skilling and training program in place. • Average Talent Costs are lower than that of large, established service delivery locations in Asia - India and Philippines. • An improving, and enlarging English-literate talent base. • Bangladesh is the world's largest source of ready-made garments. Despite numerous infrastructural struggles the country has never missed on their delivery commitment on quality and quantity does giving them an extensive supply chain capability. • Efficient cost and scale arbitrage	• Lack of established IT parks and Class A office spaces, necessary to host and sustain larger scale IT-BPM operations. • High rental costs for *limited Class A CBD office spaces*, due to the aforementioned undersupply of office spaces. • Business registration is made difficult through the lack of an effective 'one-stop-shop' facilities and services. Procedural clarity and implementation needs focus. • External perception of country being 'difficult or risky' to do business in. Socio-political, civil-security and internal risk incidents (natural and civil) continue to paint a perception of risk for the country, and consequently, the IT/ITeS sector. • Low level of awareness of services outsourcing opportunities within the local ecosystem. Limited perception of 'services outsourcing as a career' from the populous. More so from talent pool outside of Dhaka. • Right talent pool not available currently. • Access to funding and capital investments, makes establishment of IT/ITeS businesses prohibitive for many local investors. Limited access to funding also prohibits expansion and scale capabilities of existing service providers

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[32] BANBEIS

Opportunities	Threats
• Rising costs in India and the Philippines, may widen window of opportunity as service providers and buyers look for alternative locations with greater cost arbitrage. This applies particularly to the ITO sector, and to a certain degree, the BPO sector (particularly non-voice). • Existing geo-political relationships with non-traditional markets also have potential to become more prominent client markets (United Kingdom, India, Japan, and Middle East). • Domestic demand for IT/ITeS is expanding market opportunities for local providers growing especially from BFSI, Telco and Government sectors. • Improving skillsets and delivery capabilities of local IT/ITeS providers (brought about by greater exposure to international markets and attractive digital dividend - 50% under age 25). • Emerging freelancer community sustaining growth of IT-related work. • Accenture acquired the IT-BPO division of Bangladesh and now is the biggest company in the country. Accenture does outsourcing business for Telenor across business lines in Europe and Asia. They offer world-class capability and experience in telecom, IT-BPO, including F&A outsourcing to global clients.	• Stakeholders must be more aggressive in addressing infrastructural concerns, particularly of establishing and maintaining the necessary physical infrastructure in Dhaka City. Inability to do so, will continue to fuel negative perceptions. • The growth of the *freelancer segment*, though positive in the sense that it exposes the youth to the global outsourcing industry and delivery model, also has the potential to increase industry fragmentation – *taking talent away from the traditional IT/ITES sector* – resulting in small-mid-sized local service providers facing greater difficulties to scale operations. • Prevailing state of talent migration can lead to further constriction of an already vulnerable talent pipeline. This is especially a grave threat to the ITO sector where local software developers are inclined to search for higher paying jobs abroad. • Bangladesh is *largely unknown* (or perceived) to the global IT/ITES market as a *proven* services outsourcing destination. • Unproven capabilities in completing proposed IT Parks and ITeS zones (e.g. Janata Tower).

Source: Tholons Research, 2015

Inherent qualities and advantages vary for each emerging and established services outsourcing destination. For Bangladesh, as it works towards improving and stabilizing its IT/ITeS industry, the country rests on scale and cost arbitrage as primary key advantages.

Figure 7: Key Enablers for Bangladesh IT/ITeS Industry
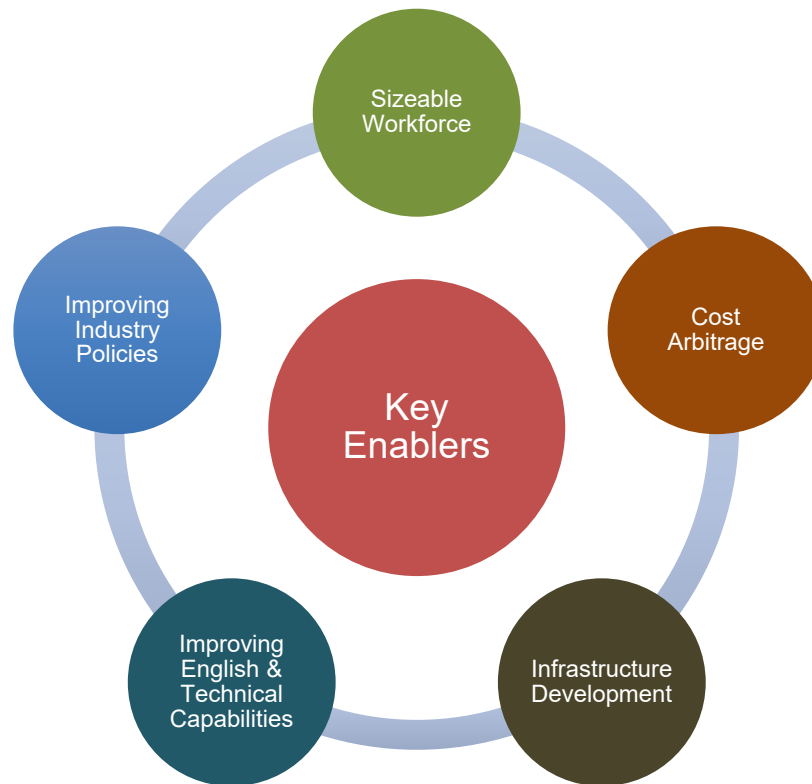
Source: Tholons Research, 2015

Many of the country's existing advantages can be further developed and pose as enablers for the IT/ITeS sector. As the above figure shows, the propositions of the country are the exact enablers the country requires in order to transcend the industry from its nascent stage.

Sizeable Workforce – The population of ~160 million is one of the key advantages for Bangladesh. The sizeable number (~500,000) of annual tertiary graduates also contributes to the industry's longer term potential. These inter-related propositions – *of scale potential and tertiary educated talent* - play a critical role in the decision making process of potential service providers and buyers. In similar emerging service delivery locations, service providers may balk at establishing operations despite a location having a highly skilled talent pool, if capacity to scale operations is deemed inhibitive because of a small population base. Conversely, service providers would also hesitate to establish in a location where a large labor force is present, but the talent base is *inadequate or misaligned with the skill requirements* of the service provider. The latter condition holds true for Bangladesh *if* its sizeable talent pools remains underutilized and unequipped - *its large labor force would merely project potential, but would not directly indicate capability or capacity to host a sustainable services outsourcing industry.*

Moreover, it is not only important for the country to properly match the skills capabilities of its workforce but it is also critical for Bangladesh to align the capabilities of its talents to global labor and market standards. Reference to National Occupational Standards are addressed in the section "Strategy and Roadmap for IT/ITeS Industry Development".

Improving English & Technical Skill Capabilities – Beyond the scale potential of the country, IT/ITeS skillsets and English proficiency must also be enhanced in order to deliver sufficient and quality outsourced services. In this regard, greater exposure and orientation towards the requisite quality and output standards of external service outsourcing markets is a paramount consideration. For instance, simply being able to process outsourced services in its domestic space, does not necessarily translate to capability in the external global market. Moreover, Bangladesh stakeholder and service providers must ensure that the quality of its outsourced services, and corresponding standards – meet, if not altogether exceed globally demanded benchmarks. As the Bangladesh services outsourcing sector is still a fledgling entity, it must consider that *it must do more to prove itself, and earn recognition of intended client markets.*

Further, while Bengali is used as the principal medium of instruction during the first 12 years of primary and secondary education, English classes and courses are also offered at these formative levels of education. However, it must be noted that English is often used as a medium of instruction at the University level, for both private and public institutions. At this higher level, proficiency levels show much room for improvement in terms of quality (e.g. accent, comprehension, and writing skills). This *'proficiency gap'* can be attributed to the minimal exposure to English that many students would have during primary and secondary levels, creating difficulties in adjusting to more stringent English proficiency requirements at the tertiary level.

Given that most of the addressable client markets for the local IT/ITeS industry are in fact, English speaking, industry stakeholders must ensure that the country's talent pipeline have the necessary *English language proficiencies*, that will be required for the effective delivery of outsourced services. This applies to all potential service lines, whether, ITO, KPO or BPO. In this regard, it must be noted that *basic levels of English comprehension*, will be inadequate to fulfill outsourced processes from both a scale and quality perspective, or at least the stringent levels required by international clients. Insights gathered by Tholons from interviews with numerous service providers in the country, found that in many instances, fundamental English-centered communication tasks of employees with client personnel (e.g. email, chat correspondence), often necessitated tedious processes of quality assurance and 'checks' by senior management personnel before such correspondence *could* be sent to the clients.

Cost Arbitrage – In a service delivery location, this is one of the primary considerations for potential service providers when setting up a delivery center. One of Bangladesh's fundamental draws is its cost arbitrage – with entry level salary wages for services outsourcing employees, amongst the lowest in the APAC. Data gathered from existing outsourcing companies in the country, indicate that entry level rates for fresh talents joining the industry; range from US$110 to US$250 /per month for BPO services and US$210 to US$350 /per month for ITO services. This cost advantage is further emphasized by the *generally affordable* real estate space in Bangladesh, though it must be noted, that Class A office space is largely centered in Dhaka City, and its scarcity has the propensity to drive up prices in the near-term. Despite this condition, Bangladesh's Class A office rents remain relatively cheaper, with ranges from US$0.4 to 1.4 Sq.ft/month compared to India with US$0.8 to 9.5 Sq.ft/month and Philippines with US$1.4 to 2.1 Sq.ft/month. As a nation that is starting to establish itself as an emerging outsourcing destination, the *relatively lower cost* of Class A Office rent may help draw investors and service providers alike, more seriously consider the country.

Table 9: Basic Service Delivery Cost Components

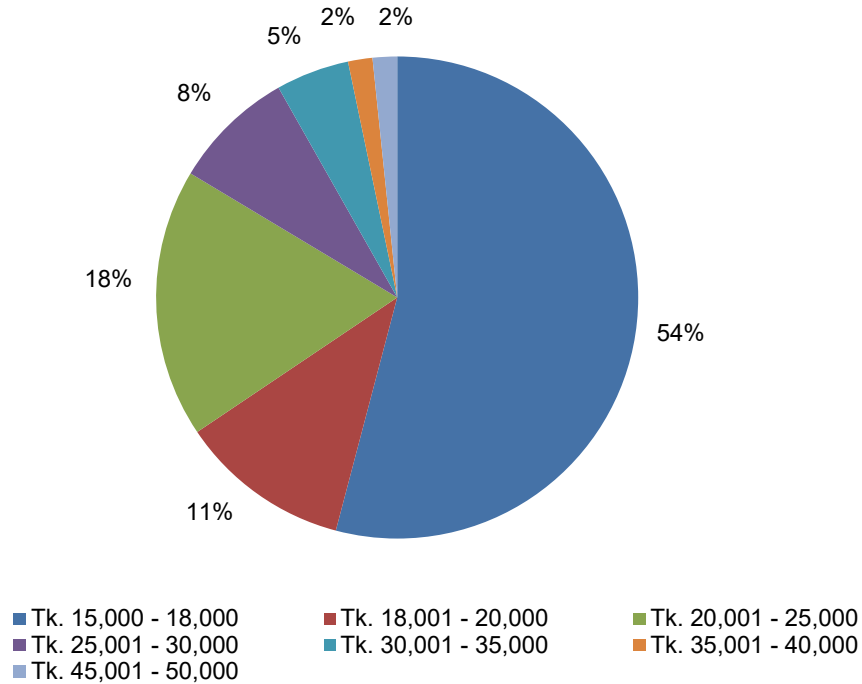| Country	Electricity Cost (US$ Cents/kWh)	Rental Costs (CBD, Class A, US$/Sq.ft./month)*	VAT (%)
Bangladesh	8	0.4 – 1.4	15
Philippines	26	1.4 – 2.1	12
India	9	0.8 – 9.5	12.5
Sri Lanka	2	0.7 – 1.1	12

Source: CBRE, 2015. Tholons Research, 2015

These seemingly pronounced advantages can be leveraged by industry stakeholders to develop Bangladesh as an emerging outsourcing destination, though care must be taken in ensuring that these favorable ecosystem components are carefully directed towards the developmental goals of the country's IT/ITeS sector. If English proficiencies are not improved, then industry fragmentation will persist, with the 'most proficient' talent either leaving the country for higher paying jobs abroad, and small providers being unable to scale because of a restricted talent pipeline. Heavy industry concentration in/around Dhaka City will also induce saturation – where the majority of service

providers are drawing from the same scarce and shallow pool of Class A office spaces – inducing the unwanted effect of restrictive (high) rental costs.

Bangladesh is rated among the Top 2 lowest salaried countries according to AT Kearney and Tholons. Salary Range paid by the existing companies locally are is referred below chart 39:

Chart 39: Salary Paid by existing local companies

Legend:
- Tk. 15,000 - 18,000
- Tk. 18,001 - 20,000
- Tk. 20,001 - 25,000
- Tk. 25,001 - 30,000
- Tk. 30,001 - 35,000
- Tk. 35,001 - 40,000
- Tk. 45,001 - 50,000

MNCs and companies with larger projects find it difficult to get people at scale for these salary ranges. Current cost is 50%-100% higher than what we believe would be the long term salary cost in the industry. Clients who have come in to Bangladesh are disappointed that they have not been able to find resources at scale thereby the people cost still remains high even after being in business for over 2-3 years in Bangladesh. There is significant flight risk from the likes of MNCs like Accenture, Samsung and others. We recommend that key actions need to be taken to bring the cost of operations down to make it competitive. Providing subsidize Class-A space or subsidy for the same and providing 100% tax break for IT/ITES employees for the next five years, would make a significant impact to competitiveness of Bangladesh.

The Big MNCs in Bangladesh

Global outsourcing is hinged on exports for large developed countries - primarily North American, European and Asian clients. Bangladesh is in a good position to have the likes of Accenture, Samsung and others put large operations here. MNCs go through a rigorous due diligence process before deciding to base their operations in any new location. Keys elements considered are:

1. Quality, scale and cost of Talent
2. Financials - cost of infrastructure, talent, office space, bandwidth cost etc.
3. Business catalyst: policies, regulations, tax incentives, ease of doing business and government support
4. Infrastructure and Risk profile: availability of Class A office space, transportation infrastructure and risk - physical, natural and civil
5. Quality of living: International schools, expat community, opportunities for entertainment etc.
6. Innovation, Digital and Startup ecosystem

MNCs like Accenture and Samsung currently face challenges in:

1. Availability and cost of Class A infrastructure i.e. IT Parks or equivalent space
2. Availability and cost of qualified Talent
3. Seamless implementation of Tax Incentives, IT Act regulatory framework and "Single Window" ease and support

Improving Industry Policies – Bangladesh must have clear and *encompassing industry development policies* that cover all facets of IT/ITeS development in the country (i.e. financial and tax policies, human capital development, intellectual property protection and investment promotion). These distinct policy implementations can contribute positively to building a more responsive business environment, attracting more investors that in return, can facilitate growth of the IT/ITeS sector progress. The government also needs to have active participation in promoting potential (alternative) outsourcing locations in the country, in the form of recruitment service offerings, business set-up assistance and development of international channels for investment facilitations services.

For as long as government and respective institutions build upon existing advantages and address salient ecosystem inhibitors, expansion of the industry into external client markets is entirely possible.

Infrastructure Development – The availability of an enabling operational platform from which to deliver IT/ITeS is also one of the keys in developing and sustaining the sector. Physical (i.e. road networks, buildings, support facilities & utilities) and telecommunication infrastructures are the foundations necessary for the effective delivery of services of a location. According to the *World Economic Forum's 2014-2015 Global Competitiveness Report*, Bangladesh consistently registered low scores in the *Infrastructure Pillar*. This is highlighted by the underdeveloped and strained transportation infrastructure in the country, consisting of dated airports, roads networks and public transportation systems. Particular to the country's services outsourcing sector, an *inadequate public transportation system could hinder labor force mobility*, a vital consideration for service providers who require the free-flowing movement of employees to and from their delivery centers. This is especially relevant for larger service providers who require hundreds or even thousands of services outsourcing professionals, or *agents*, to report to their respective facilities in a timely and predictable manner.

Chart 40: Global Competitiveness Report - Infrastructure Pillar Score (2014 – 2015)
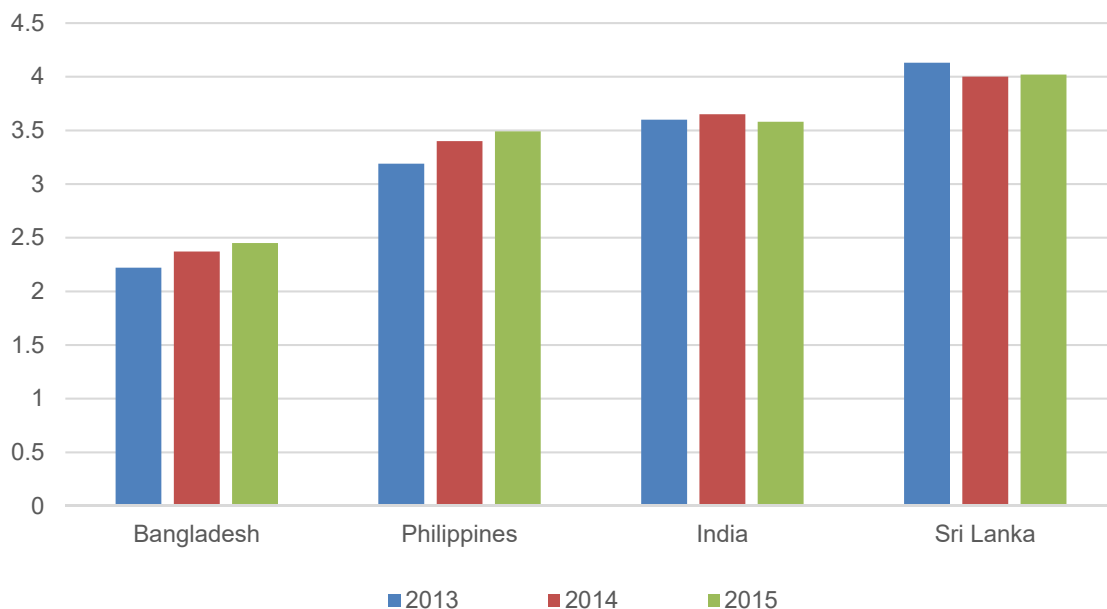
Source: World Economic Forum Global Competitiveness Report, 2014-2015

Moreover, the insufficient number of Free Trade Zones and IT Parks could *misrepresent* the country's commitment to the IT/ITeS industry. Simply put, potential service providers and investors, will not be easily convinced to consider Bangladesh, if all that is provided to them regarding IT Parks are broad statements on *'plans to develop'* or *'currently under development.'* These business

entities must be convinced in a more definitive manner, by *seeing completely built IT parks and properly fitted service delivery facilities.*

Bangladesh stakeholders must also take deliberate steps to expand the reach of its FTZ platform, specifically in areas outside Dhaka, and as the capital seems to be already facing saturation issues. Locations such as Jessore for instance, can take advantage of its proximate location to Kolkata of India. Further, as foreign universities are not permitted to operate in India, there could be opportunities to entice foreign tertiary institutions to establish in Jessore, drawing student talent from both India and Bangladesh, enriching the entire labor and talent ecosystem of the location. A mixture of culture and exchange of knowledge by Bangladeshi and Indian students can also promote a much more diverse labor force in that area, and could be replicated in other parts of the country, if successful. Not only that, Indian firms could also be enticed to start-up in this location as it provides convenient access to both countries.

Likewise, and though there are understandable sentiments on the difficulties of establishing a delivery center outside of Dhaka, Tholons notes, that there does exist, real-world opportunities for alternative service delivery locations to be established across the country. A prime example is *Hello World Communications*, an established BPO provider with its primary location in the city of Chittagong, about 250km from Dhaka. Despite being situated away from the capital, Hello World has managed to harness the available talent capabilities in the area, and has contributed to enriching the economic ecosystem of Chittagong.

Further, an essential cog of the service delivery ecosystem – *Internet Leased Lines (ILL)* – must be in place to properly connect delivery centers and IT Parks with external clients. A reliable, redundant fiber and high bandwidth network must also support the proposed IT Park and delivery center locations. Though Bangladesh has made tremendous progress in recent years in improving and expanding Internet connectivity across the country, Tholons has gathered from interviews with service providers in Dhaka City, that the 99% uptime reliability that is often required by foreign clients, is still not prevalent in the country, at least not currently. Reliable power generation and distribution is also an ongoing concern, with many service providers needing to purchase power generators to negate the ill-effects of power disruption. This stop-gap measure has the tendency to raise both capital and operation costs for a service provider.

These pain points debilitate infrastructure as a whole, which can then create cascading and detrimental effects to a service provider's productivity and output levels. Thus, without the proper and capable infrastructure, the *seemingly pronounced* advantages of scale and cost of the country, could be *effectively negated*.

Primary Target Market for Bangladesh

The current Bangladesh IT/ITeS landscape, being mostly comprised of providers specializing in Customized Software Development and IT Enabled Services, puts itself in line with global outsourcing demand. In fact, BASIS records an estimated 400 companies already doing IT/ITeS export activities from Bangladesh with the US, UK, Canada, and Australia as major client markets. Furthermore, Bangladesh IT/ITeS providers should also focus on building capabilities in alternative client markets such as India, Netherlands, Middle East and Japan where existing diplomatic relations can be leveraged and markets are not as saturated and competitive. Clearly identifying and then utilizing these alternative client markets will definitely be a key catalyst in developing Bangladesh's IT/ITeS industry as these provide an opportunity for providers to display capabilities in the global market.

Another definite key market for Bangladesh is the emerging domestic IT/ITeS market. The country's IT/ITeS providers, largely depend on the domestic market as a major source of revenue with 63% of members focusing solely on local industries driven by private sector companies seeking to improve business processes and adopt IT practices. *With local markets starting to increase IT adoption rates and implement IT best practices, service providers should continually look inward for opportunities in the sector particularly in the Banking & Finance, Government, Manufacturing and Telecommunications sectors.*

Global outsourcing market opportunity is dominated by United States followed by UK and Europe as a region for all outsourcing destination countries. US even though is extremely competitive should still be a prime target given the size of the opportunity and the openness to pilot new locations and emerging companies. Most of the niches identified in the latest section apply to the US.

In addition to the United States and given the competitive landscape and existing socio-economic relationship of Bangladesh, the following markets are attractive: UK, Middle East, India and Japan. Existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, are good landing spots for Bangladesh developed applications.

The country has maintained healthy bilateral relations with Japan, a key service buyer market in the APAC region. Japan's IT services market was pegged at US$211.4 billion in 2014, driven by the BFSI and Manufacturing sectors. Japan is also Bangladesh's 11th-largest export market, with Bangladesh exports comprising 26% of all Japanese imports from least developed countries. These incentives significantly boost the investment relationship between the countries, and should be viewed by industry stakeholders as a jump-off point to increase traction in the services outsourcing space. Further, Japan has also begun to explore alternative (and cheaper) services outsourcing

destinations, beyond its traditional provider China (Dalian City), and Bangladesh could become a potential destination.

India, with export revenues of over $87 Billion has a robust growth. IT/BPO industries in India continues to look for talent and expertise. Within India, in tier II cities in India are keen to explore options in Bangladesh and Srilanka. In our discussions with some of the major providers in India, there seems to be a strong interest in tapping in the skill sets in Bangladesh for Analytics, Content Management, Trasaction Processing and App Development. The marketing and promotion as a result of this LICT program will raise the awareness of myraid of capabilities available in Bangladesh. We strongly recommend pitching in top 50 IT/ITes companies in India including the MNCs and GICs.

Middle East is a natural target market given the cultural affinity and a market that has significant untapped potential. It also has the potential to be a platform for accessing the African market which is highly under-developed and has immense potential.

Figure 8: Primary Geographical Market for Bangladesh

The Digital Opportunities and Markets

In the recent past, digital technologies and development towards creating more intelligent enterprises have given rise to increased use of automation, robotics, artificial intelligence and cognitive computing across industries and businesses.

The country should capitalize on the significant impact of automation of basic processes in the business. It hastens the delivery of the project thus the service can be delivered to larger amount of clients. There are companies like AUTOMATE ANYWHERE, who are automating the basic transaction processing like F&A, Claims processing etc. There is also a virtual workforce management system by BLUE PRISM, which is able to manage the software robots thereby creating a hybrid workforce of "BOTS" and "HUMAN BEINGS" as service agents. This will definitely have an impact mid to longer term on the BPO business.

Another good example would be *Amelia,* by IPsoft – is a virtual agent that functions as a call center operator. Amelia can be deployed straight from the cloud in a fraction of the time. The Artificial Intelligence learns as it works and provides high-quality responses in various languages. The new development on Amelia has improved her memory, contextual comprehension and emotional responsiveness. This project is getting close to passing the Turing test. This test requires that a human user must not be able to distinguish the machine from a real human being.

IBM's WATSON is emerging as a significant product in cognitive computing. Few of the large global audit firms are starting to feed reams of audit data to Watson so as to have a comprehensive, un-paralleled audit support for their audit teams. Very soon such capability will be far superior to what can be done by experienced auditors.

Digital has emerged as a significant game changer and disruptor to all businesses including IT/ITes. The global IT/BPO spend of $2.4 Trillion is being impacted by digital. There is an additional $14.4 Trillion opportunity being created by the combination of increased revenues and lower costs that will migrate among companies and industries from 2013 to 2022, due to Digital Technologies.

Global IT-BPM Spend (US$ B) & Sector Share

Industries will be disrupted to the amount of US$14.4 Trillion (2013 - 2022)

Bangladesh needs to develop skill sets on Social Media, Interactive, Design; Big Data, Analytics; Mobility, Apps; Cloud; Internet of Things (IoT), Digital Marketing and Digital Content Management. The evolving digital technology and its impact is transforming industries in primary target markets. Internet of Things (IoT) is playing a significant role in manufacturing including automotive. Germany and US are the most attractive target market for IoT. FinTech is transforming how the unbanked can access banking and other financial services. FinTech target markets are primarily UK. US and Singapore. Digital Trust between applications is imperative and underscores the significance of cyber security. Israel is leading the development and consumption of talent and innovative ideas in cyber security.

Figure 10: IT-BPM Evolving Vision
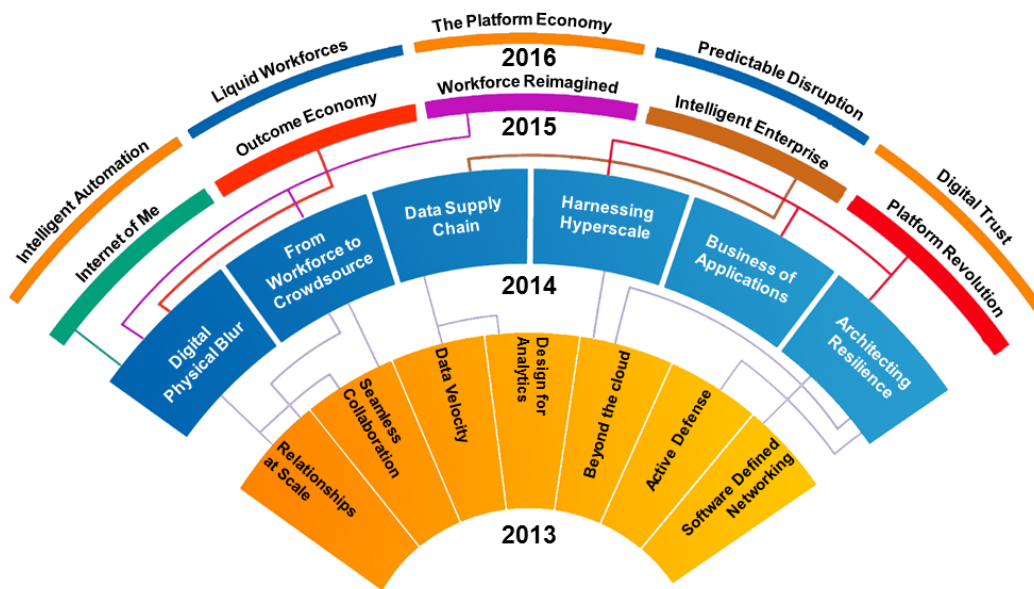
Source: Accenture Technology Vision 2013, 2014, 2015, 2016

Open Innovation Platform

As a supporting measure, Tholons would also like to introduce the concept of an *'Open Innovation Platform'* that industry stakeholders should consider when developing the country's IT/ITeS ecosystem. This platform or concept revolves around building an ecosystem wherein start-ups, academe (i.e. universities), private institutions (i.e. ITeS companies, technology suppliers) and financial institutions (i.e. venture capitalists, banks, angels, etc.) and other relevant institutions/individuals – are all situated in a singular ecosystem, that fosters a *collaborative synergy* to exist across individual players. In such an environment, each component is pushed to not only work with the next, but is also compelled to perform and execute respective tasks and roles. Start-ups are *expected* to conceptualize and develop their products or services, the academe is *expected* to churn quality graduates for the start-ups, and the financial institutions are *expected* to provide the funding for the start-ups to develop their products and services.

By encouraging the necessary enablers to thrive in this open platform, where *roles and responsibilities are designated and accepted*, developmental issues are more quickly addressed and outcomes are more efficiently reached. That is, the entire ecosystem works, because each role comes with *clear and corresponding roles that each player accepts* and fulfills.

Further, the *defined roles* of each component in this ecosystem will vary depending on the current needs of the industry. For example, a start-up R&D company can share workloads with a local university, the latter who may be better able to, because of facilities and technical capabilities, to fulfill various technical and scientific research tasks that the start-up would require. Essentially, the R&D start-up, could outsource a process requirement, to an ecosystem partner that has that specific process capability. This symbiotic collaboration is applied across all players in the ecosystem, creating a platform where *innovation is fostered in the open* – precisely because each individual player is directly or indirectly connected to the development of the solution.

Open Innovation is key in today's world where innovative company products and services are disrupting major industries. There are big opportunities to bridge the gap. It is imperative for Bangladesh to implement an Open Innovation Platform.

The startup ecosystem is particularly vibrant in the US, UK, Israel, India and Canada. There are 41,500+ startups in US; 3,500+ in UK; 3,300+ in Israel; 3,100+ in India and 2,700+ in Canada.

Product Engineering and Technology provides opportunity that brings in industry and digital disruptors, giving room for a significant opportunity in the following locations.

|		
US	41,500+ startups	
UK	3500+ startups	
India	3100+ startups	
Japan	800+ startups	
Middle East	3300+ startups	

Startups are high risk, high change velocity, delayed economic value and actively seek disruption. However, Global 2000 companies are low risk, low change velocity, look for immediate economic value and are disruption averse.

The open innovation platform needs to facilitate guided disruption by de-risking, scaling up and delivering innovation.

We suggest the following approach to create an Open Innovation Platform and Network for the Bangladesh Industry:

1. Explore and select key Startup Companies across most promising industries and disruptive offerings, Venture Capital (VC) Firms, Angel Networks, Corporate Accelerators, University and R&D Lab Incubators and various other accelerators in the network. This forms the open innovation ecosystem and platform Hackathons and other innovative events have the potential to bring all stakeholders to collaborate and bring open innovation to life

2. Put a small team and a process in place to screen the startups, shortlist the most promising ones and engage with them

3. Connect with key clients in Bangladesh and Globally to assess interest and alignment with couple of startups for each client

4. Upon confirmation of interest structure an engagement to enable either of proof of concept (POC), pilot, investment, client engagement and/or M&A

Figure 11: Open Innovation Platform Cycle
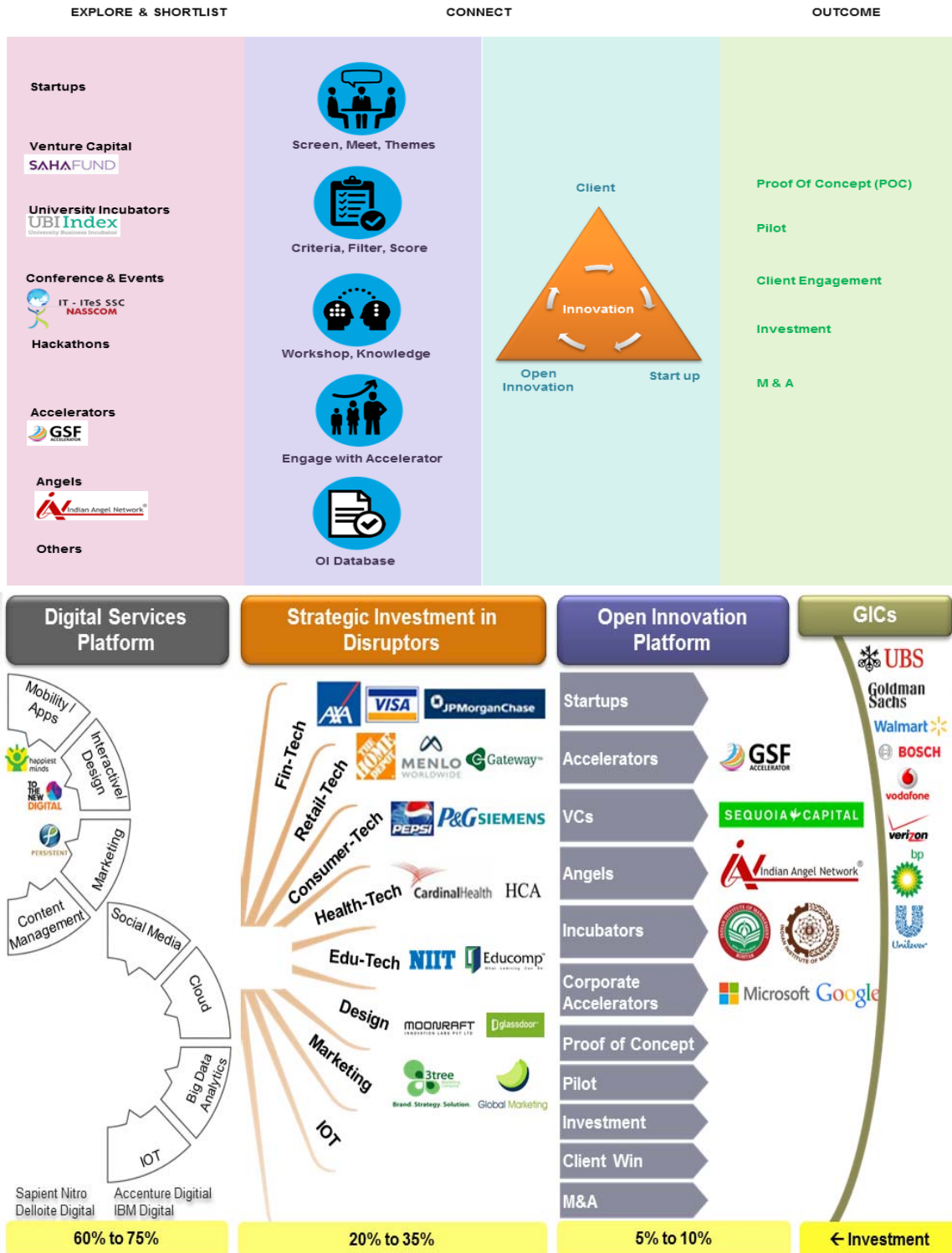
Unlock the opportunity

Unlock the potential of startups that are focused on Connected Industry solutions and the critical, enabling components or platforms that enable these solutions.

Unlock the potential of startups that are focused on Connected Industry solutions and the critical, enabling components or platforms that enable these solutions

01. Pure-play fund
Encourage technology VC function to setup and invest in Bangladesh into promising startup

02. Connected industry solutions
Grow startups with powerful IoT solutions using corporate innovation network

03. Lean investing
Leverage the Lean Equity model to accelerate our IoT portfolio

04. Industry expertise
Leverage the deep and broad connected industry expertise of the team

Innovation Fund

Easy licensing and incentives for VC to establish operations in Bangladesh. There should be –

1. Free inflow of direct foreign investment with automatic regulatory approval for specific investments and sectors

Implementation of an Innovation Platform for Bangladesh (Recommendation)

1. Bangladesh should orient the connecting startup program for open innovation, where Venture Capital (VC), Angels, Accelerators, Industry, Startups and Universities come together
2. Run a competition to select 5 start-ups which are focused on biggest opportunities and key challenges of the industry (B2B)
3. These 5 start-up go to the silicon valley for three months and they will be based out of one of the technology plug and play accelerators where there are already other countries, other startups, other corporates in that ecosystem

In our recent discussion with industry & government stakeholders, there seems to be a significant interest and alignment to implement such a program. Estimated Cost: $150,000 to $200,000

Focus Niches

Though there may seem a wide array of market opportunities for the Bangladesh IT/ITeS sector, the practical reality is, there is in fact a logical limit of feasible opportunities. A more focused approach when approaching both export and domestic services outsourcing markets is also more advantageous, as it allows for better utilization of limited marketing and promotion resources, and encourages a more efficient manner for the local industry to identify service niche areas. Further, this focused approach can help build a more defined identity for the sector. A product (service) for all, is in fact, a product for now one – the same holds true for the services outsourcing sector of Bangladesh. The sector cannot, and should not merely ambition to be a 'provider of outsourced services,' it must have a more refined position. And this more refined position, is what will allow the country to establish its footprint, and place, in the global services outsourcing market.

The *practical limitations* of the country's IT/ITeS sector has been brought about by the ecosystem hindrances which have been identified in previous sections of this strategy project. In particular, the salient barriers have been identified as deficiencies in the following areas:

1. Physical & Utilities Infrastructure
2. Talent Pipeline and Proficiencies
3. Low-level of awareness of 'Bangladesh Outsourcing'
4. Institutional Barriers
5. Access to Investment Capital

As such, it is also presumed that if these developmental barriers are addressed, then greater market potential and opportunities, can in fact be realized. Tholons must articulate that although the following proposed niche areas are considered to be the most feasible market areas for the local sector to consider – *where they will likely have the greatest changes of succeeding in the near-term* – Tholons does not discount that focus niches may in fact expand or altogether shift to difference market direction, if the identified ecosystem deficiencies are properly resolved.

Upon analysis of the country's current IT/ITeS landscape, the service outsourcing sector of the country appears to have the greatest opportunities, evidenced by past and current capabilities, to provide ITO services, and particularly in the Customized Software Development subsector. Moreover, the Customized Software Development subsector has the *realistic opportunity t*o expand market share in both domestic and export fronts.

Interview and consultation with industry stakeholders and players have also substantiated this assumption, with many key players indicating that the BFSI, Telco and Government sectors, being the low-hanging fruits in the domestic market for customized applications. These domestic industry sectors are also likely to have sustained (long-term) requirements for software solutions.

ITeS industry stakeholders must in particular, take advantage of the global BFSI opportunity – as NASSCOM shows that the vertical along with manufacturing, comprised over 60% of the total global IT spend in 2014. As the BSFI segment continuous to face cost pressures, induced by industry-wide consolidation and retraction from the Global Recession, emerging markets and offshore service destinations stands to directly benefit. Bangladesh in particular, with its prominent low-cost proposition could capitalize on this present opportunity. The FAO market also provides numerous points of entry for Bangladesh service providers, as the whole spectrum of end to end FAO services, allows for even emerging provider destinations to build capabilities and capacities, in smaller, yet calculated trenches. Table 10 below, provides a process map of the FAO processes that are available in the global market today. In particular, the *Accounts Payable and General Accounting* process groups should be viewed by local service providers as the *more feasible* market entry points.

Table 10: End-to-End FAO Services

Accounts Payable/ Order to Cash	General Accounting/ Closing & Reporting	Treasury & Tax	Financial Planning & Analysis	Governance
• Invoice Receipt and Matching • Dispute Resolution • Remittance Tracking and Resolution • Deduction Management • Collections and Recoveries	• General Ledger Closing • Consolidations • Reconciliation • SEC and US GAAP Reporting • Statutory Reporting • System / Platform Maintenance	• Bank Operations and Cash Forecasting • Risk Management - ALM, Hedging, FAS 52 • Rating Agencies • Tax Returns Preparation • Tax Reconciliations	• Management Reporting • Variable/Fixed Cost, Balance Sheet and Cash Flow Analysis • Budget Preparation • Variance and Issue Analysis • Competitor Analysis	• Internal Audit • SOX Project Management • Regulatory Compliance • Control Self-Assessment

Across Industry Verticals & Geographical Markets
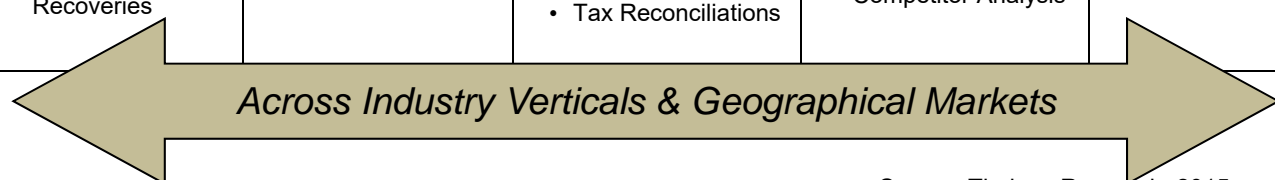
Source: Tholons Research, 2015

Further, the Pharmaceutical vertical is also experiencing a robust growth in the country. Some of the companies in the country have obtained certifications from different international authorities such as the UK-MHRA, Australia-TGA. SQUARE Pharmaceuticals Ltd. in 2015 for instance, underwent the *PAI (Pre-Approval Inspection) by the US FDA*, of which was successful for its Dhaka Site's solid dosage unit. SQUARE Pharmaceuticals Ltd., is also a World Health Organization (WHO) approved *Good Manufacturing Practice (GMP)* company.

The pharmaceutical industry in Bangladesh has been active in harnessing the potential and capabilities of the talent pool. Effective drug policies and the relaxation of Trade Related Aspects of Intellectual Property Rights (TRIPS) are responsible for the continued growth of the industry.[33] In this instance, patent relaxation will be applied in pharmaceuticals to be able to copy patented medicines. However, import dependence in the raw materials still presents as a hurdle for the industry in the country. As such, and because of the positive dynamics the local pharmaceutical sector is experiencing, there should be some deliberate consideration by stakeholders to further explore how current capabilities can be utilized in the context of developing (or diversifying) the country's services outsourcing portfolio.

On the other hand, the export front is less visible given the current state of the local industry. However, and as previously implied, existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, could all be considered landing spots for Bangladesh-developed applications.

The large, North American market, though attractive at first glance, should be approached with caution. Though it is a lucrative revenue market, it is also a relatively crowded market, with large incumbent providers well entrenched. Likewise, it is a highly visible market where service buyers are 'less forgiving' of service delivery deficiencies or mistakes. This is a particular consideration for Bangladesh service providers and stakeholders alike, as many of its young companies are still developing and will likely continue to experience the 'growing pains' associated with the maturation process. It would be detrimental to the developmental goals of the Bangladesh IT/ITeS industry, if such growing pains are experienced and exposed in a cutthroat market like North America, where it could suffer serious blows to its image and identity. *As such, North America should be viewed as a mid-to-long term target market, where Bangladesh service providers will only approach, once they are fully capable of servicing properly.*

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[33] BRAC University, Pharmaceutical Sector of Bangladesh: Prospects and Challenges, 2014

Chart 41: BASIS Member Companies Business Specialization 2014

Consulting, 2%

System Integration, 3%

Product Company, 4%

Others, 1%

Mobile Application, 5%

E-Commerce/Web Services, 12%

Customised Software Development, 56%

IT Enabled Services, 17%
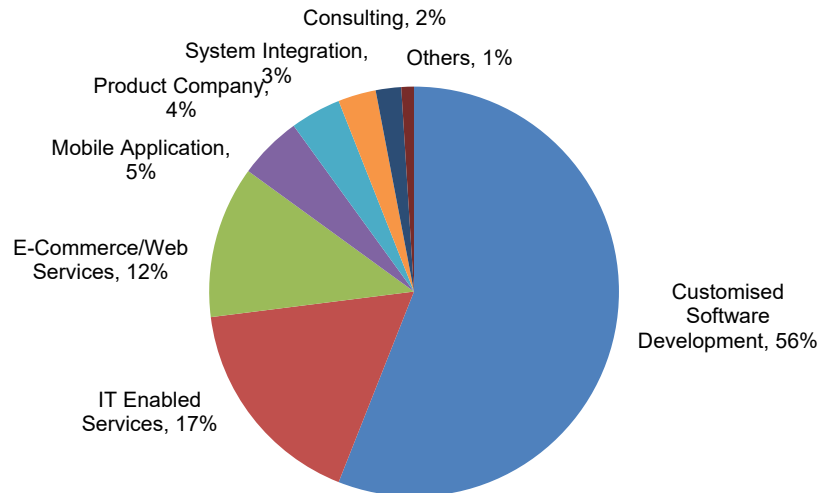
Source: BASIS Software & IT Services Catalog, 2014

As shown in the deliverable of this Strategy Roadmap, there are three current segments in the Bangladesh IT/ITeS sector that are clearly leading the industry (see Chart 41). Customized Software Development, ITeS, and E-Commerce/Web Services were also mentioned by industry providers as the areas showing the most growth over 2013, and consequently, were also the subsectors which stakeholders were most optimistic of when viewing future industry trajectory. Further, there *already exists* in the country a healthily growing provider ecosystem in these three core segments. Current BASIS statistics for instance, shows that a vast majority of its 963 members[34] are already engaged in Software Development, and specifically, Customized Software Development. IT enabled Services on the other hand, has been sustained by robust domestic demand for contact support services (contact centers), back-office, finance and accounting services.

Tholons must note that although there have been significant developments in the country's Telco and mobile sector in recent years - *consequently raising the potential for Mobile Application Development* – this remains and extremely fluid service subsector which much be viewed with prudence when considering. In the context of Bangladesh Mobile Applications, development will be highly localized in nature, due to language and profile of its user base. Likewise, there is already a high degree of commoditization of mobile applications in the external (global) markets, thereby narrowing the windows of opportunity for aspiring local mobile application providers.

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[34] BASIS, as of October 26, 2015.

There is also a dynamic variable in the Bangladesh context that is gaining prominence and catalyzing industry growth and awareness, the Freelance sector. Industry stakeholders may be able to take advantage of the vast (and growing) freelance talent pool - now numbering nearly 30,000 – and provide additional training and access to investment capital, allowing them greater opportunities to build more *'formal'* and larger business units. Viewing the Freelance segment, and identifying focus niches for the country is not without discrepancies. The freelance market, by nature, is in fact highly fragmented, and its underlying strength as a delivery platform is precisely that it can provide a great variety of services, across any given market. This underlying principle of freelancing, a seeming contrast to the 'focused nature' of identifying niche services. As mentioned in the previous deliverable, this fragmented nature can also be attributed to the fact that most freelancers in the country lack the necessary skills to commit to high process, large volume tasks. Most freelancers in the country are working students that are simply aiming to support their family and educational needs. Analyzing the composition of freelancers in the country also validates this 'scattered focus,' as freelancers are said to serve *over 10 countries*, with a highly diverse services portfolio including industry verticals from *Software and ITeS companies, Media outlets, Training and educational institutions,* with the top processes being procured; *Web development, web design, data entry, technical writing, SEO and e-Commerce.*

There also exist potential for the country to develop BPO services and establish market niches for the sector. Accordingly, Customer Support Services represent the largest revenue source among services delivered by Contact Support providers in the country, followed by Virtual Receptionist Services and Telemarketing. Similar to the ITO sector, and though there is opportunity to capture and expand market share in Western Markets, Tholons believes that the near-term market focus for the BPO sector should in fact be the domestic market. Only when scale capabilities and language/process proficiencies can be provided (and sustained) by *multiple large BPO providers in the country*, should the large Western BPO markets then be considered.

With regard to alternative export markets, the country has maintained healthy bilateral relations with Japan, a key service buyer market in the APAC region. Japan's IT services market was pegged at US$211.4 billion in 2014, driven by the BFSI and Manufacturing sectors.[35] Japan is also Bangladesh's 11th-largest export market, with Bangladesh exports comprising 26% of all Japanese imports from least developed countries. These incentives significantly boost the investment relationship between the countries, and should be viewed by industry stakeholders as a jump-off point to increase traction in the services outsourcing space. Further, Japan has also begun to explore alternative (and cheaper) services outsourcing destinations, beyond its traditional provider China (Dalian City), and Bangladesh could become a potential destination.
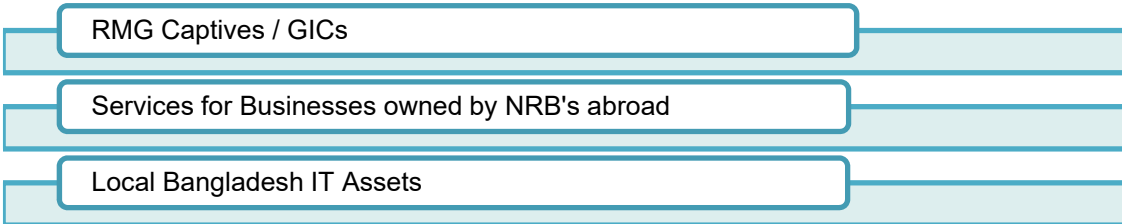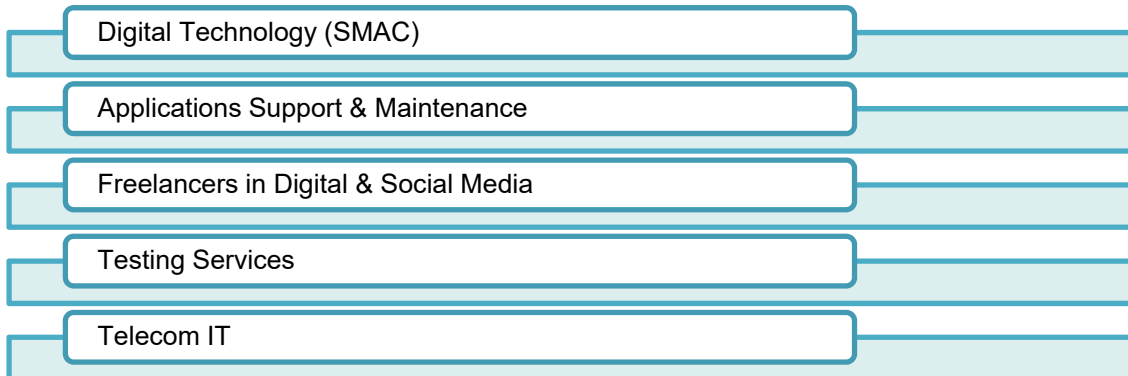
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[35] NASSCOM Newsletter, 2014

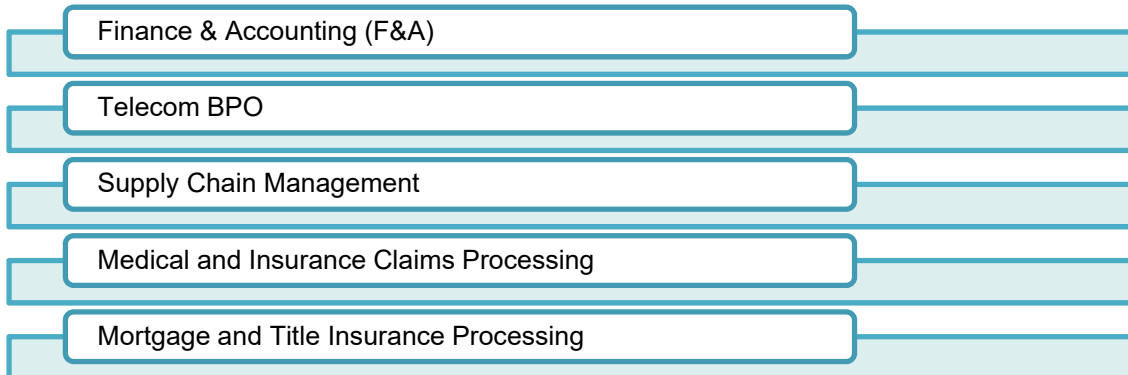# Categorized Focus Niches

Figure 12: Categorized Focus Niches

A) Product / Business Opportunities/Niches

- RMG Captives / GICs
- Services for Businesses owned by NRB's abroad
- Local Bangladesh IT Assets

B) IT Opportunities/Niches

- Digital Technology (SMAC)
- Applications Support & Maintenance
- Freelancers in Digital & Social Media
- Testing Services
- Telecom IT

C) ITeS / BPO Opportunities/Niches

- Finance & Accounting (F&A)
- Telecom BPO
- Supply Chain Management
- Medical and Insurance Claims Processing
- Mortgage and Title Insurance Processing

RMG Captives / GICs

Global exports market for IT/ITes is about $153 Billion (Source: NASSCOM Strategic Review, Tholons Research 2015), with India contributing $100 Billion. 20% of India's revenue comes from Global in-house Centres (GICs) or Captives. The overall outsourcing market is growing at the rate

of 9.9% CAGR, whereas the captive market is growing at the rate of 14.7% CAGR. There is a significant opportunity particularly in the RMG industry for captive growth.

The RMG Industry in Bangladesh is emerging as the largest RMG destination globally. Top 100 global brands have put their trust and business in Bangladesh. This industry has reached this pinnacle on a solid foundation of quality, scalability, on time delivery, cost competitiveness to become the trusted partner of these global brands.

As a case example, one of the top ten global leading brands in apparel have established a captive center in Bangalore, India. It is responsible for a given apparel line where it has end to end responsibility for a product from design, to factory, to shipment globally, to stores and circling back to fulfillment from factory to stores.

In our view, given the trust that these Top 100 apparel brands have placed in Bangladesh and the various large manufacturers, it is very opportune to have a focused strategy and plan to form a task force to enable setting up of co-located IT/ITeS captives in Bangladesh.

Among the Top 100 apparel brands in Bangladesh, the following brands have the most opportunity for co-located captives in Bangladesh:

Finance and Accounting (F&A)

is one of the largest BPO process globally. Bangladesh boosts of a large educated workforce and a significant number of qualified accountants. Bangladesh is also fortunate to have a major global IT/BPO leader to have established presence in Dhaka. This brings in significant process, scalability and transformational knowledge and experience to the industry.

This expertise can act as the catalyst to seed and support numerous BPO companies to be able to serve the mid-size clients in US, UK, Middle East and Australia.

Telecom (IT & BPO)

Accenture acquired the IT-BPO division of Bangladesh namely GPIT in 2013, and now is the biggest IT/ITeS company in the country. Accenture does outsourcing business for Telenor globally, including their JV partner Grameenphone in Bangladesh. They offer world-class capability and experience in telecom IT-BPO.

This expertise can be used to develop both Telecom IT, Network Engineering and Telecom related BPO businesses in Bangladesh.

Medical, Mortgage, Title, Insurance Claims Processing

Medical, Mortgage, Title, Insurance Claims Processing are some of the biggest hitters in the BPO Industry, but also a very mature processes with well-defined outsourcing process and ample platform and technology solutions available to quickly create, deliver and scale the business. Medical Coding could create a good business from just coding claims to summit to TPAs (Third Party Administrators) for just one hospital. There are numerous mom and pop title insurance firms in the US which can act as great clients for BPOs in Bangladesh.

The same opportunity applies to mortgage and insurance claims processing because of the proliferation of these small businesses in the US.

Digital Technology

With the emergence of digital technology and business opportunity there is a significant unmet demand for digitally enabling businesses across the industries. Major IT/BPO service providers are experiencing scorching growth which in most cases is 3-5 times the average growth rate of the company. Bangladeshi IT/BPO companies should skill and deploy business development and delivery capabilities to:

1. **Social Media, Interactive and Design:** There are opportunities in enabling various social media feeds and putting a process to communicate with consumers and stakeholders. Also the mode of interaction and design elements are significantly changing

with the increase use of smart devices. A significant number of freelancers in Bangladesh have the expertise and are capable of plugging into this opportunity.

2. **Big Data and Analytics:** Companies are now designing for analytics and are putting in a lot of money to get actionable insights on their product, on their competition and for ideas for new business and services. One of the major IT firm based out of India is keen on tapping into the great analytical resource pool available in Bangladesh. However, this being one of the high demand, fast growing and high margin business, there will be interest from other IT/ITes firms in India to come to Bangladesh for the same.

3. **Mobility/Apps:** There is already a significant use of smart devices. Devices across all industries are becoming mobile. Medical devices being used by patients are increasing using mobility, same is the case with devices being used on manufacturing floors, sales force team in the team and consumers are using their smart phones for one and all things. This has given rise and a need to develop Apps for each such function. Freelancers, small and medium enterprises would be placed well to develop a business just in App development and testing.

4. **Content Management:** Digital Content needs to be made available automatically, real time and at high velocity. Be it text, images, catalogue, audio, video or interactive content – there is an opportunity to use platforms to be able to configure and deliver the same to clients. This is akin to "Y2K" opportunity.

5. **IOT/Embedded Devices:** Internet of Things (IoT) is increasingly growing and become significant both in business and personal world. Broadband Internet is becoming widely available, the connectivity cost is decreasing significantly. More devices are being connected to internet for having a controlled operation and execution of task(s). The scale of progression of having more and more devices connect to internet is expected to grow in a larger scale enabling people to device and device to device giving way to endless opportunities and creating a connected industry. Embedded devices have become very efficient in size, power usage and cost. These devices can be implanted across manufacturing floors in factory machines, in hazardous mines, oil rigs, under ocean, race cars and surveillance. These devices have the ability to transmit data through Wi-Fi and in real time. Knowledge of devices and the specific industrial process and the ability to develop embedded software will be a key niche expertise. These skills are in short supply even in countries like US, UK, Europe, Japan and other places including outsourcing destinations like Philippines, Eastern Europe China and India and thereby lies the opportunity.

Applications Support & Maintenance

is the biggest part of the outsourcing business of all the major IT services firms globally. It is "bread and butter" and US is the biggest market. Bangladeshi IT companies should look at developing a comprehensive process and knowledge base to support and maintain the major enterprise applications including but not limited to SAP, Oracle, Microsoft, Sales force and others.

Freelancers in Digital & Social Media

Emerging freelancer community sustaining growth of IT-related work. The growth of the freelancer segment, though positive in the sense that it exposes the youth to the global outsourcing industry and delivery model, also has the potential to increase industry fragmentation – taking talent away from the traditional IT/ITES sector – resulting in small-mid-sized local service providers facing greater difficulties to scale operations.

Supply Chain Management

Bangladesh is emerging as the world's largest source of ready-made garments. Despite the numerous infrastructures, socio-political disturbances, the country has never missed their delivery commitment on quality and time. This says a lot about the highly efficient and well developed supply chain expertise. This experience can be used for other industries to provide platform based supply chain management BPO.

Testing Services

Historically, testing has been an easy start and a very scalable business. Testing opportunities can be addressed by small Bangladeshi IT companies for clients in industries of Product Development, Game Development, Media Content, Apps, Application Development, Regression Testing and others. There are numerous test platforms available that make the learning and implementation easy.

Services for businesses owned by NRB's abroad

Indian food is extremely popular in the UK. "Chicken Tikka Masala", is one of the most popular national foods of UK. Non-Resident Bangladeshis (NRBs) run most of the thousands of "Indian" restaurants in the UK. It is essential for restaurants to do daily accounting and text filling on a periodic basis. Tholons suggests that service companies in the country should take advantage of this opportunity by providing platform for back-end processing to take over the day to day accounting and Tax Filing. This is a great example of how a vertical BPO can be setup using a platform. Platform based vertical BPO is key to sustain and scale the BPO business for Bangladesh.

Capability & Opportunity Profile

In this section, Table 11 below illustrates the select IT/ITeS sector capabilities, which the country should emphasize to externals markets and focus on locally to improve scale capabilities and service delivery proficiencies. The opportunity side shows the inherent propositions of the sector that can provide *truly competitive advantages* and opportunities to the country's IT/ITeS industry.

Table 11: Bangladesh IT/ITeS Capability & Opportunity Profile

Capability	Opportunity
ITO Sector	
Application Development, IT Product Development	a. Labor Pool Matching the Capability • Cost advantage: Bangladesh has one of the cheapest operational costs in Asia. Entry-level salary costs can be 50% cheaper than India and the Philippines. • Local market demand for ITO services is large and varied enough to sustain growth of local providers, and *prepare them for entry into larger export markets in the future.* • Population scale: Availability of technically skilled and educated talent pool is growing. Local talent pipeline is largely untapped. • Government is more aggressively promoting the IT/ITeS sector as a means to diversify export sector and to increase FDI (talent development & training programs, scholarships, etc.) b. Cost Component: Range of salaries in Bangladesh is BDT15,000 - 60,000 per month with average of BDT40,000. Entry level is around BDT20,000/month. c. Global IT Sourcing Market: ~US$88-91 billion in 2014 (NASSCOM). Bangladesh IT/ITeS sector is targeting US$5 billion in exports by 2021. The current and future market will remain large, and addressable, even for new entrants. *Headcount: Average employee size of ITO providers in Bangladesh is 26. There is opportunity at this early stage of the industry for consolidation, and create mid-sized companies from the many small, fragmented companies that currently exists. These mid-sized companies can then pool resources and become more competitive service providers, increasing opportunities in the external, export markets.*

BPO & ITeS Sector	
F&A BPO 16% active service groups	a. Stabilizing domestic growth • Service providers have noted that improving economic conditions have pushed local industry sectors to increase procurement of F&A BPO services. b. Cost Component: Average salary in Bangladesh is BDT50,000 /month for FA practitioners. c. Headcount: According to the e-Gen Survey of 2014, the average employee size of F&A BPO providers in Bangladesh is around 52, consisting of ~40 F&A practitioners.
Freelancing (From Elance-oDesk): total of 435,249 jobs were allocated to Bangladeshi freelancers (2010 to Q12014)	a. Labor Pool Matching the Capability • More than 80% of freelancers have advanced university degrees. • Bangladeshi freelancers working for clients in more than 10 countries – with USA and UK as top destinations. b. Cost Component – Average hourly rate of Bangladesh freelancers is ~US$8.0 c. Supply and Cost d. Total revenue estimated at a mere US$53 million from 2010 to 2014. There is a tremendous up-side for the segment. e. There is opportunity to expand Freelancer footprint across the country as Telco and Internet network improves and expands. As of Q1 2014, the total number of Freelancers in the country registered ~390,000.

Source: NASSCOM Strategic Review 2015, Elance-oDesk, Inc. 2015, Tholons Research, 2015

The ITO sector, particularly customized application development, in the country is dominated by relatively young firms, with Dhaka possessing the highest density of application development providers. Further, project based delivery is the highest revenue source for the sector, contributing nearly 50% of total industry revenue, followed by software implementation and software project development and management services. In software application specialization, banking applications, Accounting and financial software and integrated business applications are the foremost revenue sources.

It is also worth noting that despite the recent emergence and surge in adoption of mobile telecommunications in the country, that mobile application development remains an under-utilized (under-performing) sector in terms of revenue contribution. This indicates vast opportunities in the space. Government also remains a potentially viable client for the ITO sector, though potentially large procurements may take longer to materialize, as integration of software solutions may

ultimately hinge on the rate of ICT adoption across the entirety of the large Government platform. This may transpire only at a tepid and protracted pace.

Average headcount for software firms in Bangladesh is 26 employees, with programmers having the highest density followed by software engineers and web developers. Most providers have strict standards when hiring, preferring to hire those with relevant academic or professional qualifications. This is done to minimize often lengthy and costly training periods. Though there are stringent hiring measures in place, there in fact, exists a prevailing difficulty to hire qualified talent in this sector. Respondents reported *lack of technical skills* and *lack of English-based communications skills, as the most evident issues when evaluating prospective applicants.*

Among the requirements, prior experience in the field substantially raises the salary bracket of an employee, with three years of experience doubling the base salary. However, and according to the e-Gen Survey of 2014, the salary tends to saturate over time, starting from 5 years of experience. A BDT40,000 salary can stagnate to only BDT50,000 with 5 years of experience. *This trend directly impacts attrition rates and discourage long-term employment in the sector.*

Industry players have also noted a steady uptake for outsourced F&A services in the country, and Tholons believes that is one of the emerging services outsourcing sectors in Bangladesh, where industry capability is directly in-line with local capability. Local providers saw increases in demand from pharmaceutical and garments companies, while a handful were able to land contracts from multinationals, in practice areas such as general accounting, project accounting and financial and operational reporting. The domestic market remains the major source of revenue for this process group, with local F&A providers reporting a positive revenue trajectory of up to US$1.2 million, sourced from domestic demand by 2016. As for target markets, the US has been cited as the primary source for export revenues, at least in the near-term.

With regard to the talent pool capability of the IT/ITeS labor force, a great number of *providers expressed dissatisfaction with the general quality of raw talent available in the country.* Workplace inhibitors included: *absenteeism, high attrition rate, low motivation, job security over high process tasks.* These issues along with the already tight supply of quality, *production–ready talent*, continues to impede sector potential. However, despite HR limitations, providers noted considerable headcount growth across the sector. In 2011, only 34 employees were counted for each company, while in 2014, this average nearly doubled at 64 employees per company.

The Freelance sector has been one of the more visible segments in recent years, with industry stakeholders and government acknowledging the positive opportunity the segment provides the nation's young professionals. Foreign companies often choose Bangladeshi workers, primarily because of their *lower costs in providing similar types quality services and processes.* Consequently, this also poses adverse consequences for the sector's *formalized players.* That is, as the billing rates for freelancers are typically lower than their 'formal counterparts,' as freelancers

have less overheads and operating expenses to cover, allowing freelancers to receive a greater share of payments, then established service providers are forced to compete by increasing their salary offers, needing to keep and attract talent, while at the same time, cover the higher operating expenses of their more established delivery facilities.

Finally, there are ecosystem dynamics which can significantly affect the performance of the Freelancer segment. Erratic power supply and data connectivity for example, can both lead to substantial hits in productivity and output, much more telling for the freelancers, who would typically not have access to power generators or redundant connectivity.

Strategy and Roadmap for IT/ITeS Industry Development

In order for IT/ITeS industry development be sustained in Bangladesh, the initial phase, or approach, towards development must be both pragmatic in nature and rigorously scrutinized. That is, the most important developmental first-steps must be properly identified, and nuanced with the *practical characteristics (drivers and inhibitors)* of the Bangladesh ecosystem.

This includes proper identification and utilization of the resources (i.e. financial and personnel) available from both the public sector and industry. Also, the establishment of a *pragmatic industry development roadmap can provide great assistance to stakeholders, by serving as an implementation and milestones guide for implementing bodies and relevant monitoring bodies* (i.e. Government). Further, this will allow the implementing bodies to maintain the same level of focus throughout the implementation stages, reminding stakeholders of the milestone parameters for each activity and how each milestone contributes to the overall development of the country's IT/ITeS industry.

As such, Tholons has developed specific developmental action items, segmented according to three distinct phases - *Near, Mid, and Long-term*. These action items aim to provide the Government of Bangladesh and corresponding IT/ITeS stakeholders, a *pragmatic guide* that aims to enhance the current position of the country's services outsourcing industry, while laying the foundation longer-term sustainability and growth.

Figure 13: Bangladesh IT/ITeS Industry Action Items

Near (1-2 years)	Mid (2-4 years)	Long-Term (5+ years)
Mission & Vision Setting	Develop Talent Supply Pipeline**	Process and Service Delivery Innovation (*New Capability Development*)
Develop the Lead Outsourcing Agency	Develop Infrastructural Support**	
Bangladesh Outsourcing Industry Profiling	Develop Enabling Infrastructure (Commercial spaces, Transportation and Telco platform, Power & Utilities, etc.)	Long Term Strategy and Policy Planning
Industry—Academe Alignment		Continuous Marketing
Short Term Policy Framework		
Short Term Marketing and Promotions	Long Term Marketing and Promotions Planning	Identity and Brand Management

Output Achieved →

Near	Mid	Long-Term
• Functioning Lead Industry Agency • 'Bangladesh Outsourcing Industry Profile' • Identify Industry Talent Needs • Increase Sector Investments • Define 'Bangladesh Outsourcing' brand & Create Visibility	• Talent Monitoring Platform • Improved Infrastructure • Investment Attractiveness • Enhanced Visibility	• Growth and Expansion • Continuous Improvements

- Industry Development Theme -

Accelerate local industry development by optimizing current capabilities. Build long-term foundation for growth and sustainability, through the exploration of niche sector opportunities and by leveraging on inherent strengths of Bangladesh – namely, its vast talent resources and favorable cost arbitrage.

The first action item group *(Near)* sets the initial steps required to chart the developmental path and strategy for the services outsourcing sector of Bangladesh. In analyzing this group, Tholons has called to attention, various industry building programs and initiatives that *appear to be serving their functions but not reaching full potential.* Examples such as the initiatives to develop a Lead Industry Agency and the comprehensive profiling of the industry – both of which have been attempted in the past in varying degrees, but have not resulted in any tangible outputs. These efforts are seen to be essential in building the foundation of a more structured outsourcing sector that can be much more responsive to global market opportunities. It is also essential to activate the action items in this first group, as these will pave the way for the succeeding action items and strategies in the mid and long-term groups. It is important to note that actions under the *Near group,* simply aim to systematize and organize the developmental plans and consequently, the existing industry sector. Thus, Tholons notes that there could be in fact, existing systems and initiatives in place, which fulfill the various roles and responsibilities identified in this action item group. In such cases, there is no need to replicate these existing systems or initiatives.

The **Mid** action item group involves mid and long-term planning initiatives and implementations. Findings and results from the *Near* group will be the foundation for this group. The initiatives of this group are aimed at *catalyzing a progressive and sustainable pace of industry development.* Reforms in this stage call for greater mobilization of resources from key industry stakeholders. Sustained educational efforts in the form of improved technical skills education and continuous development of basic abilities will ensure talent pipeline for the IT/ITeS industry. Likewise, this group will be the venue for infrastructure development in Bangladesh, while allowing for government to more effectively utilize available resources (i.e. land, capital, human, etc.) and improve on key ecosystem areas such as transport systems, which would facilitate greater labor force mobility. *The proper implementation of these strategies is again dependent on the effective mobilization of resources from the most relevant industry and local government stakeholders.*

Finally, the **Long-Term** action group is intended to ensure the continuity and growth of the services outsourcing industry in the country. This group is essential in preparing the industry for longer-term sustainability and eventual maturity. This phase should also consider and expect conditions which are normal for a maturing services outsourcing sector (e.g. plateauing of growth rates, saturation of primary delivery centers, higher industry attrition, etc.). In this group, additional niches will need to be identified to ensure long-term sustainability. This highlights the importance of *Process and*

Service Delivery Innovation and continuous effort to improve Bangladesh's delivery capabilities in the long term.

Conversely, the driving force determining the success of these action items will be derived from the consolidated efforts of relevant stakeholders and key institutions in Bangladesh. There has to be a process and general consensus that must be established prior to the execution and implementation of the Industry Strategy Roadmap. The continuous reinforcement of ideals and goals throughout the Roadmap, from pre-implementation to post-implementation, will also aid in ensuring successful implementation of action items.

Further, and in the present environment of the country, it was learned that consensus building may be better approached with a *trickle-up approach*, where consensus is generated form the grassroots, filtering upwards towards the higher industry and government authorities.

As explained, successful implementation can only happen through the concerted efforts all relevant stakeholders and key institutions.

Each of the distinct entities within each group, must perform their intended functions accordingly and without bias. All industry-building objectives and tasks, must be beneficial for the entire industry, and must support industry development, and not favor a particular sector or segment of the industry. This process is significant in *sharing industry-building responsibilities*, which often falls on only one entity. Thus, in this shared or *collaborative approach,* all stakeholders are aware of the systematic process of the implementation and will also be able to provide meaningful input.

Lead Industry Agency Organizational Hierarchy (Proposed)

Figure 14: The Board of Directors and Executive Committee
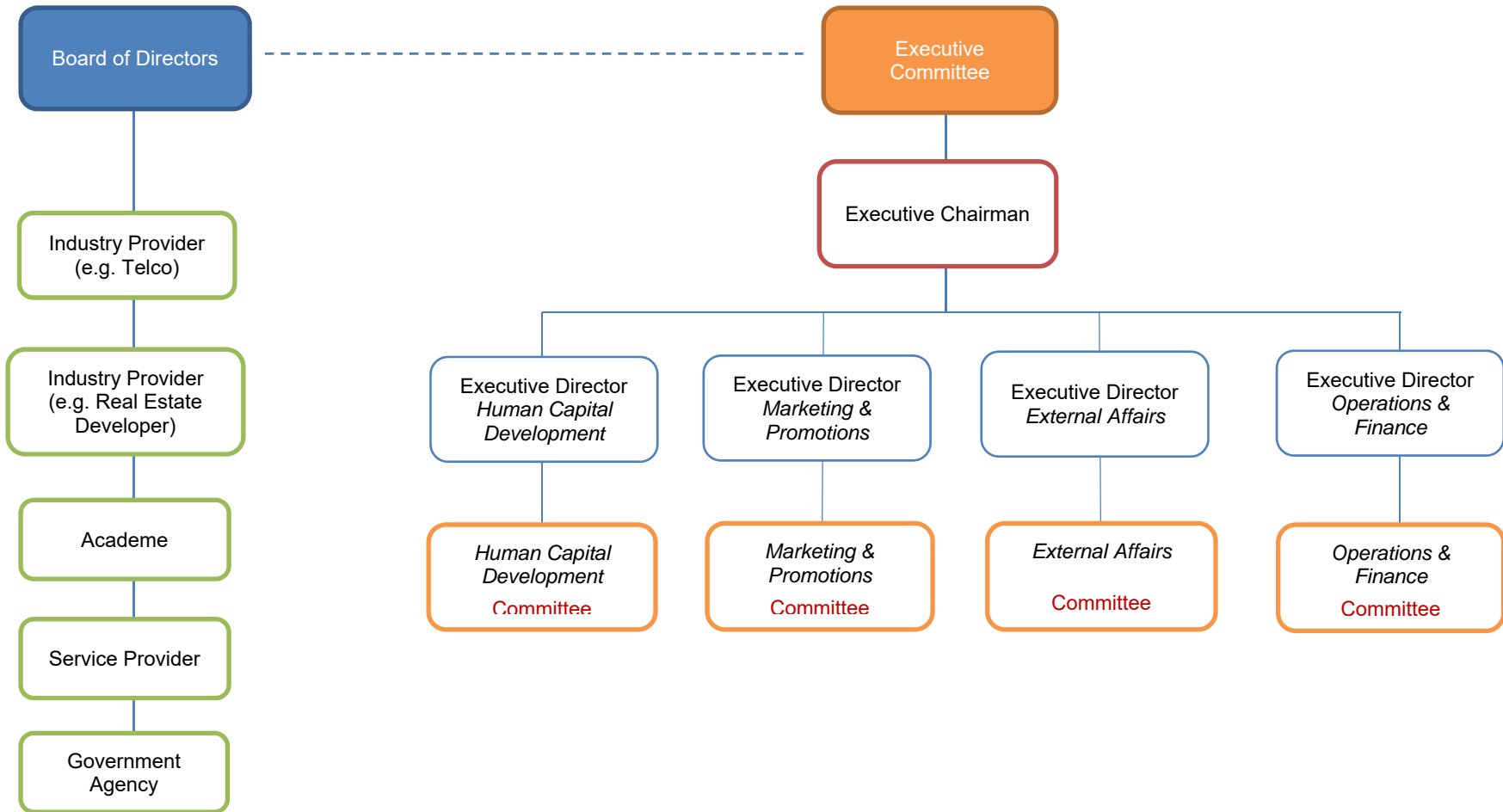
Figure 14 above shows an organizational hierarchy with certain components based on best practices that have worked well for the industry's leading global IT/ITES associations. In the context of Bangladesh, this *hybrid organizational structure* can be considered in developing the country's own *Lead Industry Agency*. The organizational structure is both simple, and pragmatic in the sense that each functional group (committee) is able to effectively cover the various ecosystem components composing the services outsourcing industry of the country. Based on the analysis of the various stakeholders and the inter-workings between the government, ICT Division, BCC and various industry associations, this lead industry agency role could be performed by BCC

Progressive lead industry agencies globally have been instrumental in ensuring the development of the country's IT-BPM industry, through aggressive industry-building initiatives, sustained external marketing campaigns, and regular collaboration with academe and government institutions – all of which have enabled the sector to enhance capabilities and harness the potential of the country's IT/ITeS talent pool.

In the hybrid model above, the Executive Committee (EC), consisting of the Executive Chairman down to the individual Committee Heads, *performs a purely executor role as the Lead Industry Agency*. The committee must involve itself in regular, collaborative meetings that will discuss and act upon, the various issues and interventions, facing and required by the industry. Among the broad goals that the Executive Committee will be tasked to fulfill the following executory functions, among others:

1. Develop and mandate industry development policies and bylaws
2. Execute industry developmental plans and initiatives
3. Advice and propose industry specific incentives and fiscal benefits (for service providers)
4. Advice and propose industry specific incentives and bylaws for the protection of IT/ITeS workers
5. Advice and execute human capital development initiatives intended to uplift the local IT/ITeS workforce

The Board of Directors (BOD) *acts in an advisory capacity,* working in the background, and parallel to the Executive Committee. While the EC is tasked the execution, the BOD will ensure that the executed agendas are relevant, substantial and directly benefit the industry. The BOD, because of their more specialized and technical understanding of their respective industry sector, can provide more pragmatic advice on industry issues, and can more effectively guide the EC in executing developmental actions as the Lead Industry Agency. The BOD, can be viewed as an *advisory body with relevant subject-matter-expertise*. Moreover, the BOD can also use its advisory capacity to guide the Lead Industry Agency in navigating through current industry issues, as many of these issues often require immediate action or intervention.

The significance of BOD members as technical experts, cannot be understated. The BOD member from the Academe for instance, can provide the *most relevant* and necessary insights for curriculum and up skilling initiatives, given that member's familiarity with students and the country's academic platform. The same principle applies for the Telco provider, the Government agency and the service provider members. Further, having a BOD member from Government can also allow for the pertinent Government agency to work more closely with the Lead Industry Agency. This can allow for a more *proactive relationship* where Government works hand-in-hand with industry, is better informed of marketing and promotion efforts, industry development plans and human capital initiatives. This closer relationship, can facilitate for better interaction between the private and public sectors, and possibly lessen bureaucratic complications.

The organization hierarchy of this *proposed* Lead Industry Agency runs parallel from Executive Committee down to the Board of Directors. This hybrid model is one which industry stakeholders in Bangladesh may consider and base their decision upon, when creating an IT/ITeS industry body. With a dedicated agency (industry organization body) that is tasked to *focus exclusively on the unique needs of the IT/ITeS sector in Bangladesh, a more focused and efficient means of industry development can be achieved.*

In the following section, this study provides the Industry Strategy Framework which serves as a high-level implementation guide for the proposed Lead Industry Agency and relevant stakeholders. The Framework allows the implementation personnel to keep track of respective developmental goals through the near, mid and long-term horizons. The *underlying purpose* of this framework is to lay the course for the developmental foundation and necessary steps (action items), that the country and industry must take to arrive at its intended goals. These activities involve not only the efforts of the Lead Industry Agency, but also of the relevant public and private institutions, the academe, individual stakeholders, and private industry players.

Table 12: Bangladesh IT/ITeS Industry Strategy Framework and Roadmap

Preliminary Strategy Framework and Roadmap to Develop the IT/ITeS Industry of Bangladesh			
Near			
Objective	Action Items & Activities	Key Stakeholders & Responsibilities	Milestone & Achievement Parameters
Mission & Vision Setting	• Identify strategic goals and objectives to develop Bangladesh IT/ITeS Sector. • Identify developmental hindrances affecting growth & sustainability of IT/ITeS Sector.	• BCC and relevant industry associations – Align strategic initiatives of diverse sectors and identify growth hindrances for each industry subsector.	• Stakeholder and Industry-approved Mission and Vision that will guide subsequent steps of Industry Development.
Develop Lead Industry Agency (BCC)	• Continuous collaboration with relevant industry stakeholder to identify sector/sub-sector initiatives to develop IT/ITeS industry. • Highlight ICT Policy No. 158 which states the need to *establish an authority/body on ICT Industry Development.* • Specify roles of each aligned sector/ organization and stakeholders in carrying out the mandate of the Lead Industry Agency. • Collaborate with Academe to align industry talent requirements, with talent output of Academic sector.	• Develop interaction & feedback platform that will facilitate exchange of ideas that will better identify stakeholder responsibilities and tasks that will assist the Lead Industry Agency in executing its initiatives.	• Enhance presence of Lead Industry Agency across relevant institutions and sectors in the country. This will hasten sector development and allow for faster consensus building.
IT/ITeS Industry Profiling	• *Comprehensive Industry Census* of current service providers and headcount to properly establish industry benchmarks and forecast industry supply/capacity. • Market segmentation of current Industry (revenue & headcount) and projected revenue forecast (5-year horizon).	• Lead Industry Agency in collaboration with subsector groups – Establish a comprehensive and verifiable statistics database.	• Market size (revenue & headcount) and employee statistics with 5-year forecast.
Industry-Academe Alignment	• Establish partnerships and identify collaborative interventions between Academe and Industry (HEIs and Service Providers). • BCC can advise on specific training courses to be added to the curriculum, to better prepare students for IT/ITeS employment. • Analysis of industry talent needs and align academic	• Lead Industry Agency, BCC and BANBEIS – Collaborate and create training programs to align the capabilities and skill of talent pool towards the specific industry needs.	• Create formal and working partnerships between IT/ITeS industry and academe.

	platforms (and curriculums) to address these needs.		
Short Term Policy Framework	• Enhance Fiscal Incentives Policies (i.e. tax holidays, duty-free status on equipment, etc.) • Review tax/incentive policies and their efficacy. • Propose reform options for investment incentives and tax policies. • Benchmark existing tax incentives with those of other mature & emerging service provider nations, such as India, Philippines and Sri Lanka. • Improve legal framework & streamline processes for businesses, transparency in the regulatory systems, and establishment of clear and centralized requirements for business operations to give parity between local and foreign businesses. Simplify technical business procedures - licensing, business permits and tax filing, etc.	• Lead Industry Agency should collaborate with government to identify policies that directly affect industry and propose policies & incentives that can accelerate IT/ITeS development.	• Create a more conducive investment climate, with specific provisions and value-ads for IT/ITeS companies. This will lead to better operational performance of local players and attract more foreign providers to consider the country.
Short Term Marketing and Promotions	• Develop and strengthen the 'Bangladesh Outsourcing' brand, so it can create an identity in external markets • Identify strategic geographies and industry verticals as targets for Marketing and Promotion efforts • Participate in select roadshows and trade events (local & international) • Partner with embassies and trade missions in specific countries where Bangladesh IT/ITeS sector has the *realistic potential* to penetrate as export targets.	• Lead Industry Agency • External Third Party Marketing & Promotion Groups • Industry Analyst Groups	• Identify and develop current Industry differentiators. • Identify and develop Value Proposition for investors. • Create Brand Visibility. • Promote 'Bangladesh Outsourcing' brand to external audience.
Mid			
Develop Talent Supply Pipeline	• Identify talent/skill needs of industry and align with talent pool.	• Lead Industry Agency with Academe and BANBEIS	• Talent Benchmark Index compared with leading service delivery locations

			Internal (industry) Skill Monitoring Platform • Talent Assessment Platform
	• Implement *skills monitoring platform* to ensure that quality of local skills are sufficient and capable of meeting international standards & requirements (mid/long-term).		
	• Diversify services portfolio, for country to better utilize large talent pool. Further develop other industry segments to expand revenue contribution.		
	• Increase English proficiencies to expand market share in lucrative North American services outsourcing market.		
	• Launch more relevant and more frequent industry job fairs and branding campaigns.		
	• Integrate technical skills development modules into curriculum of relevant course disciplines in country HEIs.		
Infrastructure Development	• Expand Internet penetration to increase ICT adoption and literacy. • Improve Telco & Utilities redundancy across alterative IT/ITeS locations. • Establishment of alternative service delivery locations - which could offset supply constraints of country's *only* delivery hub (Dhaka). • Improve Power generation & distribution system. • Improve inter/intra city transportation system for greater labor pool mobility.	• Lead Industry Agency - As an industry policy advocate to Government, and working with Private Sector (i.e. Property developers, Telco & Utility Providers, etc.)	• Expand Telco and Physical Infrastructure across country to allow IT/ITeS industry to spread beyond Dhaka. • Develop and complete construction of existing/planned IT Parks and buildings (e.g. Janata Tower).
Optimize Usage of Commercial Areas	• Build more Class A office spaces. Complete development of existing (unfinished) IT Parks and training facilities.	• Lead Industry Agency in collaboration Government and Private Sector (i.e. real estate developers).	• Develop commercial spaces specific for IT/ITeS operations, including IT Parks & training facilities.
Mid-Term Marketing and Promotions	• Promotion of Bangladesh IT/ITeS industry to key geographic markets. • Host and deploy roadshows to expand market reach. • Participate in international IT/ITeS conferences/forums.	• Lead Industry Agency in collaboration with Privates Sector and industry stakeholders – Arrange & host symposiums and international conferences to better	• Reinforcement of present and future industry differentiators. • Reinforcement of the 'Bangladesh Outsourcing' Brand to both internal and external audiences

		highlight the service delivery capabilities of the sector.	• Maintain visibility across target markets.
	• Organize international conferences in-country, to showcase the capabilities local IT/ITeS sector.		

Long-Term			
New Capabilities Development	• Identify new services outsourcing niche areas for growth source. • Identify specific service/process areas for long-term specialization (market focus).	• Lead Industry Agency in collaboration with external Industry Analyst Groups that will allow the Agency to identify and chart future market targets.	• Expansion (diversification) of service delivery capabilities and offerings.
Long Term Strategy and Policy Planning	• Assess current situation. • Set new targets and vision. • Devise long-term growth plan.	• Lead Industry Agency in collaboration with relevant stakeholders - Identify the growth and future capacity of the sector, its thresholds, and new propositions the country can leverage to promote the industry.	• Growth and Sustainability Strategy.
Continuous Marketing	• Re-orient marketing & promotion efforts to *re-introduce Bangladesh* and its 'New Capabilities' and value propositions to internal and external audiences. • Design long-term marketing and promotion strategies that are more specialization-driven and niche-based.	• Lead Industry Agency with support of stakeholders to continually develop and promote sector to domestic and external audiences.	• Sustain and re-invent when necessary, *sector identity* in both local and external markets.

Source: Tholons Research, 2015

Recommendations

STP (Software Technology Park)

The STP entity should set way to make an effective and seamless single window clearance system to enable, support and promote exports of software, BPO and professional services. The STP scheme should provide various benefits to the registered units, including 100% foreign equity, tax

incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting.

STP should effectively implement a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through nodal agency. It should run like the best of private organizations focused on the needs of the hundreds and thousands of IT and BPO companies mushrooming.

Comprehensive set of support services for potential locators

Bangladesh can take industry leading learning by identifying talent in IT/BPM from across the globe that would be interested in moving to Bangladesh on client engagement / sabbatical. However, this would require identifying, prior discussion and funding models to help locators find this service seamless and cost effective. Bangladesh should provide R&D grants and subsidy to cover the cost of talent acquisition and hosting.

1. Engage with marque clients in IT/BPM on specific engagements
2. Review the business need and identify up to five clients
3. Map the requirement for talent at mid to senior management
4. After a talent gap analysis, identify talent that needs to be acquired and made available in Bangladesh
5. Draw a list and initial agreement with identified talent and a cost assessment
6. Provide grant and subsidy for the first year to cover the delta in talent cost to make it competitive and attractive for the lead locator to be incentivized to locate the program in Bangladesh.

Tholons estimates that this delta cost that needs to be covered could range from USD 300,0000 to USD 500,000 per client. A budget of USD 1.5 million to USD 2.5 million should be able to cover and lay the foundation for moving a core group of five clients into Bangladesh. This program can be aligned with and will augment the CEO Outreach Program.

As previously mentioned, Bangladesh has centered efforts in developing ICT adoption in the country and the ICT industry in particular, through the *'Digital Bangladesh'* campaign. While an overarching country goal to adopt and utilize technology in the country's government and business sectors, it provides complementary support to the IT/ITeS industry through initiatives such as the use of ICT enabled education and the establishment of an incubator in Dhaka to support ICT based industries. Also, in developing local ICT talent, government has launched the *'National ICT Internship'* program which will develop the professional capabilities of ICT employees. Likewise, worth mentioning is the *LICT's Top-Up IT Training* initiative - an up skilling program that aims to convert ICT / CSE / non-IT science graduates into IT services professionals by providing the

necessary and relevant IT services skills training. The LICT also facilitates the Foundational Skills for ITES Segment program, which aims to *develop the foundational skills of 20,000 ITES professionals in a way that is closely aligned with the requirements of global markets, and provide training grants to companies meeting a minimum set of skills development and hiring criteria, and support the GOB's existing National ICT Internship Program administered by BCC.*[36]

Though government's current initiatives *do provide* direct support to the IT/ITeS industry, the *Digital Bangladesh vision can be viewed as the unifying and common platform from which 'all things IT/ITeS related' can leverage and complement their developmental strategies on.*

National Occupational Standards (NOS)

Determining of various quality and proficiency standards that exist, and identifying the particular standard, that is *relevant to Bangladesh or its labor market* can be a significant advantage for the fledgling service outsourcing sector of the country. For instance, if the local industry ambitions to provide product design or engineering support services to outsourcing nation, then local providers should be abreast of the *National Occupational Standards* of that nation. This type of deliberate *'market orientation'* can likewise provide Bangladesh a definitive advantage over other low-cost, emerging destinations.

Creating employability for over 31,000 youths

Exciting times for Bangladesh! There are various opportunities to create tech-enabled jobs for the youths in Bangladesh. Below are four of many initiatives that we believe have the potential to each create over 31,000 jobs:

1. LICT program has a strong developmental agenda. A key part is to train over 31,000 youths on foundational and industry skills. The outsourcing industry in Bangladesh is poised for significant growth over the next 5 years. With a global outsourcing market that is over USD500 Billion and India doing over USD80 Billion, Philippines over USD16 Billion and a much smaller country like Sri Lanka doing over USD2 Billion, Bangladesh has all the scope and opportunity to make this a multi-billion dollar industry (which currently stands at less than USD500 Million in Bangladesh). This outsourcing growth has the potential to employ more than 30,000 skilled and qualified resources in the next few years.

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[36] Bangladesh ICT Division. Leveraging ICT for Growth, Employment and Governance is a project of Bangladesh Computer Council (BCC) under ICT Division.

2. The Connecting Startups initiative will energize the youths to innovate and be entrepreneurs creating 1000s of startups in next few years. These startups will mostly be tech enabled digital startups. The success, growth and global expansion will depend a lot on availability of qualified and trained talent in mobile applications, social media prowess, analytical ability to do big data analytics and ability to understand and develop cloud applications. This initiative has the potential to have at least 5000 startups each employing 5 to 10 resources thereby creating over 30,000 jobs in next few years.

3. "Online Outsourcing Program" targets to train 10,000 and is an IT Services Skilling Training Program. The objective is to carry out training and mentorship leading to Online Outsourcing (OO) for Bangladesh youth and women. Online outsourcing (also referred to as "crowdsourced labor", "paid crowdsourcing", or "freelancing/elancing") is the contracting of third party workers and providers (often overseas) for IT, business process, and/or knowledge based services via Internet based marketplaces. These online task marketplaces enable clients to outsource their paid work to a global labor pool of remote workers and/or enable performance, delivery and payment for such services online. Examples of such marketplaces include Upwork, Freelancer, Amazon Mechanical Turk, CrowdFlower, etc.

   The freelancer community is very vibrant in Bangladesh and is very well connected, acknowledged and wanted in the global IT world by the SME clients. Initiatives could be launched to train more than 10,000 freelancers to align with the increased demand of SME clients in the digital world, where enterprises are embracing innovative solutions to disrupt existing businesses. We believe that digital / SMAC training will be a great add-on and could easily get the interest in freelancers climb to over 30,000 requirements in next few years.

4. In this strategy document, we talk about the opportunity for Bangladesh to leapfrog and adopt digital technology for domestic IT requirements. Beyond the various industries who find it very complex and expensive to buy and adopt current IT - it will be relatively simple and mostly "pay per use" because of digital IT. There is significant government work that could be outsourced in line with best practices we have seen globally. Domestic initiatives in finance, health and education could much easily be implemented through digital solutions. A lot of industry work is now becoming technology - creating the need and opportunity for digital talent. The manufacturing industry will require IoT solutions to make it more competitive and deploy best practices that are starting to be used by companies globally. The digitalization of government and citizen services also has the potential to

create the demand for skilled IT and ITES talent. This digital IT adoption can easily absorb 31,000 to 60,000 people in next 5 years.

These various opportunities have the potential to make more than 100,000 youths employable in next five years. The strategy, marketing, promotion and implementation should be aligned to nurture the above four key opportunities areas.

Marketing and Promotions

An industry marketing and promotion plan should be developed under the aegis of LICT Contract "Consulting Services for IT/ ITES Industry Promotion Services on Marketing and Communications". The plan needs to address key stakeholders both internal and external, covering but not limited to:

1. Prospective investors and clients
2. Existing clients of the industry
3. Talent pool in Bangladesh
4. Government Stakeholders
5. Media – Both Digital and Traditional
6. Analyst Firms like Gartner, IDC, AT Kearney, Tholons, ISG, Everest, KPMG, NelsonHall, Ovum, NOA, SIG, IAOP and others.
7. Industry marketing and promotion agencies in key outsourcing countries.

The marketing plan should address near, mid and long term plan and roadmap with specific recommendations, content and support for the following activities:

1. Branding and Marketing for Bangladesh
2. Comprehensive Digital Marketing
3. Development of Audio and Visual Marketing Collaterals
4. Media and Public Relations
5. Media, Public Relations and Press Releases
6. Recommend, develop and support key Events both inside and outside Bangladesh to include the first in-country event for the industry and other events outside to target clients, investors, industry best practices/networking and innovation/entrepreneurship.

In terms of events marketing and promotion, there are three classifications of events that Bangladesh should focus on:

1. **Client Centric –** This is where service providers and key stakeholder in Bangladesh have the best opportunity to meet and network with prospective clients in the targeted client countries.

2. **Industry Best Practices/Networking Events –** These events predominantly have service providers, analysts and few clients. This is a good opportunity to understand industry best practices, share the Bangladesh value proposition and network with analysts, clients and ecosystem partners.

3. **Innovation and Entrepreneurship –** These are events focused on innovation, startups and innovative products. With the digital technology becoming the way of life for future IT/ITeS, participation in these key events become critical.

These are the specific type of international events that the country should dedicate their promotional resources. However since there is limited budget for this type of engagements Bangladesh should be able to align the time of their client visits with the international events in accordance to the CEO Outreach program. This will help Bangladesh maximize their allocated budge and also to connect to more clients. As such, the country should prioritize 2-5 events where they will benefit the best. Collaboration with trade associations with other countries like IBPAP, NASSCOM, IDB etc.is a good way and platform to share industry best practices and be part of the ecosystem. Tholons recommends the following events:

1. **Client centric**
   - Japan   - Japan IT Week
   - Middle East   - Gitex Event
   - UK   - Gartner Business Process Management Summit
   - US   - World BPO/ITO Forum
                              - International Outsourcing and Shared Services Forum

2. **Best Practices and Networking events**
   - India   - NASSCOM India Leadership Forum
   - Philippines   - International Outsourcing Summit

3. **Innovation**
   - India   - NASSCOM Product Conclave
   - US (Silicon Valley)   - TieCon Global
                              - Y-Combinator Demo Day
                              - 500 Startup Demo Day

In Tholons view business development is very critical part beyond marketing and promotion. The marketing and promotion plan should be aligned and implemented as part of the CEO Outreach initiative of the LICT program.

There are numerous ways to develop the Bangladesh's IT/ITeS industry, though a great many of these approaches may not be entirely feasible for the country. As such, the proposed Framework above takes into account the prevailing environment and industry dynamics in Bangladesh, and crafts action items that are most suitable and appropriate to the needs of the local IT/ITeS industry.

These action items are also predicated upon the ability of the responsible stakeholders, to effectively fulfill their respective tasks and appointed functions. Further, Tholons must reiterate, that the collaborative efforts of the entire industry - *relevant stakeholders and public institutions* – is absolutely critical for the success of the Framework.

A transparent execution environment must also be in place, while previous inefficiencies and developmental bureaucracies, from both public and private sectors, must be entirely discarded. In this proposed scenario, all developmental steps must be taken in order to reach a common end, with all stakeholders recognizing that the success of the industry cannot be achieved by shortcutting or skipping any one step. Each of the major components in the Framework likewise represents a foundation where the IT/ITeS industry is built upon, and one missed area can possibly collapse or lengthen the pace of industry development.

Ultimately, all relevant stakeholders must realize that successful industry building, regardless of location, regardless of nation, is always a shared responsibility.

Diaspora (NRBs)

Most of the successful outsourcing destinations have effectively used the Diaspora to develop and build the IT/ITES Industry. Non-Resident Bangladeshi's (NRB's) are a good source to tap. There are quite a few small and medium enterprises headed by NRBs and also there are many NRBs in pivotal position in Corporate America and Global 2000 companies across the globe.

Many heads of the state, when leading business delegations highlight the shining star industries. Bangladesh Prime Ministerial Delegation could highlight and speak well of the RMG and IT/ITES Industry.

Data Collection Framework

Beyond ensuring the continuous development of the industry through policy, infrastructure development, talent pipeline improvement, among others – industry stakeholders should also prioritize the regular collection and updating of industry-relevant data. The data gathered will prove useful in not only tracking growth milestones, but likewise can serve as a *gauge of the industry's readiness to expand*. Once gathered, this data should then be regularly updated, ensuring that accurate industry statistical information is readily available to all interested parties (i.e. external investors, local policy makers, industry providers, academic institutions, etc.)

As an emerging outsourcing destination, it is also imperative for Bangladesh to be aware of its inherent capabilities, and how best to leverage on these proficiencies. Having a robust data collection framework can assist with this task, as it allows stakeholders to *keep track and monitor* industry output and delivery performance, with the collection and analysis of industry growth metrics (i.e. revenue, headcount, sub-sector performance).

Data Collection Methodology

Table 13: Secondary Data Update Calendar

Secondary Data Gathering			
Data	**Governing Body**	**Data for 2015**	**Data for 2016**
IT Exports • IT/ITeS Export Revenues	Export Promotion Bureau, Lead Industry Agency	Q1 of 2016	Q1 of 2017
Higher Education Institution Metrics • Total HEI Enrollees & Graduates • Graduates Segmented by Course	BANBEIS		
People Matrix • Total number of employees in IT/ITeS Exports • Number of employees in IT Exports • Number of employees in ITeS Exports • Number of employees in other Export Services	Industry/bdjobs		

Industry Metrics • Number of IT/ITeS Companies • New Industry Members • Information on New & Old Companies	Industry/Sub-Sector Associations		
Freelance Segment Data • Number of Freelancers in Bangladesh • Segmentation of Jobs by category • Segmentation of Freelancers by demographics	Elance-oDesk, Lead Industry Agency		

Source: Tholons Research, 2015

Table 13 above shows the secondary dataset that can be utilized to validate and support findings from primary data gathering exercises. Performance metrics of the previous calendar year for each IT/ITeS subsectors (i.e. ITO, KPO, and BPO) should be finalized and consolidated by the Lead Industry Agency during the first quarter of the succeeding year. The secondary data falls under category, and as seen in Table 6, data for year 2015 should be finalized during the first quarter of 2016, the same schedule holds true for succeeding years.

IT/ITeS Export Revenues is one of the crucial data points that provides true indication of sector growth. This data is the responsibility of the Export Promotion Bureau of Bangladesh, and should be updated annually and analyzed alongside Industry Metrics. Monitoring export revenue growth will help governing bodies and stakeholders better project supply and demand trends, while allowing them to track performance milestones and effectiveness of development strategies.

As mentioned, increased revenues and sustained sectorial growth are only possible if there is a sufficient and qualified talent pool available for the industry. Thus, an updated inventory of HEI enrollees and graduates, under the responsibility of BANBEIS, is critical to monitor the talent pipeline that is intended to fuel the country's IT/ITeS sector. This inventory should likewise be segmented according to course disciplines, as identification of the current and future course trends, can allow stakeholders to properly plan for target industry niches. There is little use for instance, to focus on a niche service group, that the local talent pool does not provide the skillsets to process effectively. Further, understanding the HEI graduate profile also gives stakeholders visibility on which skill sets the industry is requiring and which courses they can provide additional or specialized training for, to meet those specific industry skill requirements.

With IT/ITeS Export Revenues and HEI Metrics in hand, the proposed Industry Database can begin to take form. The next dataset to be consolidated and merged should be the statistics derived from the Industry Metrics category. This dataset is based on and verified by each respective industry association or subsector group. Ideally, revenue figures collected by the subsectors can be

reconciled with export revenue figures from the Export Bureau. The industry Metrics dataset should also monitor the number new and old (closed) IT/ITeS companies in Bangladesh, to properly measure growth. This is currently an issue in Bangladesh, where many small service providers are not part of any formal industry association, and go through their entire corporate life-cycle under the radar. The Headcount data point under this category will also be crucial in measuring sector performance and growth.

The underlying objective of developing a consolidated Industry Database, and updating the identified datasets is to measure and monitor IT/ITeS industry growth and performance. Specific policies and interventions can then be drafted, based on the analyzed data, allowing for a much more proactive management of the sector. Currently, this is not the case in the Bangladesh IT/ITeS industry – where different associations often have distinct (and varying) datasets, with public stakeholders forced to take a more reactionary stance, because of the uncertainty which the fragmented industry metrics creates.

Table 14: Primary Data Gathering Framework

Primary Data Gathering Framework		
Industry Survey		
Name of Company	Initial Starting Capital	Current Number of Employees
Estimated Annual Revenue (previous year)	Estimated Export Percentage of Revenue	Actual Export Revenue
Target or Expected Revenue from Exports for the Next Year	Revenue & Headcount Growth Projections	Estimated Headcount Splits across Operations
Revenue Split across Operations	Average Entry-level Salary Rates	Languages Provided in the Operations
Focus Areas of Operations	Primary Service Groups	Primary Verticals/Industries Serviced
Technical Skills Required	Soft Skills Required	Average Attrition Rate (annual)

Primary Countries/Geographical Markets Serviced	Perceived Difficulties when Hiring Employees	Perceived Strengths of Bangladesh (Talent Cost & Availability, Business Environment, Govt. Incentives and Regulations, Market Access, Industry Maturity, Infrastructure, etc.)
Perceived Risks of Operations (Crime & Violence, Natural Risks, Bureaucracy, Govt. Instability, Govt. Support, Attrition & Talent Costs Instability, High Recruitment & Training Costs, Inadequate Infrastructure, etc.)	Challenges in own operations and across Industry (Talent Acquisition & Retention, Long-Term Strategy, Leadership Development & Retention, Process Transition, Organizational Capacity for export markets, Regulatory Challenges, Expansion of Service Portfolio, Attraction of New Clients, Growth Strategies, etc.)	Perceived view of Government and Institutions to facilitate company and industry growth and development. (Tax incentives, training subsidies, marketing and promotions assistance, etc.)

Company Growth & Performance	Service Delivery Profile	Perceptions

Source: Tholons Research, 2015

Under the Primary Data Gathering Framework, periodic (annual) industry survey should be conducted, across as many possible respondents, and across IT/ITeS subsectors. The results of this survey, are intended to monitor overall industry performance, and identify any conditions or trends which may adversely affect the trajectory of the sector. A very effective platform for conducting the survey would be to design and roll out the survey among all IT/ITeS companies for an annual IT/ITeS Awards.

Table 14 above also segments the Industry Survey platform according to data fields that correspond to specific performance or operational aspects of an IT/ITeS provider. For instance, the data points highlighted in blue, provide indication of Company Growth & Performance. This is a straightforward measurement of revenue and headcount. The data points from this group, can then be correlated with the information from the next data group, highlighted in red, or the field which provides indication of the company's Service Delivery Profile (i.e. skills, proficiencies, capacities, etc.).

In the Service Delivery Profile group, focal points pertaining to company operations are identified (e.g. primary service groups and target industry verticals). Drastic shifts within these data fields can give valuable insight to not only the delivery capabilities of the provider, but likewise, to the positioning of the individual provider in its target markets. For example, a service provider who had a large staff the last several years, providing F&A services to a large British accounting firm, may find the number of its personnel abruptly reduced, because of changes in legislation in the UK, and the emergence of alterative FAO destinations such as Sri Lanka. These are all external

considerations, which this data group can provide insights to, providing individual companies and industry leaders the quantitative data that can be used as a foundation for prudent judgment.

The Perceptions group is then intended to capture the qualitative insights of industry players, drawing relevance from their 'perceived insights.' This aspect is equally important in these type of industry surveys, as a purely quantitative approach to 'describe' the sector, often does not explain the entirety of the industry. This is especially valid in the case of Bangladesh, where the emerging IT/ITeS sector, will undoubtedly report moderate numbers in its current state, though the qualitative perceptions of providers may otherwise indicate a much brighter and dynamic future.

It must be noted that for the results of this type of survey to be *useful*, that both quantitative and qualitative findings must be updated on regular (annual) intervals. In particular, comparing and relating the findings of the previous years with the current, can provide and indicative representation of industry movement whether it be progressive or regressive.

The responsibility of gathering the necessary data, running the Industry Survey, consolidating results, and the distribution of findings and analysis is currently being done by Tholons, however after four years starting 2014, the responsibility will transition and lie ultimately in the hands the country's IT/ITeS industry governing bodies and the Lead Industry Agency.

Industry Statistics List

Table 15: Proposed Industry Statistics for Regular Tracking

Suggested Data	Source Institution
• Total Tertiary Graduate Output Segmented by Discipline	Bangladesh Bureau of Education Information and Statistics Directorate of Secondary and Higher Education
• No. of Registered IT/ITeS Companies • Approx. IT/ITeS Revenue Segmented by Domestic and Exports • Approx. IT/ITeS Revenue Segmented by Major Service Line • Approx. IT/ITeS Revenue Segmented by Vertical • Total Employed in IT/ITeS Sector with Segmentations per Service Line • Average Attrition Rates	Bangladesh Association of Software and Information Services (BASIS)
• Total IT/ITeS Exports	Bangladesh Central Bank/ Export Promotions Bureau
• Total Freelance Outsourcing Revenues	Freelance Companies and Online Platforms (e.g. Elance-oDesk)
• Other relevant data for the IT/ITeS Industry	BACCO, BCS, ISPAB, BBS

*This statistics have been shown across the deliverable with its appropriate discussions and explanation. For a consolidated view of this Industry statistics please refer to **Appendix B – Key Bangladesh IT/ITeS Statistics.***

This data are to be published by BASIS

Insights Survey

The IT/ITeS Industry in Bangladesh

March 2015

Section I: General Information

1.	Name of company	Click here to enter text.
2.	Year established in Bangladesh	Click here to enter text.
3.	Number of employees in Bangladesh	Click here to enter text.
4.	Founder Name	[Click here to enter text.] Name [Click here to enter text.] Age
5.	Experience prior to founding company	Click here to enter text.
6.	Initial Capital Invested	☒ Tk. 3,500,000-7,500,0000 ☐ TK 7,500,001-12,500,000 ☐ TK 12,500,001-16,500,000 ☐ TK 16,500,001-20,500,000 ☐ TK 20,500,000-25,500,000 ☐ TK 25,500,000-30,500,000 ☐ TK 30,500,001-35,500,000 ☐ Others [Please specify range] [Click here to enter text.]
7.	Source/s of Funding	☐ Own Capital ☐ Family ☐ Local Investors ☐ Foreign Investors ☐ Bank Loans ☐ Others [Please Specify] Click here to enter text.
8.	Please provide estimates of your annual revenues (USD) for the last financial year	Domestic Revenues Click here to enter text. Export Revenues Click here to enter text.
9.	What percentage of revenues is from Exports?	☐ 10% or less ☐ 11 - 30% ☐ 31 – 50% ☐ 51 - 75% ☐ 75% and above

10	Focus areas for Operations (multiple selections allowed),	☐ IT Outsourcing Services ☐ Business Process Outsourcing Services ☐ Knowledge Process Outsourcing Services
11	Active Service Groups (multiple selections allowed)	☐ Program Development Services ☐ Embedded Software Development Services ☐ Mobile Application Development Services ☐ Enterprise/Business Applications Software Services ☐ Database Software Services ☐ Systems Software Services ☐ Enterprise Application Integration Services ☐ Middleware Services ☐ Computer Networking Services ☐ IT Consulting Services ☐ Graphic Design Production Services ☐ Animation Services ☐ Search Engine Optimization Services ☐ Finance & Accounting Services ☐ Legal Support Services ☐ Call Center Services ☐ Recruitment Services ☐ Medical Transcription Skills ☐ Document Management System Skills
12	Primary Industry Verticals Serviced	☐ Banking & Financial Services ☐ Hi Tech / Semiconductors ☐ Telecom ☐ Manufacturing, Distribution & Retail ☐ Utilities & Construction ☐ Media & Entertainments ☐ Others [Please Specify] Click here to enter text.
13	Please provide an estimated headcount split across operations	[Click here to enter text.] IT Outsourcing Services [Click here to enter text.] Business Process Outsourcing Services [Click here to enter text.] Knowledge Process Outsourcing Services
14	Please provide an estimated revenue split across operations	[Click here to enter text.] IT Outsourcing Services [Click here to enter text.] Business Process Outsourcing Services [Click here to enter text.] Knowledge Process Outsourcing Services
15	What geographies/countries are you providing services for?	1. Click here to enter text. 2. Click here to enter text. 3. Click here to enter text. 4. Click here to enter text. 5. Click here to enter text.

16	What languages are provided in your operations?	1. Click here to enter text.
		2. Click here to enter text.
		3. Click here to enter text.

Section II: Location Insights

1.	Please list the top 3 strengths that you see Bangladesh offering for the IT/ITeS Industry (Insert rank in open fields)	[Click here to enter text.] Talent cost and availability [Click here to enter text.] Favorable business environment [Click here to enter text.] Govt. incentives and regulations [Click here to enter text.] Market access [Click here to enter text.] Industry maturity [Click here to enter text.] Infrastructure (power, telecom and physical facility) [Click here to enter text.] Others: Please specify Click here to enter text.

Attribute	Bangladesh
Are crime rates and violence disruptive for the business?	Choose an item.
Are your business operations at risk of uncontrollable natural events?	Choose an item.
Are operations interrupted or affected by an unpredictable regulatory and bureaucratic environment?	Choose an item.
Are your operations at risk due to government instability?	Choose an item.
Are industry bodies and the government is supportive towards the IT/ITeS sector?	Choose an item.
Do attrition & instability in talent costs affect your operations in the country?	Choose an item.
Are recruitment and training costs in the location significantly higher than perceived?	Choose an item.
The level of infrastructure (facility, power, telecom etc.) meet your expectations?	Choose an item.

2. Please rate the following statements pertaining to perceived risks of operations in Bangladesh

3. Types of Technical Skills your company most requires [Choose as many as applicable]

☐ Program Development Skills
☐ Embedded Software Development skills
☐ Mobile Application Development Skills
☐ Enterprise/Business Applications Software Skills
☐ Database Software Skills
☐ System Software Skills
☐ Enterprise Application Integration Skills
☐ Middleware Skills
☐ IT Consulting Skills
☐ Graphic Design Skills
☐ Animation Skills
☐ Search Engine Optimization Skills
☐ Accounting Skills

4.	Types of soft skills your company most requires [Choose as many as applicable]	☐ Legal Support Skills ☐ Call Center Skills ☐ Recruitment Process Skills ☐ Medical Transcription Skills ☐ Document Management System Skills ☐ Others [Please Specify] [Click here to enter text.] ☐ Project Management Skills ☐ Oral and Communications Skills ☐ English Language Oral and Written Skills ☐ Basic Computing Skills ☐ Statistical and Analytical Skills ☐ Drawing and Creative Skills ☐ Client Management Skills ☐ Others [Please Specify] [Click here to enter text.]
5.	Perceived reasons for difficulty in hiring [Choose as many as applicable]	☐ Lack of sufficient technical skills ☐ Lack of sufficient soft skills ☐ Hiring cost ☐ High attrition rate ☐ Others [Please Specify] [Click here to enter text.]
6.	What are average salary rates for entry-level employees with 0-1 year experience?	☒ TK 15,000-18,000 ☐ TK 18,001-20,000 ☐ TK 20,001-25,000 ☐ TK 25,001-30,000 ☐ TK 30,001-35,000 ☐ TK 35,001-40,000 ☐ TK 40,001-45,000 ☐ TK 45,001-50,000

Section III: Bangladesh as a Service Delivery Location

		Attribute	High	Medium	Low
1.	Please rate the applicability of the following challenges in your operations in Bangladesh	Talent Attraction & Retention	☐	☐	☐
		Process stabilization	☐	☐	☐
		Creation of a long term strategy	☐	☐	☐
		Leadership development / retention	☐	☐	☐
		Process transition	☐	☐	☐
		Organizational capacity building for export	☐	☐	☐
		Regulatory challenges	☐	☐	☐
		Addition/ Expansion of the service portfolio	☐	☐	☐
		Others [Please Specify] Click here to enter text.	☐	☐	☐
2.	What are your growth projections for operations?	☐ Continue as-is ☐ Scale up aggressively ☐ Add more processes within the same function ☐ Service greater no. of clients and locations			
3.	Out of 100 FTEs, what is the average attrition annually	☐ 0-5 ☐ 5-15 ☐ 15-25 ☐ 25-35 ☐ 35-45			

Section IV: Suggestion & Recommendations

1.	What initiatives do you think the National Government needs to implement to further facilitate the growth of Bangladeshi IT/ITeS Industry	1. Click here to enter text. 2. Click here to enter text. 3. Click here to enter text. 4. Click here to enter text. 5. Click here to enter text.
2.	Would you wish to be contacted by the research team for a discussion on your responses (a meeting / telephonic interview of ~ 30 mins)	☐ Yes ☐ No

Appendix B

Secondary Research Sources

1. BASIS Strategy for Increasing Export of Software and Services
2. BASIS Software & IT Services Catalog, 2014
3. Perspective Plan of Bangladesh 2010-2021, General Economics Division Planning Commission Government of the People's Republic of Bangladesh
4. KPMG, Bangladesh Beckons, 2012
5. UNICEF, 2014
6. UNESCO World Data on Education, 2011.
7. UNESCO Institute of Statistics, 2008-2012.
8. BCC Info-Sarker, 2014
9. Bangladesh Economic Update, World Bank, 2012
10. e-Gen Bangladesh IT/ITES Industry Survey, 2014
11. Proposed Loan for the Second Teaching Quality Improvement in Secondary Education Project, Asian Development Bank, March 2012
12. Dr. Rokonuzzaman, *Three Decades of Software Industry of Bangladesh.* The Financial Express, 2015
13. Elance-oDesk, Inc., The Online Work Revolution: The Role of Bangladeshi Freelancers, 2014
14. IMF-WEO, 2015
15. BANBEIS
16. University Grants Commission (UGC) Reports, 2013
17. UNDP, 2015
18. Word Bank, Remittances to developing countries to stay robust this year, despite increased deportations of migrant workers. April 11, 2014
19. NASSCOM Strategic Review, 2014
20. World Economic Forum, Global Competitiveness Report, 2015
21. IBPAP, 2014
22. The UK Commission for Employment and Skills (UKCES). National Occupational Standards (NOS), 2015.
23. CBRE, 2015
24. Accenture Technology Vision 2013-2016
25. BRAC University, Pharmaceutical Sector of Bangladesh: Prospects and Challenges, 2014
26. NASSCOM Newsletter, 2014

Key Bangladesh IT/ITeS Database

1. Bangladesh Total Volume of Exports and Imports
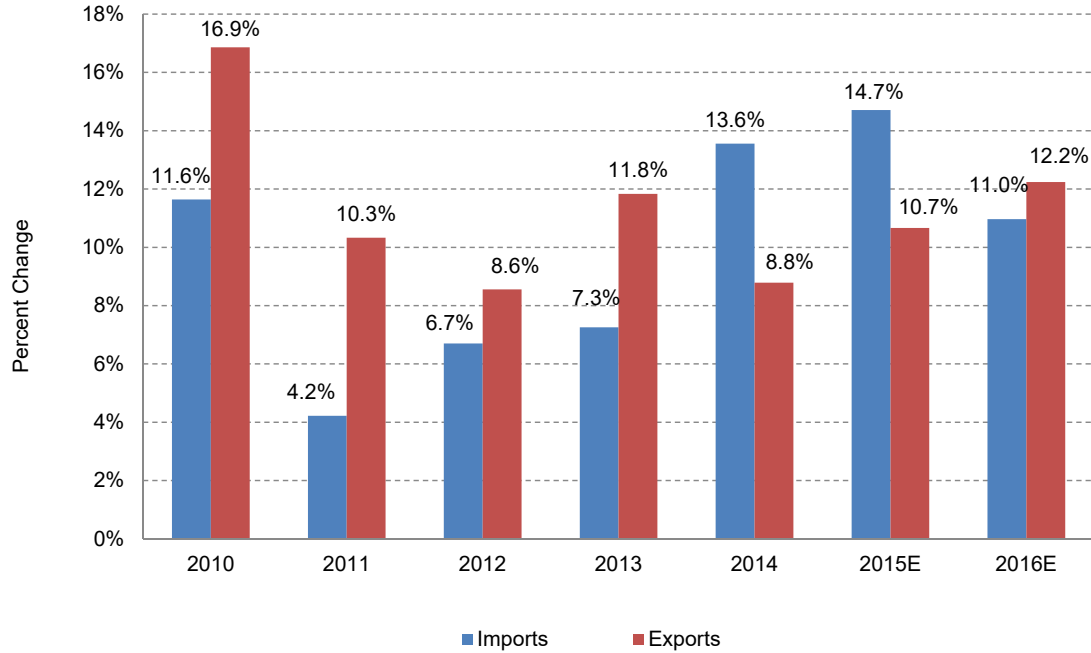
2. Bangladesh GDP at Current Prices (2010-2016e)

3. Bangladesh GDP Composition (2015)

Agriculture 18%

Industry 28%
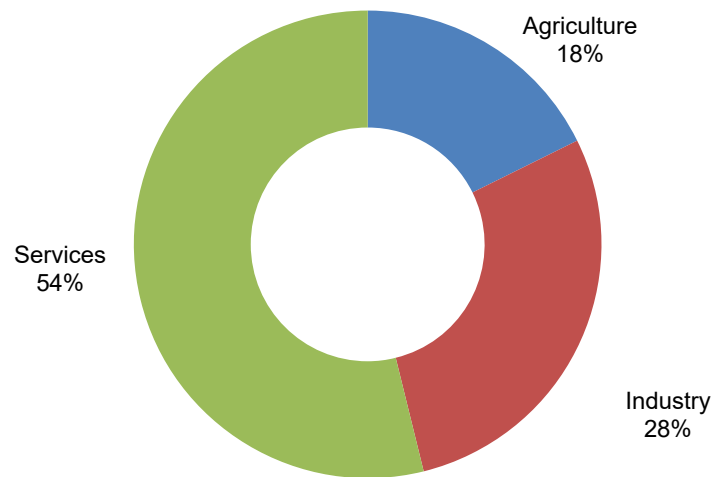
Services 54%

Source: World Bank, 2015

4. Total Commercial Services Exports (US$ millions at Current Prices)

	2009	2010	2011	2012	2013
Afghanistan	1,854	3,053	3,392	2,998	-
Bangladesh	947	1,203	1,388	1,307	1,876
Bhutan	53	67	80	97	123
India	92,137	116,460	138,161	145,648	150,926
Maldives	1,538	1,804	1,999	2,010	2,372
Nepal	601	584	775	769	962
Pakistan	2,532	2,944	3,386	3,222	3,284
Sri Lanka	1,874	2,454	3,062	3,773	4,657

Source: WTO Trade Profiles, 2015

5. BASIS Member Companies 2014 – Service Group Specialization
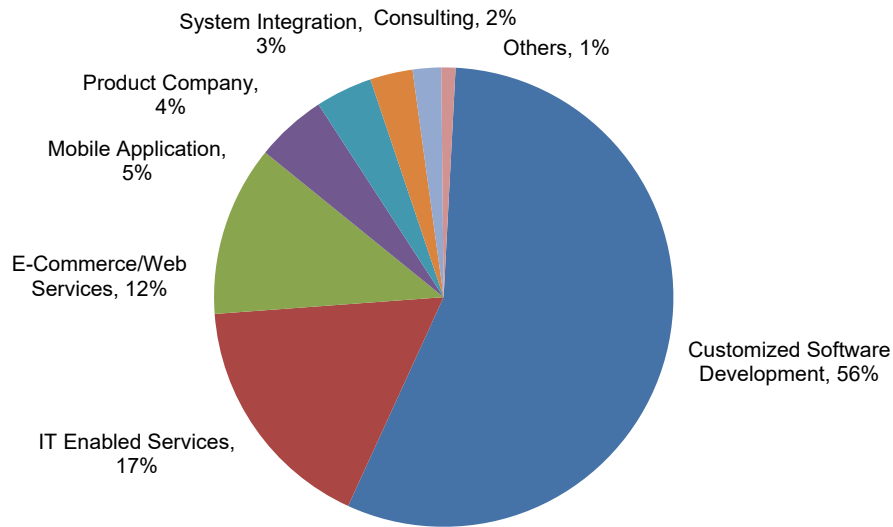
Source: BASIS Software & IT Services Catalog, 2014

6. BASIS Member Companies 2014 – Vertical Specialization
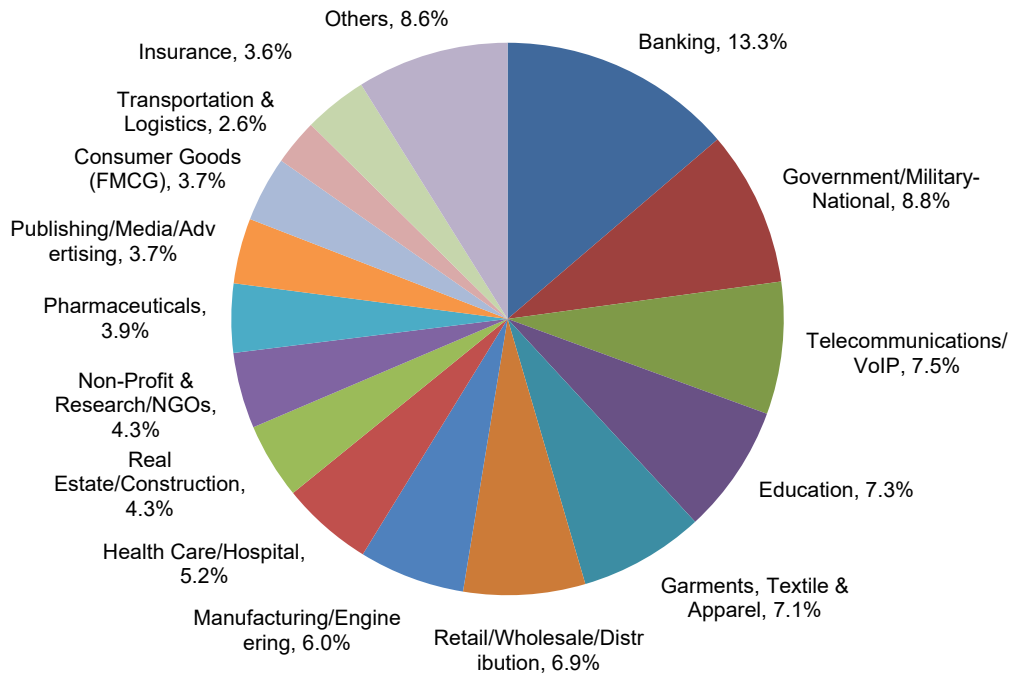
7. BASIS Member Companies 2014 – Geographical Markets of export-oriented Members
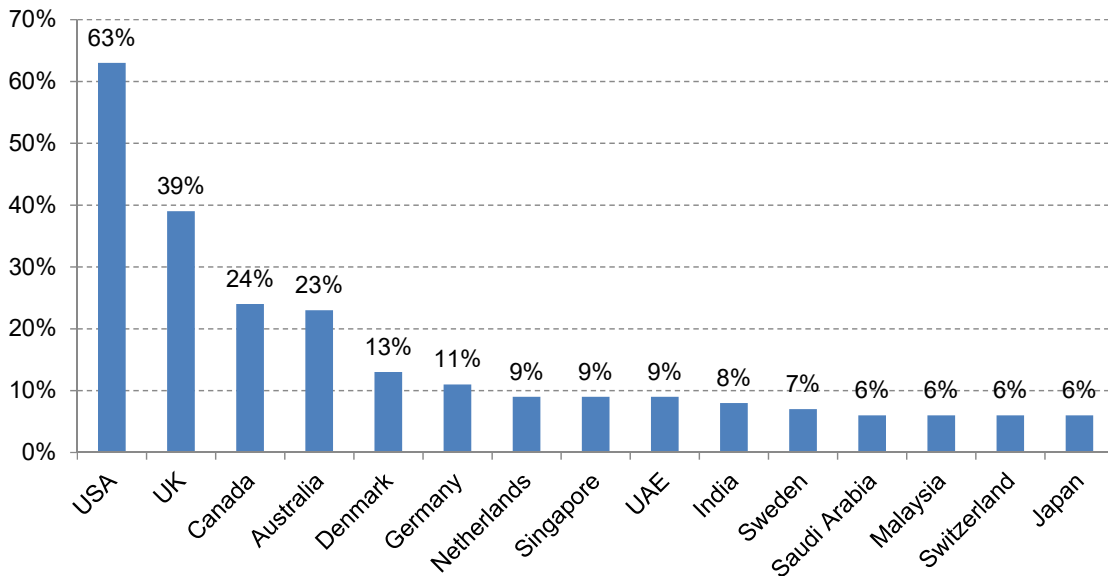
Source: BASIS Software & IT Service Catalog, 2014

8. Export Segments of the IT/ITeS Industry in Bangladesh (2013)

Export Segments	Number Employees	Revenues (US$ millions)
Online Marketplace based Freelancers	30,000	45
Offshore Development Centers or Joint Ventures	3,000	40
Organically Growing Software Product Companies	1,000	35
Organically Growing Indigenous Service Companies	5,000	30
Direct Offshore Employment	700	20
Freelancing Turned to Companies	500	5
Total	**40,200**	**175**

Source: BASIS, 2013

9. Annual Revenue per Person for each IT/ITeS Segment
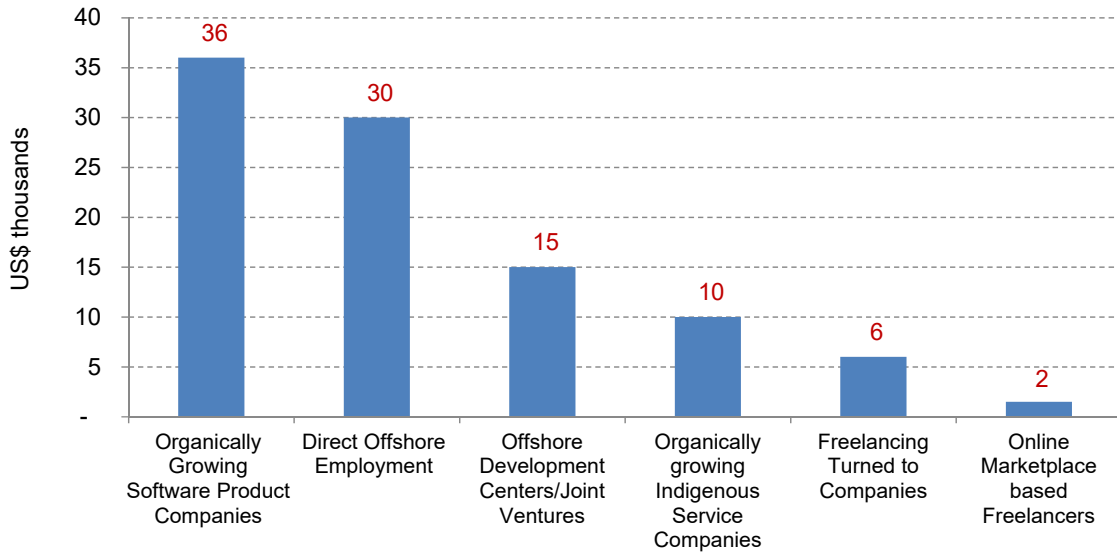
Source: BASIS Strategy for Increasing Export and Software and Services, 2014

10. Freelance Revenue Earnings by Segment in US$ millions (2010 - Q12014)
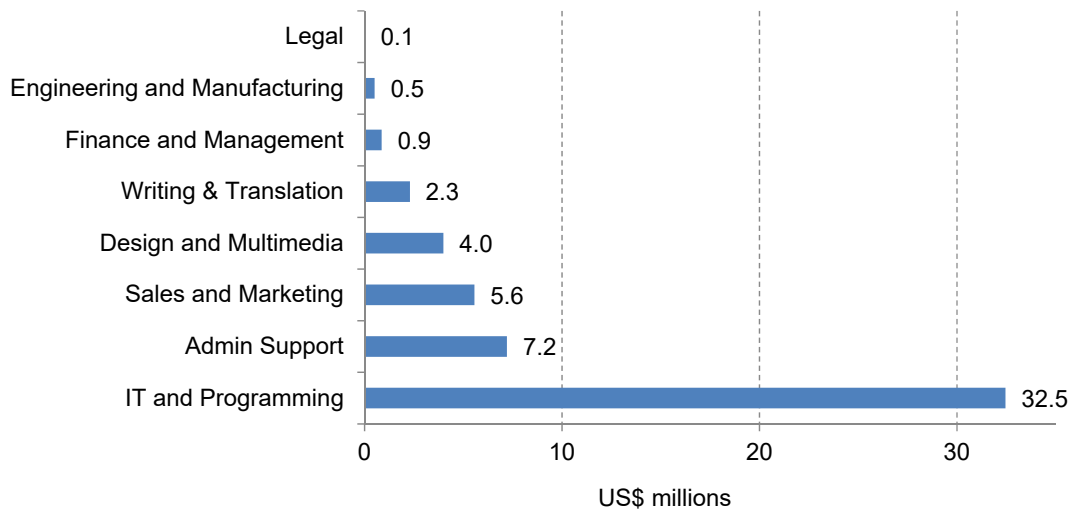
Source: The Online Work Revolution, Elance-oDesk, 2014

11. Freelancer Average Hourly Rates per Process Segment in US$ (2013)

Segment	Rate
Architecture &Engineering	11.1
Management & Finance	10.6
Legal	10.2
IT & Programming	9.0
Graphic Design & Art	8.3
Writing & Translation	6.0
Sales & Marketing	5.4
Administrative Support	3.3
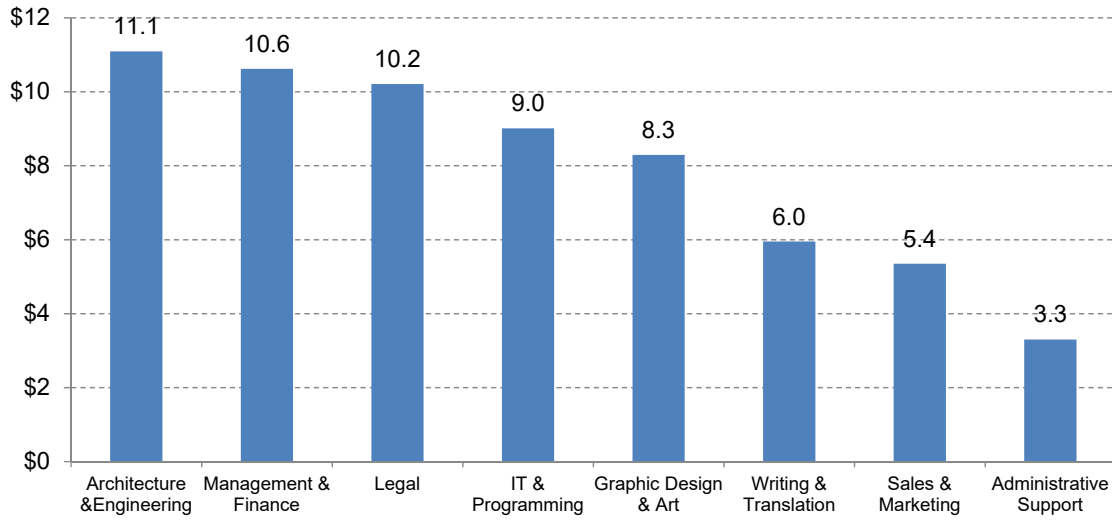
Source: The Online Work Revolution, Elance-oDesk 2014

12. Tertiary Education Enrollees (2008 - 2013)

Year	Millions
2008	1.68
2009	2.03
2010	1.81
2011	2.53
2012	2.76
2013	3.14
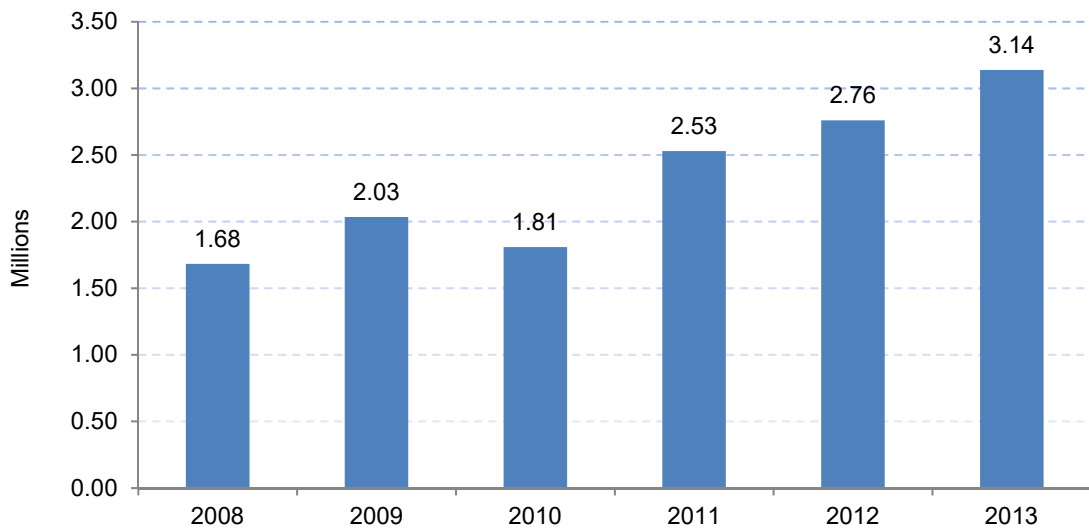
Source: BANBEIS, UNESCO, 2013

13. Total Tertiary Graduates (2010 – 2013)
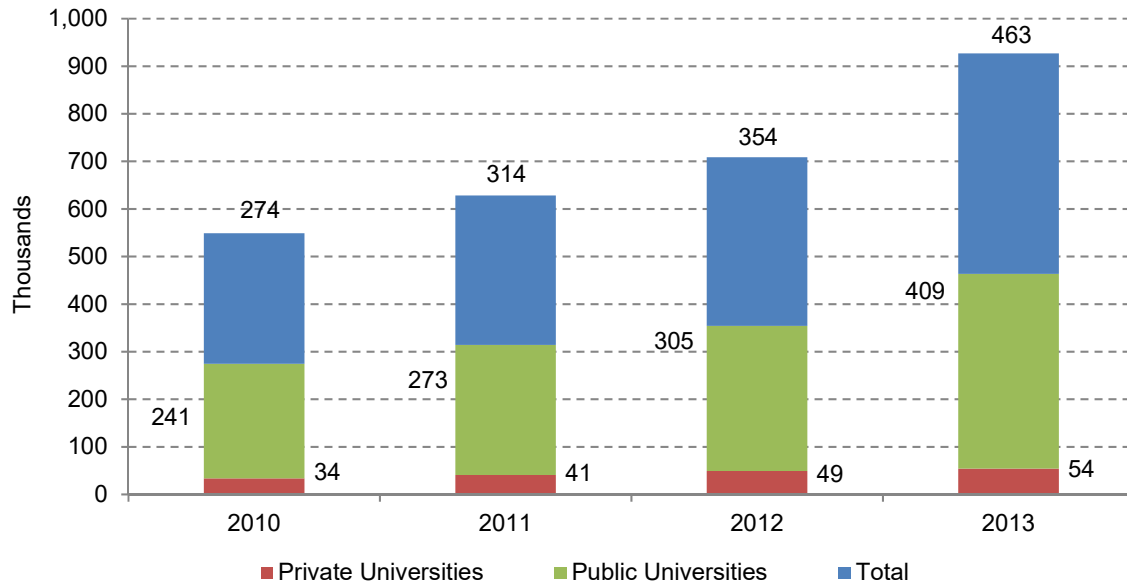
Source: University Grants Commission (UGC) Reports, 2013

14. Public Universities Academic Field Output Segmentation (2010 – 2013)

Year	Humanities	Business Mgmt. & Finance	Sciences	Engineering	Medicine	Law	Social Science	Agriculture
2010	88,798	48,254	31,212	5,656	3,568	2,571	59,679	983
2011	83,551	57,936	36,894	5,923	3,433	4,784	80,000	838
2012	104,806	74,167	38,205	6,389	6,287	3,796	70,086	1,332
2013	126,955	128,127	38,127	6,952	5,138	5,003	97,715	1,266

Source: University Grants Commission (UGC) Reports, 2013

15. BASIS Member Companies Business Specialization

Consulting, 2%

Others, 1%

System Integration, 3%

Product Company, 4%

Mobile Application, 5%

E-Commerce/Web Services, 12%

IT Enabled Services, 17%

Customised Software Development, 56%
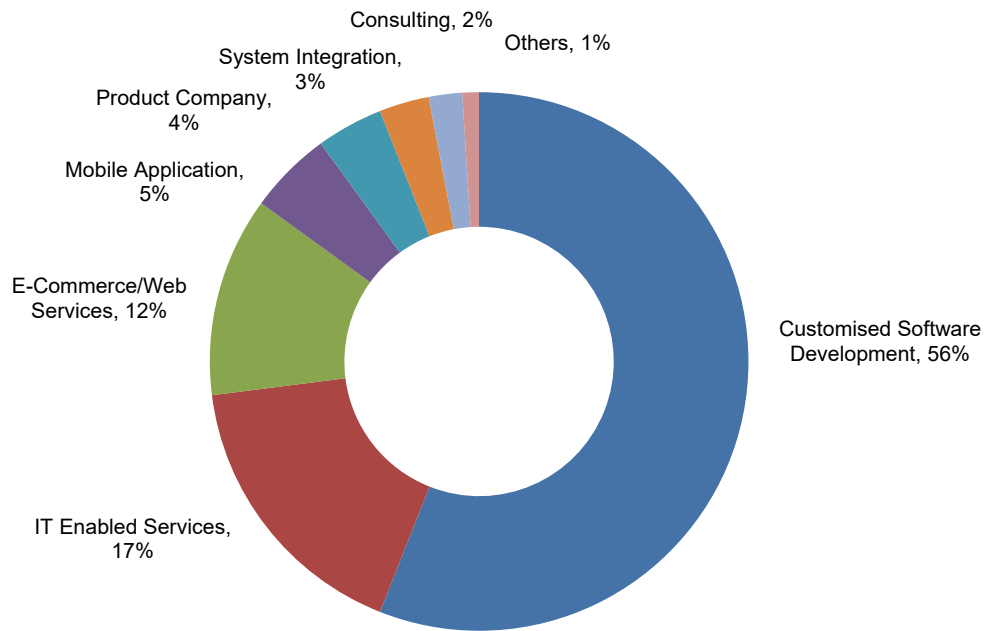
Source: Software & IT Services Catalog, BASIS, 2014
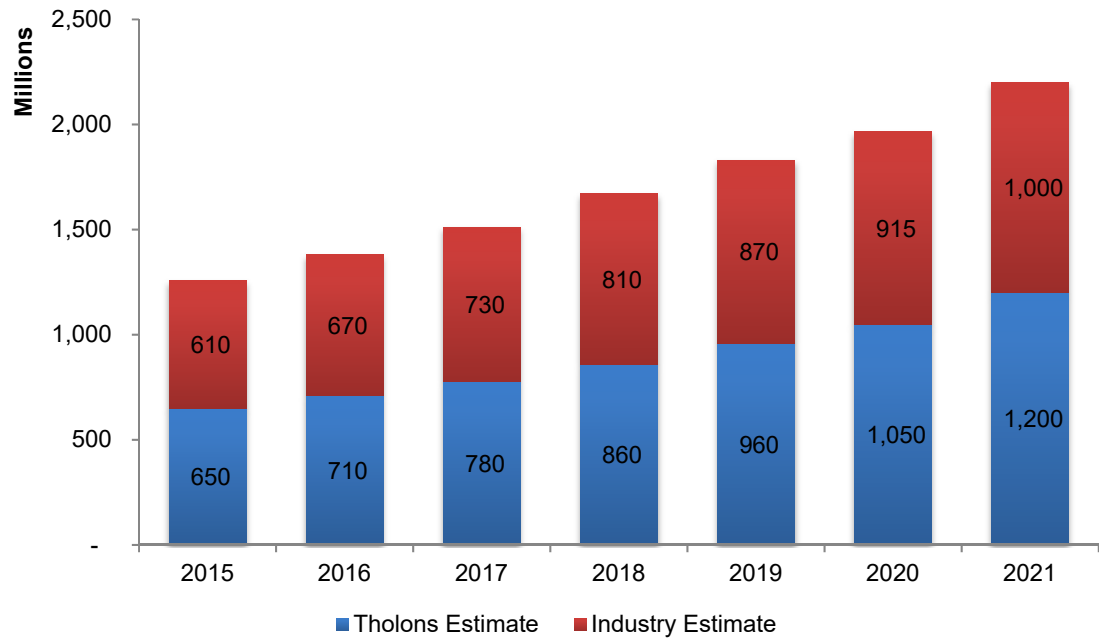
Consolidated Report / Summary on Strategy and Roadmap for Bangladesh's IT/ITeS Industry Development

This engagement, "Consultancy Services for Developing Strategy, Planning and Statistics Gathering for IT/ITES Unit" - Contract Package # S2", under the aegis of Bangladesh Computer Council (BCC), Information and Communication Technology Division, Ministry of Posts, Telecommunications and Information Technology (MoPTIT), Government of the People's Republic of Bangladesh, is part of the Leveraging ICT for growth, Employment and Governance Project.

The objective of this assignment is to develop an IT/ITES industry development strategy and roadmap for Bangladesh, and collect industry relevant statistics for use by public and private sectors. Developing strategy for Bangladesh as the global IT/ITES market is the key objective against highly developed and rapidly developing sophisticated and competitive market. This engagement focuses on the strategy and road map to help the country to focus its resources on the greatest IT/ITES opportunities, align the efforts of the public and private sectors, help the country to be opportunistic in business development, and focus on IT/ITES niche markets where Bangladesh has a sustainable competitive advantage.

In this section "Consolidated Report / Summary on Strategy and Roadmap for Bangladesh's IT/ITeS Industry Development" which is Deliverable 6 as per the contract is a Consolidated Report.

Deliverables of the "Consultancy Services for Developing Strategy, Planning and Statistics Gathering for IT/ITES Unit" is a key element to develop the strategy and roadmap and lay the foundation for marketing, promoting and supporting the growth of the industry. The follow on engagement of the LICT program titled "Consultancy Services for IT/ITeS Industry Promotion Services on Marketing and Communication" will implement the marketing and promotion of the industry based on the recommendations of this strategy engagement.

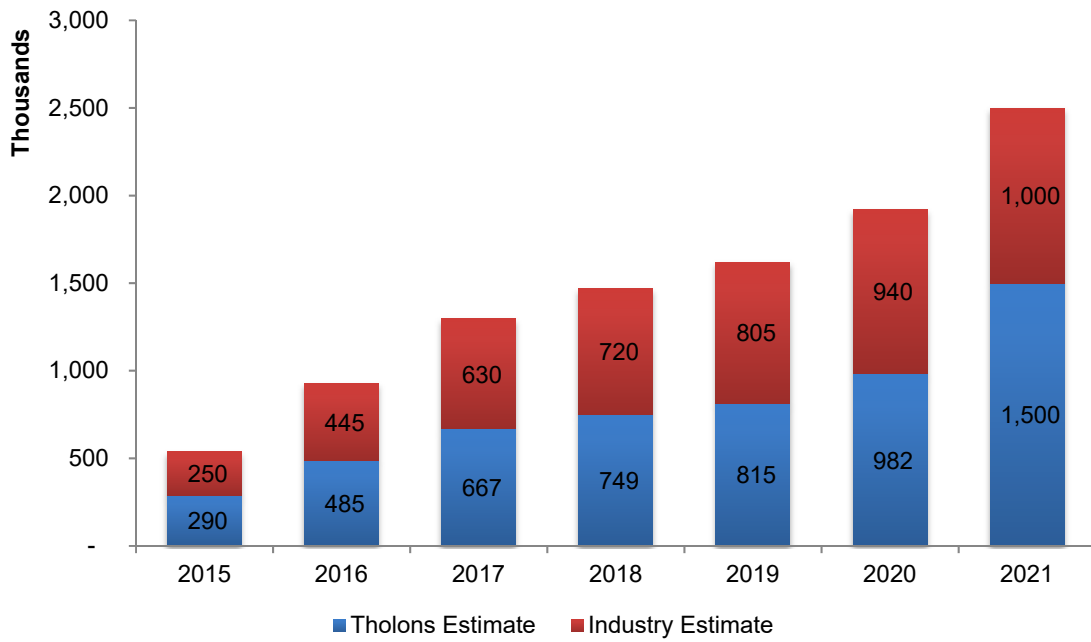In this Deliverable, Tholons have covered the following activities in developing the industry strategy roadmap and industry metrics:

1. Tholons conducted demand assessment of the global IT/ITES market from a segment (IT and ITES) and sub-segment (industry domain and horizontal processes) perspective.
2. Review and Analysis of the competitive landscape was done to identify the country's generic value proposition based on data and further secondary and primary research specific to Bangladesh.
3. Tholons has developed, collected and will publish industry statistics for dissemination to stakeholders within Bangladesh, clients and analysts outside.
4. Tholons then developed the industry's positioning in the global marketplace to bring out the unique differentiators and position the IT/ITeS industry in Bangladesh for growth.

5. Tholons has identified Top 5 niches/opportunities in IT, Top 5 niches/opportunities in ITES/BPO and 2 big business/product opportunities.

6. Tholons has done an assessment of skills capability and capacity and have recommended skills development to address the opportunities identified. Skills development is being executed by E&Y as part of another LICT program.

7. Tholons has recommended the development and implementation of marketing and promotion plan based on the strengths of Bangladesh, competitive landscape and the resulting strategy targeting specific countries and identified niches.

8. Tholons has drawn a detailed and comprehensive short (1 – 2 years), mid (2 – 4 years) and long term (5+ years) strategy and roadmap to develop IT/ITES industry in Bangladesh.

The details projected in the Deliverable 2 to 5 are outlined below which is Deliverable 6, with recommendations based on data gathered and analyzed.

1. Bangladesh

Bangladesh with a population of 160 million, a competitive labour cost structure, a resilient and steady growing economy offers promising opportunities for investments, especially in services outsourcing, pharmaceuticals, and other labor-intensive industries such as agriculture and garments manufacturing. Trade liberalization has been one of the major policy reforms carried out by Bangladesh since the 1980s, due to which exports grew from 6% of GDP to 7.77%. The economy has grown at approximately 6% per annum.

Today Bangladesh has emerged as the second largest exporter in the global garments market with export revenues of over $26 billion and employing over 4 million workforces, contributing over 81.69% of total Bangladesh exports. Though the garments industry benefits from an abundant supply of labour with basic labour skills, the services outsourcing sector requires a much more refined talent pipeline, with technical skills sets and proficiencies (i.e. IT, process, domain and language skills etc.). The RMG industry is a great aspirational role model and flag bearer for Bangladesh and IT/ITES industry having established a leadership position by delivering consistently quality on time delivery to international standards working with multi-national brand names.

Trade liberalization has been one of the major policy reforms carried out by Bangladesh since the 1980s, implemented as part of the national economic reform program, that is, the structural adjustment program (SAP) was initiated in 1987. Since then, trade liberalization and export promotion have remained as central elements of Bangladesh's trade policy. This liberalized trade policy combined with duty and quota-free access has boosted Bangladesh's exports to grow more than nine times between 1990 and 2009. During this period, the share of exports in GDP tripled from 5.5% to 17.4%. The United States and the EU remain as key export markets, taking almost two thirds of Bangladesh's total exports. The total value of imports has similarly increased six-fold between 1990 and 2009. This has put negative pressure on the overall balance of trade, which has grown from about 6% of GDP to 7.77% of GDP.[37]

Few highlights been denoted in detail through graphical notations under the section "Country Analysis" are:
1. Bangladesh Total Volume of Exports and Imports
2. Bangladesh GDP at Current Prices (2010-2016)
3. Bangladesh GDP Composition (2015)

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[37] Bangladesh Economic Update, World Bank, 2012.

4. Total Commercial Services Exports (US$ millions at Current Prices)

Bangladesh government provided subsidy on the input i.e. material for the RMG industry, to enable a new industry be able to be competitive. The implementation of back-to-back LC was also a very innovative way to help make the process seamless and cost effective. These concerted efforts and measures were critical to the nurturing and growth of an industry that today is the largest exporter for Bangladesh and the second largest producer of RMG after China. Similar to RMG industry, trained and skilled resources are the input in the IT/ITES industry - which currently becomes expensive because of the lack of experienced IT/ITES resources. These resources are in short supply. Similar to the RMG industry, the input i.e. IT/ITES resources cost can be subsidized by waiver or reduction of personal income tax - thereby bringing the cost down and making Bangladesh competitive.

IT/ITeS Sector Overview

The current IT/ITeS industry profile of Bangladesh positions the country as an emerging services outsourcing destination, currently capable of providing services exports in the ITO space, albeit in a smaller scale currently, and with future capabilities of delivering larger-scale BPO services.

The country has distinct supply-side characteristics that if properly utilized, can catalyze more progressive IT/ITeS movement in the country. However, much of this is predicated upon the concerted efforts of stakeholders to not only continue the current momentum of the industry, but likewise, to drive the industry further, and increase both service delivery capacity and capabilities.

There have been numerous initiatives spearheaded by the government and industry stakeholders, aimed at stimulating sector growth. IT/ITeS industry data utilized was derived predominantly from BASIS and other resource databank including Tholons secondary and primary research. The team also considered other sources of statistical information such as the e-Gen Bangladesh IT/ITES Industry Survey 2014, and official data provided by Elance-oDesk of Bangladesh. These data sources were then utilized to validate and provide further perspective of IT/ITeS industry composition.

The IT/ITeS sector of Bangladesh has grown considerably in recent years. Today, it counts more than 1,500 registered IT/ITeS service providers employing over 250,000 ICT professionals. Total IT/ITeS revenue generated by the country reached approximately US$600 million for the period 2013-2014, with export revenue accounting for US$250 million including the freelance outsourcing

segment.[38] The export revenues have steadily increased and reached $444.8 million for the period 2015-16 (Ref. 7th Five Year Plan). Industry estimates have pegged the ITO sector to witness significant growth and as having the potential to emerge as a leader in services export. Though the country's BPO sector has continued to grow, it has remained focused on servicing the domestic market. Though this may be the current scenario, Tholons believes that there lies opportunity for both the ITO and BPO (particularly for non-voice BPO services) spaces to expand more aggressively in the global market. As previously implied, for this to happen, specific supply-side inhibitors must be addressed.

Recent trends in the country's ICT sector has also impacted the demand for ITO and BPO services in the domestic space. For example, the growing number of Internet users and adoption, has led to greater connectivity and access for millions of consumers. As such, IT/ITeS companies have capitalized on this newfound market opportunity, by developing web-based services and content that include specialized portals, listing services, e-Commerce, e-Learning, payment intermediary services and development of web applications based on cloud/Software as a Service (SaaS) delivery models. The local ITO sector has likewise capitalized on the development of mobile apps.

As derived from BASIS membership data, the majority of ITO service providers in the country specialize in the Customized Software Development and IT Enabled Services service groups, comprising 56% and 17% of BASIS members, respectively. *As of December 14, 2015 - BASIS counts 986 member companies under its fold.*

Some of the highlights have been denoted in detail through graphical notations under the section "IT/ITeS Sector Overview" are as below:

1. BASIS Member Companies 2014–Service Group Specialization
2. BASIS Member Companies 2014–Vertical Specialization
3. BASIS Member Companies 2014–Geographical Markets of export-oriented Members
4. Export Segments of the IT/ITeS Industry in Bangladesh (2013)
5. Annual Revenue per Person for each IT/ITeS Segment
6. Freelance Revenue Earnings by Segment in US$ millions (2010 - 2014)
7. Freelancer Average Hourly Rates per Process Segment in US$ (2013)

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[38] BASIS Software and IT Service Catalog, 2014. Tholons Research and Estimates, 2015.

2. Competitive Landscape

The Bangladesh IT/ITeS sector, while showing a unique set of advantages and disadvantages in terms of its services outsourcing capabilities, relies heavily on its inherent qualities of scale and cost. This is a *similar proposition* to more established outsourcing destinations such as India and the Philippines. In this nascent stage of development, it is important to gauge the country's capabilities against its peer group in the global outsourcing landscape to determine key growth drivers and likely inhibitors.

Relying on a large population to fuel its service outsourcing industry, a total population of nearly 160 million skews favorably to the youth sector, or those aged 25 years and below, comprising nearly 50% of the entre populace. Undoubtedly, a large population is a significant benefit and consideration for locators, as a wide labor pipeline allows greater opportunities to scale operations. This has been primarily why India, the Philippines, and to an extent China have all experienced success in the outsourcing arena. Further, an elevated number of tertiary graduates also shows the propensity to replenish the workforce with fresh talent, necessary to offset the effects of labor migration and industry saturation.

Other locations like India, Philippines, China and Latin America are ahead in number of engineering graduates, IT workforce, salary offered etc. The Bangladesh IT/ITeS sector, while showing a unique set of advantages and disadvantages in terms of its services outsourcing capabilities, relies heavily on its inherent qualities of scale and cost. This is a *similar proposition* to more established outsourcing destinations such as India and the Philippines.

Bangladesh is ahead of China in terms of IELTS proficiency mean scores. Also TOEFL mean score for Bangladesh is 79 out of 100. In terms of operating costs, Bangladesh's relatively low cost is one of the country's main value propositions compared to the more established and emerging outsourcing locations. The significant young talented labor pool in Bangladesh is available at lower salaries compared to other established outsourcing destinations. The country has one of the cheapest overall operational costs in Asia with entry level salary costs, at times, nearly 50% cheaper than India and the Philippines. Again, as cost remains one of the primary considerations of service providers, Bangladesh will have an advantage compared to established destinations like India, Philippines, and Sri Lanka.

Infrastructure includes transportation facilities such as airports, roads, and public transportation systems that would provide labor pool mobility. Moreover, the availability of IT parks and Free Trade Zones are also considered as a defining factor for outsourcing destinations as these reflect the

commitment of a country in supporting IT/ITeS locators. For instance, distinct countries that are fast-emerging as global outsourcing players, such as China and Costa Rica, have aggressively built world-class infrastructure facilities, including IT parks and FTZs. Facilities for IT/ITES Industry in Bangladesh need a Class A infrastructure . Bangladesh is quickly building IT Hi-Tech Parks and STPs in Dhaka city, vicinity and other prime locations across the country like the Janata Tower STP in Dhaka, Kaliakoir Hi-Tech Park in Gazipur, Jessore STP, Sylhet Electronic City, Barendra Silicon City in Rajshahi and others.

Various components that have been covered under the main section "Country Analysis" and "IT/ITES Industry Survey" An abstract of them are:

- **Talent Pool Analysis**

A necessary building block for building a sustainable IT/ITeS industry is the quantity and quality of human resources. While different educational facets and corresponding metrics may be utilized to analyze a labor force - *in the context of services outsourcing* - a location's tertiary graduate profile often provides accurate indication towards possible expertise & outsourcing niches of a location.

Talent Pool Source:
1. Secondary and Higher Secondary Education Completion
2. Tertiary Education Enrollees
3. Total Tertiary Graduates
4. Public Universities Academic Field Output Segmentation

- **Risk Overview**

Although Bangladesh has often been perceived by external audiences as a country marred by political turmoil, corruption and natural calamities, recent improvements across responsible institutions and the high profile success of the country's exports garment industry, have encouraged investors to revisit and reconsider Bangladesh as a viable location to undertake business operations. This developing economy offers a unique investment climate in comparison to other South Asian economies, in particular because of its dense and large population base. Further, with regards to the country's emerging IT/ITeS sector, it is strategically (and favorably) situated beside India, the former being the world's preeminent leader in the services outsourcing arena. In spite of some of these seemingly favorable advantages, Bangladesh is also saddled with what is regarded to be a *generally difficult business environment.* The country needs to make significant strides to improve its ranking of 174 in the World Bank's Ease of Doing Business Index for 2016. However, Bangladesh has graduated as per World Bank to a middle income country now – 5 year ahead of target.

Other risk factors covered in the Deliverable include:

1. Natural Risk
2. Socio-Political Risk
3. Commercial Risk

- **Industry Survey**

A total of 69 IT/ITeS company respondents completed the survey. Primary and secondary survey and research also included few rounds of interview and data collection from all major industry associations, top industries and government stake holders..

Abstracts on analysis depicted under section "Company Profile" are:

1. Company Age
2. Initial Capital Invested to Start Company
3. Sources of funding to start company

Abstracts on analysis depicted under section "IT/ITeS Industry Composition" are:

1. IT/ITeS Revenues Source
2. Primary Service Lines
3. Active Process Group Areas
4. Primary Industry Vertical Markets
5. IT/ITeS Headcount Split
6. Annual Attrition per 100 FTEs
7. Geographic Market Focus
8. Language Capabilities and Focus
9. Average Salary Range for Entry-Level Employees (0-1 year experience)

Abstract on some of the insights projected under section "Qualitative Insights" are:

1. Perceived Strengths of Bangladesh IT/ITeS Sector
2. Perceived Ecosystem Risks & Challenges
3. Perceived Operational Challenges
4. Technical Skill Requirements Needed/Preferred by IT/ITeS Companies
5. Soft Skill Requirements Needed/Preferred by IT/ITeS Companies
6. Perceived Difficulties in Hiring Talent
7. Growth Projections for Operations

Abstract on competitive landscape comparison:

1. Comparison of Service Delivery Locations
2. Average English Proficiency Scores
3. Global Competitiveness Report - Infrastructure Pillar Scores 2014 – 2015

Comparative Analysis Chart

Comparative Component	India	Philippines	Vietnam	Myanmar	Bangladesh
Talent Quality & Scale	Excellent	Excellent	Good	Average	Average
Cost**	Excellent	Good	Excellent	Good	Good
Class-A Infra / IT Parks	Excellent	Excellent	Average	Average	Poor
Labour Laws & Policies	Excellent	Excellent	Good	Excellent	Good
Ease of doing business IT/ITeS	Good	Excellent	Good	Excellent	Average
Business Catalyst	Good	Excellent	Average	Excellent	Average
Tax Incentives	Average	Good	Good	Excellent	Excellent
Single Window Clearance	Excellent	Excellent	Good	Excellent	Average

Legend:

Rating	Symbol
Very Poor	○ (empty)
Poor	◔
Average	◑
Good	◕
Excellent	● (full)

The big successful outsourcing destinations like India and Philippines owe a lot to few factors that helped them achieve the growth and become sunshine industries of their respective countries:

1. Formulation of industry leading tax, incentives, regulatory policy framework
2. Seamless "Single Window" implementation
3. A strong industry body like "NASSCOM" and "IBPAP" that can act as a "Single" and "Strong" voice of the industry
4. Strong participation of Private investors in building the IT Parks - some in PPP model, but mostly done by local and global investors
5. India was driven significantly by "Scale of qualified talent" and Philippines by "Cultural Alignment" with the Americans

**Cost here is defined as – cost of salary, cost of A-class infrastructure, cost of training, cost of living, cost of bandwidth, cost of real estate etc.

3. Target Markets

Global outsourcing market opportunity is dominated by United States followed by UK and Europe as a region. USA constitutes around 60% of total IT/ITeS market and UK, the second largest market in this segment should be the target market. Existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, are good landing spots for Bangladesh developed applications. Japan's IT services market was pegged at US$211.4 billion in 2014, driven by the BFSI and Manufacturing sectors. India, with export revenues of over $87 Billion has a robust growth. IT/BPO industries in India continues to look for talent and expertise. Within India, in tier II cities in India are keen to explore options in Bangladesh and Srilanka. We strongly recommend pitching to top 50 IT/ITes companies in India including the MNCs and GICs. Middle East is a natural target market given the cultural affinity and a market that has significant untapped potential. It also has the potential to be a platform for accessing the African market which is highly under-developed and has immense potential.

Outsourcing Market Demand

In the last ten years, the global IT/ITeS industry has been propelled by various internal and external trends, including increasing client demand complexity, emerging IT/ITeS services geographies, shifts toward bundled contracts, and the emergence of new, technology-fueled verticals. According to NASSCOM, in 2014, the marked increase in global ICT adoption bolstered the growth of the international outsourcing market by 8.5% to reach a market size of nearly US$140 billion. This was further fueled by the surge in global IT spending which was pegged upwards to US$2.3 trillion in 2013. The IT Services and BPM categories specifically garnered a total spending of US$ 823 billion representing 36% of global IT spend.[39]

Primary geogrphical market for Bangladesh:

Following are certain highlights that have been detailed under section "Outsourcing Market Demand"

1. Global IT Spend 2014 (in US$ billion)
2. IT Sector Spend Growth (in US$ billions)
3. IT Services Segment Spend Growth

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[39] NASSCOM Strategic Review, 2014.

4. Industry Vertical Growth in IT/ITeS Spend
5. Global IT/ITeS Spend by Region

Established Outsourcing Destinations

In terms of providing outsourced services, the Asia Pacific region represents the largest collective share globally, led by India, the Philippines, and China (albeit domestic in nature). The Latin America and the EMEA regions have recently emerged to become more prominent provider clusters, and are capitalizing on near-shore service buyer markets to fuel growth.

Potential Target Segments

Global outsourcing demand in IT Services, Packaged Software, and BPM Services all point towards potential opportunities for Bangladesh as IT/ITeS segments experienced optimistic growth for the period 2012-2013 with all segments surpassing previous year growth figures. The 'low-hanging fruits' for the Bangladesh IT/ITeS industry can be found in the IT Services (ITO) and Packaged Software sectors.

Some of the facts have been captured under this section titled:
1. Segment Spend Growth
2. BASIS Member Companies Business Specialization

4. Competitive Niches

Upon analysis of the country's current IT/ITeS landscape, the service outsourcing sector of the country appears to have the greatest opportunities, evidenced by past and current capabilities, to provide ITO services, and particularly in the Customized Software Development subsector. However, it may seem a wide array of market opportunities for the Bangladesh IT/ITeS sector, the practical reality is, there is in fact a logical limit of feasible opportunities. The sector cannot, and should not merely ambition to be a 'provider of outsourced services. Interview and consultation with industry stakeholders and players have indicating that the BFSI, Telco and Government sectors are the low-hanging fruits in the domestic market for customized applications.

ITeS industry stakeholders must in particular, take advantage of the global BFSI opportunity – as NASSCOM shows that the vertical along with manufacturing, comprised over 60% of the total global IT spend in 2014. As the BSFI segment continuous to face cost pressures, induced by industry-wide consolidation and retraction from the Global Recession, emerging markets and offshore service destinations stands to directly benefit. Bangladesh in particular, with its prominent low-cost proposition could capitalize on this present opportunity. The FAO market also provides numerous points of entry for Bangladesh service providers, as the whole spectrum of end to end FAO services, allows for even emerging provider destinations to build capabilities and capacities further. The Pharmaceutical vertical is also experiencing a robust growth in the country. Some of the companies in the country have obtained certifications from different international authorities such as the UK-MHRA, Australia-TGA. SQUARE Pharmaceuticals Ltd.

There is also a dynamic variable in the Bangladesh context that is gaining prominence and catalyzing industry growth and awareness, the Freelance sector. Industry stakeholders may be able to take advantage of the vast (and growing) freelance talent pool - now numbering nearly 30,000 – and provide additional training and access to investment capital, allowing them greater opportunities to build more *'formal'* and larger business units.

Categorized Focus Niches

A) Product / Business Opportunities/Niches

RMG Captives / GICs

Services for Businesses owned by NRB's Abroad

B) IT Opportunities/Niches

Digital Technology (SMAC)

Applications Support & Maintenance

Freelancers in Digital & Social Media

Testing Services

Telecom IT

C) ITeS / BPO Opportunities/Niches

Finance & Accounting (F&A)

Telecom BPO

Supply Chain Management

Medical and Insurance Claims Processing

Mortgage and Title Insurance Processing

5. Strategy, Roadmap and Policies for IT/ITeS Industry Development

Tholons has developed specific developmental action items, segmented according to three distinct phases - *Near, Mid, and Long-term*. These action items aim to provide the Government of Bangladesh and corresponding IT/ITeS stakeholders, a *pragmatic guide* that aims to enhance the current position of the country's services outsourcing industry, while laying the foundation longer-term sustainability and growth.

Near (1-2 years)	Mid (2-4 years)	Long-Term (5+ years)
Mission & Vision Setting	Develop Talent Supply Pipeline**	Process and Service Delivery Innovation (*New Capability Development*)
Develop the Lead Outsourcing Agency	Develop Infrastructural Support**	Long Term Strategy and Policy Planning
Bangladesh Outsourcing Industry Profiling	Develop Enabling Infrastructure (Commercial spaces, Transportation and Telco platform, Power & Utilities, etc.)	Continuous Marketing
Industry—Academe Alignment		
Short Term Policy Framework	Long Term Marketing and Promotions Planning	

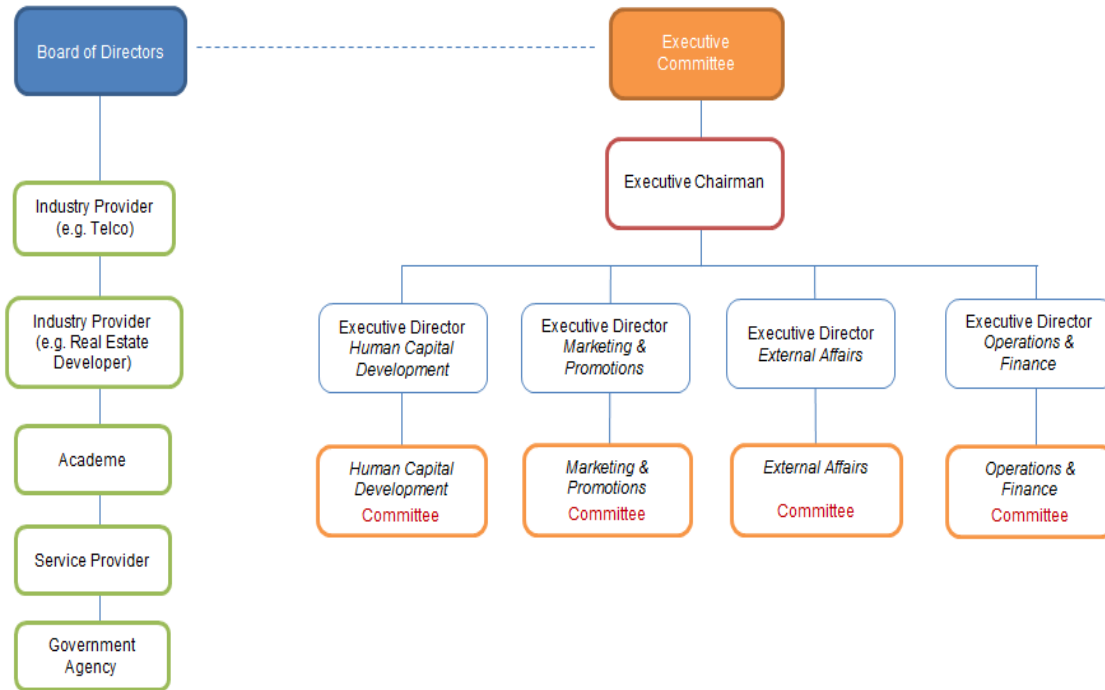|		
• Functioning Lead Industry Agency	• Talent Monitoring Platform	• Growth and Expansion
• 'Bangladesh Outsourcing Industry Profile'	• Improved Infrastructure	• Continuous Improvements
• Identify Industry Talent Needs	• Investment Attractiveness	
• Increase Sector Investments	• Enhanced Visibility	
• Define 'Bangladesh		

- Industry Development Theme -

Accelerate local industry development by optimizing current capabilities. Build long-term foundation for growth and sustainability, through the exploration of niche sector opportunities and by leveraging on inherent strengths of Bangladesh – namely, its vast talent resources

*** LICT Program and through government support, the talent development and infrastructure development is progressing well. Talent Development Program is mid-way in reaching its full program implementation objectives. Significant incentives are in place to expedite the development of infrastructure including IT Parks.*

Bangladesh IT/ITeS Industry Strategy Framework and Roadmap is detailed in Table 12

Lead Industry Agency Organizational Hierarchy

Organizational hierarchy with certain components based on best practices that have worked well for the industry's leading global IT/ITES associations. In the context of Bangladesh, this *hybrid organizational structure* can be considered in developing the country's own *Lead Industry Agency*. The organizational structure is both simple, and pragmatic in the sense that each functional group (committee) is able to effectively cover the various ecosystem components composing the services outsourcing industry of the country. Based on the analysis of the various stakeholders and the inter-workings between the government, ICT Division, BCC and various industry associations, this lead industry agency role could be performed by BCC.

In the hybrid model above, the Executive Committee (EC), consisting of the Executive Chairman down to the individual Committee Heads, *performs a purely executor role as the Lead Industry Agency*. The committee must involve itself in regular, collaborative meetings that will discuss and act upon, the various issues and interventions, facing and required by the industry. Among the

broad goals that the Executive Committee will be tasked to fulfill the following executory functions, among others:

1. Develop and mandate industry development policies and bylaws
2. Execute industry developmental plans and initiatives
3. Advice and propose industry specific incentives and fiscal benefits (for service providers)
4. Advice and propose industry specific incentives and bylaws for the protection of IT/ITeS workers
5. Advice and execute human capital development initiatives intended to uplift the local IT/ITeS workforce

The local BPO sector for example, remains largely focused on providing outsourced services to the domestic market, while enabling ICT policies, though in place, still require further refinements (reforms), implementation and enforcement. Bangladesh is making clear and *encompassing industry development policies* that cover all facets if IT/ITeS development in the country (i.e. financial and tax policies, human capital development, intellectual property protection and investment promotion. These distinct policy implementations can contribute positively to building a more responsive business environment, attracting more investors that in return, can facilitate growth of the IT/ITeS sector progress. Government is actively participating in promoting potential (alternative) outsourcing locations in the country via building of Special economic zones and software parks, Tax incentives, good labour policies etc. The pharmaceutical industry in Bangladesh has been active in harnessing the potential and capabilities of the talent pool. Effective drug policies and the relaxation of Trade Related Aspects of Intellectual Property Rights (TRIPS) are responsible for the continued growth of the industry. Other shot term policies could be -

1. Enhance Fiscal Incentives Policies (i.e. tax holidays, duty-free status on equipment, etc.)
2. Review tax/incentive policies and their efficacy
3. Propose reform options for investment incentives and tax policies
4. Benchmark existing tax incentives with those of other mature & emerging service provider nations, such as India, Philippines and Sri Lanka
5. Improve legal framework & streamline processes for businesses, transparency in the regulatory systems, and establishment of clear and centralized requirements for business operations to give parity between local and foreign businesses. Simplify technical business procedures - licensing, business permits and tax filing, etc.

Below are the highlights of some of the industry & policy recommendations

IT Parks / Class A Infrastructure

1. Bangladesh currently does not have ready Class-A IT Park and therefore Tholons recommends that Bangladesh should offer subsidized space / subsidy to ensure global competitiveness of infrastructure costs for operations in Bangladesh till the time IT parks are available.

2. There are few large outsourcing players like Accenture, Samsung and others who are looking to scale the business but face tremendous pressure to justify the scalability and cost of operations. Urgent action to address Class-A office space, talent and seamless implementation of tax and other incentive policies is needed.

The Big MNCs in Bangladesh

Global outsourcing is hinged on exports for large developed countries - primarily North American, European and Asian clients. Bangladesh is in a good position to have the likes of Accenture, Samsung and others put large operations here. MNCs go through a rigorous due diligence process before deciding to base their operations in any new location.

Keys elements considered are:

1. Quality, scale and cost of Talent

2. Financials - cost of infrastructure, talent, office space, bandwidth cost etc.

3. Business catalyst: policies, regulations, tax incentives, ease of doing business and government support

4. Infrastructure and Risk profile: availability of Class A office space, transportation infrastructure and risk - physical, natural and civil

5. Quality of living: International schools, expat community, opportunities for entertainment etc.

6. Innovation, Digital and Startup ecosystem

MNCs like Accenture and Samsung currently face challenges in:

1. Availability and cost of Class A infrastructure i.e. IT Parks or equivalent space

2. Availability and cost of qualified Talent

3. Seamless implementation of Tax Incentives, IT Act regulatory framework and "Single Window" ease and support

These challenges could be mitigated by following actions:

1. Making subsidies available for Class A infrastructure in the short/medium term and accelerating the build out of IT Parks to address the challenge for the mid to long term

2. Training and assimilation of talent will take some time - in the short term the cost issue can be addressed by providing income tax subsidy to the employees - to offset the employers cost

3. There has been significant amount of well-directed and driven effort to align and implement the tax incentives, use the IT act to the benefit of MNCs like Accenture and Samsung, but the results are not achieved and are a bone of significant contention.

Based on our discussions with these and other companies, this issue is extremely painful and could risk the continued business and growth of these firms; making this a top priority to address.

Talent/Skill Development

1. Bangladesh currently offers training for IT/ITES as part of the LICT program. The program work with large industry players to align the training and courses as per the specific requirements of the employers as per the requirement both current and in the future.
2. Bangladesh is offering free training to IT/ITES Industry players on the areas of specific requirement by the industry for current and future requirement/prospects by working with the organizations to structure and design the course that meets industry demand. This is being implemented by just aligning the current LICT Training Program.
3. Bangladesh should review and revise education curriculum to include industry relevant content like Data Analyst and Digital Skills etc.
4. The talent is scarce and it takes cost, time and money to train and deploy making overall cost uncompetitive. Tholons recommend that IT employees be exempt from income tax for the next 5 years, thereby reducing the input cost to IT/ITeS companies.
5. Establish a common technology network and platform across secondary educational institutions. This shared technology platform should improve the quality of secondary education, leveraging technology, to prepare and produce better-qualified students for the tertiary level.
6. Develop alternative cities outside of Dhaka to augment the country's talent pipeline.

Tax

1. Bangladesh does provide Tax Incentives Exemptions and Duty Free Import of goods. However, the process implementation is not seamless and requires simplification and clarity. Advance Tax should be abolished.

IT/BPM:

1. Growth and Promotion of Bangladeshi IT/ITES/BPO companies through Promotion & Marketing and directed Business Development. The LICT Program has the marketing and promotion initiative along with the CEO Outreach Program to address the same.
2. Implement Bangladesh Preferential Market Access (at least 30%) for the Govt. projects and Tenders.

3. Encourage IT/ITES/BPO Clusters – Provide Add-on incentives in the form of capital investment.
4. Additional incentive such as providing land at very subsidized rate and in good IT Park location to companies for creating jobs.
5. Provide special incentives for Rural ITES/BPO set up.

Bangladesh's recent announcements on IT policy and incentives are very progressive and puts Bangladesh at par or better with policies and incentives that currently exist in other competitive countries like India, Philippines, Vietnam, Myanmar or Sri Lanka. The policies on Hi-Tech Park and building of STPs is also very encouraging and aimed at driving business growth - providing for a very healthy public private partnership. These policies and opportunities should also be marketed to foreign investors. Most competitive countries have seen investments in early days from Japan, Singapore and Middle-East.

Given these competitive policies and incentives - these would be much more effective if Bangladesh would implement a seamless "single window clearance" agency like the STPI of India that really helped fuel and catalyse the Indian industry in 1991. *Ref Section "Comparative Analysis" for more detail.*

Capacity Building:
1. Create a lead IT/ITES Academy. One example is to create a Finance and Accounting Academy similar to Srilanka's CIMA Institute.
2. Co-location of secondary and tertiary IT/ITES Academy Centers.
3. Develop Master faculty members per year for IT/ITES Academy Centers.
4. Adopt a Common Assessment Program for IT/ITES Centers.
5. Create a database of unique biometric profile of IT/ITES professionals.

Innovation:
1. Develop patents in the ICT domain. The BCC/ICT Division program could provide support and knowledge on developing and patenting IP.
2. Encourage public/ private supported R&D labs in emerging ICT Centers across Bangladesh.
3. Create financial eco-system through ICT innovation fund to support start-ups.
4. Create Bangladesh ICT Innovation Fund with contribution from private and public financial institutions.

Entrepreneurship Development & Mentoring:

1. Set up a virtual open innovation platform to bring in universities, accelerators, incubators, angels, seed funds, venture capitalist, government, key industry players and start-ups together.
2. Create a program to identify Innovators and Entrepreneurs every year and provide incentives, like sending five start-ups to silicon valley for 3 to 6 months.
3. Promote Incubation Network facilities as part of Innovation centers and make the Angel funds available through a centralized ICT fund.
4. Subsidized memberships for start-ups to industry/trade bodies.
5. Set-up events, road shows, creativity hubs etc., for start-ups.
6. Guaranteed government ICT purchases from start-ups.
7. Make software licenses available on pay per use basis.
8. Partner with BASIS, BACCO and related sector bodies to create the Start-up Program.
9. Encourage the entrepreneurship in Education through Networked Incubation Centers.
10. Providing Early Stage/idea2conept (Proof-of-Concept) funding
11. Providing Capacity Building though International visit and workshops.
12. Providing support for incentives and concession to freelancer communities to turn them into businesses.
13. Creating Start-up Cell's/Online Portal and Hotline Support

STP (Software Technology Park):

The STP entity should set way to make an effective and seamless single window clearance system to enable, support and promote exports of software, BPO and professional services. The STP scheme should provide various benefits to the registered units, including 100% foreign equity, tax incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting.

STP should effectively implement a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through nodal agency. It should run like the best of private organizations focused on the needs of the hundreds and thousands of IT and BPO companies mushrooming.

For a country like Bangladesh, it is imperative that the country adopt the tenants of connected industry to leapfrog and accelerate the adoption of IT for the domestic industry.

Comprehensive set of support services for potential locators:

Bangladesh can take industry leading learning by identifying talent in IT/BPM from across the globe that would be interested in moving to Bangladesh on client engagement / sabbatical. However, this would require identifying, prior discussion and funding models to help locators find this service seamless and cost effective. Bangladesh should provide R&D grants and subsidy to cover the cost of talent acquisition and hosting.

1. Engage with marque clients in IT/BPM on specific engagements
2. Review the business need and identify up to five clients
3. Map the requirement for talent at mid to senior management
4. After a talent gap analysis, identify talent that needs to be acquired and made available in Bangladesh
5. Draw a list and initial agreement with identified talent and a cost assessment
6. Provide grant and subsidy for the first year to cover the delta in talent cost to make it competitive and attractive for the lead locator to be incentivized to locate the program in Bangladesh.

National Occupational Standards (NOS):

Determining of various quality and proficiency standards that exist, and identifying the particular standard, that is *relevant to Bangladesh or its labor market* can be a significant advantage for the fledgling service outsourcing sector of the country. For instance, if the local industry ambitions to provide product design or engineering support services to outsourcing nation, then local providers should be abreast of the *National Occupational Standards* of that nation. This type of deliberate *'market orientation'* can likewise provide Bangladesh a definitive advantage over other low-cost, emerging destinations.

Tholons is in complete alignment with Bangladesh's Sustainable Development Goal (SDG) and 7th Five Year Plan FY2016-FY2020, its view and policy directions for ICT. We see an opportunity for a significant acceleration of citizen services and industry through digital service technology.

6. Talent Development

Bangladesh has one of the largest secondary school systems in the world. According to a report by the Asian Development Bank (ADB), the number of students enrolled for secondary level in Bangladesh has tripled since 1980. As of 2014, a reported 19,684 institutions were offering Junior, Secondary, and Higher secondary education. Secondary education is concluded with a public examination leading to Secondary School Certificate (SSC) then a Higher Education Secondary Certificate (HSC). The latter is the basis for acceptance to university (tertiary) education. Currently, there are 112 universities and 3,985 colleges in Bangladesh. Tertiary education in Bangladesh takes place at 37 government, 80 private and 3 international universities. Total number of enrollees for both university and college institutions has gradually increased, with a CAGR of 13%. The average number of students in public university was 13,369 while only 5,118 in private universities.

As a whole Bangladesh produces around 463 thousand of graduates every year. According to UGC Bangladesh produced around 6952 engineering graduates in 2013 which is very low. One of the reasons learned behind this condition, was the elevated levels of competition during the HSC. As the HSC score is required for admission to first-degree courses such as Medicine and Engineering, and if the student's HSC score does not meet score requirements, then the student is not admitted to the program. Hence, the HSC score greatly affects the selection process to tertiary education. While current industry profile suggests that inherent expertise and potential of the Bangladesh IT/ITeS sector lies in providing ITO Services, the low graduate output from the Engineering discipline should raise a cautionary red flag to industry stakeholders. Therefore, it is vital for industry stakeholders to implement capacity and output building initiatives, which can directly increase tertiary graduate output, and particularly for courses that are aligned with the specific services outsourcing segments the country is targeting (e.g. ITO, non-voice BPO, FAO).

LICT's Skills Development Training Program at glimpse –

1. **Top Up IT Training:** This is an IT Services Skilling Training Program. The program targets Non-IT and It graduates and train them for jobs in IT outsourcing (ITO) services industry segment. Country's major Universities and Training Institutions work closely with Ernst & Young (E & Y) to cater training for 10,000 trainees and place 60% on the job. The program subjected to cover Software Development Skills and Computer Programing Languages – PHP, C, SQL, Android Java, Java Script, Python etc.

2. **Foundation Skills:** Skills over 20,000 ITES professionals that meets global standards in global market. It provides training grants to companies with the criteria of meeting minimum

set of skills developed and hired. Foundational work skills are fundamental to creating a competitive ITES labor force as these are generic for virtually all its sub-segments, including BPO and micro-work. These skills address areas such as cultural sensitization, basic PC and data skills, interpersonal communication, and a good professional attitude in general. The goal is to create a talent pool that can cater to the requirements of the global industry, besides helping to enhance the quality of the workforce for a range of domestic sectors. Integration of assessment and training for faster results based on individual's need.

3. **Online Outsourcing (OO) Training and Employment Services for IT/ITeS:** This program is to carry out training and mentorship leading to Online Outsourcing (OO) for Bangladesh youth and women. The program targets to train 10,000 and is an IT Services Skilling Training Program. Online outsourcing (also referred to as "crowdsourced labor", "paid crowdsourcing", or "freelancing/elancing") is the contracting of third party workers and providers (often overseas) for IT, business process, and/or knowledge based services via Internet based marketplaces. These online task marketplaces enable clients to outsource their paid work to a global labor pool of remote workers and/or enable performance, delivery and payment for such services online. Examples of such marketplaces include Upwork, Freelancer, Amazon Mechanical Turk, CrowdFlower, etc.

4. **Fast Track Future Leader (FTFL):** This program is targeted in building 1,000 future leaders for IT/ITeS Industries of Bangladesh. LICT in collaboration with IT and ITES industries selects trainees for FTFL program as per skill demand in the area of software development, BPO and IT/ITeS related management. The training is provided according to the company's need for a duration of 6 months. Upon successful completion, the trainees are employed by the companies.

7. Governance Structure

The IT/ITES industry development needs all the industry associations, industry players, government stakeholders, infrastructure and policy makers to work in concert within a governance framework. The governance structure should recognize and promote the interest of each entity and ensure alignment for accelerated growth of the industry.

Bangladesh should develop a Lead Industry Agency Organizational Hierarchy, which is shown in Figure 14.

In the context of Bangladesh, this *hybrid organizational structure* can be considered in developing the country's own *Lead Industry Agency*. The organizational structure is both simple, and pragmatic in the sense that each functional group (committee) is able to effectively cover the various ecosystem components composing the services outsourcing industry of the country.

A collaborative framework like this will be instrumental in ensuring the development of the country's IT/ITES industry, through aggressive industry-building initiatives, sustained external marketing campaigns, and regular collaboration with academe and government institutions – all of which will enable the sector to enhance capabilities and harness the potential of the country's IT/ITeS talent pool.

In the hybrid model above, the Executive Committee (EC), consisting of the Executive Chairman down to the individual Committee Heads, *performs a purely executory role as the Lead Industry Agency*. The committee must involve itself in regular, collaborative meetings that will discuss and act upon, the various issues and interventions, facing and required by the industry. Among the broad goals that the Executive Committee will be tasked to fulfill the following executory functions, among others:

1. Develop and mandate industry development policies and bylaws
2. Execute industry developmental plans and initiatives
3. Advice and propose industry specific incentives and fiscal benefits (for service providers)
4. Advice and propose industry specific incentives and bylaws for the protection of IT/ITeS workers
5. Advice and execute human capital development initiatives intended to uplift the local IT/ITeS workforce

The Board of Directors (BOD) *acts in an advisory capacity,* working in the background, and parallel to the Executive Committee. While the EC is tasked the execution, the BOD will ensure that the

executed agendas are relevant, substantial and directly benefit the industry. The BOD, because of their more specialized and technical understanding of their respective industry sector, can provide more pragmatic advice on industry issues, and can more effectively guide the EC in executing developmental actions as the Lead Industry Agency. The BOD, can be viewed as an *advisory body with relevant subject-matter-expertise*. Moreover, the BOD can also use its advisory capacity to guide the Lead Industry Agency in navigating through current industry issues, as many of these issues often require immediate action or intervention.

The organization hierarchy of this *proposed* Lead Industry Agency runs parallel from Executive Committee down to the Board of Directors. This hybrid model is one which industry stakeholders in Bangladesh may consider and base their decision upon, when creating an IT/ITeS industry body. With a dedicated agency (industry organization body) that is tasked to *focus exclusively on the unique needs of the IT/ITeS sector in Bangladesh, a more focused and efficient means of industry development can be achieved.*

The report provides the Industry Strategy Framework which serves as a high-level implementation guide for the proposed Lead Industry Agency and relevant stakeholders. The Framework allows the implementation personnel to keep track of respective developmental goals through the near, mid and long-term horizons. The *underlying purpose* of this framework is to lay the course for the developmental foundation and necessary steps (action items), that the country and industry must take to arrive at its intended goals. These activities involve not only the efforts of the Lead Industry Agency, but also of the relevant public and private institutions, the academe, individual stakeholders, and private industry players. BCC could take the responsibility of putting the lead agency framework and governance committee in place.

8. Metrics

Industry metrics are very important part of understanding the current state of the industry, its competitive positioning and to monitor the progress and growth of the industry. This deliverable have detailed the development, collection of key industry statistics and the next deliverable will provide for publication for the same.

This deliverable provides the following:
1. Identify relevant statistics needed for industry development based on international experiences, and in consultation with local industry
2. Develop templates for data collection based on IT/ITES segments and sub-segments
3. Develop data collection methodology and plans, and identify sources of information. This activity should build on available public and private sources to the extent possible especially those from IT-related industry associations such as Bangladesh Association of Software and Services (BASIS), Bangladesh Computer Samity (BCS) and Bangladesh Association of Call Center & Outsourcing etc.
4. Collect data from identified sources in collaboration with BCC and IT related industry associations

Figure 6 provides a list of key metrics. IT/ITeS Export Revenues is one of the crucial data points that provide true indication of sector growth. Currently Bangladesh export revenues are pegged at around $500 million.

Other industry metrics should measure the revenues, the size of the workforce, the growth rate, revenue per employee, number of graduates, skilling capacity, size of the domestic market by IT/ITES and products. Metrics should also track innovation index and percentage of skills and revenues in digital technology and processes.

The next Deliverable will provide the proposed industry statistics, the webpage and database design for publication on BCC's website and numbers for first year of publication.

9. Marketing and Promotions

The marketing plan should address near, mid and long term plan and roadmap with specific recommendations, content and support for the following activities:

- Branding and Marketing for Bangladesh
- Comprehensive Digital Marketing
- Development of Audio and Visual Marketing Collaterals
- Media and Public Relations
- Media, Public Relations and Press Releases
- Recommend, develop and support key Events both inside and outside Bangladesh to include the first in-country event for the industry and other events outside to target clients, investors, industry best practices/networking and innovation/entrepreneurship.

To Enhance IT/ITeS industry Bangladesh will have to develop their marketing and promotion plan in phases. These phases will be

- Short-Term (1-2 Years)
    a. Develop and strengthen the 'Bangladesh Outsourcing' brand, so it can create an identity in external markets
    b. Identify strategic geographies and industry verticals as targets for Marketing and Promotion efforts
    c. Participate in select roadshows and trade events (local & international)
    d. Partner with embassies and trade missions in specific countries where Bangladesh IT/ITeS sector has the realistic potential to penetrate as export targets.
- Mid-Tem (2-4 Years)
    a. Promotion of Bangladesh IT/ITeS industry to key geographic markets
    b. Host and deploy roadshows to expand market reach
    c. Participate in international IT/ITeS conferences/forums
    d. Organize international conferences in-country, to showcase the capabilities local IT/ITeS sector
- Long-Term (5+ Years)
    a. Re-orient marketing & promotion efforts to re-introduce Bangladesh and its 'New Capabilities' and value propositions to internal and external audiences
    b. Design long-term marketing and promotion strategies that are more specialization-driven and niche-based

An industry marketing and promotion plan should be developed under the aegis of LICT Contract "Consulting Services for IT/ ITES Industry Promotion Services on Marketing and Communications". The plan needs to address key stakeholders both internal and external, covering but not limited to:

1. Prospective investors and clients
2. Existing clients of the industry
3. Talent pool in Bangladesh
4. Government Stakeholders
5. Media – Both Digital and Traditional
6. Analyst Firms like Gartner, IDC, AT Kearney, Tholons, ISG, Everest, KPMG, NelsonHall, Ovum, NOA, SIG, IAOP and others.

In terms of events marketing and promotion, there are three classifications of events that Bangladesh should focus on:

1. **Client Centric –** This is where service providers and key stakeholder in Bangladesh have the best opportunity to meet and network with prospective clients in the targeted client countries.

2. **Industry Best Practices/Networking Events –** These events predominantly have service providers, analysts and few clients. This is a good opportunity to understand industry best practices, share the Bangladesh value proposition and network with analysts, clients and ecosystem partners.

3. **Innovation and Entrepreneurship –** These are events focused on innovation, startups and innovative products. With the digital technology becoming the way of life for future IT/ITeS, participation in these key events become critical.

These are the specific type of international events that the country should dedicate their promotional resources. However since there is limited budget for this type of engagements Bangladesh should be able to align the time of their client visits with the international events in accordance to the CEO Outreach program. This will help Bangladesh maximize their allocated budget and also to connect to more clients. As such, the country should prioritize 2-5 events where they will benefit the most.

Tholons recommends the following events:

- **Client centric**
  - Japan   - Japan IT Week
  - Middle East   - Gitex Event
  - UK   - Gartner Business Process Management Summit
  - US   - World BPO/ITO Forum

                       - International Outsourcing and Shared Services Forum

- **Best Practices and Networking events**
  - India   - NASSCOM India Leadership Forum
  - Philippines   - International Outsourcing Summit

- **Innovation**
  - India   - NASSCOM Product Conclave
  - US (Silicon Valley) - TieCon Global

                       - Y-Combinator Demo Day

                       - 500 Startup Demo Day

The proposed CEO Outreach Program in Tholons view is very critical for business development and client connect beyond marketing and promotion. The marketing and promotion plan should be aligned and support the implementation of the CEO Outreach initiative of the LICT program.

10. Innovation Platform

This platform or concept revolves around building an ecosystem wherein start-ups, academe (i.e. universities), private institutions (i.e. ITeS companies, technology suppliers) and financial institutions (i.e. venture capitalists, banks, angels, etc.) and other relevant institutions/individuals – are all situated in a singular ecosystem, that fosters a collaborative synergy to exist across individual players. This Platform will not only ensure them to work with each other but also compels them to perform and execute respective tasks and roles. Start-ups are expected to conceptualize and develop their products or services, the academe is expected to churn quality graduates for the start-ups, and the financial institutions are expected to provide the funding for the start-ups to develop their products and services.

By encouraging the necessary enablers to thrive in this open platform, where *roles and responsibilities are designated and accepted*, developmental issues are more quickly addressed and outcomes are more efficiently reached. That is, the entire ecosystem works, because each role comes with *clear and corresponding roles that each player accepts* and fulfills.

Open Innovation is key in today's world where innovative company products and services are disrupting major industries. There are big opportunities to bridge the gap. It is imperative for Bangladesh to implement an Open Innovation Platform.

The startup ecosystem is particularly vibrant in the US, UK, Israel, India and Canada. There are 41,500+ startups in US; 3,500+ in UK; 3,300+ in Israel; 3,100+ in India and 2,700+ in Canada.

We suggest the following approach to create an Open Innovation Platform and Network for the Bangladesh Industry:
1. Explore and select key Startup Companies across most promising industries and disruptive offerings, Venture Capital (VC) Firms, Angel Networks, Corporate Accelerators, University and R&D Lab Incubators and various other accelerators in the network. This forms the open innovation ecosystem and platform Hackathons and other innovative events have the potential to bring all stakeholders to collaborate and bring open innovation to life
2. Put a small team and a process in place to screen the startups, shortlist the most promising ones and engage with them
3. Connect with key clients in Bangladesh and Globally to assess interest and alignment with couple of startups for each client

4. Upon confirmation of interest structure an engagement to enable either of proof of concept (POC), pilot, investment, client engagement and/or M&A

Implementation of an Innovation Platform for Bangladesh (Recommendation)

1. Government should initiate for open innovation, where they get Venture Capital (VC), Angels, Accelerators, Industry, Startups and Universities together
2. Run a competition to select 5 start-ups which are focused on biggest opportunities and challenges of the industry
3. These 5 start-up go to the silicon valley for three months and they will be based out of one of the technology expiators where there is already other countries, other startups, other corporates in that ecosystem

In our recent discussion with industry and government stakeholders, there seems to be a significant interest and alignment to implement such a program for both domestic and international outsourcing industry. We recommend that the government provide for $150,000 to $200,000 for such an implementation.

11. Domestic Industry and Adoption of IT

Domestic Industry

Recent trends in the country's ICT sector has also impacted the demand for ITO and BPO services in the domestic space. For example, the growing number of Internet users and adoption, has led to greater connectivity and access for millions of consumers. As such, IT/ITeS companies have capitalized on this newfound market opportunity, by developing web-based services and content that include specialized portals, listing services, e-Commerce, e-Learning, payment intermediary services and development of web applications based on cloud/Software as a Service (SaaS) delivery models. The local ITO sector has likewise capitalized on the development of mobile apps.

Currently, the majority of Bangladesh IT/ITeS providers, as found by BASIS, depend on the domestic market as a primary revenue source, with 63% of members focused on providing services to local industries. Local demand is reported to be driven by companies seeking to improve business processes and adopt global 'IT Best Practices,' a relatively recent trend, only beginning to spread in the country. In a 2014 survey carried out by BASIS of around 110-member service providers, the majority of providers delivering services to the domestic market were focused on developing business application solutions including ERP, Accounting Software, HR Software, Sales Automation, and Inventory Management systems, among others.

From a vertical perspective, the Banking and Finance sector continues to be the primary market for IT/ITeS providers. Though the country's banking software market has been historically dominated by foreign solutions providers, recent growth in the country's financial industry has led BFSI organizations to increase procurements of locally developed BFSI solutions and services. Further, with increased stringency in the regulations of micro credit/micro finance (MFI) institutions demanding higher operational efficiencies, a number of companies have started engaging in this untapped market.[40]

Challenges for industries in Bangladesh to adopt IT

1. Transforming the processes of any given industry to use of technology is complex.
2. The cost of deciding on the technology implementation and maintenance is significant and in most cases does not justify the returns in the short to medium term.
3. There is always a pressure and ease of continuing to use easily available low cost labor pool.
4. Most large system implementation requires multiple departments and functions to work and justify the investment.

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[40] BASIS Software and IT Service Catalog, 2014.

5. Most IT projects run over budget and time line.

Digital Technology and Connected Industry

With the emergence of digital technology and business opportunity there is a significant unmet demand for digitally enabling businesses across the industries. Major IT/BPO service providers are experiencing scorching growth which in most cases is 3-5 times the average growth rate of the company.

Bangladeshi IT/BPO companies should skill and deploy business development and delivery capabilities to:
1. Social Media, Cloud, Interactive and Design
2. Big Data and Analytics
3. Mobility and Apps
4. Content Management
5. IoT/Embedded Devices

Some of the connected IT Industry for the population in general:
1. Government Citizen Services
2. e-services
3. Healthcare
4. Financial Services
5. Education
6. Manufacturing
7. ERP for Supply Chain Management
8. IoT
9. Design
10. Marketing
11. Construction
12. Book Keeping and Accountancy
13. Agriculture
14. Music and Film Industry
15. TV, Cable and Satellite

Digital Forces with limitless possibilities:
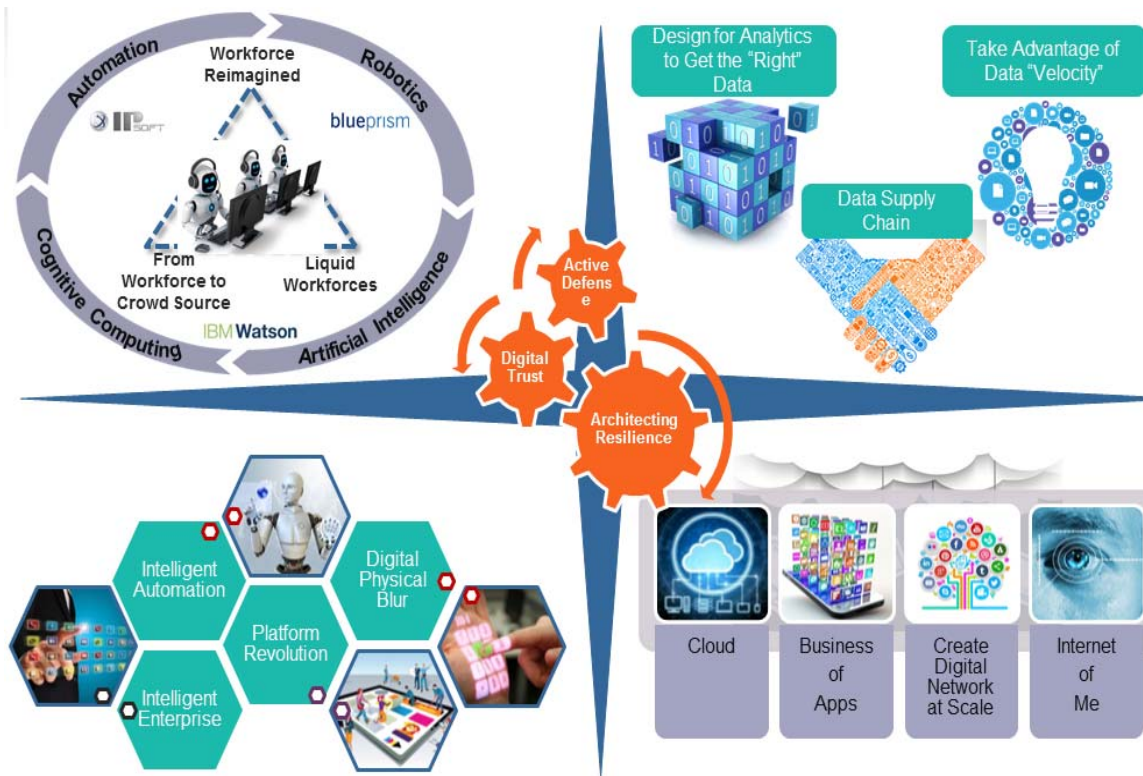
Some examples on adoptions of IT across industries:

1. Consumer Goods
2. Health Care
3. Retail
4. Banking

Annexure – 1 (Strategy and Roadmap)

Bangladesh IT/ITeS Industry Action Items

Near (1-2 years)	Mid (2-4 years)	Long-Term (5+ years)
Mission & Vision Setting	Develop Talent Supply Pipeline**	Process and Service Delivery Innovation (*New Capability Development*)
Develop the Lead Outsourcing Agency	Develop Infrastructural Support**	Long Term Strategy and Policy Planning
Bangladesh Outsourcing Industry Profiling	Develop Enabling Infrastructure (Commercial spaces, Transportation and Telco platform, Power & Utilities, etc.)	Continuous Marketing
Industry—Academe Alignment		
Short Term Policy Framework	Long Term Marketing and Promotions Planning	

• Functioning Lead Industry Agency	• Talent Monitoring Platform	• Growth and Expansion
• 'Bangladesh Outsourcing Industry Profile'	• Improved Infrastructure	• Continuous Improvements
• Identify Industry Talent Needs	• Investment Attractiveness	
• Increase Sector Investments	• Enhanced Visibility	
• Define 'Bangladesh		

- Industry Development Theme -

Accelerate local industry development by optimizing current capabilities. Build long-term foundation for growth and sustainability, through the exploration of niche sector opportunities and by leveraging on inherent strengths of Bangladesh – namely, its vast talent resources

Bangladesh IT/ITeS Industry Strategy Framework and Roadmap

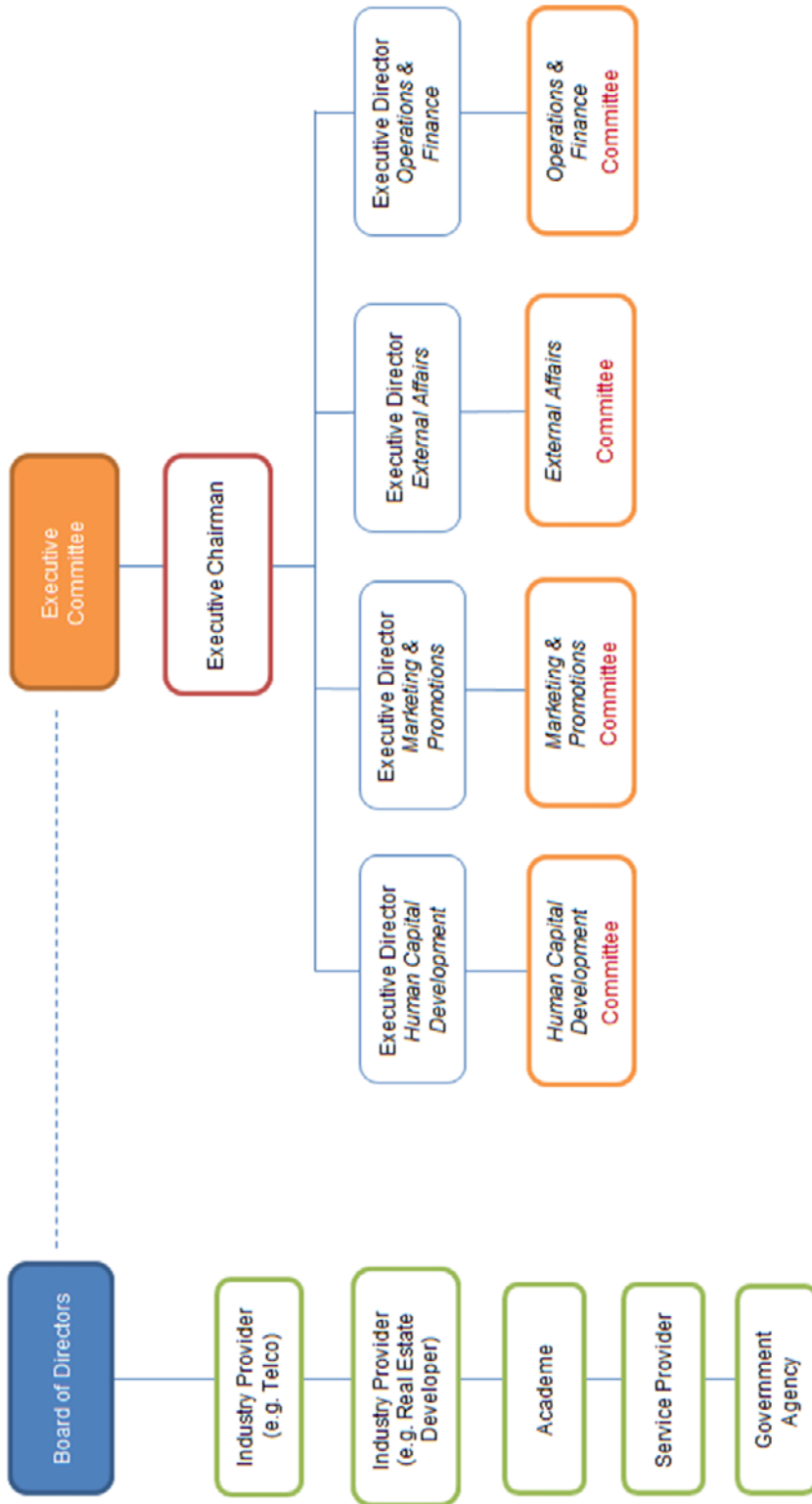| Preliminary Strategy Framework and Roadmap to Develop the IT/ITeS Industry of Bangladesh			
Near			
Objective	Action Items & Activities	Key Stakeholders & Responsibilities	Milestone & Achievement Parameters
Mission & Vision Setting	• Identify strategic goals and objectives to develop Bangladesh IT/ITeS Sector. • Identify developmental hindrances affecting growth & sustainability of IT/ITeS Sector.	• BCC and relevant industry associations – Align strategic initiatives of diverse sectors and identify growth hindrances for each industry subsector.	• Stakeholder and Industry-approved Mission and Vision that will guide subsequent steps of Industry Development.
Develop Lead Industry Agency (BCC)	• Continuous collaboration with relevant industry stakeholder to identify sector/sub-sector initiatives to develop IT/ITeS industry. • Highlight ICT Policy No. 158 which states the need to *establish an authority/body on ICT Industry Development.* • Specify roles of each aligned sector/ organization and stakeholders in carrying out the mandate of the Lead Industry Agency. • Collaborate with Academe to align industry talent requirements, with talent output of Academic sector.	• Develop interaction & feedback platform that will facilitate exchange of ideas that will better identify stakeholder responsibilities and tasks that will assist the Lead Industry Agency in executing its initiatives.	• Enhance presence of Lead Industry Agency across relevant institutions and sectors in the country. This will hasten sector development and allow for faster consensus building.
IT/ITeS Industry Profiling	• *Comprehensive Industry Census* of current service providers and headcount to properly establish industry benchmarks and forecast industry supply/capacity. • Market segmentation of current Industry (revenue & headcount) and projected revenue forecast (5-year horizon).	• Lead Industry Agency in collaboration with subsector groups – Establish a comprehensive and verifiable statistics database.	• Market size (revenue & headcount) and employee statistics with 5-year forecast.
Industry-Academe Alignment	• Establish partnerships and identify collaborative interventions between Academe and Industry (HEIs and Service Providers). • BCC can advise on specific training courses to be added to the curriculum, to better prepare students for IT/ITeS employment. • Analysis of industry talent needs and align academic	• Lead Industry Agency, BCC and BANBEIS – Collaborate and create training programs to align the capabilities and skill of talent pool towards the specific industry needs.	• Create formal and working partnerships between IT/ITeS industry and academe.

	platforms (and curriculums) to address these needs.		
Short Term Policy Framework	• Enhance Fiscal Incentives Policies (i.e. tax holidays, duty-free status on equipment, etc.) • Review tax/incentive policies and their efficacy. • Propose reform options for investment incentives and tax policies. • Benchmark existing tax incentives with those of other mature & emerging service provider nations, such as India, Philippines and Sri Lanka. • Improve legal framework & streamline processes for businesses, transparency in the regulatory systems, and establishment of clear and centralized requirements for business operations to give parity between local and foreign businesses. Simplify technical business procedures - licensing, business permits and tax filing, etc.	• Lead Industry Agency should collaborate with government to identify policies that directly affect industry and propose policies & incentives that can accelerate IT/ITeS development.	• Create a more conducive investment climate, with specific provisions and value-ads for IT/ITeS companies. This will lead to better operational performance of local players and attract more foreign providers to consider the country.
Short Term Marketing and Promotions	• Develop and strengthen the 'Bangladesh Outsourcing' brand, so it can create an identity in external markets • Identify strategic geographies and industry verticals as targets for Marketing and Promotion efforts • Participate in select roadshows and trade events (local & international) • Partner with embassies and trade missions in specific countries where Bangladesh IT/ITeS sector has the *realistic potential* to penetrate as export targets.	• Lead Industry Agency • External Third Party Marketing & Promotion Groups • Industry Analyst Groups	• Identify and develop current Industry differentiators. • Identify and develop Value Proposition for investors. • Create Brand Visibility. • Promote 'Bangladesh Outsourcing' brand to external audience.
Mid			
Develop Talent Supply Pipeline	• Identify talent/skill needs of industry and align with talent pool.	• Lead Industry Agency with Academe and BANBEIS	• Talent Benchmark Index compared with leading service delivery locations

	• Implement *skills monitoring platform* to ensure that quality of local skills are sufficient and capable of meeting international standards & requirements (mid/long-term).		• Internal (industry) Skill Monitoring Platform • Talent Assessment Platform
	• Diversify services portfolio, for country to better utilize large talent pool. Further develop other industry segments to expand revenue contribution.		
	• Increase English proficiencies to expand market share in lucrative North American services outsourcing market.		
	• Launch more relevant and more frequent industry job fairs and branding campaigns.		
	• Integrate technical skills development modules into curriculum of relevant course disciplines in country HEIs.		
Infrastructure Development	• Expand Internet penetration to increase ICT adoption and literacy. • Improve Telco & Utilities redundancy across alterative IT/ITeS locations. • Establishment of alternative service delivery locations - which could offset supply constraints of country's *only* delivery hub (Dhaka). • Improve Power generation & distribution system. • Improve inter/intra city transportation system for greater labor pool mobility.	• Lead Industry Agency - As an industry policy advocate to Government, and working with Private Sector (i.e. Property developers, Telco & Utility Providers, etc.)	• Expand Telco and Physical Infrastructure across country to allow IT/ITeS industry to spread beyond Dhaka. • Develop and complete construction of existing/planned IT Parks and buildings (e.g. Janata Tower).
Optimize Usage of Commercial Areas	• Build more Class A office spaces. Complete development of existing (unfinished) IT Parks and training facilities.	• Lead Industry Agency in collaboration Government and Private Sector (i.e. real estate developers).	• Develop commercial spaces specific for IT/ITeS operations, including IT Parks & training facilities.
Mid-Term Marketing and Promotions	• Promotion of Bangladesh IT/ITeS industry to key geographic markets. • Host and deploy roadshows to expand market reach. • Participate in international IT/ITeS conferences/forums.	• Lead Industry Agency in collaboration with Privates Sector and industry stakeholders – Arrange & host symposiums and international conferences to better	• Reinforcement of present and future industry differentiators. • Reinforcement of the 'Bangladesh Outsourcing' Brand to both internal and external audiences

		highlight the service delivery capabilities of the sector.	• Maintain visibility across target markets.
	• Organize international conferences in-country, to showcase the capabilities local IT/ITeS sector.		

Long-Term			
New Capabilities Development	• Identify new services outsourcing niche areas for growth source. • Identify specific service/process areas for long-term specialization (market focus).	• Lead Industry Agency in collaboration with external Industry Analyst Groups that will allow the Agency to identify and chart future market targets.	• Expansion (diversification) of service delivery capabilities and offerings.
Long Term Strategy and Policy Planning	• Assess current situation. • Set new targets and vision. • Devise long-term growth plan.	• Lead Industry Agency in collaboration with relevant stakeholders - Identify the growth and future capacity of the sector, its thresholds, and new propositions the country can leverage to promote the industry.	• Growth and Sustainability Strategy.
Continuous Marketing	• Re-orient marketing & promotion efforts to *re-introduce Bangladesh* and its 'New Capabilities' and value propositions to internal and external audiences. • Design long-term marketing and promotion strategies that are more specialization-driven and niche-based.	• Lead Industry Agency with support of stakeholders to continually develop and promote sector to domestic and external audiences.	• Sustain and re-invent when necessary, *sector identity* in both local and external markets.

Annexure – 3 (Recommendations)

Title	Description
STP	• The STP entity should set way to make an effective and seamless single window clearance system to enable, support and promote exports of software, BPO and professional services. The STP scheme should provide various benefits to the registered units, including 100% foreign equity, tax incentives, duty-free import, duty-free indigenous procurement, CST reimbursement, DTA entitlement, and deemed exporting. • STP should effectively implement a seamless single window clearance. Customs, duty waivers, tax exemptions, local regulatory waivers or exemption were all covered and managed through nodal agency. It should run like the best of private organizations focused on the needs of the hundreds and thousands of IT and BPO companies mushrooming.
Comprehensive set of support services for potential locators	Bangladesh can take industry leading learning by identifying talent in IT/BPM from across the globe that would be interested in moving to Bangladesh on client engagement / sabbatical. However, this would require identifying, prior discussion and funding models to help locators find this service seamless and cost effective. Bangladesh should provide R&D grants and subsidy to cover the cost of talent acquisition and hosting. • Engage with marque clients in IT/BPM on specific engagements • Review the business need and identify up to five clients • Map the requirement for talent at mid to senior management • After a talent gap analysis, identify talent that needs to be acquired and made available in Bangladesh • Draw a list and initial agreement with identified talent and a cost assessment • Provide grant and subsidy for the first year to cover the delta in talent cost to make it competitive and attractive for the lead

	locator to be incentivized to locate the program in Bangladesh.
National Occupational Standard (NOS)	• Determining of various quality and proficiency standards that exist, and identifying the particular standard, that is *relevant to Bangladesh or its labor market* can be a significant advantage for the fledgling service outsourcing sector of the country. For instance, if the local industry ambitions to provide product design or engineering support services to outsourcing nation, then local providers should be abreast of the *National Occupational Standards* of that nation. This type of deliberate *'market orientation'* can likewise provide Bangladesh a definitive advantage over other low-cost, emerging destinations.

Marketing and Promotion	The marketing plan should address near, mid and long term plan and roadmap with specific recommendations, content and support for the following activities:
	
	• Branding and Marketing for Bangladesh
	• Comprehensive Digital Marketing
	• Development of Audio and Visual Marketing Collaterals
	• Media and Public Relations
	• Media, Public Relations and Press Releases
	• Recommend, develop and support key Events both inside and outside Bangladesh to include the first in-country event for the industry and other events outside to target clients, investors, industry best practices/networking and innovation/entrepreneurship.
	
	In terms of events marketing and promotion, there are three classifications of events that Bangladesh should focus on:
	
	• **Client Centric –** This is where service providers and key stakeholder in Bangladesh have the best opportunity to meet and network with prospective clients in the targeted client countries.
	  o Japan - Japan IT Week
	  o Middle East - Gitex Event
	  o UK - Gartner Business Process Management Summit

	o US - World BPO/ITO Forum & International Outsourcing and Shared Services Forum
	
	• **Industry Best Practices/Networking Events –** These events predominantly have service providers, analysts and few clients. This is a good opportunity to understand industry best practices, share the Bangladesh value proposition and network with analysts, clients and ecosystem partners.
	  o India - NASSCOM India Leadership Forum
	  o Philippines - International Outsourcing Summit
	• **Innovation and Entrepreneurship –** These are events focused on innovation, startups and innovative products. With the digital technology becoming the way of life for future IT/ITeS, participation in these key events become critical.
	  o India - NASSCOM Product Conclave
	  o US (Silicon Valley) - TieCon Global, Y-Combinator Demo Day and 500 Startup Demo Day

Statistic Gathering	Data collection and formation of industry statistics align to a process similar to as follows: • Work with major industry association to improve the sanity and validity of data in phases. • Membership fees could be based on the revenue. • After 3 years, the industry association could ask for audited revenues and employee head count etc. • Primary interviews with major association and key industry players could be used in forecasting the industry numbers.
Class-A Infrastructure	• Actions need to be taken to bring the cost of operations down to make it competitive. Providing subsidize Class-A space or subsidy for the same and providing 100% tax break for IT/ITES employees for the next five years, would make a significant impact to competitiveness of Bangladesh. • Bangladesh should offer subsidized space / subsidy to ensure global competitiveness of infrastructure costs for operations in Bangladesh till the time IT parks are available.
Target Market	• The competitive landscape and existing socio-economic relationship of Bangladesh, the following markets are

	attractive: US UK, Middle East, India and Japan. Existing trade and diplomatic relations with relevant software export markets such as Japan, the Scandinavian countries and Middle-East markets, are good landing spots for Bangladesh developed applications. • Bangladesh IT/ITeS providers should focus on building capabilities in alternative client markets such as India, Netherlands, Middle East and Japan where existing diplomatic relations can be leveraged and markets are not as saturated and competitive. Clearly identifying and then utilizing these alternative client markets will definitely be a key catalyst in developing Bangladesh's IT/ITeS industry as these provide an opportunity for providers to display capabilities in the global market. • Pitching in top 50 IT/ITes companies in India including the MNCs and GICs.
Implementation of Open Innovation Platform	• Bangladesh should orient the connecting startup program for open innovation, where Venture Capital (VC), Angels, Accelerators, Industry, Startups and Universities come together • Run a competition to select 5 start-ups which are focused on biggest opportunities and key challenges of the industry (B2B) • These 5 start-up go to the silicon valley for three months and they will be based out of one of the technology plug and play accelerators where there are already other countries, other startups, other corporates in that ecosystem *In our recent discussion with industry & government stakeholders, there seems to be a significant interest and alignment to implement such a program. Estimated Cost: $150,000 to $200,000*
Talent/Skills Development	• Bangladesh should review and revise education curriculum to include industry relevant content like Data Analyst and Digital Skills etc. • Establish a common technology network and platform across secondary educational institutions. This shared technology platform should improve the quality of secondary

	education, leveraging technology, to prepare and produce better-qualified students for the tertiary level. • Develop alternative cities outside of Dhaka to augment the country's talent pipeline.
Tax and Policy Recommendations	• Bangladesh does provide Tax Incentives Exemptions and Duty Free Import of goods. However, the process implementation is not seamless and requires simplification and clarity. Advance Tax should be abolished.
IT/BPM	• Growth and Promotion of Bangladeshi IT/ITES/BPO companies through Promotion & Marketing and directed Business Development. The LICT Program has the marketing and promotion initiative along with other relevant program to address the same. • Implement Bangladesh Preferential Market Access (at least 30%) for the Govt. projects and Tenders. • Encourage IT/ITES/BPO Clusters – Provide Add-on incentives in the form of capital investment. • Additional incentive such as providing land at very subsidized rate and in good IT Park location to companies for creating jobs. • Provide special incentives for Rural ITES/BPO set up. *Bangladesh's recent announcements on IT policy and incentives are very progressive and puts Bangladesh at par or better with policies and incentives that currently exist in other competitive countries like India, Philippines, Vietnam, Myanmar or Sri Lanka. The policies on Hi-Tech Park and building of STPs is also very encouraging and aimed at driving business growth - providing for a very healthy public private partnership. These policies and opportunities should also be marketed to foreign investors. Most competitive countries have seen investments in early days from Japan, Singapore and Middle-East.*
Capacity Building	• Create a lead IT/ITES Academy. One example is to create a Finance and Accounting Academy similar to Srilanka's CIMA Institute.

	• Co-location of secondary and tertiary IT/ITES Academy Centers. • Develop Master faculty members per year for IT/ITES Academy Centers. • Adopt a Common Assessment Program for IT/ITES Centers. • Create a database of unique biometric profile of IT/ITES professionals.
Innovation	• Develop patents in the ICT domain. The BCC/ICT Division program could provide support and knowledge on developing and patenting IP. • Encourage public/ private supported R&D labs in emerging ICT Centers across Bangladesh. • Create financial eco-system through ICT innovation fund to support start-ups. • Create Bangladesh ICT Innovation Fund with contribution from private and public financial institutions.
Entrepreneurship Development & Mentoring	• Set up a virtual open innovation platform to bring in universities, accelerators, incubators, angels, seed funds, venture capitalist, government, key industry players and start-ups together. • Create a program to identify Innovators and Entrepreneurs every year and provide incentives, like sending five start-ups to silicon valley for 3 to 6 months. • Promote Incubation Network facilities as part of Innovation centers and make the Angel funds available through a centralized ICT fund. • Subsidized memberships for start-ups to industry/trade bodies. • Set-up events, road shows, creativity hubs etc., for start-ups. • Guaranteed government ICT purchases from start-ups. • Make software licenses available on pay per use basis. • Partner with BASIS, BACCO and related sector bodies to create the Start-up Program. • Encourage the entrepreneurship in Education through Networked Incubation Centers.

	• Providing Early Stage/idea2conept (Proof-of-Concept) funding
	• Providing Capacity Building though International visit and workshops.
	• Providing support for incentives and concession to freelancer communities to turn them into businesses.
	• Creating Start-up Cell's/Online Portal and Hotline Support