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Strategy Primer

For the Future of Digital in Bangladesh

UNIVERSITY OF OXFORD

BLAVATNIK SCHOOL OF GOVERNMENT

Pathways for Prosperity Commission

STRATEGY PRIMER

FOR THE FUTURE OF DIGITAL IN BANGLADESH

Compiled by
BRAC Institute of Governance and Development (BIGD)
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Strategy Primer: The Future of Digital in Bangladesh

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In Bangladesh, we have been experiencing that the different production pockets are being revolutionised by new technology – we are anticipating progress, but certainly not overnight. The challenges being there, the overall impact of new technologies will be determined by how they are adopted, the extent to which they are adopted profitably, and how indirect impacts filter through the rest of the economy. Partnering with the University of Oxford's Digital Pathways Initiative, BRAC Institute of Governance and Development (BIGD) intends to chart a pathway for Bangladesh to decide holistic strategies to accelerate its inclusive growth in the digital age project. This work involved assessing the country's current digital readiness, deciding priorities through dialogue with high-level stakeholders, and finally crafting this strategy primer.

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FOREWORD

The Government of Bangladesh underlines the need for leveraging information and communication technologies (ICT) to achieve its Vision 2041. The Government is already taking significant actions under its Digital Bangladesh programme to create a 'knowledge economy' by emphasising digital government for pro-poor service delivery, ICT in business, connecting citizens, and effective human resource development.

To realise the vision for Digital Bangladesh, the Government has prioritised ensuring a networked society having equitable access to ICT, revitalising the critical service sectors of public service to citizens and ensuring a robust support framework. Besides, the Government has a special emphasis on the Sustainable Development Goals (SDGs), and the role of ICT can be orchestrated in terms of achieving these global goals.

Undoubtedly, technologies and innovations have immense potentials to raise productivity and offer solutions to many of the development challenges that Bangladesh is currently facing. In the context of these wide-scale opportunities, it is essential to identify and highlight specific pockets that can be practically targeted for realising tangible outputs. Making the best of the resources that we already have and prudently determining the intended change's size and scope are crucial to thriving in this digital age.

This Strategy Primer aims to indicate the types of economic opportunities that Bangladesh may tap into and scale-up. It suggests concrete actions to meet the existing challenges and turn them into opportunities. This robust work involved assessing the country's current digital readiness across different pillars of its digital economy and identifying priorities through dialogues with high-level stakeholders from both inside and outside the government. Formulating these strategies has been in fact a co-creation process by incorporating the perspectives of the technical experts and specialists drawn from the ICT Division, a2i and other relevant government entities, the private sector, and civil society.

In this era of the Fourth Industrial Revolution, the future of work looks uncertain. There are predictions that technology will substitute some of the activities humans currently perform — and thus displacing the labour in traditional employment sources. The best way to thrive in an ever-changing technology-driven world is to be prepared impromptu. Transition to the digital economy will also bring newer opportunities. The collective effort of developing this Primer's strategic actions will expectedly help us to better understand the imperatives we need to get right for the opportunities to be utilised. This significant piece of work could not have come at a better time when Bangladesh is celebrating 50 years of its birth and looking forward to a brighter future for its people.

M Musharraf Hossain Bhuiyan
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We thank all our guests, technical experts, and specialists drawn from the A2i and ICT division and other relevant government divisions, the private sector, academia, and civil society, for the six separate online workshops held in November 2020. We have listed their names at the end of this document. Those dialogues were instrumental as a co-creation process to build consensus on a shortlist of strategic priorities compiled here in this primer.

We were extremely benefitted from valuable feedbacks from Tebello Qhotsokoane, Toby Phillips, and Matthew Sharp from Digital pathways at the University of Oxford. We are thankful to the entire Oxford team under the leadership of Professor Stefan Dercon at the Blavatnik School of Government for their generosity, collegiality, and insights.

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CONTENTS

ACRONYMS

AI	Artificial Intelligence
A2i	Aspire to Innovate/Access to Information
BACCO	Bangladesh Association of Call Center & Outsourcing
BANBEIS	Bangladesh Bureau of Educational Information and Statistics
BASIS	Bangladesh Association of Software and Information Services
BIDA	Bangladesh Investment Development Authority
BIN	Business Identification Number
BITM	BASIS Institute of Technology and Management
BEZA	Bangladesh Economic Zones Authority
BMET	Bureau of Manpower, Employment, and Training
BPO	Business Process Outsourcing
BSEC	Bangladesh Securities and Exchange Commission
BSCIC	Bangladesh Small and Cottage Industries Corporation
BTCL	Bangladesh Telecommunications Company Limited
BTEB	Bangladesh Technical Education Board
BTRC	Bangladesh Telecommunication Regulatory Commission
BUET	Bangladesh University of Engineering and Technology
BWCCI	Bangladesh Women Chamber of Commerce & Industry
CAGR	Compound Annual Growth Rate
CUET	Chittagong University of Engineering and Technology
DPE	Directorate of Primary Education
e-CAB	e-Commerce Association of Bangladesh (e-CAB)
ECNEC	Executive Committee of the National Economic Council
ERG	Economic Research Group
ERP	Enterprise Resource Planning
e-TIN	e-Tax Identification Number
FAO	Food and Agriculture Organization
FBCCI	The Federation of Bangladesh Chambers of Commerce and Industry
FDI	Foreign Direct Investment
4IR	Fourth Industrial Revolution
HEQEP	Higher Education Quality Enhancement Project
IBPAP	IT and Business Process Association of the Philippines
IBT	Industry-Based Training
ICE	The Innovation, Creativity, and Entrepreneurship
ICT	Information and Communication Technology
IFC	International Finance Corporation
IISC	Indian Institute of Science
ILO	International Labor Organization
IoT	Internet of Things
IP	Intellectual Property
ISC	Industry Skills Council
ISP	Internet service provider
ISRO	Indian Space Research Organisation
IT	Information Technology
ITES	Information Technology enabled Services
LEDP	Learning and Earning Development Project
LICT	Leveraging ICT for Growth, Employment, and Governance
MFI	Micro Finance Institutions
MFS	Mobile Financial Services
MoA	Ministry of Agriculture

MoE	Ministry of education
MoPME	Ministry of Primary and Mass Education
MoF	Ministry of Finance
M/SME	Micro/Small and Medium Enterprise
NAPE	National Academy for Primary Education
NBFI	Non-Banking Financial Institutions
NID	National Identity
NFAP	National Frequency Allocation Plan
NSDA	National Skill Development Authority
NTVQF	National Training and Vocational Qualification Framework
OPGSP	Online Payment Gateway Service Providers
PO	Producers' Organisation
PPP	Public-Private Partnership
PTI	Primary Teacher Training Institute
PTP	Privately owned Training service Providers
RPA	Robotics Process Automation
SBCL	Startup Bangladesh Company Ltd
SCDC	Standards and Curriculum Development Committee
SFSA	Syngenta Foundation for Sustainable Agriculture
STEM	Science, Technology, Engineering, and Mathematics
STEP	Skills and Training Enhancement Project
TEI	Tertiary Education Institutions
TVET	Technical and Vocational Education and Training
UDC	Union Digital Center
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USSD	Unstructured Supplementary Service Data
VAT	Value Added Tax
VCPEAB	Venture Capital & Private Equity Association of Bangladesh
WE	Women & E-commerce Forum
WFP	World Food Programme

GLOSSARY

Business Process Outsourcing (BPO)	The contracting of specific business processes to a third-party service provider
E-commerce	Commercial transactions conducted electronically on the internet
Freelancing	Working independently or using professional associations or websites to get work
IT/ITES Industry	The Information Technology (IT)/ The Information Technology-Enabled Services (ITES) industry provides services that are delivered over telecom or data network to a range of external business areas
Mobile Financial Services (MFS)	A service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet
Offshore Services	The practice of partially basing a company's processes or services overseas to take advantage of lower costs
Startup	A startup is a company in the first stage of its operations, often being financed by its entrepreneurial founders during the initial starting period

ABOUT THIS STRATEGY PRIMER

The unique level of commitment from Bangladesh's government for digitisation has been working as a driving force for the country to thrive in the digital economy. The current government has accelerated the rapid digitisation and the smart use of Information and Communication Technologies (ICT) to spur progress in almost all sectors in Bangladesh.[1]

As a result, Bangladesh has been experiencing a digital transformation as well as sustained economic growth.[2] The overall impact of new technologies will be determined by how well they are adopted, the extent they are adopted, and how indirect effects filter through the rest of the economy.

In this context, partnering with the University of Oxford's Digital Pathways Initiative, BRAC Institute of Governance and Development (BIGD), intended to chart a pathway for Bangladesh to decide holistic strategies to accelerate its inclusive growth in the digital age. This project has been implemented with close collaboration with the ICT Division of the Government of Bangladesh and benefited from feedback and meaningful suggestions from high-level government officials.

The project started with the assessment phase. First, a digital readiness assessment report, *The Future of Digital in Bangladesh*, was developed, which analysed the relevant readiness conditions across the four pillars of the digital economy in Bangladesh - infrastructure, human capital, finance, and policies. It diagnosed the current state of play of those conditions and identified some potential digital readiness challenges.

Second, the opportunity assessment identified three areas that Bangladesh may pursue to scale technological innovations. From our analysis, we find scaling up the Business Process Outsourcing (BPO) and IT/Software industry as an essential opportunity for economic growth in the future. Building a better connection between the formal and informal sectors is another opportunity, along with creating a better ecosystem for the emerging startups of the country.

In the next step, we organised series of dialogue sessions with government agencies, private sectors, and civil society organisations. The purpose of these sessions was to build a consensus on strategic priorities to address the challenges of leveraging the three identified opportunity areas. Additionally, we discussed practical strategies to strengthen digital services in rural areas, ensure effective human capital development, and strengthen collaboration and engagements to accelerate the digital economy.

This strategy primer is the outcome of the overall process. This particular document is structured into three sections: a) *Leveraging opportunities in the digital age* that comes up with specific recommendations to address the challenges of those three areas of economic opportunities to achieve inclusive growth in Bangladesh, b) *Closing the readiness gap* that discusses the critical areas for actions to ensure ubiquitous access and skills development which are essential for the opportunities to be realised, and c) *Collaboration and engagement for the digital economy* which identifies three priority areas of collaborative actions that need to be taken with the roles distributed across the stakeholders.

However, we see this strategy primer as a starting point. There will still be a need for more detailed and fine-grained negotiations and commitments to support the implementation of the strategy primer and shape the digital future of Bangladesh.

The Future of Digital in Bangladesh

1 Assess country's current digital readiness

2 decide priorities through dialogue with stakeholders

3 craft a strategy primer

[1]Strategic Priorities for Bangladesh, A2i, 2011

[2]World Economic Forum, 2019

LIST OF STRATEGIES

Leveraging opportunities in the digital age	Scaling up BPO and IT/ Software industry in Bangladesh	Strategy 1: Making Bangladesh a recognised global service location for IT/ITES/BPO by increased financial attractiveness and enabling business environment
		Strategy 2: Building a regulatory environment that safeguards intellectual property in the IT/ITES industry
		Strategy 3: Prioritising industry-oriented ICT education and training to ensure quality labour supply
		Strategy 4: Enabling the rural and small-town youth including women to join in IT businesses and freelance work
		Strategy 5: Increasing diversification of traditional IT products and services
	Connecting the informal sector to the formal one in Bangladesh through the help of digital technologies	Strategy 1: Simplifying the process of business identification through digitisation
		Strategy 2: Building an enabling environment that supports the smooth trade facilitation of the e-commerce industry
		Strategy 3: Encouraging women and rural population to use digital platforms for economic and business purposes
		Strategy 4: Linking mobile money wallets to informal commerce platforms
	Expanding the startup scene in Bangladesh	Strategy 1: Improve investment climate to attract more investment for the emerging startups
		Strategy 2: Making incubation and mentorship accessible to as many startups as possible
		Strategy 3: Increasing accountability of the business models to avoid malpractices through ecosystem regulations
		Strategy 4: Ensuring increased survival rate and geographic expansion of the startups
Closing the readiness gaps	Ensuring ubiquitous access to ICT infrastructure	Strategy 1: Ensuring access to internet for all
		Strategy 2: Increasing internet speed across the country
		Strategy 3: Ensuring fair competition of internet prices in the market with uniformity of rates
	Human capital development for the digital age	Strategy 1: Ensuring effective foundational education for everyone
		Strategy 2: Improving digital literacy in society
		Strategy 3: Redesigning curriculum to address skill mismatch
		Strategy 4: Strengthening TVET and skills development programmes
Collaboration and engagement for the digital economy		Strategy 1: Leveraging Public-Private Partnerships for ensuring ubiquitous access to ICT infrastructure
		Strategy 2: Supporting pro-consumer innovations of tech companies
		Strategy 3: Facilitating Government-Academia-Industry tri-partite collaboration

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SECTION 1

LEVERAGING OPPORTUNITIES IN THE DIGITAL AGE

To identify opportunity areas for Bangladesh in the digital age, we initially built up an opportunity matrix tool for a broader range of the potential areas considering their priorities in various development strategies of the government and the development partners, current public and private investment in those areas, their GDP contribution, long term rising and predicting their highest value addition to the economy. Simultaneously, we had conducted series of formal and informal consultations with the relevant government, private sector, and civil society stakeholders to identify the opportunities that Bangladesh might realistically take up.

We aligned our strategies with two primary policy documents: a) Perspective Plan of Bangladesh 2021-2041 (PP2041) and b) The National ICT Policy 2018. The PP2041 envisions “Bangladesh will be a developed country by 2041, with per capita income of over USD 12,500 in today’s prices, and fully in tune with the digital world”. It prioritised areas like a) developing human resources ready for the 21st century, b) connecting citizens in ways most meaningful to them, c) taking services to citizens’ doorsteps, and d) making the private sector and market more productive and competitive through the use of digital technology. On the other hand, the ICT Policy emphasised eight strategic objectives to cope with the changes of emerging technologies that include: a) digital government, b) digital security, c) social equity and universal access, d) education, research, and innovation, e) skill development and employment generation, f) strengthening of domestic capability, g) environment, and climate & disaster management and h) enhancing productivity.

This is to mention that we prioritised those areas in this primer where there are already existing income-generating opportunities and emphasised scaling those opportunities to the point so that there can be positive impacts on our current state of economic growth. While aligning with the recommendations from stakeholder consultations and the existing policy documents, we carefully excluded some potential opportunity areas. For example, we talked about agriculture and global value chain issues as a part of our identified areas in this document, not as separate areas of opportunities to intervene.

In this section, we highlight those three final specific pockets that can be practically targeted for realising tangible outputs for the digital economy in Bangladesh: a) scaling up BPO and IT/Software industry, b) connecting the informal sector to the formal one in Bangladesh through the help of digital technologies, and c) expanding the startup scene in the country. From our analysis, we predict that these three economic channels may foster growth through increased export diversification, market efficiency, competitiveness, labour force diversification, and consequently a substantial increase in GDP. Leveraging these opportunities in the digital economy is indeed challenging. In this strategy primer, we identify concrete actions to tackle these challenges to turn these opportunities into reality. This document’s strategies emphasise adaption to frontier technologies in already established or emerging digital businesses to increase compatibility with the global market. At the same time, we explain the necessity of governing the new business models and services to be deliberately designed for inclusion.

OPPORTUNITY 1

SCALING UP BPO AND IT/SOFTWARE INDUSTRY IN BANGLADESH

WHERE DOES THE INDUSTRY CURRENTLY STAND?

Software development firms share 47% of the market for the technology industry in Bangladesh, while Information Technology Enabled Services (ITES) and Business Process Outsourcing (BPO) sector share 32% combined (Calculated using $1B total IT-ITES revenue in 2018 and the data from IT-ITES industry statistics report by LICT).[3] Currently, 1200 companies are registered under the Bangladesh Association of Software and Information Services (BASIS) for software development and IT services in the country.[4] Bangladesh IT and ITES market crossed the export earnings of $600 million in FY 2017-18 and touched $1 billion in FY 2018-19 through ICT exports to 60 countries worldwide.[5] According to USAID, Bangladeshi IT and ITES firms generate almost 35% of their export revenue from US buyers, 15% from the UK, followed by some EU countries such as Denmark and the Netherlands. Many local enterprises also export IT-ITES services to UAE, Saudi Arabia, South Africa, Malaysia, and Singapore. Bangladesh's IT/ITES industry is expected to grow nearly five-fold to reach USD 4.6-4.8 billion revenue by 2025, maintaining a double-digit (39.54% in 2019) Compound Annual Growth Rate (CAGR) over the last ten years.[6] This forecast is remarkably higher than peer countries like India (10-13% CAGR) and Vietnam (12-15% CAGR) for 2017-2020.[7] Evaluating the size of BPO industry is difficult as a mix of enterprises drives it. There are 500,000 regular freelancers and 2,500 agencies who are serving in different freelancing platforms.[8] Besides, more than 120 call centres have been operating in Bangladesh, and in FY 2016-17, they earned approximately USD 300 million reportedly.[9]

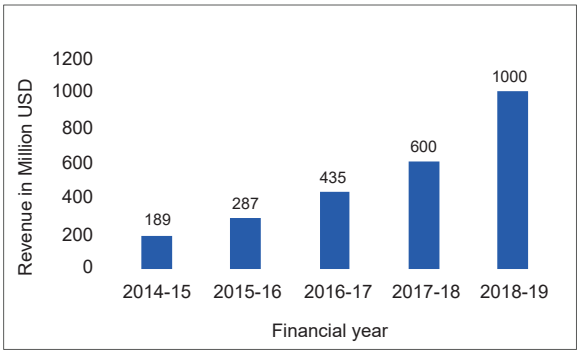


Figure. IT/ITES market revenue in Bangladesh

Source: BASIS

INDUSTRY STRENGTHS AND WEAKNESSES

Among the top 250 global IT-ITES delivery locations, Bangladesh is one of the lowest cost destinations offering significant savings over many of its counterparts, including well-established and dominant offshore centres such as India and the Philippines.[10] The ability to operate at significantly lower costs than India and the Philippines is one of Bangladesh's IT/ITES industry's key value propositions.[11] In addition to the lower costs, Bangladesh also offers a sizeable semi-skilled workforce, augmented with a booming freelancing community.[12] According to the Oxford Internet Institute (OII), Bangladesh is the world's second-largest supplier of online freelancer talent, second only to India.[13] There are 1 million freelancers in India who dominate the global technology and software development market and contribute $400 billion to the national GDP.[14] In comparison, Bangladesh is the top supplierof sales and marketing support service freelancers

[3]BASIS and LICT

[4]LightCastle Partners, 2020

[5]BASIS

[6]BCG Everest Group, 2017

[7]USAID/Bangladesh Comprehensive Private Sector Assessment, 2019

[8]ICT Division, 2020

[9]BACCO, 2018

[10]BCG Everest Group, 2017

[11]Betting on the Future – The Bangladesh IT-ITeS Industry is poised for Growth, Everest Group Research, 2017

[12]LightCastle Analytics Wing, 2020

[13]The iLabour Project – Oxford Internet Institute, 2017

[14]Payoneer Blog, 2016

who generate only $100 million annually.[15] Bangladeshi freelancers are in the lower tier of the BPO value chain, having their expertise on basic data processing, involving uncomplicated data enrolment into database, data conversion, image processing and graphic/ web design, rule based data processing with decision making support according to the rule and guidelines such as accounting, invoicing and similar back office processes, and call centre businesses.[16]

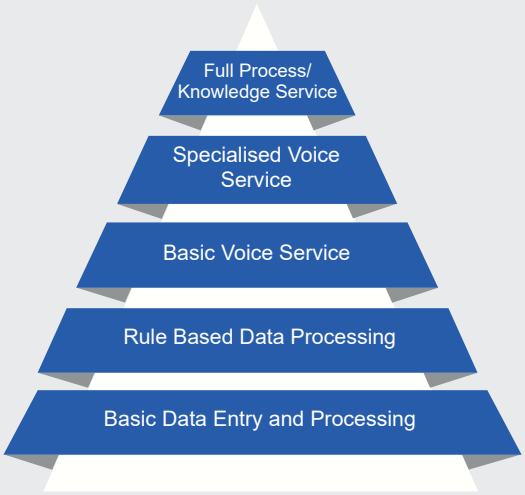


Figure. Value Pyramid of BPO

Source: The World Bank Group

BOTTLENECKS FOR THE GROWTH OF THE INDUSTRY

1. Financial and regulatory barriers

a) *Existing gaps in Foreign Direct Investment:* Bangladesh currently ranks 168th out of 190 economies in the World Bank's Ease of Doing Business Index. Although the 7th five-year plan targeted $9.6 billion FDI annual inflow by FY2020, it was only USD 1.6 billion in 2019, falling by 56% compared to USD 3.6 billion in 2018.[17] The FDI to GDP ratio in Bangladesh was 0.7% in 2019, which is one of Asia's lowest values, even lower than peer countries like India, Vietnam, and the Philippines.[18] In general, the business environment in the country is obstructed by inadequate infrastructure, lack of easy-going taxation and VAT policies, underdeveloped capital market, bureaucratic delay, the slow pace of the legal process, and existing corruption in the ecosystem, all of which result in substantial income loss for the foreign investors.[19] With special incentives such as 100% equity control on the businesses, the software and IT industry received USD 26.1 million foreign direct investment in FY 2019-20.[20] For comparison, India's computer software and hardware industry garnered USD 7.67 billion FDI during the same FY.[21] Lower affordability and accessibility of ICT hardware, software, and services and inadequate internet bandwidth on both the demand and supply side are some of the sector-specific hurdles to attract foreign direct investment in the industry.[22]

Table. Foreign direct investment, net inflows (% of GDP in 2019)

Country	Value
Vietnam	6.2
Philippines	2.0
India	1.8
Bangladesh	0.7

Source: World Bank, 2020

Table. Doing Business Index Ranking, 2020

Country	Doing Business Index Ranking (Among 190s)
India	63
Vietnam	70
Philippines	95
Bangladesh	168

Source: World Bank, 2020

b) *Barriers for the local investors:* Local private investors can avail 10-year corporate income tax exemption on their investment through Bangladesh Investment Development Authority (BIDA) in the ITES

[15]Dhaka Tribune, 2017
[16]Sector Profile: IT industry in Bangladesh, 2019
[17]World Investment Report, UNCTAD, 2020
[18]World Bank, 2020
[19]World Bank, 2020
[20]Dhaka Tribune, 2020
[21]The Hindu, 2020
[22]MS Siddiqui, E-commerce: The role of FDI, The Financial Express, 2020

industry.[23] Hi-Tech Park authority also provides similar offers to the investors (7 years exemption and then discounted tax for the next 3 years). However, they struggle at every stage of their businesses. First, when they start, they face difficulties to arrange loans from private banks because of the high risks associated with the sector in the absence of a proper mechanism or practice to quantify the value of IT work in Bangladesh.[24] Furthermore, the interest rate on loans used to be very high, ranging from 14% to 21% for the ITES industry (recently, few banks are offering flexible packages, for example, BASIS member companies can avail up to BDT 100,00,000 (USD 118000) loan at 9% interest rate from BRAC Bank, and Prime Bank is also providing up to BDT 50,00,000 (USD 59000) loan to IT companies, both without collateral[25]), and the investors do not receive any borrowing and loan benefits, unlike in RMG.[26] Second, in comparison with the Indian or Filipino offshore industry, the industry in Bangladesh is still nascent; therefore, investors need to build entire ecosystems investing into training talent and infrastructure which is often burdensome for the local investors.[27] Besides, there is an inherent entry barrier for new and small entrepreneurs in the industry with policies inclined to the large producers/ exporters.[28] Such as, IT firms with less than 200-bit data storage have to bear larger burden of tax compared to the firms with higher data storage.

c) *Weaker cross-border payment system:* To increase revenue from the sector, the cross-border payment system works as a significant obstacle in Bangladesh compared to its neighbouring countries. The payment system here is basically through international bank transfer, which is a time-consuming, tedious, and costly option. Many users prefer not to use these services, and instead, they go through informal channels.[29] In the absence of international payment gateways like PayPal, freelancers, and small and medium IT/ITES service providers usually deal with very few direct clients outside the marketplaces such as Fiverr and Upwork. Bangladesh, as a consequence, is losing a considerable amount of revenue every year.

d) *Absence of safeguarding mechanism of intellectual property:* With short product life-cycles, fierce competition, high product complexity, IT/ITES firms require effective intellectual property protection mechanisms (patents, copyright, and trademarks) to exploit both cost-driven and market-driven complementarities.[30] Unfortunately, creating an intellectual property rights-friendly environment in the digital sphere is still a challenge for Bangladesh due to the lack of in-depth legal expertise on digital aspects in the industry and coordination among the patent and copyrights office. Some of the necessary laws and regulations are also outdated. For example, the Copyrights Act, 2000 (Amended in 2005) in Bangladesh does not provide any robust safeguard mechanism against online copyrights piracy, p-2-p broadcast of copyrights substances, and copyrights in the database. Under the current Patents and Designs Act, the inventor of a 'design' cannot claim any right for designing his invention. The Trademarks Act, 2009 addresses the intentional violation of a trademark-holder's right by offering multiple remedies, penalties, and compensations, but still unclear regarding its adoption in the digital space.

2. Labour supply challenges

a) *Lack of adequate ready-trained IT/ ITES talents for the industry:* The growth of the IT industry requires a supply of ready-trained talent; however, there is a substantial shortage. The country's STEM (Science, Technology, Engineering, and Mathematics) enrolment rate for higher education stands at 21%, which is 40% in India and 28% in Sri Lanka.[31] In the year 2016-17, Bangladesh had around 543,000 tertiary graduates, and among which only 16,000 graduated with IT-related degrees.[32] The IT industry's key complaint in Bangladesh is the lack of educational competencies in the workforce, as 62% of Bangladesh's youth are undereducated for the work they do.[33]

[23]BIDA

[24]Bangladesh Sectoral Growth Diagnostic, EDIG, 2017

[25]BASIS

[26]Shinkai and Hossain, 2011

[27]Everest Group Research, 2019

[28]Bangladesh Sectoral Growth Diagnostic, EDIG, 2017

[29]The Business Standard, 2020

[30]JRC Science and Policy Report, European Union, 2015

[31]World Bank, 2019

[32]'Skills gap in the IT sector: Utilizing the power of youth', ICT Division, 2019

[33]ADB Brief, 2016

However, to enhance this skilled workforce's quality for the IT industry, the government had trained 65,000 entry and mid-level IT/ITES talents till 2018.[34] Overall, Bangladesh Computer Council (BCC) claims to provide basic to standard level IT training over 196,500 young people nation-wide in the last 12 years through various projects.[35]

b) *Limited options of required skill-based training for the freelancers:* Freelancing or the BPO industry requires a semi-skilled workforce, which can practically solve the existing unemployment problem in Bangladesh to a great extent. Most of Bangladesh's 500,000 regular freelancers only have general education and no special training.[36] Till 2017, only 2% of the total registered freelancers had received training under the government's Learning and Earning Development Project (LEDP).[37] Recent data from ICT Division says over 100,000 people have received freelancing training, among them 41,600 are women.[38] There are also some sporadic private initiatives countrywide to train freelancers with required basic skills. However, the absence of long-term and high-level skill-based training works as an obstacle for the Bangladeshi freelancers against getting high-paying works online. Lack of English language proficiency is another hindrance in taking this sector forward, as it is a significant requirement for communicating with international clients.

c) *Challenges of implementing labour law in the digital space:* Bangladesh's employment law, regulated by the 2006 Labour Act ("Act") and the 2015 Labour Rules ("Rules"), have not been updated with the changing nature of digital work in gig economy. Under the current labour law, the temporary workers in the digital space are not entitled to access the entire range of labour rights — from the right to a minimum wage, health and safety conditions, and collective bargaining. The laws and regulations prescribe working hours, weekly vacations, annual leave, medical leave, and gratuity benefits for the employees working in commercial and industrial enterprises. The absence of legal recognition makes the workers in the digital space attain lower social value and make the gig economy's environment owing to a temporary stand of position. A freelancer or temporary people hired by the IT industry (or the tech-based ventures like Pathao, Uber, and Sohoj etc.) are, therefore, still unable to experience 'job security'.

3. Urban-rural disparity and the challenges of gender inclusion in the workforce

In addition to lower device affordability and poor internet quality, youths in the smaller towns and villages can hardly avail of proper IT education and specialised training, which creates a substantial regional digital divide for the industry. With relatively low participation of women in ICT education at the tertiary level in Bangladesh, the freelancing sector, IT businesses, and call centre operations suffer from gender disparity. To ensure at least 30% participation of girls in Bangladesh's ICT industry, The Leveraging ICT for Growth, Employment and Governance (LICT) and the 'She Power' projects trained 20,000 women altogether till 2019 to increase skills for freelancing, IT service provision and call centre operation. Unfortunately, only 25% of total female students enrol for Computer Science (CS) or Information Communication Technology (ICT) related subjects at the tertiary level in Bangladesh, and only 13% of them continue as female ICT professionals.[39] This urban-rural disparity and lack of gender inclusion in the workforce have implications for inclusive growth and significantly undermine the sector's capacity to grow sustainably. It can be noted that Bangladesh has benefited from reducing gender inequalities within the RMG industry, enhancing its global reputation.

4. Lack of diversification of IT products to be compatible with the global market

Keeping up with relevant technological advancements will be a critical success factor for the future of Bangladesh's technology industry. The software/IT industry in Bangladesh mostly supplies traditional IT products and services such as app development and maintenance, IT helpdesk, and web development; it lacks diversification towards more advanced product and service options, such as big data analytics, Internet of Things (IoT), 3D imaging, and Robotics Process Automation (RPA) to tap into the global offshore services industry. The industry is slowly adopting the IoT technology for more intelligent production; however, usage of such frontier technologies for improved delivery of essential

[34]Betting on the Future – The Bangladesh IT-ITeS Industry is poised for Growth, Everest Group Research, 2017

[35]BCC

[36]ICT Division, 2020

[37]ICT Division, 2020

[38]A2i

[39]Bangladesh Open Source Network (BdOSN), 2017

healthcare and education services is not visible. Similarly, Bangladeshi BPO providers operate in semi-skilled segments, from basic data entry and processing to rule-based data processing and exporting basic voice services on a limited scale.[40] In the absence of strategic and concerted efforts, the ITES/ BPO sector in the country is struggling to move upward in the value-pyramid.

With the constant efforts from the IT and Business Process Association of the Philippines (IBPAP), the Philippines has emerged as one of the most progressive services outsourcing destinations in Southeast Asia.[41] The IBPAP has been instrumental in ensuring the development of the country's IT-BPO industry through aggressive industry-building initiatives, sustained external marketing campaigns, and regular collaboration with the academia 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.[42] Considering the cases of peer countries like the Philippines and the unique needs and context of the IT/ITES sector in Bangladesh, we identify four areas of strategic actions to scale up BPO and IT/ Software industry: a) adequate financing and fixing the regulatory barriers, b) ensuring skilled/ semi-skilled labour supply for the industry, c) addressing geographic and gender disparities in the workforce, and, d) adapting to the dynamic global IT market.

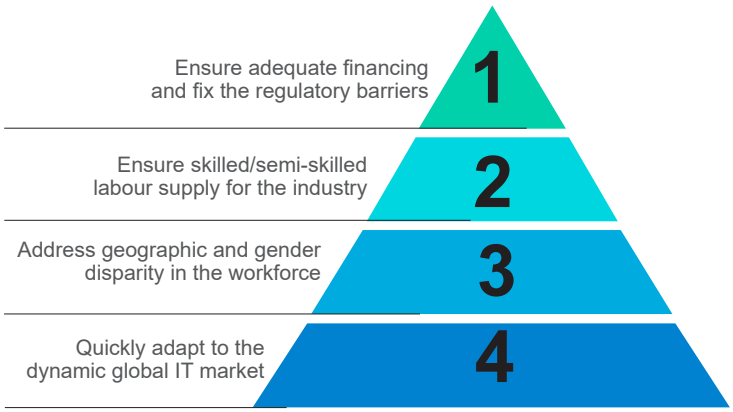
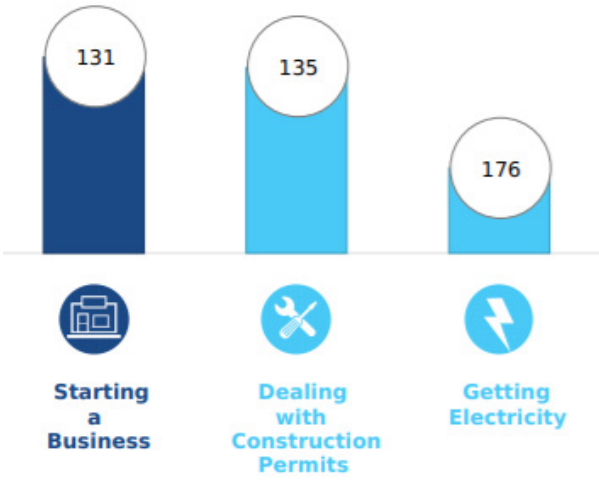


Figure. Strategies to scale up BPO and IT/ Software industry in Bangladesh



ENSURING ADEQUATE FINANCING AND FIXING THE REGULATORY BARRIERS

Financing and regulatory issues work as developmental hindrances affecting the growth & sustainability of the IT/ITES Sector in Bangladesh. With this concern, we propose two strategies in this section.

STRATEGY 1

Making Bangladesh a recognised global service location for IT/ITES/BPO by increased financial attractiveness and enabling business environment

1.1 Action: Improve the overall business environment, including regulatory or legal adaptability to attract foreign investors to invest in the IT/ITES industry

Enforcing contracts, registering property, trading across borders, getting electricity, and resolving insolvency are the bottom five indicators for Bangladesh's Doing Business Index, where Bangladesh has performed poorly. These are areas where improvement of the indicators is pertinent.

Among the regional competitor countries of Bangladesh, India has the highest rank (63rd) on the World Banks's Doing Business Index, while Vietnam, with its 70th position, continues to be a magnet for attracting foreign direct investment.FDI into Vietnam rose by 7.4 % year-on-year – showing an

[40]ICT sector profile, BIDA, 2019

[41]EMERHUB, 2019

[42]Bangladesh IT/ITeS Industry Development Strategy, Tholons, 2015

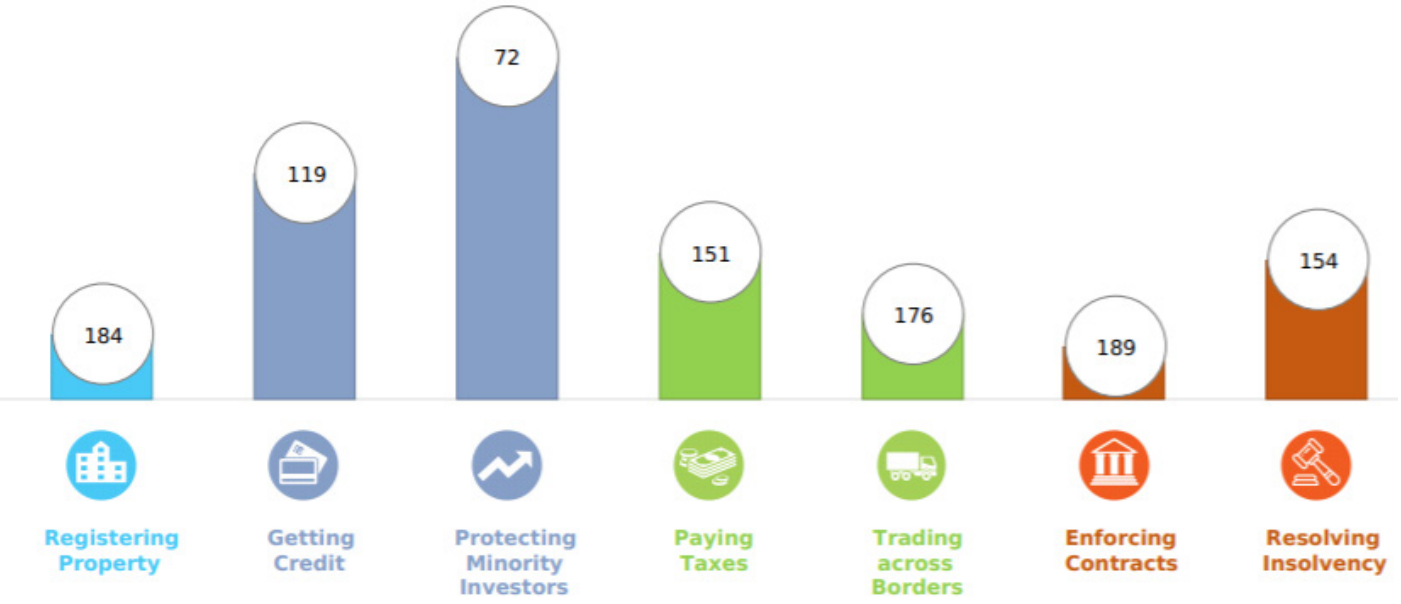


Figure. Bangladesh's rank in individual indicators of Doing Business Index 2020 among 190 economies

increase in investor confidence.[43] Both these countries proactively improved their business and investment environment for foreign companies. India's strategy was to reform areas of starting a business, dealing with construction permits, trading across borders, and resolving insolvency.[44] On the other hand, Vietnam's reforms have focused on access to credit and payment of taxes.[45]

INDIA'S STRATEGY OF IMPROVING THE BUSINESS ENVIRONMENT

1. Making starting a business easier by abolishing filing fees and electronic memorandum of association
2. Reducing the time and cost of obtaining construction permits by streamlining the process and improving quality control
3. Making trading across borders easier by upgrading port infrastructures, enabling post-clearance audits, integrating trade stakeholders in a single electronic platform, and digitising paper works
4. Making resolving insolvency easier by promoting reorganisation proceedings in practice

Source: The World Bank, 2019

VIETNAM'S STRATEGY OF IMPROVING THE BUSINESS ENVIRONMENT

1. Relaxing requirements for establishing credit information firms to reduce service costs and increase transparency in the market, and diversify the pool of available credit information
2. launching a portal connecting borrowers and credit institutions where borrowers can choose credit packages, see their credit information and scores to monitor credit levels as well as to prevent fraud
3. Upgrading the information technology infrastructure to make paying taxes a more straightforward process for most businesses and reduce corruption at the same time
4. Clarifying the unclear tax issues and reducing the tax compliance burden for businesses

Source: Vietnam Briefing, 2019

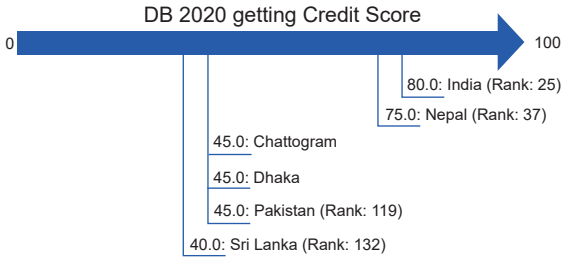
Bangladesh can benefit from following Vietnam's strategies by focusing on improving access to credit and simplifying the payment mechanism of taxes to have a quick jump on the Doing Business ladder. This is to mention that streamlining the administrative procedures through digitisation worked as a key step for Vietnam in this regard. Moreover, to attract

[43] Vietnam Briefing, 2019
[44] The World Bank, 2019
[45] Vietnam Briefing, 2019

foreign investors in the IT industry, Bangladesh essentially needs to reduce cost and increase$ the accessibility of internet, ICT hardware, software, and services in rural and remote areas. This will be discussed in detail in the 'Closing the Readiness Gap' section.

1.2 Action: Encourage the local investors with incentives to invest in the IT/ITES industry to compete with the foreign investors equally

One of the significant problems local investors face here is access to credit. In general, having access to credit in Bangladesh is more complicated than the regional competitor countries like India (Bangladesh ranks 119th and India ranks 25th in Doing Business Index 2020 for this indicator). Bangladesh needs to formulate an integrated or unified legal framework for secured transactions that extend to the creation, publicity, and enforcement of functional equivalents to security interests in movable assets (as an alternative of collaterals) to encourage local investors. At the same time, Banks and financial institutions should have access to borrowers' credit information online, which might be through a secured online platform, as previously discussed in Vietnam's example.



Note: The ranking of economies on the ease of getting credit is determined by sorting their scores for getting credit. These scores are the sum of the scores for the strength of legal rights index and the depth of credit information index.

Getting credit score of Dhaka and Chattogram according to Doing Business Index, 2020, source: World Bank

For IT industries, proper mechanisms need to be in place to quantify the value of IT work to reduce the sector-specific difficulties to access credit from the Banks. The higher interest rate should be reduced, and the investors in this industry should receive borrowing and loan benefits like in the RMG sector. Currently, industrial investors are registered through three central investment authorities in Bangladesh and can benefit from the following vital incentives and privileges. However, incentives should be taken to create a level playing field for the new and small entrepreneurs in the industry who are often not tenanted in the formal economic zones.

Investment authority	How it supports the ecosystem	Incentives for investment
Bangladesh Investment Development Authority (BIDA)	Investment promotion and facilitation, business policy advocacy, and inquiry/ consultation/licensing facilitation services to the investors	• Full Corporate Income Tax exemption for ICT/ software industry • Tax rebate for manufacturing industries outside Dhaka City • VAT exemption for imported capital machinery/ spares • Accelerated depreciation for newly established industries on their factory, machinery, and plant
Bangladesh Economic Zones Authority (BEZA)	Development and management of economic zones because of generating more spill over effects of investment for industrialization	• Phased Corporate Income Tax (CIT) exemption for ten years • VAT exemption for imported machinery/ construction material, and utility expense • Tax exemption for dividend/ royalty and technical license fees, etc. • Exemption of local government tax/ land development tax • Exemption from registration fee on land transfer/ loan document, stamp duty on loan document/ lease of land and space
Bangladesh Hi-Tech Park	Establishment and operation of hi-tech parks across the country	• Ten years Corporate Income Tax (CIT) exemption (for IT/ ITES firms)

Investment authority	How it supports the ecosystem	Incentives for investment
Authority (BHTPA)	to accommodate both local and foreign IT firms to these parks	• Import duty exemption on capital equipment (2% of on ICT related hardware) and construction materials • Tax exemption on dividend, share transfer, royalty, technical assistance fees • Three years Personal Income Tax exemption for expatriates • VAT exemption on local bills during production • Stamp duty exemption on mortgage deed registration • Access to bonded warehousing facility

Current incentives for investment, source: ICT sector profile, BIDA, 2019

The local investors often struggle with nurturing talent and infrastructure difficulties; strategies to address those issues will be discussed in the next sections.

1.3 Action: Initiate platforms to ease the process of international payment

PayPal is the most popular digital payment method, currently available in 203 countries globally, including India, Nepal, Bhutan, and Sri-Lanka.[46] Even though PayPal is well welcomed by the ITES providers and the service seekers worldwide, it's not available in Bangladesh. This platform can facilitate speed, convenience, and international transactions' security – something precious for users, especially for the freelancers with recurring transactions.

The Banking Company Act, 1991 states that Bangladesh Bank is an autonomous body; however, the establishment of the Banking Division by the Ministry of Finance (MoF) has practically reduced Bangladesh Bank's capacity and jurisdiction. Therefore, despite facing no obstacles from the central bank, PayPal cannot operate in Bangladesh due to the ministry's bureaucratic complexities.[47] To avoid losing a considerable amount of revenue from foreign direct clients in the freelancing sector every year, MoF should approve the operation of PayPal based on the non-objection of the central bank.

> Authorised Dealers (AD) shall enter into standing arrangements with internationally Online Payment Gateway Service Providers (OPGSP) and maintain separate collection account for each OPGSP.

Source: Foreign Exchange Transaction guideline, Volume 1, Chapter 8, Para (23), sub-Para (2)

Although a payment system called Xoom has been introduced instead of PayPal in Bangladesh, it cannot be regarded as a proper replacement as this platform contains similar difficulties like other conventional payment systems like bank transfers. Therefore, even if alternative platforms are introduced, it must offer a money transfer experience as smooth as PayPal.

STRATEGY 2

Building a regulatory environment that safeguards intellectual property in the IT/ITES industry

2.1 Action: Ensure effective implementation of the IP Laws and revise the laws in necessary cases to adapt them to the digital atmosphere With great potential in the computer software market, Bangladesh has a long way to establish a strong ICT sector with effective utilisation of IP regulations. ICT Division, the Ministry of Industries, should work with the Ministry of Law to remove the ambiguities in the existing legal codes and revise in necessary cases. For example, software is currently protected by copyright as 'literary work' specified in section 2(46) of the Copyright Act, 2000.[48] Software piracy in the market currently prevails dominantly due to lack of effective optical disc regulation and existing copyright regulation enforcement.[49] To improve the situation, patent, design, copyright design and trademarks registration process should be made less time consuming and inexpensive. The Ministry of Industries has already formulated The National Intellectual Property Policy in 2018, which suggests several provisions to modernise IP administration and management, including one of e-enablement of processing of various IP

[46]PayPal's official website
[47]Why Bangladesh should introduce PayPal, The Business Standard, 2020
[48]Copyright Office, Ministry of Cultural Affairs, Government of Bangladesh, www.copyrightofficebd.com
[49]Developing National Intellectual Property Policy for Bangladesh, WIPO, 2013

applications. It also includes the provision of establishing a National Council and Sectoral Committee on intellectual property to oversee implementation, follow-up, and monitoring of the policy at the national level.

STRATEGIES TO MODERNIZE IP ADMINISTRATION AND MANAGEMENT

- Develop and strengthen the human resources of institutions involved in the protection, exploitation, and enforcement of IP skills capacity
- Improve the efficiency and transparency of the IP system. This will be achieved by e-enablement of processing of various applications (e.g. patent, designs, trademarks, GI, copyright applications etc. as well as post-registration activities)
- Create a citizen's charter explaining the registration process for various forms of IP (e.g., trademarks, patents, geographical indications, copyright and design)
- Establish a National Institute of Intellectual Property Management to provide training on IPR administration and management for all relevant stakeholders' groups
- Develop strengthening IP administration by setting up a single development and service-oriented IP office
- Initiate and strengthen partnerships with relevant local public and private sector bodies and regional and international organizations and promote the use of IP as a tool for fostering innovation and creativity and fostering development.

Source: The National Intellectual Property Policy in 2018

However, systematic and specialised IP training programs for the police, judiciary, and customs and the industry stakeholders are necessary for the implementation of IP laws and regulations.

Ensuring royalty payments to IP right holders may also work as incentives for the software designers. For adaptation and up-gradation of the rules, absence of an effective technological base should be reduced by increasing the scope of R&D in both public and private sectors by strengthening the linkage between R&D in universities and industries. These will help IP generation and commercialisation as well as the growth of the industry.

ENSURING SKILLED/ SEMI-SKILLED LABOUR SUPPLY FOR THE INDUSTRY

STRATEGY 3

Prioritising industry-oriented ICT education and training to ensure quality labour supply

3.1 Action: Formulate a clear roadmap for tertiary level education considering the specific needs of the IT industry

In this regard, a comprehensive industry census of current service providers considering market segmentation and headcount is required to establish industry benchmarks, forecast industry supply/capacity properly, and project labour demand. Secondly, partnerships need to be established to identify skills and learning outcomes associated with the curriculum to better prepare students for IT/ITES employment. Constant research and analysis of industry talent should be undertaken to align universities and technical colleges and their curriculums to address these needs.

National Skill Development Authority (NSDA) is best placed to ensure collaboration among other stakeholders (listed below) to formulate a clear roadmap for tertiary level education with their current mandate of standardisation and coordination of skill development efforts.

Industry Actors	Responsible for Skills Development
• Bangladesh Association of Software and Information Service (BASIS) • BASIS Institute of Technology and Management (BITM) • Bangladesh Association of Call Center & Outsourcing (BACCO) • Bangladesh Computer Council (BCC) • ICT Division	• National Skill Development Authority (NSDA) • Bangladesh Technical Education Board (BTEB) • Bureau of Manpower Employment and Training (BMET) • Bangladesh Bureau of Educational Information and Statistics (BANBEIS) • Autonomous Universities (Public and Private) • NGOs like BRAC (Skills Development Programme)

The National Training and Vocational Qualifications Framework (NTVQF) and the National Skills Quality Assessment System in Bangladesh ensure quality, demand-based skills development. NTVQF is a comprehensive, nationally consistent yet flexible framework and currently provides a list of the industry's relevant IT skills. However, this list needs to be agreed upon, continuously updated, and prioritised in all tertiary educational institutions across the country.

Broad Category IT Skills	Sub-Category of Activities
Software Systems/ Software Application	Web Applications, Website, Web Portal, iOS Apps, Android Apps, Desktop, Relational Database (RDBMS), Manual QA, Automated QA, Project Management, Documentation
Hardware and OS	Desktop, Laptop, and Servers
Network, Connectivity, and Communication	Network, Internet & Security
Specialized sectors	Gaming, Graphic Design, Data Science and Analytics, Big Data/ Data Mining/ AI, Data Entry, Extraction & Analysis, Writing, Translation & Transcription Sales & Marketing E-commerce Accounting & Finance Research & Consultancy
Others	Campaign Planning, Civil Engineering, Construction, E-Learning, Electrical Design, Engineering, HVAC System Design, Interior Design, IP & Trademark, Management, Mechanical Engineering, Media & Public Relations (PR), Medical, Moodle, Photography, Plumbing, Real Estate, Telecommunications, Vehicle Engineering, Virtual Assistant, Call Center

Source: National Technical and Vocational Qualification Framework

Economic Research Group (ERG) and BRAC Skills Development Program published a ranking of skills/programming languages/development tools that are sought in the IT product/services provider firms in 2019. We document the ranking here as a good practice of industry-oriented skills development.

Type of skills	Skills	Rank
General Programming Languages	Java	1
	C++	2
	Python	3
Scripting Languages	JavaScript / Jscript	1
Web Application Development	PHP	1
	WordPress	2
User Interface Technologies	CSS	1
Middleware/Application Server	Node.js (JS)	1
Database Platforms:	MySQL	1
	MS-SQL Server	2
	SQL	3
Content Management System (CMS)	WordPress	1
Mobile Application Development	Android SDK – Android apps	2
	Objective C – iOS	1
Network Support & Administration	CISCO	1
	MikroTik	2
Application	Adobe Suite	1
	Visual Studio 2	2

Skills in demand in IT sector, Source: Economic Research Group (ERG), 2019

However, there should be a central coordinating body for skills delivery across the country to avoid duplication of programs, reduce competition for the same target groups of learners, and increase the linkage between different skill development authorities.

3.2 Action: Engage universities to design and provide specialised training to the IT professionals at the entry, mid and higher levels

A recent study says that employers of the IT product/service providing firms face more difficulties finding people for the upper-level job categories. The ease in recruiting lower skill category jobs is attributed to the availability of graduates from polytechnic and TVET institutions.

Level of difficulty in recruitment	Posts	Industry domain
High	Project managers System analysts System engineers	Across all type IT product/ service providing firms
Low	Software developers QA engineers Document specialists	Software related jobs
	Line staffs IT support staff	Hardware/ network-related jobs

Perceived difficulties in recruitment by the employers in the IT industry, Source: Economic Research Group (ERG), 2019

This finding implies that the number of training programs in the country needs to be expanded to reflect the growing better and change occupational and skill profiles in the entry, mid, and higher levels. Standards and Curriculum Development Committee (SCDC), under

the sub-sector Industry Skills Council (ISC) and the Technical and Vocational Education Reform project's assistance, has developed a competency standard for the IT professionals dividing their skill levels into eight categories. Among these categories, Level 3 (Semi-Skilled worker) transition to Level 4 (Skilled worker) will be instrumental for the industry.

Skill Class	Web Design	Graphics Design	IT Support Technician
Semi-Skilled worker (Level: 3)	Develop cascading style sheets, develop client-side dynamic webpage using jQuery, use web design and content guidelines, web animation (Intermediate Level), edit images (Intermediate Level)	Perform creative design work using multiple graphics design software, perform estimating and costing in graphic design	Install software to a network computer, evaluate system status and run standard diagnostics, use product documentation for IT support, troubleshoot computer and networks, necessary system administration
Skilled worker (Level: 4)	Develop dynamic website using server-side language, create and manage Rich Web Content, develop a theme from design for CMS, use Ajax and JSON, monitor and compile website traffic data	Create a template using graphic design software, develop materials for output	Provide defence systems for network threats, cyber center management, apply basic mathematics to digital electronics, develop a Local Area Network (LAN)

Source: The National Training and Vocational Qualifications Framework (NTVQF)

Top 10 skills for future suggested by the World Economic Forum

1. Analytical thinking and innovation
2. Complex problem-solving
3. Critical thinking and analysis
4. Active learning and learning strategies
5. Creativity, originality, and initiative
6. Attention to detail, trustworthiness
7. Emotional intelligence
8. Reasoning, problem-solving, and ideation
9. Leadership and social influence
10. Coordination and time management

Source: Future of Jobs Report, 2020

To train the mid and higher level professionals, university engagements are necessary. There are few scopes of training/diplomas for the professionals who are managing other people or teams or have significant leadership responsibilities in their current jobs in Bangladesh. Institute of Business Administration (IBA), Dhaka University has been implementing an LICT (BCC) sponsored Advanced Certificate programme for Management Professionals for Industry 4.0 (ACMP 4.0) targeting middle managers of IT/ITES Industry in partnership with IIT Delhi, IIM Ahmedabad and George Washington University. So far 636 professionals have completed this certification course. Similarly, IT or engineering universities need to be more agile to design and provide specialised training to the IT professionals. Demand-based skills development programs by universities will ensure the quality of training and help develop more advanced and soft skills among the existing labour force in the IT industry. Lack of awareness and expense hinder the creation and promotion of these types of efforts. There should be two strategies to solve this problem: a) publishing skill needs lists annually to ensure that there is information available for both sides of the labour market and b) introducing short courses, apprenticeships etc. to ease cost barriers of the programmes for the demand side.

3.3 Action: Identify specific focus areas of BPO services and provide targeted training

Bangladesh needs to identify new and upgraded services outsourcing niche areas for growth source and long-term specialisation. For example, the Philippines and India focused on improving knowledge of higher-skilled segments of ITES/ BPO of the local service providers, such as basic and specialised voice services,

by working closely with the multinationals' captive BPO centre. Similarly, to upgrade in the ITES/ BPO value chain ladder, Bangladeshi freelancers need dedicated training to attract multinationals and foreign industries to establish the country as an offshore development hub for software and application and captive BPO centres, including call centres in the country. In 2011, Samsung inaugurated its R&D hub in Bangladesh for mobile app development, verification, and testing, and following the trend, more foreign companies have been establishing joint ventures in Dhaka to provide offshore development service in recent years. Therefore, investments in training in specific one or two areas will create significant opportunities for employment creation and enable freelancers to get high-value work online. English proficiencies of the freelancers also need to be increased to expand market share in the North American outsourcing market. BACCO should work as the lead agency to coordinate with the training providers.

3.4 Action: Make the labour law compatible with the digital work environment

A new labour law regime needs to be devised for gig/ platform economy workers to guarantee their procedural rights such as collective bargaining and substantive rights such as minimum wages and safe working conditions. With the ongoing global debate whether gig workers are classified as an employee or independent contractors, many concerns remain unsettled regarding how to apply general employment rights to gig work. Occupational health risk and regulation opportunities of freelance and temporary online platform workers are almost absent in the country at present.[50] In this purpose, some specific work definitions/ protections need to be extended to gig workers. For instance, researchers in the Fairwork project under the Oxford Internet Institute have developed five core global principles for fair work in the platform economy in consultation with the platforms, workers, trade unions, regulators, and academics. These principles include fair pay, fair conditions, fair contracts, fair management, and fair representation.[51] The Ministry of Labour and the Ministry of Industries need to take initiatives following these global trends to adapt the labour law in Bangladesh with this new form of work, right to payment for work, working hours, right to holidays for the workers in the digital space and ensure its proper implementation.

ADDRESSING GEOGRAPHIC AND GENDER DISPARITIES IN THE WORKFORCE

STRATEGY 4

Enabling the rural and small-town youth, including women, to join in IT businesses and freelance work

4.1 Action: Design dedicated training programs for the rural and small-town youth for geographical expansion of BPOs/ ITES across the country using existing infrastructures

At present, Union Digital Centers (UDCs) have provided a wide range of digital public and private services to rural citizens as a one-stop-shop at almost all Bangladesh unions.[52] UDCs are designed as a micro-enterprise model adopting a unique public-private partnership (PPP) approach employing one male and one female entrepreneur who assist rural people to access government digital services. UDCs can create alternative opportunities; for example, a2i introduced computer training at UDC to reach the computer training service at the doorsteps of citizens in rural areas since 2001.[53] ICT division has already taken several projects in this regard including Learning and Earning Development Project (LEDP), Basic Skill Transfer up to Upazilla Project, Empowering Rural Communities: Reaching the Unreached, Union Information and Service Center Project and others. Upcoming initiatives include building 64 Sheikh Kamal ICT Incubation Centers across Bangladesh. However, these projects and training programs should be well planned and aligned with BPO ladder improvement's national vision (explained in action 3.3). To make these trainings effective, training modules and evaluation methods should be centrally regulated, skilled trainers should be recruited, adequate training equipment should be provided, and the trainees should be introduced to the freelancing platforms to continue working by themselves after completing the trainings. Simultaneously, an awareness-raising campaign should be launched to popularise this income-generating IT training among the young people in rural areas. The same models can be implemented in the sub-district level through Upazilla Digital Centers. This will include a massive portion of rural and sub-urban areas youth in digital work and help the digital economy be inclusive.

[50] Gig Economy: changing the face of work and the Occupational Health and Safety consequences, Kibria Shah, \\ CPD Blog, 2018

[51] Fairwork, Oxford Internet Institute, https://fair.work/en/fw/homepage/

[52] A2i

[53] TCV Analysis of Computer Training through UDCs, A2i, 2015

4.2 Action: Encourage women to join IT businesses through training, awareness, and concrete incentives like tax holiday and low-cost commercial space in required cases

Participation of women in the workforce is crucial to realise its IT & ITES industry's full growth potential. Actions are required to change the working and security environment in the IT industry and to enact policies that would foster gender equality. In this regard, three components will be instrumental: a) specific technology training, b) ensuring financial incentives, and c) social awareness campaigns to make the sector more attractive to women.

"She Power Project" and Mobile ICT Training Bus initiative under the Learning and Earning Program were undertaken by ICT Division to provide training to the women at the union level for internet based services and call centre work.[54] ICT Division has trained 1000 women under another similar project named Women IT Frontier Initiative (WIFI). However, these initiatives should be continuous (not project-based), designed with a long-term vision, and monitoring and evaluations are required to ensure expected outcomes.

To remove chronic underrepresentation of female workers, managers, and business owners throughout the IT sector in Bangladesh, the largest barrier for women needs to be eliminated, which is access to finance. This is particularly acute for women in Bangladeshi society as they usually do not own property or other collaterals; they are prevented from obtaining loans and financing.[55] BASIS, BIDA, and BEZA, as lead agencies should work together to solve this problem collaborating with financial institutions. Tax holidays can be provided to organizations that hire women. For example, In Vietnam, the legal environment provides a good foundation for companies to develop comprehensive gender equality.[56] Women who want to start their own business should be more encouraged by hassle-free bank loans from banks, large tax cuts by the National Board of Revenue (NBR), and BEZA's free office space. For instance, the State Bank of India started a special scheme named Bhartiya Mahila Bank (BMB), which offered women loans up to USD 2,700,000 as a capital requirement to start their large-scale venture and collateral-free USD 136,000 grant with a lucrative rate of interest for the small and medium enterprise.[57] The repayment tenure is flexible and has to be repaid within seven years. Bangladesh can follow these examples. To exemplify, women entrepreneurs registered under BACCO are already enjoying lower interest rate (7%) than males from BRAC Bank.

At the same time, social awareness campaigns should be undertaken to brand the IT industry as a convenient field of work for women in Bangladesh. Two propositions of benefits should be advertised that the sector has flexibility (including virtual interactions, options to work from home, flexible business hours etc.) and various jobs available for women who opt to have a career in this field.

ADAPTATION TO THE DYNAMIC GLOBAL IT MARKET

STRATEGY 5

Increasing diversification of traditional IT products and services

5.1 Action: Provide incentives for the businesses that use frontier technologies to design innovative products and intelligent services

Bangladesh needs to prepare for the 4th Industrial Revolution (4IR) to gain its stake and compete with the rest of the world. For this purpose, financial incentives should be provided by BIDA, BEZA and BHTPA to the industries that use AI and other frontier technologies. This approach will help achieve substantial advancement in diversifying the product and service portfolio for the IT industry in Bangladesh. It will eventually enable the industry to better utilise the large talent pool in the country and further develop other industry segments to expand revenue contribution. In this regard, institutionalised investments and regulatory frameworks are immediate requirements to build an innovative and self-sustaining high-tech ecosystem. ICT division has already formulated an AI strategy in Bangladesh, which has six strategic pillars, including funding and accelerating AI-based startups and industrialisation for AI technologies.[58] In the strategic roadmap, proper budget allocation and private-public partnership have been emphasised to mobilise funds for this kind of frontier technology-based startups and industries. Other non-fiscal supports mentioned in the strategy include a) support for need assessment of the startups for their scalability,b) support to develop revenue model for ensuring the sustainability of the new businesses, c) ensuring legal, administrative, and technological assistance in the changing environment of technological advancements.

[54]She Power Project, A2i
[55]What role for Bangladeshi women in ICT?, International Trade Center Blog, 2012
[56]Women-led businesses on the rise in Vietnam, The Asian post, 2019
[57]Bhartiya Mahila Bank Business Loan Details, India Filings, 2020
[58]National Strategy for Artificial Intelligence in Bangladesh (2019-24), ICT Division

Strategic Brief: Funding and Accelerating AI startups*

1. Ensure national budget allocations for AI development and implementation.
2. Formulate policies to promote and accelerate AI startups.
3. Develop business-friendly processes for commercial partnerships with AI-based startups.
4. Provide promotion and implementation support to AI-based startups as a part of incubation and acceleration programs.
5. Collaborate with national and international organisations for Artificial Intelligence initiatives.
6. Establish incubators and innovation centres to develop and nurture for large-scale implementation.
7. Fund and accelerate the entire AI Eco-System to make a significant leap forward, fuelling socio-economic progress, creating jobs, and boosting exports.

*startups because businesses that are adopting AI and frontier technologies are still emerging in the Bangladesh context

Source: National Strategy for Artificial Intelligence in Bangladesh (2019-24), ICT Division

Under another strategic pillar titled data and digital infrastructure, the strategy defines data as 'the main fuel to AI's capacity to work'. It suggests the g overnment to open their datasets and create stages to encourage the protected trade of private data for AI innovators, since data is a critical component of data-driven business models. Proper implementation of this strategy would help improve the business environment for the future IT industry in Bangladesh and enable innovators to spin-off useful AI-based applications and services.

5.2 Action: Develop and strengthen the 'Bangladesh' brand identity in the external markets of the global outsourcing industry

For this purpose, strategic geographies and vertical industry targets need to be identified for marketing and promotion efforts. Bangladesh should ensure participation in international IT/ITES conferences/forums and organize international conferences in the country to showcase local capabilities. Marketing and promotion effort needs to be sustained and reoriented in the longer term considering specialisation-driven and niche-based BPO services as discussed in action 3.3.

SUMMARY OF STRATEGIC ACTIONS: SCALING UP BPO AND IT/SOFTWARE INDUSTRY

Strategic actions	Leading stakeholder(s)	Implementation Priority		
		Short Term (next year)	Medium term (next three years)	Long term (next five years)
Improve the overall business environment, including regulatory or legal adaptability to attract foreign investors to invest in the IT/ITES industry	BIDA, BEZA, ICT Division	√	√	
Encourage the local investors with incentives to invest in the IT/ITES industry to compete with the foreign investors equally	BIDA, BEZA, BHTPA		√	
Initiate platforms to ease the process of international payment	ICT Division, Bangladesh Bank	√		
Ensure effective implementation of the IP Laws and revise the laws in necessary cases to adapt them to the digital atmosphere	ICT division, BASIS, Ministry of Law, Ministry of Industries		√	
Formulate a clear roadmap for tertiary level education considering the specific needs of the IT industry	BCC, UGC, ICT Division, BASIS, BITM, BACCO, NSDA, BTEB, BMET, BANBEIS Autonomous Universities (Public and Private), NGOs like BRAC		√	
Engage universities to design and provide specialised training to the IT professionals at the entry, mid and higher levels	SCDC, BASIS, BANBEIS, University Grants Commission (UGC), ICT Division, BCC		√	
Identify specific focus areas of BPO services and provide targeted trainings	Bangladesh Association of Call Center & Outsourcing (BACCO), ICT Division		√	√
Make the labour law compatible with the digital work environment	ICT Division, Ministry of Labour and Employment, Ministry of Industries		√	√
Design dedicated training programmes for the rural and small-town youth for geographical expansion of BPOs/ ITES across the country using existing infrastructures	A2i, Union Digital Centres (UDCs)	√	√	
Encourage women to join IT businesses through training, awareness, and concrete incentives like tax holiday and low-cost commercial space in required cases	ICT Division, BASIS, BIDA and BEZA, NBR	√	√	
Provide incentives for the businesses that use frontier technologies to design innovative products and intelligent services	ICT Division, BASIS, BIDA and BEZA		√	√
Develop and strengthen the ‘Bangladesh’ brand identity in the external markets of the global outsourcing industry	ICT Division, BASIS, BACCO		√	√

OPPORTUNITY 2

CONNECTING THE INFORMAL SECTOR TO THE FORMAL ONE IN BANGLADESH THROUGH THE HELP OF DIGITAL TECHNOLOGIES

WHY IS THE INFORMAL SECTOR IMPORTANT?

Bangladesh's informal economy currently accounts for 43% of the GDP and absorbs almost 88% of the total employment.[59] This turns out to be the key sector in the country's economy as a generator of jobs and absorber of surplus-labour, but outside the formal regulatory structure. The agricultural sector in Bangladesh has the highest portion of workers (95.4%) engaged in the informal sector.[60] Again, 37% of households in rural areas are outside the agricultural sector.[61] 18% of the rural labour force is involved in elementary occupations, 14% in craft-related and trade works, and 13.5% of them are in service and sales work. The majority of these activities are occurring within the informal economy.[62] There are 7.81 million enterprises in Bangladesh, and 99.8% are informal, small, and micro-enterprises.[63] 95% of female workers in the country work in the informal sector.[64] The recent boom in e-commerce in Bangladesh has changed numerous conventional habits of the transaction, especially for urban consumers, and got a progressive change to the economy, that even is also happening mostly in the informal sphere. E-Commerce is primarily aligned to the Mobile Financial Services (MFS) as its payment mode complementing each other and demonstrating incredible guarantee to develop.[65]

WHERE DOES THE E-COMMERCE INDUSTRY IN BANGLADESH STAND?

Bangladesh is ranked 46th in the global ranking of e-commerce revenues, according to a study by the German online portal Statista. Bangladesh's e-commerce industry stood at USD1,649 million in 2019, rising to USD2,077 million in 2020 (with 166% growth) and will touch to USD3,077 million in 2023.[66] At present, approximately 2,000 e-commerce sites deliver almost 30,000 products a day, which only takes up just less than 1% of Bangladesh's entire retail sector.[67] 80% of the online sales are taking place only in Dhaka, Chattogram, and Gazipur.[68] Another branch of e-commerce is the F-commerce market, operating through Facebook, which is also expanding by generating USD 37 million approximately with more than 300,000 informal businesses. Only 100 of these shops are associated with the e-Commerce Association of Bangladesh (e-CAB).[69] Currently, 50% of Facebook stores are run by women entrepreneurs.[70]

[59]Financial Express, 2019
[60]Labour Force Survey 2016-17, BBS
[61]BBS, 2019
[62]Labour Force Survey, 2016-2017
[63]BBS Economic Census, 2013
[64]Labour Force Survey, 2016
[65]Brain Station 23, 2018
[66]Dhaka Chamber of Commerce and Industry (DCCI), 2020
[67]IDLC, 2018
[68]SANEM, 2020
[69]IDLC, 2018
[70]Dhaka Tribune, 2020

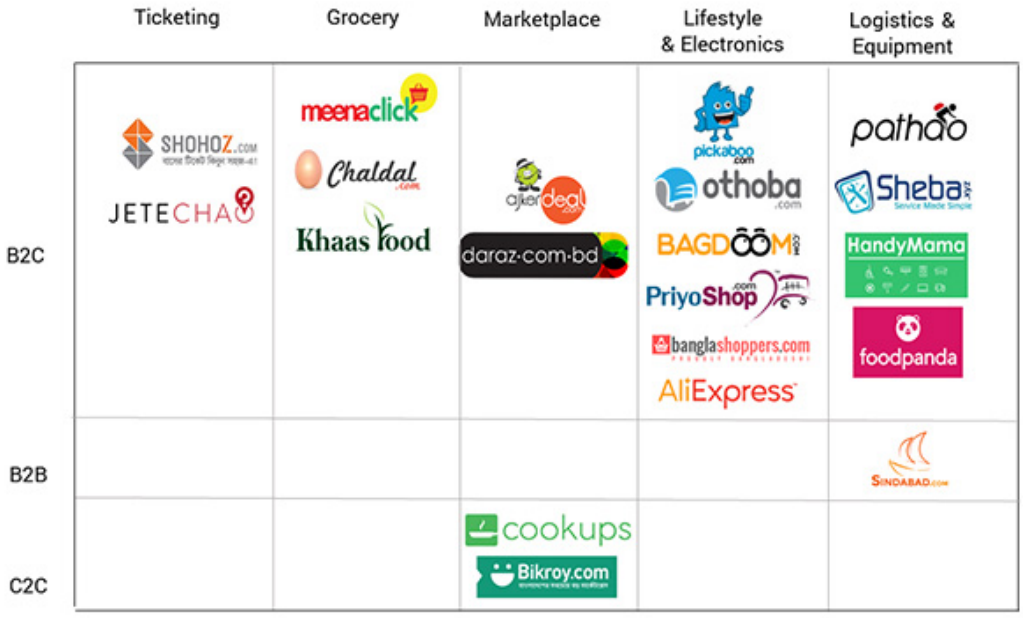


Figure.
Notable businesses in the e-Commerce industry of Bangladesh / Source: DATABD.CO

LINKING THE INFORMAL BUSINESSES TO THE FORMAL ONES

The informal business owners feel comfortable operating outside the regulatory structure for various reasons such cost of formalisation; however, jobs in the informal sector are insecure and lack basic social and legal protections or other employment benefits. According to the United Nations Conference on Trade and Development (UNCTAD), it is necessary to make formalisation desirable to the informal sector's current workers.[71] Formalisation process in developing countries like Vietnam has helped the businesses to access better equipment, increase their scale of operation, and operate in a more competitive environment and consequently add annual value up to 20% on average.[72] On the other hand, there are risks of premature formalisation of the informal sector imposing adverse effects on the businesses, and often these processes are bureaucratically cumbersome, expensive, and not profitable for the economy.[73] Therefore, while the policy and regulatory environment need to adapt to the informal sector, the businesses' incentives need to be encouraging for the business holders.

UNCTAD framework on how to formalise the informal economy	
Steps	Actions
Explain what formalisation means	• Provide clear and easily understandable information on existing legal regimes, for registration and operation, and on the related procedures • Make information available for the micro-entrepreneurs
Make formalisation easy	• Make procedures as simple as possible. • Devise new legal schemes • Simplify tax regime
Make formalisation desirable	• Communicate on benefits (social protection) • Reinforce benefits • Enforce compliance • Partner with another empowering service

Source: How to Formalise the Informal Sector: Make Formalization Easy and Desirable – United

[71] How to Formalise the Informal Sector: Make Formalization Easy and Desirable – United Nations Conference on Trade and Development (UNCTAD)

[72] World Development, 2016

[73] Formalising the informal, IIED Blog, 2016

Instead of rapid formalisation, we emphasise tailoring digital interventions to connect the informal sector to the formal one in Bangladesh following the prevalent type of digital platforms. The process of this connection needs to add in many forms – from training to networking, from social protection to access to finance, and it requires a combination of mechanisms that complement each other. In strategic actions, we discuss different array of potential opportunities provided by the Mobile Financial Services (MFS) and other digital platforms that connect the demand and supply side and exhibit increasing returns as the network's size increases. However, to get effective results from this digital connection, access to more rudimentary technology and necessary infrastructure – smartphones and internet needs to be ensured. These issues will be discussed in the 'Closing the Readiness Gap' section.

Global good practices of context-based formalisation

Micro-businesses in Brazil	Waste pickers in Colombia	Artisanal miners in Ethiopia
Around 5.5 million micro-businesses have been formalised by volunteering for a package of incentives that includes simplified tax assessments and access to social protection, business development services, and public markets.	In 2013, following a 20-year legal and advocacy campaign, Bogota's waste pickers, or 'recicladores' were formally recognised as public service providers and paid at fixed rates, under formal contracts, for their work. The Bogota model is now being replicated across Colombia.	A series of legislative and administrative changes combined with extension services and financial support have made it possible for more than 100,000 artisanal and small-scale miners across Ethiopia to become licensed.

Source: Formalising the informal, IIED Blog, 2016

EXISTING CHALLENGES IN THE INFORMAL SECTOR OF BANGLADESH

1. Regulatory and financial barriers

a) *Hurdles to avail BIN for businesses:* The informal firms of the country, in most cases, are not being able to avail a Business Identification Number (BIN) due to the inherent complexity of the process. An individual needs to obtain both e-TIN (e-Tax Identification Number) and BIN to run a business, the first one for income tax payment and the second to run business activities. To have BIN, a company must have a VAT registration certificate, which includes the business to the formal legal framework and makes it eligible to carry out import-export activities, participate in tenders, and supply goods and services.[74] As per the country's existing law and practice, a trader needs several BINs for each branch of their business or factory unit. Following these compliances becomes much more difficult for the informal business holders. Simultaneously, for not having a BIN, employees of those businesses are not protected by law because they are not considered 'registered' and hence are not regulated by the government. It leaves out a large portion of the population from some social protection benefits.

b) *Challenges in access to finance:* The availability of adequate funds is a challenge for the medium and small-scale businesses in Bangladesh, mostly due to their lack of collateral, inadequate documentation and weaknesses in business plans.[75] These businesses are often considered high-risk venture for their low capitalisation, insufficient assets and high mortality rates.[76] The micro and the small enterprises in the country can benefit from microfinance institutions (MFIs), and the larger enterprises are served by banks and non-banking financial institutions (NBFIs). However, MSMEs (Micro, Small and Medium Enterprises) face difficulties accessing credit from public and private commercial banks because banks consider land or other fixed asset ownership for 'collateral-based lending' as the basis for

[74]National Board of Revenue, Bangladesh

[75]Financing Solutions For Micro, Small And Medium Enterprises In Bangladesh, the World Bank Group, 2019

[76]Bhattacharya and others 2000; and Sia 2003

credit extension. The situation is much more difficult for e-commerce businesses as banks and other investment authorities such as local venture capital firms are not adequately prepared and aligned to finance e-commerce ventures. In e-commerce sectors, companies have to burn their capital for over five years to profit, but traditionally, the investors focus on short term investments.[77] The National Digital Commerce Policy 2018 does not allow the foreign investors to hold a stake of over 49% in any e-commerce entity, discouraging foreign investment in the sector. Bangladesh Bank, however, is committed to facilitating SME credit by prioritising the small entrepreneurs as they have more prospects for generating employment and achieving economic growth.[78] However, in many instances, entrepreneurs raise complaints regarding the high rate of interest in bank loans. In most cases, private banks just repackage their existing credit offers for MSMEs.[79]

BIN Requirements

- Authentic Cell Number
- Authentic e-mail Address
- Company Address:
  a. As per Trade License
  b. Operational
- Number of employees
- Turnover Information:
  a) Company last year transaction
  b) Next One-year approximate transaction
- Major Area of Economic Activity
- If Manufacturer:
  a. Input-Output Information
  b. Layout Plan equipment
  c. List of Machinery & equipment
- Last e-BIN (9 Digit/11Digit)
- Import Registration License (If Necessary) (Import item list with HS (Harmonic System) Code)
- Export registration License (If Necessary)
- Trade License
- All Bank Statement (Last One year)
- Company e-TIN
- All Directors NID/Passport
- MOA, AOA & Incorporation Certificate
- Authorised person's details (Who will maintain the online e-BIN services):
  a. NID
  b. Cell Number
  c. E-mail
  d. Designation

Source: NBR Website

Registration for VAT

Agency: National Board of Revenue

The company's VAT is regulated by the Customs, VAT and Excise Department of the region in which it operates. When an enterprise submits a VAT Registration application to the VAT authority, an application must accomplish or enclosed the following papers & Documents:

- Fill-up an application form Enterprise Trade License
- Bank Solvency Certificate
- Owners 02 photograph.
- National ID/Passport copy of owners
- IRC/ERC if the enterprise is importing and exporting
- Article & Memorandum (if the enterprise is a Limited Company.)
- TIN Certificate.
- Location MAP of Enterprise premises.

Source: Doing Business Report 2020, the World Bank

[77]IDLC, 2018

[78]Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

[79]Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

2. Challenges in business logistics and facilitation for e-commerce

a) *Delivery problems for geographic expansion of e-commerce:* e-commerce and the logistics firms associated with them face various challenges in the last-mile delivery of goods as transportation infrastructure is fragile, particularly in rural areas in Bangladesh. The physical addressing system is also less developed in rural areas, which creates obstacles to locate the sending receiving party for the e-commerce entities. Only Bangladesh Post Office delivers to such parts of the country by identifying rural recipient locations. Therefore, the robust national postal network with its delivery capacity throughout the country can solve delivery problems for e-commerce to spread across the country. However, it remains under-utilised, with massive room for improvement in capacity enhancement, diversification of services, and network digitalisation. Cross-border e-commerce activity is also constrained in Bangladesh for various reasons, including a restrictive de-minimis value of USD 12 and an unnecessarily extended custom check period. As a result, the desirable internationalisation and expansion of Bangladesh's e-commerce industry in other countries have still a long way.

b) *Challenges of protecting consumer rights in e-shopping:* Fraudulent activities and lack of professionalism may work as a threat to e-businesses as the customers can quickly lose their trust, which can have spill over effects for other businesses. In most cases, online purchases are currently conducted without authentication, and there are little options in place to make online purchases safer for consumers. At present, the Information and Communication Technology Act 2006 covers issues related to e-transactions within its framework, although online payments are not explicitly addressed in the ICT Act 2006, nor in its amended 2009 and 2013 versions. The ICT Act, however, recognises online contracts and digital signatures and recourse mechanisms for dispute resolution. No specific law on cybercrime related to monetary fraudulence exists, but the ICT Act and the Digital Security Act 2018 include some related tenets. The Consumer Rights Protection Act (CRPA) 2009 provides guidance on consumer protection in Bangladesh; however, it does not address issues that arise from e-commerce and e-transactions.

3. Challenges of inclusion in the sector

a) *Barriers for women entrepreneurs:* Women's participation in microcredit programs and the readymade garments industry in Bangladesh has been a global example. Similarly, the participation of women entrepreneurs in the e-commerce industry has huge potential to flourish the digital economy in Bangladesh.[80] However, women in Bangladesh have less access to money, productive capital, services, and opportunities than men due to various socio-economic reasons placing them at a disadvantage when they try to start a business. Study shows that half of the women entrepreneurs who are registered, are registered as proprietors and have their licenses secured by male entrepreneurs.[81] In most cases, it is seen that after the demise of one's husband, the wife takes over the business and runs the enterprise as a women entrepreneur rather than as an heir.[82] The e-commerce world decidedly seems to be well-suited to female entrepreneurs in our country because it gives them the flexibility to balance their personal and professional life without affecting security issues.[83] However, there are some existing barriers for women while entering into the e-commerce scenario, including less access to knowledge regarding regulatory provisions such as trade license, tax and VAT and lack of capacity to maintain accounts, book-keeping and documentation.[84] Again, there is a remarkable gap between urban and rural women in the business sector due to their internet access and networks, including clients, suppliers, and creditors. Although the availability of adequate dedicated training programmes can help women to have a competitive edge over their male counterparts. However, there exists a significant gap in this regard in the existing e-commerce ecosystem in Bangladesh.

b) *Exclusion of people in rural areas from availing the benefits of technology:* The use of digital technologies can assist rural communities in Bangladesh for their economic benefits, especially those associated with farming. However, concerted efforts are still not visible in this regard. By using smartphone technology

[80]Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

[81]Financial Express, 2020

[82]IBID, 2020

[83]The role of e-commerce in empowering women, Dhaka Tribune, 2020

[84]Women Entrepreneurs in Bangladesh: Challenges and Determining Factors, Tania Afroze et al., 2014

c) and mobile applications, farmers can create a network of farmers, traders, buyers and consumers and establish communication with each level of stakeholders in the production and distribution process, including the consumers directly. This will facilitate knowledge and information sharing, increase market awareness at urban and rural levels and facilitate informed purchase and selling decisions. This can eliminate the consequences of asymmetric information, such as extremely low-cost buying from farmers that often force them to declare losses and sell stocks at prices below production costs. Therefore, information and communication systems can bridge the gap between the country's farmers and consumers, ensuring that both get a fair price. Recently, LightCastle and Syngenta Foundation for Sustainable Agriculture (SFSA) jointly introduced a novel mobile-light Enterprise Resource Planning (ERP) that combines four components: a mobile application, a web dashboard, a monitoring & evaluation (M&E) tool and a notification centre. Findings from the data so far indicate that associated farmers' yields increased by 25% on average compared to the non-associated farmers (an increase of 13%). Smallholders' income increased by 34%, and post-harvest losses declined by 3-8%.[85] To scale this type of initiatives, lack of connectivity works as a significant obstacle that inhibits farmers' ability to take advantage of new technologies. The existing evidence gap regarding the access to and usage of smartphones and the internet among Bangladeshi farmers also implies that.

4. Lack of institutionalised effort to leverage the benefits of MFS in the informal sector

75% of Bangladeshi small businesses are currently unserved by the formal financial sector.[86] Small businesses within the informal ecosystem can be included in the formal financial sector if the MFS provides them with flexible and suited services according to their business needs. However, at times, MFS actors are discouraged from getting involved with these businesses due to capital constraints, high service cost, a challenging regulatory environment, and lack of creditworthiness.[87] The FinTech platforms could enable online businesses to make a merchant account to help facilitate the payment mechanism. This is currently not possible because they require a physical store or a 'signboard' for proof of their business.[88] Although the e-commerce industry set sail in the late 90s but was unable to expand until people's shopping behaviour had experienced a significant shift in Bangladesh, the recent flourish of the e-commerce sector results from improvement in banking, logistics communications, and payment methods. The banking sector is now using the internet payment system. Consumers can avail credit and debit card services and digital wallet on their online purchase.

As a result, in terms of payment method for e-commerce, the focus on cash on delivery is gradually being shifted away to MFS, which will entirely rely on the MFS and payment service providers eventually. The key challenges in this regard are building consumer trust and strengthening merchant – MFS/card-service-provider linkages. Currently, only 4% of MFS account holders use these platforms for advanced purposes like online shopping in Bangladesh apart from cash-in, cash-out, and person-to-person transactions.[89] National Payment Switch in 2012 introduced interoperability of banking systems which doesn't include mobile-banks and mobile-mobile transfer yet.[90] Data collected from mobile money services has further potential to provide insights on spending and saving habits, establish credit records, providing individuals with the ability to access loans and other credit-based financial services.

Considering these issues, we identify four areas of strategic actions to connect the informal sector to the formal one in Bangladesh through the help of digital technologies: a) facilitating digital identification for easier access to finance for MSMEs, b) ensuring smooth growth of the e-commerce industry, c) enabling women and the rural population to benefit from technologies for their businesses, and d) promoting systematic use of MFS for the informal sector.

[85]LightCastle Partners, 2020

[86]Nathan, 2018

[87]Nathan, 2018

[88]IDLC, 2018

[89]Hernandez, 2019

[90]Bangladesh Rapid eTrade Readiness Assessment, UNCTAD

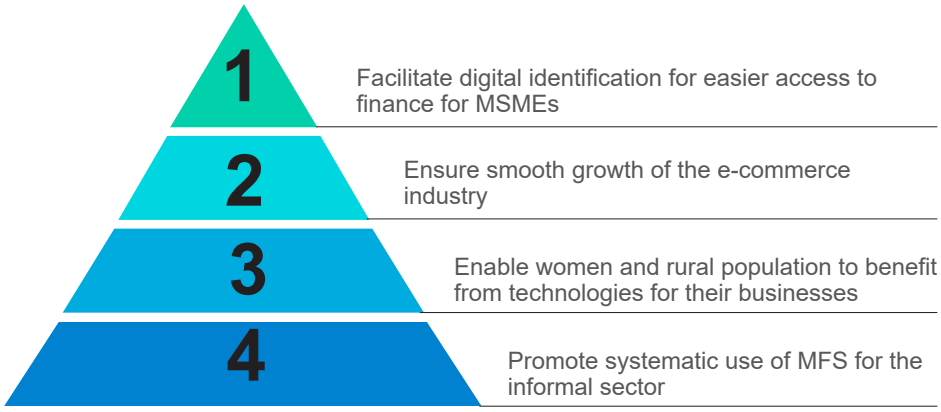


Figure.
Strategies to connect the informal sector in Bangladesh to the formal through the help of digital technologies

FACILITATING DIGITAL IDENTIFICATION FOR EASIER ACCESS TO FINANCE FOR MSMES

STRATEGY 1

Simplifying the process of business identification through digitisation

1.1 Action: Cut down on the documentation needs for business identification by using biometric/ smart NID card and make the process cost-effective and efficient

Biometric NID number carries ample proof of identity and address, and hence, it can enable MSME business owners to get registered quickly by cut down on the documentation needs. This will make the process cost-effective and efficient. Even it can nullify other documents' requirements while opening a bank account since the government already has all the necessary data. SME Foundation (under the Ministry of Industries), Bangladesh Small and Cottage Industries Corporation (BSCIC), Ministry of Commerce can coordinate with A2i, BCC and ICT Division in this regard to implement this strategy. Recently, the Indian government has taken a similar kind of initiative to register small businesses as a part of the relief and credit support and declared that an Aadhaar number would be the only requirement for the registration.[91]

How India helping MSMEs to register easily with Aadhar card

- Any person who intends to establish a micro, small or medium enterprise may file Udyam Registration online in the Udyam Registration portal
- The process is based on self-declaration with no requirement to upload documents, papers, certificates or proof
- On registration, an enterprise will be assigned a permanent identification number to be known as "'Udyam Registration Number"
- An e-certificate, namely, "Udyam Registration Certificate", shall be issued on completion of the registration process
- The form for registration shall be as provided in the Udyam Registration portal.
- There will be no fee for filing Udyam Registration
- Only Aadhaar number shall be required for Udyam Registration

Source: Udyam Registration Portal, Ministry of Micro, Small and Medium Enterprises, India

1.2 Action: Reduce the barriers of collateral for informal businesses, including e-commerce entities, to receive direct financial support from the banks and other financial institutions

The ICT and the emerging digital business sector should receive proper attention from commercial banks. Leading associations in sectors like SME Foundation, e-CAB and BASIS should strengthen the linkages with Bangladesh bank and other commercial banks to develop lending instruments specific to the needs of e-commerce businesses. Many MSMEs and

[91]UDYAM REGISTRATION PORTAL, Ministry of Micro, Small and Medium Enterprises, India

e-commerce businesses face difficulties to provide any physical asset as collateral. This problem might be solved with a systematic approach combining multiple strategies: a) gradually reducing the barrier of physical collateral, b) recognition of business model, the technology or other intellectual property developed (for instance, software, website, applications etc.), and the human resources available to the enterprise as a viable source of collateral, c) allowing commercial banking sector to develop capacity-building and have more hands-on understanding of digital business models. Bangladesh bank admits lack of collateral for small entrepreneurs as a significant hindrance to the expansion of SME credit and suggests banks provide collateral-free loans up to BDT 2500000 (USD 30000) upon 'personal guarantee'; however, availing this loan is still complicated for the entrepreneurs, and it doesn't provide any direction for the hypothecation[92] of e-commerce and other digital business products. Again, the rate of interest of loans in the MSME sector is high. Banks are being given directions to keep the interest rate within a tolerable limit.[93]

The provision regarding collateral in the SME Policy of Bangladesh

Banks/financial institutions may provide collateral-free credit facilities up to BDT 2,500,000 against Personal Guarantee in SME sector, especially for small and women entrepreneurs. Credit can also be provided against hypothecation of products and machinery if needed. However, banks and financial institutions shall follow their own rules and banker-customer relationship to determine collateral for credit facilities more than BDT 2,500,000. Banks and financial institutions shall apply their due diligence method in selecting clients/entrepreneurs. In this connection, banks/financial institutions shall formulate their credit policy following the Central Bank guidelines as a minimum benchmark and inform the SME and Special Programmes Department of Bangladesh Bank.

Source: Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

In India, there is no need to collect multiple identity proofs or run around for documentation to open a bank account except the Aadhaar Card; the card even permits the holder access to credit and insurance facilities without collateral.

How India uses the Aadhaar Card to provide collateral-free loans

- Indian citizens can use Aadhaar Card to apply for loans
- It has instant approval with easy and fast online verification
- Single document for age, photo, identity, address and citizenship proof
- Aadhar Card loan can be taken for a period of up to 5 years
- No collateral is required as it is an unsecured loan
- Loan offers starts at 10.40%

Source: MyLoanCare.in

ENSURING SMOOTH GROWTH OF THE E-COMMERCE INDUSTRY

STRATEGY 2

Building an enabling environment that supports the smooth trade facilitation of the e-commerce industry

2.1 Action: Ensure countrywide and cross-border expansion of e-commerce services

SME Foundation and e-Commerce Association of Bangladesh (e-CAB) should work with the Postal Department to conduct revitalisation pilots to ensure last-mile delivery of products to the rural areas using the existing extensive post office infrastructure network. For this purpose, the capacities of remote/rural post offices need to be improved through technology and best practices available to the private sector or e-commerce entities. Simultaneously, insurance products for trade logistics firms need to be introduced to minimise risks due to product breakage, consumer fraud, and security challenges encountered during the delivery of products. Post offices in Bangladesh have already been utilised for various innovative services, including a mobile financial service named *Nagad*.

[92] Hypothecation occurs when an asset is pledged as collateral to secure a loan. The asset owner does not give up title, po session, or ownership rights, such as income generated by the asset. (Source: Investopedia)

[93] Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

Case: The Postal Department's digital financial service 'Nagad'

Nagad, a digital financial has been introduced by Bangladesh Post Office, under the Government of Bangladesh. The nationwide infrastructure and the experience of providing financial services spanning more than a century of the postal department were considered the primary catalyst behind this initiative. The service is regulated under the Bangladesh Postal Act Amendment 2010 Section 3(2), a unique law procured eespecially for the Bangladesh Post Office. Through a nationwide network of 9886 post offices and its employees, Bangladesh Postal Division is well equipped in tackling any irregularity in this digital financial sector with speed and efficiency. It needs to be noted that the Postal Department has been successfully accommodating financial transactions for the marginal population under different projects of the World Bank, Red Cross, UNDP, a2i, WFP and others. The Postal Department believes that this service will be pivotal in increasing the overall financial inclusion scope while bringing in new dynamics to this stagnant sector.

Source: Post Office launches digital financial service "Nagad", Bangla News 24, 2018

Cross-border e-commerce activity also needs to be encouraged, increasing transaction limits and reducing time and harassment in customs for the products. It will be essential to reform trade facilitation, particularly for smaller parcels and individual shipments, for the e-commerce sector's desirable internationalisation.

2.2 Action: Prevent fraudulence in online purchases and protect customer rights

The Ministry of Posts, Telecommunications and Information Technology has developed the National Digital Commerce Policy 2018 in collaboration with the Ministry of Commerce and ICT/e-commerce sector associations. The policy includes some clear principles regarding consumers' rights. Effective implementation of these rules needs to be enforced in practice to instil consumer confidence by creating deterrence for unscrupulous sellers and service providers. With this policy in place, a dedicated review of the legal and regulatory framework for e-commerce is required, significantly paying attention to introducing the "e-aspect" into older laws/regulations. Simultaneously, the Consumer Rights Protection Act should be revised to include provision for distant sales, including e-commerce transactions of digital contents. Accompanying structures for reporting and addressing grievances need to adjust with these changes in the law suitably.

Strategic main areas of focus of National Digital Commerce Policy 2018 to protect consumer rights in digital commerce space:

1. Expanding and developing business in the digital commerce space
2. Creating an enabling environment for the operations of digital commerce businesses
3. Ensuring transparency, liability, and accountability in digital commerce businesses' operations and fostering cooperation to establish confidence among sellers and buyers in digital commerce transactions
4. Taking ethical and legal measures to protect the interests of entrepreneurs, buyers and sellers
5. Cooperating for the protection of the consumers' rights
6. Coordinating with concerned organisations to mitigate risks in digital transactions

Source: The National Digital Commerce Policy 2018

ENABLING WOMEN AND THE RURAL POPULATION TO BENEFIT FROM THE USAGE OF TECHNOLOGIES FOR THEIR BUSINESSES

STRATEGY 3

Encouraging women and the rural population to use digital platforms for economic and business purposes

3.1 Action: Increase training options for women entrepreneurs to start and scale up their online businesses in both urban and rural areas

The National Digital Commerce Policy 2018 has emphasised training women entrepreneurs in public and private training centres to expand the digital commerce sector.[94] This training programmes need to expand across the country to create equal opportunities for women both in urban and rural areas. Dedicated digital commerce help-desks in the Union Digital Centers can include more women in the ecosystem. Training should be designed to improve the lack of skill and knowledge of the entrepreneurs to improve the quality of products and marketing and raise awareness

[94]The National Digital Commerce Policy 2018

regarding legal and regulatory frameworks, available payments systems, and available e-marketplaces. Bangladesh Women Chamber of Commerce & Industry (BWCCI) can play the lead role with other institutions like The Federation of Bangladesh Chambers of Commerce and Industry (FBCCI) and SME Foundation. To arrange these training on entrepreneurship development, Bangladesh Bank may play a supporting role to clarify the financial incentives, as indicated in the SME policy.[95] Some private initiatives, such as the Women & e-commerce Forum (WE), address female entrepreneurs' needs and help sustain their businesses and empower them. WE offers some online certificate courses designed considering women entrepreneurs' needs; these platforms should be supported by the government to expand their impacts across a larger population group, especially in rural areas.

3.2 Action: Support innovations that contribute to strengthening the rural to the urban supply chain through digital technologies

Ministry of Agriculture, Ministry of Commerce, and ICT Division need to work together to develop effective strategies to reduce the gap between the country's farmers and urban consumers by using digital technologies and thereby ensuring fair pricing for the farmers. Recent innovative models using call centre or e-commerce based agricultural supply chain initiatives need to be scaled up. The private sector can build up more useful digital businesses for rural consumers considering this existing gap in the supply chain.

BEST CASE: Collaboration of WE and Hi-Tech Park Authority

'WE' started in 2018 to establish an extensive network of female entrepreneurs in Bangladesh. The organisation believes in building a support system and inspiring female entrepreneurs to turn their craft into a business. One of this organisation's objectives is to equip entrepreneurs with the education to overcome challenges/obstacle by hosting relevant personal and professional development workshops.

In July 2020, with the support of Bangladesh Hi-Tech Park Authority and SCOPPA Technologies Ltd., WE organised a week-long online skill development training program for its women e-Commerce entrepreneurs. A hundred participants from Dhaka, Tangail, Chandpur, and Kishoregonj participated in the 80-hour online course. Participants learned about different aspects of an e-Commerce business: psychological aspects of entrepreneurship, business model and concept, business organogram and management, skill development and team building, goal set up, investment, and budget.

Source: Women & e-commerce Forum (WE) website

Good practices of using technologies to strengthen urban-rural supply chain

An initiative of Producer Organisation (PO) and FAO	Priyoshop
A voluntarily led virtual call centre was formed. Producer Organisation (PO), supervised by the Food and Agriculture Organization (FAO), initiated 57 virtual call centres in eight high-poverty districts to connect the rural farmers with suppliers and buyers during the pandemic. They helped form an ecosystem with available technologies for the farmers by linking them with input suppliers and off-takers. Volunteers managed the database of purchases of agricultural inputs and services and the sale of products. The PO worked closely with the local authorities for transportation services and used MFS like bKash, Nagad and Rocket for transactions. The PO used Facebook and Messenger to share transaction records or information and Zoom for virtual meetings. A single person rickshaw van was assigned to transport the goods. Source: The World Bank, 2020	Priyoshop was founded in 2012 initially as an f-commerce-based entity and migrated to a formal e-commerce platform in 2013. The company primarily provides logistics and fulfilment capacities linking urban-rural, urban-urban, and rural-rural geographies. Priyoshop also has a direct sales platform for fast-moving products and is currently the leading platform that provides order fulfilment in rural areas. Priyoshop has five warehouses in Dhaka to ensure four-hour delivery, and more are planned at the district level. The company uses a system of touch points that include post-offices, UDC centres, and Banglalink Kiosks to drop off and pick up packages—tying up the post office network as a logistics channel (8,000+ post offices within a one-two mile distance of any consumer, operating down to the UDC levels). Strategic partnerships have been forged with Bkash, Dmoney, Microsoft, and Banglalink. Source: Bangladesh Rapid e-Trade Readiness Assessment, UNCTAD, 2019

[95]Small and Medium Enterprise (SME) Credit Policies & Programmes, Bangladesh Bank

PROMOTING SYSTEMATIC USE OF MFS FOR THE INFORMAL SECTOR

STRATEGY 4

Linking mobile money wallets to informal commerce platforms

4.1 Action: Encourage uptake of digital financial services

Bangladesh achieved remarkable growth in promoting microfinance to the last mile; following this legacy, the process of digital financial inclusion can be achieved by addressing some existing and critical emerging issues. Interoperability of payment services and transfers between banks and mobile-money providers need to be fostered immediately, and these initiatives have already been initiated. The usage of MFS needs to be promoted in all types of utility services (water, gas, electricity, internet, health, education and others) payments, and gradually all G2P (Government to People) and P2G (People to Government) payments should be operated through MFS. To reduce the persisting gender gap in account ownership and usage, targeted products and services need to be developed through collective and dedicated efforts. Linking mobile money wallets to informal commerce platforms can nudge a large segment of rural women shoppers and entrepreneurs into the world of digital payments. This could get them on the first rung of the financial inclusion ladder — an account to be used for payments — while building the foundation from which other use cases, such as digital credit, could emerge.[96] Simultaneously, in collaboration with the Bangladesh Telecommunication Regulatory Commission (BTRC), Bangladesh Bank should carefully observe and guide Fintech activities and encourage experimentation within a regulatory sandbox, for instance, by better assessing the risks and support for fintech-friendly regulations.

4.2 Action: Encourage MFS entities to provide flexible and suited services for informal businesses by reducing regulatory barriers

Associations in the MSME sector, including SME foundation and e-CAB need to foster dialogues with MFS entities and the regulatory authorities like Bangladesh Bank and BTRC to develop mechanisms for promoting more use of MFS and card-based payments by reducing consumer reliance on cash. The flexible regulatory environment mentioned in action 4.1 may enable MFS entities to provide flexible and suited services through merchant accounts for informal businesses by reducing regulatory barriers. Ceiling limits need to be increased related to outbound transactions, particularly the online transaction limits for individuals and corporate entities. Clear return guidelines for online purchases should be in place, and at the same time, after-sale services in e-commerce, including return payments, should be strengthened. The policy and regulatory framework gradually need to adapt to allow for full leverage of alternative data such as MFIs, telecommunications records, utility payments, and for credit decisions especially for informal businesses, including the e-commerce ones. It would help MFS entities expand their applications beyond their current focus on person-to-person transfers and retail payments.

Global best case
Kenya's success with fintech companies

Kenya has emerged as a Fintech hub in emerging markets, with M-Pesa's success spurring several innovative digital financial products. M-Pesa, led by the telecoms giant Safaricom, revolutionised financial inclusion by offering a broad range of financial services (including deposits, loans, money transfers and e-payments for assistance). Over 85 % of the adult population uses such services regularly to pay for products and amenities, such as household bills and school fees — with only 38 % using a traditional bank account. Spurred by the success of M-Pesa, many Fintech companies have sprung up, including companies that offer MSMEs small loans through mobile phones within a matter of seconds. Others facilitate digital payments and smallholder farmers to purchase insurance for their crops.

Source: Blythin and Cooten, 2017

[96] CGAP, 2019

Summary of strategic actions: Connecting the informal sector to the formal one in Bangladesh through the help of digital technologies

Strategic actions	Leading stakeholder(s)	Implementation Priority		
		Short Term (next year)	Medium term (next three years)	Long term (next five years)
Cut down on the documentation needs for business identification using biometric/ smart NID card and make the process cost-effective and efficient	SME Foundation (under the Ministry of Industry), Bangladesh Small and Cottage Industries Corporation (BSCIC), Ministry of Commerce, and A2i	√	√	
Reduce the barriers of collateral for informal businesses, including e-commerce entities, to receive direct financial support from the banks and other financial institutions	SME Foundation, e-CAB, ICT Division, BASIS, and Bangladesh bank	√	√	
Ensure countrywide and cross-border expansion of e-commerce services	SME Foundation, e-CAB, and, ICT Division, Postal Department		√	√
Prevent fraudulence in online purchases and protect customer rights	Ministry of Posts, Telecommunications and Information Technology, and ICT/e-commerce sector associations	√	√	
Increase training options for the women entrepreneurs to start and scale up their online businesses in both urban and rural areas	Union Digital Centers (UDC), Bangladesh Bank, Bangladesh Women Chamber of Commerce & Industry (BWCCI), FBCCI, BCC, ICT Division, and SME Foundation	√	√	
Support innovations that contribute to strengthening the rural to the urban supply chain through digital technologies	Ministry of Agriculture, Ministry of Commerce, and ICT division		√	√
Encourage uptake of digital financial services	Bangladesh Bank, and Bangladesh Telecommunication Regulatory Commission (BTRC), ICT Division	√	√	
Encourage MFS entities to provide flexible and suited services for informal businesses by reducing regulatory barriers	SME Foundation, e-CAB, Bangladesh Bank, and BTRC, Bangladesh	√	√	

OPPORTUNITY 3

EXPANDING THE STARTUP SCENE IN BANGLADESH

THE CURRENT STARTUP SCENE IN BANGLADESH

Ministry of Foreign Affairs and ICT Division, Venture Capital & Private Equity Association of Bangladesh (VCPEAB), and International Finance Corporation (IFC) organised the Startup World Cup in Bangladesh in the year 2020.[97] In the event, Vision 2025 was launched to create a startup and Venture Capital-friendly ecosystem in Bangladesh. The goal of this *Vision 2025* is to have five unicorns (USD 1.0 billion-dollar companies) in Bangladesh by 2025. With a valuation of 1.45 billion dollars at present, the country's startups have the potential of reaching an overall 10-billion-dollar valuation within that period.[98] The Bangladesh government wants to accomplish four essential objectives by 2025, according to this strategy paper. The goals are to a) support technology-based innovation, b) create new employment opportunities, c) provide training to the entrepreneurs, and d) develop technical skills of the youth.[99] However, Bangladesh Startup Ecosystem ranks far behind with 98th position among 100 countries in comparison to the Global Startup Ecosystem, while its competitor India has been rushing quickly to the top spot, currently at 23rd position.[100]

Among various startups in Bangladesh, the ride-sharing ones have been experiencing a boom with 7.5 million rides per month and a BDT 2,200 crore (USD 2.6 Billion) valuation, which accounts for 23% of the entire transportation sector.[101] While traffic congestion eats up 3.2 million working hours per day in Dhaka, according to the World Bank, app-based ride-sharing services offer the commuters ease of finding transport, doorstep pick-up, and app-based fare estimation. These startups' success lies in promoting innovation: motorbike-based ride-sharing services have become more popular here instead of car-based ones like in Western cities. This has contributed to more than 40% growth of yearly motorbike sales and created income-generating opportunities for at least 200,000 young and low- or middle-income people in urban areas.[102]

BOTTLENECKS FOR THE GROWTH OF THE STARTUPS

1. Weak funding arrangements

The government started its initiative towards startups in 2016, and it is finally taking shape. Governmental projects such as the iDEA Project and Startup Bangladesh Company Ltd (SBCL), which are programs dedicated to providing a boost to fresh and promising businesses, were promised to receive a fund of BDT 100 crore (USD 11.7 million), as allocated in the current fiscal year.[103]

In terms of private sector investment, only 18 firms are currently registered as alternative investments company under The Bangladesh Securities and Exchange Commission (BSEC), and just 3 of them have received licenses to launch funds.[104] Companies need to go through a complicated process of fulfilling a checklist of BSEC's Alternative Investment Rules with a minimum fund requirement is BDT 100 million (USD 1.2 million) before launching.[105] However, different actors, like asset management firms and angel syndicates across the ICT sector are now showing a growing appetite for equity and quasi-equity based investments.[106] The emergence of sector-specific venture capital firms is also helping the startups targeted to serve niche markets. Some prominent players in the industry include Bangladesh Angels, Pegasus Tech Venture, SBK Tech Ventures, and Bangladesh Venture Capital. However, Bangladesh stands at the 92nd position in terms

[97]The Financial Express, February 2020

[98]The Financial Express, February 2020

[99]The Vision 2025, ICT Division

[100]Startup Blink, 2019

[101]The Business Standard, 2020

[102]Reuters, 2020

[103]The Daily Star, 2020

[104]Bangladesh Securities and Exchange Commission Website

[105]Checklist for Alternative Investment Fund followed by Bangladesh Securities and Exchange Commission (Alternative Investment) Rules, 2015

[106]LightCastle Analysis, 2020

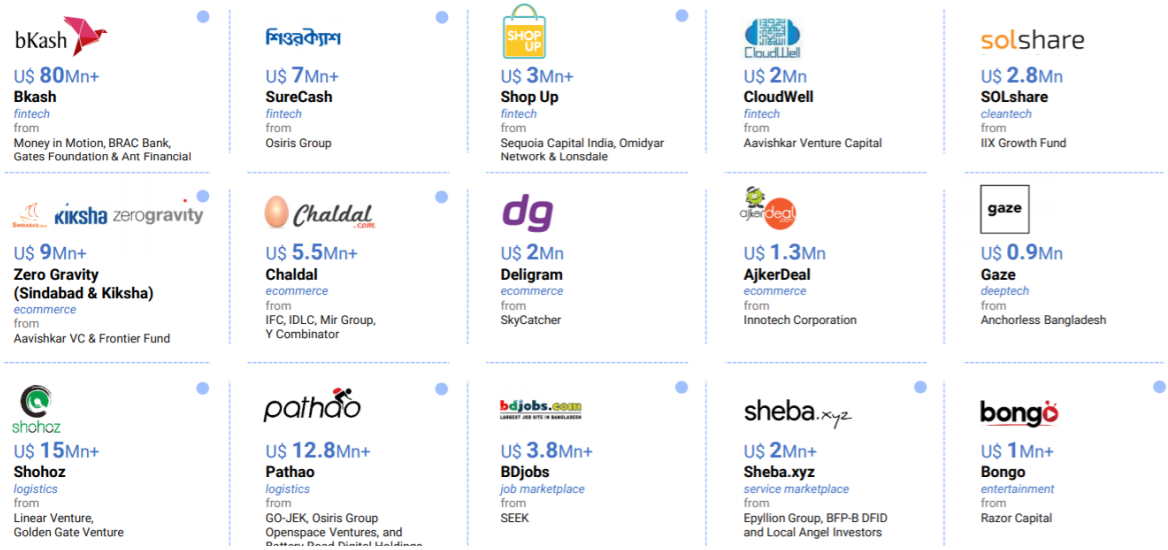


Figure. Non-exhaustive list of top home-grown startups and their funding

Source: Databd.co, Crunchbase & LightCastle Analysis

of overall venture capital availability among 141 countries according to the Global competitive Index 2018 by World Economic Forum. Upon asking investors their preferred sectors to invest in based on current performance and future growth prospects, 85% chose ride-sharing and logistics, 83% chose FinTech, HealthTech and EduTech held 67% and E-commerce 50%.[107]

Startup funding from foreign investors has also significantly developed in recent years. *Pathao* raised USD10M from Go-Jek, and *Shohoz* raised USD15M as pre-series B investment from Golden Gate Ventures along 20 other startups in 2018.[108] To further propel growth, the government should put significant effort to improve the investment climate for attracting more foreign investment. Again, this is to mention that Bangladesh ranked 176th out of 190 countries in the Doing Business Index, resulting from its existing inefficient regulatory structures. Another major reason discouraging international investors is weaker mechanisms to take any profit out of the country.

2. Inadequate incubation and mentorship opportunities

To support the local startup ecosystem with mentoring and co-working spaces, Bangladesh's government is gradually setting up 39+ Hi-Tech Parks. Some incubation initiatives from the private sectors, such as Grameenphone Accelerator powered by Seedstars is one of the most extensive tech accelerator programs that has assisted startups like Sheba.XYZ (online service marketplace), CMED Health (health-tech), Repto (online learning platform). Moreover, in association with the ICT Ministry, Banglalink incubator has been facilitating innovative ventures since 2016.[109] The emergence of local and international accelerators and incubators drove 2500+ active startups to date.

However, finding and nurturing the right talents is still one of the top problems for emerging startups. Therefore, the absence of proper mentorship and a lower number of incubator programs than the number of startups still stand as big challenges for the ecosystem. Moreover, startups are likely to receive mentorship either through the personal network or through the incubator's network.[110] While many active and successful mentors contribute in sporadic ways, the ecosystem lacks collective and organised efforts to make mentorship accessible to as many startups as possible.

[107] LightCastle Analysis, 2020
[108] LightCastle Analysis, 2020
[109] LightCastle, 2020
[110] KM Saqiful Alam, The Daily Star, 2020

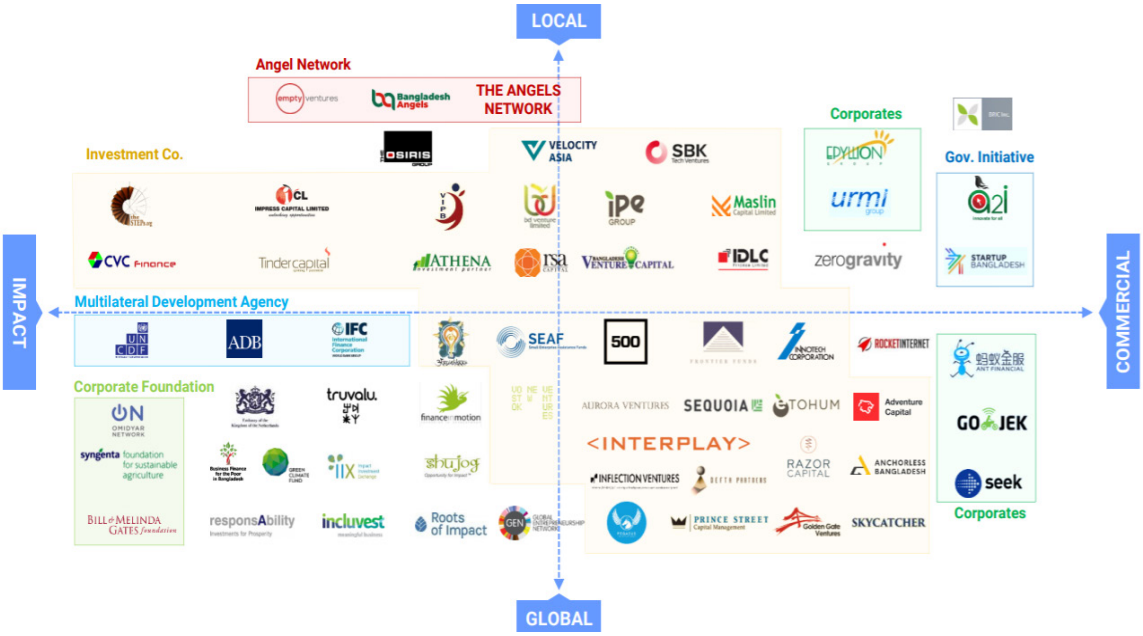


Figure. A non-exhaustive list of accelerators and incubators who are acting as enablers in the ecosystem

Source: LightCastle Analysis

3. Weak regulatory provisions

Investment decisions on a business made by private companies and investors are influenced by various conditions, including one of the qualities of regulatory service delivery. Therefore, a sound regulatory framework is critical for the emerging startup ecosystem in Bangladesh to increase investors' confidence. The prevalence of malpractices in the market, such as lobbying, using speed money as a form of corruption, low payment terms, the overall financial cost increases to the extent of closing a startup venture down. Lack of transparency, poor coordination, and the unpredictability of processes and practices within the current business regulatory framework of Bangladesh have contributed to these malpractices and hindering investments for the businesses and startups. Simultaneously, the companies in Bangladesh have to go through a lot of unnecessary compliance requirements due to ineffective inspection and enforcement mechanism of the regulatory bodies. The investors need to duplicate the same information in multiple steps that indicate poor coordination among the government agencies and an absence of data-sharing and interoperability mechanisms.[111]

[111] AGILE REGULATORY DELIVERY FOR IMPROVED INVESTMENT COMPETITIVENESS IN BANGLADESH CURRENT STATE AND POLICY OPTIONS, IFC, the World Bank Group

NON-COMPLIANCE CONTROVERSY OF PATHAO

There is no provision for 'forced resignation' in the Bangladesh Labour Act 2006. According to the law, there are two ways in which an employment contract can be dissolved—the worker, himself/herself, can resign willingly with a month's notice—or the employer can let the worker go. If the employer decides to terminate a worker, then the latter must be given 120 days' notice (for monthly rated workers), or the wages due for the notice period. When a local boy's company (Pathao), which became a national brand and a solution to unemployment for thousands, cut out 353 people (on such short notice), it came as heartbreak for the laid-off employees.

Again, data given to Star Weekend by the organisation's employees shows that a great majority of the drivers registered on the company's app do not have driving licenses, national identity cards and vehicle registration papers. At least 76.1 % of the drivers active on the street do not have any of the above data from May. All this is according to data given by the company's teams dealing with rides and compliance. Star Weekend verified that the documents were authentic by checking the document's metadata properties and cross-checking with multiple former employees.

Pathao has three tiers for compliance: "Minimum Compliant" where a driver has a driver's license or NID, and vehicle registration paper; "Business Compliant", where the driver has a driver's license, NID, vehicle registration paper, insurance paper, tax token and for cars, fitness paper; and "BRTA (Bangladesh Road Transport Authority) compliant" where the driver has all of the above and more, to be eligible for the BRTA enlistment certificate. As per the figures, only 0.20 % of all registered bikers were BRTA compliant, only two % were business compliant, and only five % were minimum compliant.

Excerpt from Star Weekend, The Daily Star, Where is Pathao headed?, July 05, 2019

4. Lower efforts to ensure the sustainability of the ecosystem

The core sustainability issue for the country's startups is their survival rate; the majority of the business models fail before completing three years since their inception.[112] The reason for working behind is that the ecosystem here is not enabling the startups who require more investment in their graduating phases: scaling up and sustaining. While this is almost a global case, we identify this issue with due concern as the number of emerging startups here is comparatively low, and therefore, scaling and sustaining the startups that are already in the run is vital for Bangladesh.

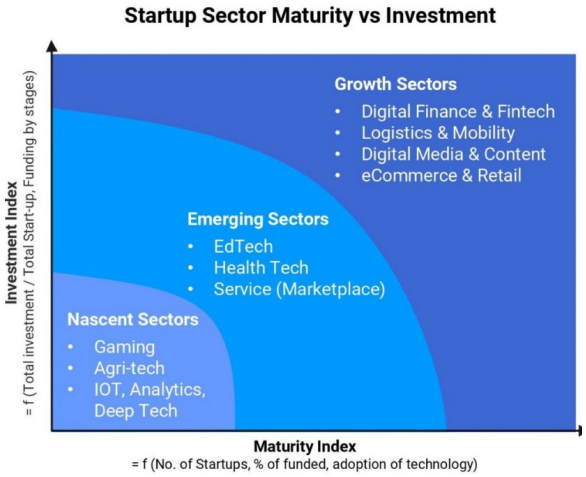
In a recently published report, the LightCastle analysis team have divided the existing startups in Bangladesh into three sectors: a) growth sectors, b) emerging sectors, and c) nascent sectors.[113] The growth sector startups have the highest adoption of technologies coupled with local & global investor attraction, emerging startups have a medium interest of the investors, and the nascent ones attract relatively low interest. However, there is an absence of adequate investment strategies to support the startups to upgrade them from the stage they lie to the next within the ecosystem.

Stages of startup science life cycle

Source: Startup Genome

[112]KM Saqiful Alam, The Daily Star, 2020

[113]Bangladesh Startup Ecosystem The Untapped Digital Goldmine of Asia, The LightCastle Partners



Source: The LightCastle analysis

Again, Bangladesh's startup ecosystem is still predominantly centred on two of the largest cities, Dhaka and Chattogram. Opportunities for the youth across the country, especially from the rural areas and small towns, to join in the startup ecosystem, is very little. To scale and sustain in an inclusive way, strategies must encourage and support the youth across the country to innovate new product and services for the digital era. Considering these issues, we identify four areas of strategic actions to expand the startup scene in Bangladesh: a) strengthening funding opportunities for the startups, b) ensuring adequate incubation and mentorship opportunities, c) increasing accountability of the emerging businesses, and d) ensuring the sustainability of the ecosystem.

STRENGTHENING FUNDING OPPORTUNITIES FOR THE STARTUPS

STRATEGY 1

Improve investment climate to attract more investment for the emerging startups

1.1 Action: Strengthen domestic angel investment and venture capital ecosystem

The Bangladesh Securities and Exchange Commission (BSEC) needs to work jointly with the Venture Capital & Private Equity Association of Bangladesh (VCPEAB), ICT Division, iDEA and Startup Bangladesh and other sector stakeholders to bring relevant changes in the regulations and policies to make the investment climate easier and transparent for the venture capital and angel investors. Simultaneously, promotional activities on opportunities in Bangladesh's startup sector need to be designed to encourage the market entry or expansion of new local or international venture capital firms through investment. Currently, the Government of Bangladesh owns a venture capital company named Startup Bangladesh Ltd; however, more private and foreign actors need to enter the market to fund and scale the rising number of startups and create a competitive environment. On an event organised by VCPEAB in 2019, titled "Investment Opportunities for Startups in Bangladesh - a Policy Dialogue with Ecosystem Stakeholders", investment experts presented their views with public and private entrepreneurship ecosystem stakeholders of Bangladesh. The recommendations from this dialogue may bridge the gap and find out the probable solutions for startups.

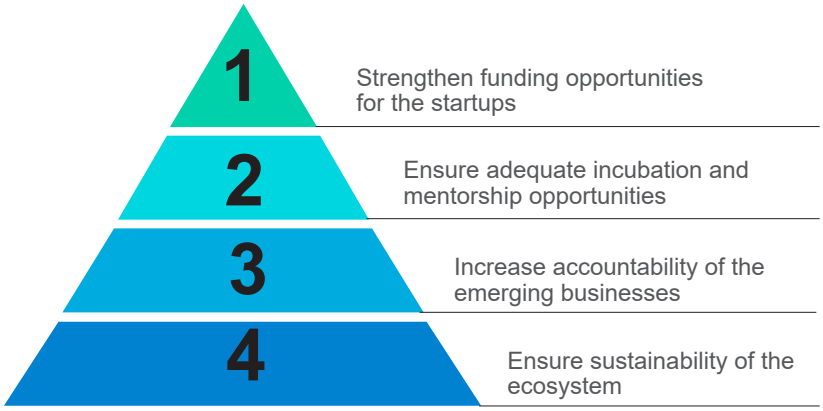


Figure.
Strategies to expand the startup scene in Bangladesh

Recommendations by VCPEAB

- Providing incentives to global investors by the government to invest their money in the country for bringing a positive impact
- Connecting the local investors with global investors
- Minimising the tax on the personal income who will invest in startups
- Creating an exit mechanism for global investors
- Making an Angel Investment Law to create awareness and educate the investors

1.2 Action: Train the entrepreneurs to shape their ideas into profitable business models

Promoting business innovation challenges for the entrepreneurs in this regard will be instrumental in this regard. Business case competitions and hackathons may help to identify aspiring entrepreneurs and train them regarding the appropriate way of market research, product development, and financial plan compilation. This kind of training programs should link entrepreneurs with financiers and venture capitalists. The hi-tech parks, Startup Bangladesh and private investors should target universities across the country to help the students with an entrepreneurial mind-set to transform their business ideas into realities. For example, in recent years, the Hult Prize has become one of the most prestigious student competitions which offer the participating student teams adequate opportunities and resources.[114] The government should support more platforms to support the launch of tech-based social enterprises that are tackling seemingly intractable global challenges.

ENSURING ADEQUATE INCUBATION AND MENTORSHIP OPPORTUNITIES

STRATEGY 2

Making incubation and mentorship accessible to as many startups as possible

2.1 Action: Support private initiatives of incubation and mentorship along with the government-owned ones to reach a large number of startups

iDEA Accelerator is an incubation program founded by the ICT ministry of Bangladesh that incubates and supports startups in both ideation or seed stage. At the same time, a big cohort of early tech companies has received funding from this platform. While this is commendable that the government is taking part in this kind of initiatives, it is imperative to engage more private sector actors in the ecosystem to provide training to the entrepreneurs at different stages of their ventures. At present, telecom operators are leading actors coming up with startup accelerator initiatives. The telecom companies' incentive is to diversify their business portfolio by tapping into fresh talents and ideas. ICT Division should encourage and collaborate with established businesses to initiate this type of incubation and mentorship programs to provide seed funding, mentors, curricula, in-house development resources and investor access to the startup founders and their teams.

2.2 Action: Use existing infrastructures such as regional Hi-tech parks for incubation of the local startups for long-term capacity development of the entrepreneurs

The government has already set up eight technology parks across the country with one floor dedicated to each of the parks for free of cost accommodation of the startup companies and mentorship and matchmaking opportunities with potential investors. One of these Hi-Tech Parks' primary objectives was improving young people's skills across the country through mentorship, training and incubation support and creating employment opportunities. However, only 7,500 people have been trained and employed in these technology parks, which is nowhere near the government-set target of creating 1 lakh jobs by 2025.[115] The effectiveness of these Hi-tech parks needs to be ensured in the incubation of the local startups for the entrepreneurs' long-term capacity development by proper monitoring and regulations.

INCREASING ACCOUNTABILITY OF THE EMERGING BUSINESSES

STRATEGY 3

Increasing accountability of the business models to avoid malpractices through ecosystem regulations

The startup ecosystem around the world is powerfully dynamic and require complex regulations and policies. Startups usually

[114]The Hult Prize website

[115]Low interests in high-tech parks, The Business Standard, November 2020

want a disruption in regulated markets; however, in countries where a competitive business landscape and the strict rule of law persist, startups have to absorb fines for non-compliance financially. In most cases, rules and regulations companies need to follow fall into three main areas: a) organisational structure, b) taxation and c) employment. The startup industry in Bangladesh is indeed in a nascent stage; the best way to avoid regulatory setbacks is to consult with the industry stakeholders and understand their current business practices. It will help better design the relevant regulations and develop compliant policies. The Bangladesh Hi-tech park authority should take immediate steps before the big international players enter the market. Rules need to be strengthened in the entire startup sector to prevent lobbying, speed money and poor payment terms to encourage fair market policy. Simultaneously, regulations and laws need to be simple, considering the potentials of this budding industry. Industry stakeholders' participation in the formulation process of the rules will ensure wider acceptability and applicability.

ENSURING THE SUSTAINABILITY OF THE ECOSYSTEM

STRATEGY 4

Ensuring increased survival rate and geographic expansion of the startups

To reduce the businesses' failure, the Startup Bangladesh, Hi-Tech Park Authority, and other private investors need to support the startups in their graduating phases through required investment and non-financial support, including mentorships. Declining sales or liquidity bottlenecks need to be taken as the first sign of emerging crisis for startups in their growth phases. External experts from the already established businesses (suggested in Action 2.1) can help the startups in early action of crisis management or adaptation to the respective crisis in the best possible way. Simultaneously, the regional Hi-tech parks' activities to support the new startups across the country.

Summary of strategic actions: Expanding the startup scene in Bangladesh

Strategic actions	Leading stakeholder(s)	Implementation Priority		
		Short Term (next year)	Medium term (next three years)	Long term (next five years)
Strengthen domestic angel investment and venture capital ecosystem	BSEC, VCPEAB, Startup Bangladesh, ICT Division, iDEA and Startup Bangladesh	√	√	√
Train the entrepreneurs to shape their ideas into profitable business models	Bangladesh Hi-Tech Park Authority, Startup Bangladesh, private investors	√	√	√
Support private initiatives of incubation and mentorship along with the government-owned ones to reach a large number of startups	ICT Division, iDEA Accelerator, Telecom operators, other private businesses		√	√
Use existing infrastructures such as regional Hi-tech parks for incubation of the local startups and long-term capacity development of the entrepreneurs	Bangladesh Hi-Tech Park Authority	√	√	
Increase accountability of the business models to avoid malpractices	Bangladesh Hi-Tech Park Authority	√	√	
Ensure increased survival rate and geographic expansion of the startups	Startup Bangladesh, Bangladesh Hi-Tech Park Authority and other private investors		√	

SECTION 2

CLOSING THE READINESS GAPS

The previous section of this strategy primer explored some major opportunities critical for the country in shaping its digital future and discussed how to maximise those opportunities. In this section, there will be a systematic discussion to improve the country's current state of digital readiness. The opportunities and readiness issues within a digital economy are profoundly connected and dynamic. Closing these readiness gaps is essential for the opportunities to be realised and scaled up. We identify two priority areas in this regard: a) ensuring ubiquitous access to ICT infrastructure and b) human capital development for the digital age.

CURRENT READINESS STATUS
TRAFFIC LIGHT[116]

To summarise our analysis in the digital readiness assessment, we used traffic lights. Considering the implications, if the current state of any readiness condition was found satisfactory, we assigned a green light with a well on track status for it. If we found a moderate gap, but with visible efforts to improve the condition, we said that it needs improvement and assigned an amber light. If we found a significant gap and low or no effort to improve, we concluded with a red traffic light and the least ready status for that specific condition.

According to our analysis, Bangladesh is overall performing well regarding ensuring access for people to the digital infrastructure. We assigned green traffic light for access to electricity, mobile network connection and e-governance, and access to digital services as all these components are well on track. However, our analysis showed that bringing more people under access to internet connections will be critical for the country to thrive in the digital economy. We concluded by assigning an amber light for this particular readiness condition. Bangladesh needs to significantly improve its effort to address the lack of appropriateness in digital infrastructure, specifically improving data quality and affordability for consumers. We, therefore, assigned red traffic lights for both the conditions under this dimension. The infrastructure will start to work efficiently if these secondary barriers, even beyond the challenges of ensuring access, are removed.

For effective human capital development, Bangladesh needs to accelerate its endeavour to include all its people into digital at least with minimum skills, as it is one of the basic requirements to thrive in the digital economy with inclusive growth. In terms of ensuring foundational education for all, we assigned an amber traffic light. However, in digital literacy, significant improvement is needed, and we, therefore, set a red traffic light for

Table. Readiness status: ubiquitous access to ICT infrastructure and human capital development

Pillar	Readiness Conditions	Readiness Spectrum	Traffic Light
Infrastructure Readiness	Access to electricity	Well on track	
	Mobile network coverage	Well on track	
	Access to internet connections	Needs Improvement	
	e-Governance and access to digital services	Well on track	
	Internet quality and speed	Least ready	
	Affordability of mobile devices and the internet	Least ready	
Human Capital Readiness	Foundational education for all	Needs improvement	
	Digital literacy in society	Least ready	
	Addressing skill mismatch	Least ready	
	Promoting STEM education at the tertiary level	Needs improvement	
	Strengthening Vocational training based education	Needs improvement	
	Emphasising research and entrepreneurship at the tertiary level	Least ready	

Source: The Future of Digital in Bangladesh, Digital Readiness Assessment, 2020

[116]For details, check The Digital Readiness Assessment.

this component. Again, Bangladesh needs to significantly improve to address the lack of appropriateness while enhancing its human capital skills, specifically addressing the issues related to skill mismatch and promoting research and entrepreneurial mind-set among the students at the tertiary level. We assigned red traffic lights for each of these conditions. However, vocational training-based education and tertiary level STEM education received amber traffic lights as both the conditions need improvement from our analysis.

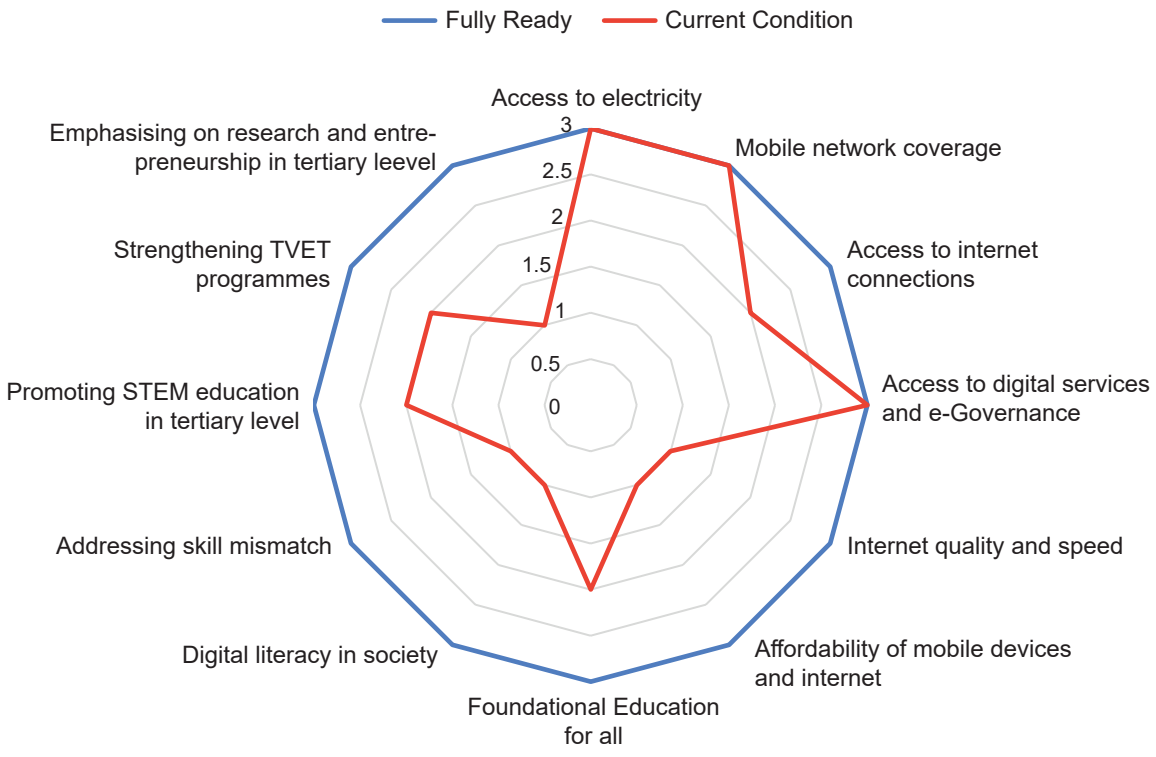
THE ENTRY POINT TO IMPROVE UBIQUITOUS ACCESS TO ICT INFRASTRUCTURE AND HUMAN CAPITAL DEVELOPMENT

Considering the *well on track* status as a benchmark, we eventually formed a radar diagram to visualise the current state of readiness of these two priority areas. We assigned a score of 1-3 for least ready, needs improvement and the well on track status for each condition.[117] It helps to identify where we need to put more efforts to be digital-ready as an emerging economy.

This figure summarises a story that although Bangladesh is doing well in enabling access for people to electricity, mobile network and e-Governance infrastructure, the internet is not easily accessible especially for women and lower-income groups. However, even after access being ensured, internet quality and speed and affordability work as barriers for people towards their seamless digital experiences in some regions. All these bottlenecks need to be addressed to help overcome the access gaps.

At the same time, Bangladesh needs to put substantial effort to increase people's basic digital literacy. Improvement is needed for ensuring foundational education for all of its people. However, these are only the essential equipment for people to be ready for the digital economy; more challenges must be addressed. The government and its partners need to put a more concerted effort into providing vocational training to prepare a semi-skilled workforce as industry 4.0 will require even more than what we say high-level skills. Emphasis on STEM education, research, and entrepreneurship development should be an immediate concern at this moment. Addressing skills mismatch and emphasising research and entrepreneurship in the tertiary level education are necessary conditions to thrive in the digital age.

Readiness Assessment Graph



[117]Details will be found in the Digital Readiness Assessment.

STRATEGIES TO CLOSE THE READINESS GAPS

ENSURING UBIQUITOUS ACCESS TO ICT INFRASTRUCTURE

STRATEGY 1

Ensuring access to the internet for all

1.1 Action: Build a countrywide broadband network by engaging the existing large internet service provider companies and the emerging startups

Bangladesh Telecommunication Regulatory Commission (BTRC) has 136 licensed Internet Service Providers (ISPs) at present. However, the use of fixed broadband across the country is limited, especially in rural areas. Bangladesh Telecommunications Company Limited (BTCL) has been developing a nationwide fibre-optic backbone with dual financing from the GoB and China within 2023. ICT Division is also contributing in laying fibre-optic cable through Bangla Gov net, InfoSarker phase 1-3, Digital Island Moheshkhali, and upcoming EDC projects. At the same time, BTRC, BTCL and ICT Division need to collaborate and build a symbiotic relationship with local ISPs and relevant startups (One named Bonton Connect is already in place) to expand broadband connections across the country.

1.2 Action: Provide public Wi-Fi in important places like rural market areas to connect the rural businesses to the internet

A2i has been working to unfold the true potential of information technology within the government since its inception by designing innovations and implementing them to ease and improve citizens' lives. As the Digital Bangladesh agenda's flagship program, A2i has been developing public service innovation and transformation in various possible ways. Union Digital Centers, supported by A2i, has already supported rural people to avail services from government websites. Providing public Wi-Fi (already implemented in Sylhet, Cox's Bazar and several other places by ICT Division) in important places like markets in rural areas would be the next step to improved access to the internet. It will help connect rural businesses to the internet.

1.3 Action: Ensure effective use of free internet in educational institutions provided by the government for education and learning purpose

The Ministry of Post and Telecommunication has already launched a Wi-Fi service for all educational institutions in 2020. The government targets through this project to reach every colleges, universities and training institutes throughout the country within two years. ICT Division is also building 35,000 Sheikh Rasel Digital Labs in schools and colleges across the country, of which 5000 has already been completed. These interventions' success lies in the effective use of the internet by the students for their learning purpose. The Ministry of Education needs to engage with these projects for proper monitoring and evaluation to achieve the desired outcomes.

STRATEGY 2

Increasing internet speed across the country

2.1 Action: Support mobile service providers to ensure 100% 4G coverage

Bangladesh already has full 2G, and almost full 3G network coverage. 4G coverage network coverage has also been increasing. However, in remote areas, users still face struggles for faster data transfer and enable video calls. As the number of smartphone users is growing, a high-speed internet connection will be mandatory. BTRC should encourage mobile service providers to prioritise this agenda with financial incentives (such as tax cuts) in required cases.

2.2 Action: Increase mobile data spectrum allocation for the operators and ensure available spectrum is appropriately managed by proper regulations

The mobile phone operators are struggling to maintain the quality of their existing services amid a lack of required infrastructure caused by the regulator's restrictions on further expansion of the network. BTRC needs to take the necessary steps to streamline the frequency assignment and its use. Sometime in the past, the frequency was assigned just upon application without considering any other relevant factor. A National Frequency Allocation Plan (NFAP) has been formulated under the IDA funded BTRC project to address these issues. This plan and other regulations need time to time update and revision so that they are relevant.

STRATEGY 3

Ensuring fair competition of internet prices in the market with uniformity of rates

BTRC immediately need to fix the floor and ceiling prices with a clear margin to bring down

the mobile data usage costs. At present, there is a price regulation for voice service but none for data service in the country; therefore, a 'price war' among the operators is ongoing. Currently, a wide variety of data packages are available to the customers. The price of 1 GB data for one week is lesser than 1 GB data for a month. Cost also varies for different mobile operators. This kind of complexity needs to be considered by BTRC before fixing any pricing model for the operators to ensure fair completion. Simultaneously, operators need to incentivise to review their tariff plans with reduced spectrum price, regulatory fees and taxes. The upper and lower limits for mobile data rates may protect the customers from their massive expenditure for accessing the internet.

HUMAN CAPITAL DEVELOPMENT FOR THE DIGITAL AGE

STRATEGY 1

Ensuring effective foundational education for everyone

1.1 Action: Make the elementary level educational contents relevant and practical with a particular focus on Maths and English language skills

The primary school students perform poorly in major subjects like Math and English at the end of grade three and grade five while being tested to assess necessary skills and competency aimed for primary education in alternate years in the National Student Assessment (NSA).[118] However, the high pass rate in Primary School Certificate (PSC) is inconsistent with this assessment result, indicating the flaws in textbook content and information-based evaluation and the quality and content of teaching-learning in primary schools. The Ministry of Primary and Mass Education should critically look at national assessment and take genuine measures for curriculum redesign and making the contents in textbooks and classroom practices relevant and practical.

1.2 Action: Increase the capacity of the teachers through effective training programmes

To improve schools' quality of education, teachers' teaching skill and capabilities should be considered a key element. In Bangladesh, currently, more than 900,000 teachers at more than 120,000 schools and colleges receive formal training in education pedagogy along with pre and post-training resources. However, teachers cannot avail refresher trainings, as face-to-face training is often expensive. Therefore, little opportunities are available for the teachers for their further professional development. A2i has designed and developed an online social platform for school and college teachers called the Teachers' Portal (www.teachers.gov.bd) to reduce this widening lack of skills among teachers. This platform enables teachers living anywhere in Bangladesh with their peers, share content, and search for relevant education content using an intelligent content management system. These initiatives require mainstreaming with collaborative efforts from the Ministry of Primary and Mass Education (MoPME), Teachers' Training College, National Academy for Primary Education (NAPE), National Curriculum and Textbook Board, and other relevant government non-government organisations. The goal of these trainings should be making classroom learning joyful for the students.

STRATEGY 2

Improving digital literacy in society

2.1 Action: Use existing infrastructures like UDCs to train girls and women in rural areas to increase their digital literacy, engage NGOs in required cases

An Assistant Programmer is recruited by Bangladesh Computer Council (BCC) in every office of the Deputy Commissioner (DC) to give the UDC entrepreneurs training with the help of a2i and DC office. The UDCs are also equipped with computers, a webcam, a projector and wireless internet. UDC entrepreneurs then provide IT training to rural people. These initiatives should particularly emphasise training rural girls and women to increase their digital literacy. Training should include providing a wide range of skills from basic computer literacy to income-generating IT work. NGOs working in rural areas should be engaged in working collaboratively to solve this digital literacy issue.

2.2 Action: Ensure fruitful outcomes of mandatory ICT education up to secondary level with trained teachers and at least shared access to computer and internet for all the students

The MoPME has prepared a Master Plan for ICT in Education 2012-21 has to guide field activities. At the same time, an ICT Strategic Vision and Plan has been formulated by the Directorate of Primary Education (DPE), aligning with the government's policy guidelines. ICT as a separate subject has been made mandatory for the students, and as a part of this initiative, MoPME has provided 1,109 primary schools

[118]Details will be found in the Digital Readiness Assessment.

with computers, multimedia equipment and Internet connectivity during the period 2009-14. Moreover, laptops and modems have been supplied to 503 Model Primary Schools.[119] ICT labs have been set up in 55 Primary Teacher Training Institutes (PTIs). However, to ensure fruitful outcomes of mandatory ICT education, teachers need to be trained, and all the students should avail at least shared access to computers and the internet to receive hands-on training on computer skills.

STRATEGY 3

Redesigning curriculum to address skill mismatch

3.1 Action: Formulate a quality assurance framework for monitoring classroom teaching and students' performance at the university level

Quality assurance involves the systematic monitoring and evaluation of classroom teaching and students' performance to maintain and improve the quality and efficiency of tertiary level education. It requires institutional evaluation, external evaluation (including inspection), teachers and school leaders' evaluation, and student assessments. Bangladesh Accreditation Council Act in 2017 has been formulated to push the quality assurance agenda in higher education; however, quality assurance in Tertiary Education Institutions (TEIs) in Bangladesh is still at a nascent stage. Classroom teaching at the tertiary level must ensure key competencies for industries as well as focus on lifelong learning. Ministry of Education, University Grants Commission, Technical and Madrasa Education Division, TEIs, and ICT Division need to work collaboratively to create quality assurance mechanisms, especially in tertiary colleges and polytechnics.

3.2 Action: Incentivise STEM education at tertiary levels of education

The Higher Education Quality Enhancement Project (HEQEP) of MoE has already supported over 300 subprojects through three rounds of academic innovation funds (AIFs) across public and private universities to upgrade teaching-learning facilities in 2009. These investments have significantly supported STEM learning as the beneficiary universities could help around 318 postgraduate and PhD students for scientific research projects and publish about 250 scientific studies in peer-reviewed national and international journals. On the other hand, the Skills and Training Enhancement Project (STEP) provided institutional development grants to 33 public and private polytechnics to upgrade classroom and labs with multimedia technologies, machinery and tools, and software essential to carry out practical learning in the science and engineering fields. Another 23 polytechnics are expected to receive grants to improve their teaching and learning facilities and support STEM education.[120] To reduce skills shortage for the technology and engineering sector, various government incentives are required, especially in favour of enrolment of more students in technical tracks.

3.3 Action: Carefully promote e-learning platforms with standard guidelines for quality control, approval and acceptance of certification by the universities

Some online distance learning platforms have slowly become widespread in Bangladesh, bringing benefits for the students, teachers, and professionals. For example, 10 Minutes School is the largest online educational platform in Bangladesh which claims to help 1.5 million students access digital learning through their website, app, and social media. MuktoPaath is a government initiative that provides a similar e-Learning platform in Bangla for professional and skills development over multiple sectors at the lowest affordable costs. Digitally providing education may reduce the gap among learners, learning materials, and tutors. However, certified courses need to be offered from the recognised universities or other educational institutions using these platforms to ensure tangible outcomes. At the same time, standard guidelines need to be in place regarding quality control, approval, and acceptance of these platforms' certification.

STRATEGY 4

Strengthening TVET and skills development programmes

4.1 Action: Ensure coordination, quality assurance and unified certification of TVET programmes run by the government and private sectors

TVET absorbs about 2.6% of the education budget in Bangladesh, including allocations for the Bureau of Manpower, Employment and Training (BMET) and Monthly Payment Orders (MPOs) for 1,600 accredited private training institutions.[121] In 2020, the Executive Committee of the National Economic Council (ECNEC) had approved a budget to establish 329 TVET

[119]Education for All 2015 National Review, MoPME and UNESCO

[120]Bangladesh Tertiary Education Sector Review Skills and Innovation for Growth, The World Bank, 2019

[121]ADB, 2015

programs at the Upazila level, to reach the disadvantaged people of the rural areas.[122] Private providers account for about 95% of all TVET institutions and about three-fourths of all enrolments, but ensuring proper coordination among these institutions and maintaining the curriculum's equal standards is difficult. As a central academic and regulatory body, BTEB should responsibly manage the educational contents and standard settings and certification of TVET graduates across the country in a coordinated way.

4.2 Action: Incorporate soft skills in the TVET curriculum to address more complex challenges at the workplace of future

Despite growing investments in TVET, there exist serious skills mismatches with the industry currently. In the context of the Fourth Industrial Revolution, it would be a more complex challenge as the workplace will be transformed from task-based characteristics to human-centred characteristics. Because of the convergence of man and machine, it will reduce the subject distance between humanities and social science and science and technology. Currently, interdisciplinary teaching, research and innovation are almost absent in TVET in Bangladesh. Higher-order cognitive skills and soft skills development, especially in critical thinking, problem-solving, communications, and information and communication technology (ICT) skills, need to be incorporated in the TVET curricula.

4.3 Action: Train the trainers and use online platforms to reach more trainees with a lower number of skilled trainers, promote blended learning in required cases

Beyond formal TVET education, there are some innovations regarding methods and targeting of the skill development programmes in both the public and private sphere. For example, a2i has some programmes such as Skills Development through Apprenticeship, Skills Development through Stipend, Imam Portal, Skills for Employment Programme on RMG, and, Skills for Qawmi Madrasha Youth etc. A private initiative named Sudokkho aims to ensure the increased income of 65,000 poor people, which includes women and disadvantaged populations, after successful completion of training through its partnerships with privately owned training service providers (PTPs) and industry-based training (IBT) initiatives. In addition to the vocational skills training, a few private organisations are working specifically on digital skills. One of them is the organisation named 'Coders Trust', which provides necessary training and skills to women to enter the freelancing market. These online platforms should be properly utilised to reach more trainees with fewer skilled trainers. However, in those cases where online platforms do not work properly, blended learning should be promoted.

4.4 Action: Design special certified and up-to-date training programmes for RMG and expatriate workers considering the threat of automation on their jobs

There is a lack of deeper sector-based understanding and internal assessments, enabling the government, training providers, and enterprises to be prepared for automation impacts. Though the adoption of technology in the RMG sector is still slow, the effect is already visible in Bangladesh. Up-to-date training programmes for RMG workers to address their lack of modern skills and proper knowledge of technology. Similarly, quick surveys are required to assess foreign skills demand for the expatriate workers for the digital age to be conducted by the Bangladesh Technical Education Board (BTEB). BTEB should also ensure skills development and recognition for these workers during the pre-departure and post-return periods. Many unregulated private training providers offer short courses on Information Technology (IT) and foreign languages, in addition to pre-departure training for migrant workers; however, these private operators need to be affiliated with BTEB for better coordination.

[122]Why technical education is imperative', The Financial Express, 2020

SUMMARY OF STRATEGIC ACTIONS: CLOSING THE READINESS GAPS

Strategic actions	Leading stakeholder(s)	Implementation Priority		
		Short Term (next year)	Medium term (next three years)	Long term (next five years)
Build a countrywide broadband network by engaging the existing large internet service provider companies and the emerging startups	BTRC, BTCL, ICT Division	√	√	
Provide public Wi-Fi in important places like rural market areas to connect the rural businesses to the internet	UDCs, a2i		√	
Ensure effective use of free internet in educational institutions provided by the government for education and learning purpose	The Ministry of Post and Telecommunication and The Ministry of Education (MoE), ICT Division	√	√	
Support mobile service providers to ensure 100% 4G coverage	BTRC, BTCL, Mobile Operators	√		
Increase mobile data spectrum allocation for the operators and ensure available spectrum is appropriately managed by proper regulations	BTRC, BTCL, Mobile Operators	√		
Ensure fair competition of internet prices in the market with uniformity of rates	BTRC, BTCL, Mobile Operators	√		
Make the elementary level educational contents relevant and practical with a particular focus on Maths and English language skills	The Ministry of Primary and Mass Education (MoPME)		√	√
Increase the capacity of the teachers through effective training programmes	MoPME, Teachers' Training College, National Academy for Primary Education (NAPE), A2i, ICT Division, BCC		√	√
Use existing infrastructures like UDCs to train girls and women in rural areas to increase their digital literacy, engage NGOs in required cases	ICT Division, BCC, A2i, UDCs	√	√	

Strategic actions	Leading stakeholder(s)	Implementation Priority		
		Short Term (next year)	Medium term (next three years)	Long term (next five years)
Ensure fruitful outcomes of mandatory ICT education up to secondary level with trained teachers and at least shared access to computers and internet for all the students	MoE, ICT Division		√	√
Formulate a quality assurance framework for monitoring classroom teaching and students' performance at the university level	Ministry of Education, University Grants Commission, Technical and Madrasa Education Division, TEIs, and ICT Division		√	√
Incentivise STEM education at tertiary levels of education	Ministry of Education (MoE), Skills		√	√
Carefully promote e-learning platforms with standard guidelines for quality control, approval and acceptance of certification by the universities	A2i, ICT Division and other e-learning platforms	√	√	
Ensure coordination, quality assurance and unified certification of TVET programmes run by the government and private sectors	BTEB		√	
Incorporate soft skills in the TVET curriculum to address more complex challenges at the workplace of future	BTEB		√	√
Train the trainers and use online platforms to reach more trainees with a lower number of skilled trainers, promote blended learning in required cases	A2i, BTEB, Private initiatives such as Sudokkho, and Coder's Trust	√	√	
Design special certified and up-to-date training programmes for RMG and expatriate workers considering the threat of automation on their jobs	BTEB	√	√	

SECTION 3

COLLABORATION AND ENGAGEMENT FOR THE DIGITAL ECONOMY

The private sector is driven by profit motives, and the public sector is driven by its commitment to service provisions; the collaboration and engagements between the two can provide viable solutions to bridge the digital divide in Bangladesh.[123] An absence of a clear roadmap to leverage both sectors' strengths and capacities reduces the speed of expanding coverage of digital services and businesses, particularly to the rural and marginalised populations. To ensure a cost-effective space for the national and international investors and companies, targeted strategies are not in place to create a thriving environment to securely invest and maximise the opportunities that Bangladesh presents in the digital age.

STRATEGY 1

Leveraging Public-Private Partnerships for ensuring ubiquitous access to ICT infrastructure

Partnering with private companies and entrepreneurs has been proven to be an effective strategy for developing countries' governments.[124] Bangladesh received USD 6,785 million investment in total for infrastructure development from the private sector from 1990-2019. Among them, the electricity sector had the largest investment share. The electricity sector had 54 projects reaching financial closure with 5,136 million USD while the ICT sector stands 2nd position with six projects and 130 million USD investment.[125] The government's Procurement Guidelines for PPP Projects 2018' also focused chiefly on financial incentives to uphold private investors' interests in the infrastructure sector.[126]

The Union Digital Centers (UDC) in Bangladesh is another entrepreneurship-based unique PPP model that successfully takes centralised services to the local level and reduces citizens' cost of access services. At present, there are 4,565 Union Digital Centers (UDCs) in all 64 districts of Bangladesh working as information hubs for the rural communities making an easy access gateway to various public information and services for them.[127] These digital centres have a unique feature of delivering services following the public and private hybrid models and contributing to technological solutions to the people's doorstep.[128] UDCs usually have two entrepreneurs (ideally, one male and another female) recruited by the local government representatives dedicated to rendering IT-based services to the villagers using internet tools in exchange for money. These entrepreneurs have contributed to the rural areas of Bangladesh by addressing people's lack of information and poor ICT skills to enable smooth governmental services. UDC entrepreneurs also provide banking and e-commercial services.[129] Within 2017, 10,000 entrepreneurs of UDC were supposed to be trained to increase their capacity for reporting, article writing, outsourcing, and e-commerce. These trainings are necessary to ensure the sustainability of the existing business models and strengthen their role as social change-makers by providing ICT training to rural citizens. As a pilot initiative of scaling up the successful UDC model, 6 Specialized Digital Centre (SDC) was launched for RMG workers in Gazipur and fisheries workers in Khulna in the year 2018.[130] However, as UDCs are already providing a wide range of services, these infrastructures can be utilised to solve the rural population's access to internet problems. The entrepreneurs can jointly work with large ISPs in this regard. For example, in Estonia, government and private companies formed a partnership to provide broadband connection in the sparsely populated and remote areas of the country, and in Egypt, PPP projects are being carried out to create smart villages.[131] A2i should address the gaps regarding policy support, financing, and capacity building to kick-off and prototype such innovations and make it financially sustainable in the long run.

[123] Ibid
[124] Prospects of PPP in Expanding ICT Services in Rural Bangladesh: A Case of Union Digital Center
[125] World Bank, 2020
[126] Ibid
[127] a2i, 2017
[128] Rashid, 2019
[129] a2i, 2017
[130] a2i, 2017
[131] infoDev & ITU, 2012

STRATEGY 2

Supporting pro-consumer innovations of tech companies

The case of Grameenphone is an outstanding example proving that combining private ICT businesses with broader development agendas can be geared up by the right mechanisms. In June 1997, the Asian Development Bank (ADB), the International Finance Corporation (IFC), and the Commonwealth Development Corporation decided to process a project in support of Grameenphone. ADB approved an equity investment of USD 1.6 million and a senior loan of up to USD 30.0 million in 1998, and another loan of up to USD 20.0 million in 2004 for the expansion of Grameenphone's network. This collaboration entailed the construction and operation of a nationwide cellular telephone system and village pays telephone (VPT) services in rural areas of Bangladesh with substantial contribution to job creation and socio-economic development.[132] Grameenphone still holds the highest share of 46% among the mobile operators, followed by Robi with 28%, Banglalink with 23%, and Teletalk with a 3% share.[133]

In 2011, BRAC Bank launched Bangladesh's first mobile financial service provider, bKash Limited, focusing on providing financial services to the poor and unbanked. The programme uses a USSD gateway, allowing all users with a mobile phone to access the platform by dialling an access code. Relying on this modem lets customers with even the cheapest cellular devices utilise the service. The social welfare ministry is now capitalising on MFS penetration's success to provide government-to-people payments through MFS as studies find that it could potentially save up USD 15 million annually for the government and could equally save millions of hours, costs, and visits for the beneficiaries.[134]

Following these successful examples, the government of Bangladesh needs to support tech companies' more pro-consumer innovations. For example, we identify e-commerce entities, for instance, *Chaldal, which* might be the next big thing in Bangladesh's technology ecosystem. This is commendable that the state-run Trading Corporation of Bangladesh (TCB) has already started using these e-commerce platforms to sell commodities at a reduced price.[135] Another opportunity lies in customising any product of tech-giants like Facebook for the local users. For example, currently, Bangladeshi users can avail Marketplace option provided by Facebook, where people buy and sell items locally or have something new delivered from shops. Facebook Marketplace will indeed receive an overwhelming response with Facebook's broad reach and base in Bangladesh, although it is now only in the budding phase. The government should be critically aware of these new entries in the industry and carefully facilitate their growth.

STRATEGY 3

Facilitating Government-Academia-Industry tri-partite collaboration

Collaboration between the industry and academia is the first step towards innovation, and it ensures the industrial relevance of academic research. However, due to their low financial capacities, most industries (primarily MSMEs) in Bangladesh will not be able to invest in R&D freely; public-private partnership allowing the industry to request financial assistance from the government will make them able to benefit from utilising academic expertise and infrastructure.

In recent days, Indian universities have some major collaborations with the industry; for example, in 2019, the Indian Institute of Science (IISc), Bengaluru joined hands with global IT major Wipro, IIT Madras with Sterlite Technologies and ESPNcricinfo, IIT Kanpur with Tech Mahindra, and IIT Delhi with the Indian Space Research Organisation (ISRO).[136] These collaborations' focus was to carry out the research and development of emerging technologies like artificial intelligence, IoT, machine learning, 3D printing, visual computing, data analytics, 5G technologies, space technology, and other such. This is evident from global experience that stakeholders can benefit from Government-Academia-Industry tri-partite collaboration by emphasising research and entrepreneurship in tertiary level education. We propose three specific action points to leverage this collaboration:

a) Initiate tenure track mechanisms in universities, making research and publication mandatory for promotion and salary increase for the teachers.

b) Facilitate university-industry synergy by orchestrating research, intellectual property (IP) ownership, technology transfer, and commercialisation.

[132] ADB

[133] GSMA 2017

[134] PRI

[135] *TCB selling onion at Tk 36 per kg through e-commerce platforms*, The Financial Express, September 2020

[136] Analytics India Magazine, 2020

c) Establish university-based incubation and mentorship programs to promote startup culture and nurture entrepreneurial talents.

Some sporadic initiatives are gradually taking places through the inception of entrepreneurial activities within the university campuses in Bangladesh, consequently promoting sustained symbiosis. Sheikh Kamal IT Business Incubator project set up at Chittagong University of Engineering and Technology (CUET) supported by Bangladesh Hi-Tech Park Authority is the only formal government initiative to encourage IT-based entrepreneurship, research and innovation activities at the university level in Bangladesh. The Innovation, Creativity, and Entrepreneurship (ICE) Center of the University of Dhaka is a facility where students and faculty members from the different disciplines and employees of the University of Dhaka can collaborate and work together to address various social challenges, and create and develop businesses through innovative products, services or solutions and eventually, it has been contributing to establish an effective national innovation system in Bangladesh.

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ANNEX
LIST OF ATTENDEES FOR THE POLICY DIALOGUE SESSIONS

Mr N M Zeaul Alam (PAA), Senior Secretary, ICT Division

Mr A.N.M Safiqul Islam, Project Director, Bangladesh Hi-Tech Park Authority

Dr Khandoker Azizul Islam, Joint Secretary, ICT Division

Mr Akhtaruzzaman, Joint Secretary, ICT Division

Dr Bikarna Kumar Ghosh, Additional Secretary, ICT Division

Dr Md Abdul Mannan (PAA), Additional Secretary and Project Director, A2i

Mohammad Rezaul Karim, Additional Secretary, Member (Registration & Certification), NSDA

Mr Md. Tarique M Barkatullah, Director (Data Center), BCC, ICT Division

Ms Mohsina Yasmin, Executive Member, BIDA

Mr Anir Chowdury, Policy Advisor, a2i

Ms Tina F Zabin, Investment Advisor, Startup Bangladesh

Dr Sajjad Zahir, Executive Director, Economic Research Group (ERG)

Mr Khondoker Shakhawat Ali, Executive Editor, Protichinta

Dr Ragib Hasan, Associate Professor, University of Alabama Birmingham

Mr Syed Almas Kabir, President, BASIS

Mr Shameem Ahsan, Founder and Chairman, eGeneration

Mr Mahboob Zaman, Managing Director, Datasoft

Mr A B M Hamidul Mishbah, National Consultant, World Intellectual Property Organization – WIPO

Mr Ananya Raihan, Chief Executive Officer, iSocial

Mr Shakeb Nabi, Country Representative, ICCO Cooperation

Mr Munir Hasan, Head of Youth Programme, Prothom Alo

Mr. Rubayat Khan, CEO, Jeeon

Mr Md Shahid Uddin Akbar, CEO, Bangladesh Institute of ICT in Development (BIID)

Mr Ejaj Ahmad, Founder and president, Bangladesh Youth Leadership Center (BYLC)

Mr Shofi Taneem Senior Manager, Skills Development Programme, BRAC

Mr Fahim Ahmed, President, Pathao

Mr Azizul Abedin, Chief Commercial Officer, Sheba Phone

Mr Bijon Islam, CEO, LightCastle Partners

Mr Osman Ghani, Chief of staff, YY Goshti

Mr Siddhartho Goswami, Project Officer, UNDP

Ms Achia Nila, Founder, Managing Director, Women In Digital

About this Strategy Primer

The unique level of commitment from Bangladesh's government for digitisation has been working as a driving force for the country to thrive in the digital economy. The current government has accelerated the rapid digitisation and the smart use of Information and Communication Technologies (ICT) to spur progress in almost all sectors in Bangladesh.

As a result, Bangladesh has been experiencing a digital transformation as well as sustained economic growth. The overall impact of new technologies will be determined by how well they are adopted, the extent they are adopted, and how indirect effects filter through the rest of the economy.

In this context, partnering with the University of Oxford's Digital Pathways Initiative, BRAC Institute of Governance and Development (BIGD), intended to chart a pathway for Bangladesh to decide holistic strategies to accelerate its inclusive growth in the digital age. This project has been implemented with close collaboration with the ICT Division of the Government of Bangladesh and benefited from feedback and meaningful suggestions from high-level government officials.

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