Diagnostic Studies to Assess Female Traders and Entrepreneurs Export Potential in the ICT Sub-sector

(The Role of ICT as a Tool in Export Facilitation for the Top Ten Export sectors and the Role of Women as ICT Workers and Entrepreneurs/Business Owners)

Bangladesh Regional Connectivity Project-1

MINISTRY OF COMMERCE

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GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Commerce
Bangladesh Regional Connectivity Project-1 (BRCP-1)
Probashi Kollayan Bhaban (Level-12)
Eskaton Garden, Dhaka-1000

REPORT
ON

DIAGNOSTIC STUDIES TO ASSESS FEMALE TRADERS AND ENTREPRENEURS EXPORT POTENTIAL IN THE ICT SUB-SECTOR UNDER BANGLADESH REGIONAL CONNECTIVITY PROJECT-1 (BRCP-1)
(The Role of ICT as a Tool in Export Facilitation for the Top Ten Export sectors and the Role of Women as ICT Workers and Entrepreneurs/Business Owners)

Contract Package No.: BRCP1/MOC/SD-10

SUBMITTED TO:

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Preamble

Information Communication Technology (ICT) encompasses the broad fields of data/information processing, transmission, and communications by means of computer and telecommunication techniques and these modern tools are being increasingly used for organizational/personal information processing in all export sectors of the economy and society. This document presents the diagnosis for the development of the using ICT tools in the export sector in Bangladesh. The Project Implementation Unit (PIU) of the Bangladesh Regional Connectivity Project (BRCP-1), Ministry of Commerce conducted a survey *"Diagnostic Studies to Assess Female Traders and Entrepreneurs Export Potential in the ICT Sub-sector(The Role of ICT as a Tool in Export Facilitation for the Top Ten Export sectors and the Role of Women as ICT Workers and Entrepreneurs/Business Owners) (Package No.: BRCP/MOC/SD-10)"* through third-party consulting firm "Development Technical Consultants Pvt. Ltd. (DTCL)", selected through the open competitive bidding process, to collect benchmark information of the project in order to compare the progress of the project activities with the target of the ICT based export-oriented result-framework information. The project jointly financed by the World Bank and the Government of Bangladesh (GoB) is being implemented by three Project Implementation Units (PIUs), namely: the Ministry of Commerce (MoC), National Board of Revenue (NBR), and Bangladesh Land Port Authority (BLPA) from January 01, 2017, with the investment cost of US$ 170.40 million. It is being implemented with the aim to improve conditions for trade through improving connectivity, reducing logistics bottlenecks, and supporting the adoption of modern approaches to border management and trade facilitation.

A dependable trade information system is essential for efficient management and operation of the public and private sectors business. But there is a shortage of locally generated information needed for the efficient performance of the top ten export sectors including the diversified export basket. In order to meet this objective, ICT use in every export sector shall have to be accelerated in terms of information generation, utilization, and applications. Considering the gravity and importance of ICT Hon'ble Prime Minister has already declared ICT as the thrust sector.

Over the last few years, many nations have taken advantage of the opportunities afforded by ICT within a policy framework, laid down guidelines, and proceeded with the formulation of a national ICT strategy as a part of the overall national development plan. Bangladesh intends to use ICT as the key-driving element for socio-economic development.

This report contains the findings of the study which provides useful ICT information about the top ten export sectors with special emphasis on women trader's participation. The study identifies gaps in the production, handling, technologies and infrastructure development for enhanced value addition to the primary produces and processing of commodities into finished products and provides recommendations for the top ten export sectors.

I would like to extend my thanks to all export-oriented associations, BFTI, FBCCI, DCCI, CCCI, NCCI, COEL, EPZ, NBR, BLPA, WTO wing, and MoC for their active support in completing the study report in time. I also pay my thanks to the Consultants of the study, Mr. Monoj Kumar Roy, Team Leader, and his team for producing such an analytical Report. I would also like to appreciate the members and panelist of the validation workshop for their support and useful feedback.

Date: 31 July, 2022   **Md. Mijanur Rahman**
                                                                      Project Director (Joint Secretary)

Acknowledgements

Date: 31 July, 2022   **Monoj Kumar Roy**
                                                                        Team Leader

ACRONYMS

ADB	Asian Development Bank
AGM	Assistant General Manager
BASIS	Bangladesh Association of Software and Information Service
BBIN	Bangladesh-Bhutan-India-Nepal
BBS	Bangladesh Bureau of Statistics
BCC	Bangladesh Computer Council
BCS	Bangladesh Computer Society
BFTI	Bangladesh Foreign Trade Institute
BGMEA	Bangladesh Garment Manufacturers' and Exporters' Association
BKMEA	Bangladesh Knitwear Manufacturers' and Exporters' Association
BLPA	Bangladesh Land Port Authority
BRCP	Bangladesh Regional Connectivity Project
BTP	Bangladesh Trade Portal
BTRC	Bangladesh Telecommunication Regulatory Commission
BWCCI	Bangladesh Women's Chambers of Commerce and Industry
CCCI	Chattogram chamber of Commerce and Industry
CEO	Chief Executive Officer
CIP	Commercially Important Person
COEL	Centre of Excellence for Leather Skill
COVID	Corona Virus Disease
CMSME	Cottage, Micro, Small and Medium Enterprises
DCCI	Dhaka Chambers of Commerce and Industry
DoF	Department of Fisheries
ED	Executive Director
EPB	Export Promotion Bureau
EXIM	Export-Import
FBCCI	Federation of Bangladesh Chambers of Commerce and Industry
FDI	Foreign Direct Investment
FGD	Focus Group Discussion
FIQC	Fish Inspection and Quality Certificate
FYP	Five Year Plan

GDP	Gross Domestic Product
GoB	Government of Bangladesh
IA	Implementing Agency
ICT	Information and Communication Technology
IDA	International Development Agency
IT	Information Technology
KII	Key Informants Interview
ITeS	It-enabled Service
LDC	Least Developed Country
MoC	Ministry of Commerce
MoWCA	Ministry of Women and Children Affairs
NBR	National Board of Revenue
NGO	Non-governmental Organization
NTFC	National Trade Facilitation Committees
NTTFC	National Trade and Transport Facilitation Committee
OECD	Organization for Economic Co-operation and Development
PC	Public Consultation
PD	Project Director
PhD	Doctor of Philosophy
PIU	Project Implementation Unit
RMG	Readymade Garment
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
SME	Small and Medium Enterprise
TOR	Terms of Reference
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization

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Executive Summary

ICTs have a huge impact on social, economic, and political life globally today. Significant contributors to economic growth are knowledge of how to use ICT tools and products for productivity and the capacity to access information about prices, markets, and laws. ICTs can assist in making level playing field for small producers and company owners by providing access to knowledge and information that might otherwise only be available to privileged individuals and institutions. ICTs can also enable women to take equal part in the growing knowledge economy. When given the resources and support of ICTs, women create new associations to further their causes, create new domestic and international businesses, and communicate with their stakeholders more effectively and efficiently online.

In light of the anticipated benefits, the Government of Bangladesh is putting into action a variety of proactive steps in the short- to medium-term to ensure that women are effectively using ICT to facilitate exports. In light of this, the "Bangladesh Regional Connectivity Project-1" of the Government of the People's Republic of Bangladesh conducted a diagnostic study to evaluate female traders and entrepreneurs export potential in the ICT sub-sector.

The study's goals were to perform a diagnostic analysis of the ICT sub-role sector's in facilitating and promoting Bangladesh's export sectors, as well as the role that women currently (or potentially) play in the ICT-enabled exports; evaluate the current role of ICT in export facilitation for the top ten leading exports; compare and contrast the use of ICT in the aforementioned export sectors and the role of women as ICT workers and entrepreneurs/business owners; identify barriers to ICT adoption in aforementioned export sectors, including regulatory barriers, infrastructure needs, and barriers to engaging women in the ICT sector; and identify actionable ways in which to increase women's participation in ICT.

The study team looked at both quantitative and qualitative survey methods to achieve the objectives. For the purpose of gathering primary data, 1306 sample respondents who worked in the top ten export sectors and used ICT were interviewed using a set of electronic questionnaires that were uploaded to a tablet using the KoboToolBox program. The sample respondents were chosen utilizing the chain-referral sampling or snowball sampling techniques. In addition, to validate the results of the quantitative data, a total of 20 Focus Group Discussions (FGDs), 52 Key Informant Interviews (KIIs), and 5 Public Consultations (PCs) (4 local levels and 1 national level) were undertaken. Additionally, the consultant team examined and analyzed secondary data and information, including pertinent policies and plans like the Eight Five Year Plan and ICT policy/plan, SDG, 2021 and 2041 Visions, etc. After using the SPSS software to analyze the field data, the tables, charts, and descriptive statistics needed for the study were created.

Out of 1306 responses, the field data showed that 14.2% were female, 85.4% were male, and 0.4% were transgender. The majority of respondents (25.11%) were found to be involved in the clothing and accessory sector, which was followed by the raw hides, skins other than fur skins, and leather sector (17.53%), knit or crochet clothing, accessories, and the sectors for fish (9.72%), plastic and plastic articles (9.26%), footwear (8.50%), and headgear (8.81%). In addition, responders from the sectors of paper yarn, woven fabric, miscellaneous textiles, and used clothing sector were also participated in the study. The study included participation from the garment industry. The educational backgrounds of the survey respondents make it evident that approximately 51.0% of them have post-graduate degrees, while 29.48% have degrees

from accredited colleges or universities, and 9.95% have finished higher secondary education. A small percentage of responders also finished their primary education, lower secondary education, a PhD, and secondary education in addition to this. Between male and female respondents, there were no appreciable differences in terms of educational attainment. Out of 1306 respondents, almost 70% had received training in the fundamentals of computers, and up to 75% of trainees possessed a fundamental understanding of how to utilize ICT.

According to the respondent, there is a very high likelihood that women will find employment in the sectors of knit or crocheted clothing and accessories (33.33%), clothing and accessories (not knit or crocheted) (58.23%), and fish (42.52%). The majority of businesses had a medium likelihood of employing women, with 63.96% in the footwear industry, 74.07% in the miscellaneous textiles, worn clothing sector, 78.51% in the plastic, plastic goods sector, and 68.70% in the headgear industry. On the other side, the industries with the lowest job prospects for women were those producing raw hides, skins without fur, and leather (55.46%) and leather/animal gut products (40.00%). Maximum 41.2% of respondents indicated that women have a medium chance of employing ICT tools in their work. The other top ten sectors did not differ significantly on this issue, with the exception of miscellaneous textiles, worn clothing, fish, and raw hides, skins, not fur skins, leather. Whereas respondents from the fish industry (70.08%) noted that there was a very high likelihood that women will utilize ICT in their careers, respondents from the various textiles and worn apparel sector (61.11%) noted a high likelihood. On the other hand, the respondent under the sectors of raw hides, skins other than fur, leather, and leather/animal gut goods expressed a very poor outlook (57.21%). The responders for the top 10 export industries also noted several advantages of ICT use on business output. Accelerating work speed (89.0%), improving accuracy (87.9%), improving data security (71.4%), and enabling workers to work from home, outside of the office, or in a factory (70.0%) were among the advantages. The respondents in the top ten sectors also raised a number of claims about the profitability of the firms as a result of employing ICT. They claim that the use of ICT lowered processing expenses, raw material procurement costs, sales costs, time required for buyer consultations, and sample production costs while expanding the potential for straightforward marketing.

However, 74.12%, 61.49%, and 64.09% of respondents, respectively, stated the biggest barriers to using ICT in the top 10 export sectors were a lack of competent ICT workers, power outages, and a lack of/shortage of workplace trainers. The use of ICT to conduct digital receipt payments were noted the most (61.9%) in the top ten sectors, followed by export approvals (59.1%). The fewest respondents (36.0%) report using digital tracking. ICT is also widely utilized for e-commerce and placing online export orders.

According to the report, there are five areas where regulatory simplifications are necessary to encourage the use of the ICT sector in trade facilitation, particularly by women in Bangladesh. These include: (i) given that women trail much behind men in the usage of ICT, especially as freelancers, (ii) To encourage more women to participate in ICT-based businesses, special provisions may be added to the ICT Act to offer special financial benefits/incentives or relaxations of the conditions of receiving the incentives or having access to ICT devices/smartphones or internet access in rural areas; (iii) the removal of digital trade barriers (such as limitations and other discriminatory practices affecting cross-border data flows, digital goods, Internet-enabled services, and other restrictive technology requirements); and (iv) the creation of women-friendly ICT policies, Acts, and related rules and regulations in order to promote the participation of more women of all strata and ensure equity in e-commerce. (v) Because women are so susceptible to cybercrimes, there should be additional regulatory

safeguards in place to prevent any attacks on women's ICT equipment or financial transactions made using these devices.

During the study's qualitative survey, some significant obstacles to women's entrepreneurship and commerce were also identified. These include: (i) low access to capital, which is frequently the most significant barrier to the operation and growth of women-owned businesses as well as their involvement in international trade; (ii) the gender gap in access to technology, which drawbacks women entrepreneurs; (iii) inadequate physical infrastructure, which limits economic opportunities for both women and men; (iv) lack of gender sensitization among border officials, which creates additional challenges for female traders; (v) women entrepreneurs have limited knowledge of trade regulations and capacity to meet business and trade documentation requirements; and (vi) women are very much vulnerable to cybercrimes thus special regulatory measures should be in place to contain all forms of cybercrimes against women and their ICT equipment and protection of the financial transactions through ICT devices.

Based on the analysis and findings of the data from the qualitative and quantitative survey, it has been determined that more IT-based well-trained females should be incorporated into the business organizations in order to close the gender gap in the usage of ICT in the workplace. The group also highlighted a few additional crucial suggestions. These include-

Role of ICT in export Facilitation:
➢ The government may decide to digitize and strengthen the postal parcel system up to rural areas in order to guarantee online delivery of consumers' goods.
➢ In order to support exporters and ensure meaningful IT application in trade facilitation, including the development of efficient import and export processes for online transactions, including quick handling of intermediary items, Customs should be modernized to provide paperless customs clearing operations. All of the roughly 18 women's chambers may have internal networking tools to investigate the demand for goods and services and utilize the ICT trade site.
➢ In order to eliminate or limit the usage of hard-copy documents in international trade, the government must undertake suitable and applicable legislation reforms to enable effective online interfacing among all pertinent departments, ministries, etc.
➢ On subjects like digitizing paper-based data, integrating order-placing platforms, online export order placement, digital export consignment tracking, logistics operations, financial administration, production formation, managing a network of clients and suppliers for exporters, product or service certification, and accessibility to e-commerce by shipper and buyer, very well-organized practical training should be offered.
➢ Government programs and targeted capacity-building training should receive additional funding, especially for women active in cross-border trade and other relevant individuals and users of the electronic single window for the filing of 15 to 20 trade-related papers utilizing ICT tools.
➢ An online tax exemption certificate may be issued by the relevant tax office in order to save time and effort.
➢ To make the transmission of export earnings through already-existing legal channels easier, PayPal and other similar technologies should be introduced.

Role of Women in ICT Service Provision:
➢ To promote female entrepreneurship and their perspectives on ICT services, women's groups and other interested parties may be consulted.

- It is possible to investigate whether female entrepreneurs from internet firms and other potential industries can also participate in skill development initiatives. Additionally, a policy paper might be created to outline the advantages of international commerce for female entrepreneurs and what needs to be done to take benefit of those advantages.
- In order to educate female business owners about exportable goods, their supply chains, and legal requirements for export trading, import-export procedure, project management, regulatory matters pertaining to trade, the development of language and negotiation skills, and other issues should be included in the female entrepreneurs training programme.
- Make sure that computer science and IT-related courses are offered in all schools and organizations, with a concentration on female students.
- With the help of stakeholders from the mobile network operators, ICT experts, and women traders' associations, initiatives should be carried out to raise awareness about women's increased access to job market and improve entrepreneurships. These stakeholders should be involved to share knowledge and experience in the safe use of the Internet and relevant devices.
- Necessary training for capacity building of women's traders to involve them in the export sector like (i) Knit or crochet clothing, accessories; (ii) Clothing, accessories (not knit or/crochet); (iii) Footwear; (iv) Miscellaneous textiles, worn clothing; (v) Paper yarn, woven fabric; (vi) Fish; (vii) Leather/animal gut articles; (viii) Headgears; (ix) Raw hides, skins not fur skins, leather; and (x) Plastics, plastic articles.
- To increase the role of women in ICT service the government should provide incentive, ensuring a safe ICT environment in making ICT tools more accessible for women's traders.

Regulation Analysis:
- Since women are significantly underrepresented in the use of ICT, especially as independent contractors, specific provisions may be added to the ICT Act to offer easy access to finance, financial incentives, financial benefits, or a modification of the requirements for claiming the tax benefit.
- ICT equipment, smartphones, or internet facilities in rural areas should be available in order to increase the participation of women in ICT-based businesses such as e-commerce, freelancers and/or ITES (Information Technology Enables Services) providers.
- Due to the fact that the freelancers are not officially registered, a legal structure and specific database must be created for them.
- Customs Acts ought to include laws and rules governing digital transactions.
- The government should think about passing new patent and industrial design laws, trademark laws, copyright laws, regulatory regimes, and other measures to address the legal issues surrounding intellectual property protection (such as insufficient patent, copyright, and trademark regimes and enforcement of intellectual property rights) for data and other ICT products.
- Add a separate time slot in the CCI and E licensing modules for issuing ERCs and IRCs to women.
- There are numerous laws and standards governing foreign trade in Bangladesh; these must also be adjusted to account for e-commerce.
- A review and revision of the Bangladesh ICT Act is necessary in light of all types of cybercrime. Cybercrimes committed outside of Bangladesh's boundaries, issues with e-Transactions, and offenses against intellectual property rights, such copyright, trademark, e-information, and data patent rights, should all be addressed.

Chapter -1

Introduction

1.1 Background of the Project

Bangladesh is a land of about 168 million people within its 147,570 sq. km territory. Per capita GDP is US$ 2060 (PC, 2020). Since its independence in 1971, Bangladesh has achieved substantial improvements in some social indicators like a decrease in infant and maternal mortality as well as illiteracy, and an increase in life expectancy, access to safe water and sanitation. However, approximately 21.8% (BBS, PC, 2019) of the population still continue to live below the poverty. The economic performance of the country has been relatively strong since 1990, with an annual 7-8% average GDP growth rate. Bangladesh has already graduated in middle-income country status in March 2021 and is likely to become a developed country by 2041. Bangladesh is now passing a transition period as it is graduating from the LDC status. It is expected to face stiff competition in the global market after graduation due to termination of unilateral preferential market access. The country therefore, needs to develop its own strategies in ensuring smooth graduation. The government therefore is implementing massive development works in light of the "**Vision-2021**" **and** "**Vision-2041**". Sustained economic growth along with steady agricultural improvement has been fundamental to poverty reduction. Sustainability of growth, particularly energy sector growth is, however particularly important to achieve energy security and 4th generation industrialization.

Bangladesh has already achieved Millennium Development Goals (MDGs) and planning to achieve Sustainable Development Goals (SDGs) by 2016-2030. Reaching the SDG targets simply will not be possible without a strong and sustainable agricultural sector. Almost all the SDGs are relevant to gas and energy sector. The pathway of linkage is either direct (like in the case of Goal 4 of the SDGs aims to quality education and Goal 5: Gender Equality and Goal 9: Industry Innovation and Infrastructure by the year 2030.

Bangladesh is the third largest economy in South Asia. It is among the most densely-populated countries in the world with a population of about 168.5 million in a land area of 147,570 square kilometers (km). Bangladesh's economy grew well above the average for developing countries in recent years, averaging 7-8 percent since 2015. With a per capita GDP of US$ 2026, Bangladesh has already graduated in middle-income country in March 2021 and will be qualified in developed country status by 2041 (PC, 2020).

Figure 1.1: Sustainable Development Goals (SDGs) by 2016-2030

Bangladesh has made substantial progress in reducing poverty, and there is much to celebrate and learn from the Bangladesh experience. This is confirmed by multiple direct estimates of poverty, and by corroborating evidence. The Government of Bangladesh remains committed to continually improving national poverty monitoring, which underpins domestic policy.

Key to achieving Bangladesh's growth and poverty reduction goals is the improvement of the country's multimodal transport and logistics system, and links to its neighbors and the rest of the world. The inability of the transport and logistics network to keep up with the pace of demand is hampering trade performance. Bangladesh manufacturers' 'Order to Delivery Cycle' is 35 to 50 percent longer than many of their competitors due to slow, expensive and unreliable inland transportation; cumbersome banking, clearance and Customs and border management processes; inadequate consolidation terminals, inland clearance depots and land ports; and poor seaport and river port terminal productivity.

The Government's Plan to address the above bottlenecks includes: (a) enhancing the capacity of multiple key modes of transport, including expanding the road network, increasing the capacity of Bangladesh Railways to carry freight, and enhancing the capacity of the country's inland waterways to carry freight and passengers; (b) improving regional connectivity; and, (c) improving banking, Customs and clearance systems and procedures to decrease clearance times and border crossing times for cross border trade. Under the BBIN (Bangladesh-Bhutan-India-Nepal) regional framework, complementary activities to facilitate regional trade including female traders and connectivity are being pursued by the four countries.

The Government of the People's Republic of Bangladesh has received an SDR 150 million Credit from the International Development Association (IDA) - a member of the World Bank Group - for financing the cost of the Bangladesh Regional Connectivity Project 1(BRCP-1), being jointly implemented by the Bangladesh Land Port Authority (BLPA), National Board of Revenue (NBR) and Ministry of Commerce. The second component of this umbrella project is being implemented by the Ministry of Commerce as a separate technical assistance project. The overall objective of this technical assistance project is to strengthen trade-related institutional capacity in order to ensure active and sustainable cooperation between multiple trade-related stakeholders and economic empowerment of women traders.

1.2 ICT and Women: A Bangladesh Perspective

ICTs have become a potent force in transforming social, economic, and political life globally. Knowledge of how to use the tools and products of ICTs for productivity, and accessing information about prices, markets and regulations are key drivers of economic growth. Using ICTs can help level the playing field for small producers and entrepreneurs by providing access to information and knowledge that otherwise may only remain in the hands of elite individuals and institutions. ICTs can enable women to become equal stakeholders in the growing knowledge economy. As a tool of production, ICTs can be used by women in their workplace for data entry or other office work. As a tool of communication, ICTs can be used to enhance women is experience as end-users by increasing their ability to network with others for advocacy purposes or business information. When given the tools and support of ICTs, women develop new domestic and export businesses, start new associations to represent their interests, and use e-governance to communicate more effectively and efficiently with their local government officials.

Introducing and integrating ICT applications into agriculture, industries, and services can present opportunities to improve working conditions for those employed, particularly women. These applications have immediate and direct implications for the poor:
- Managing, sharing and storing industrial-related information and data;
- Access to time-sensitive information and public (government) information;
- Links and networks that support participatory information sharing; and,
- Access to market information across sectors.

ICTs fundamentally change modes of organization, management, production, distribution, and employment. They have three main impacts on women is work in the context of increased global competition:

- A shift from automation to computerization, particularly in the manufacturing sector;
- Disintermediary and intermediary trends; and,
- Computerization of back-office functions by providing options for alternative working environments.

Given that access to and use of ICTs is linked to social and economic development, these changes can have an overall positive impact on women is work, livelihoods and opportunities, depending on where women are located within the sector. They can also have a negative impact on women when they are not aligned strategically, often times displacing or hindering their potential for economic opportunity. As ICT tools, computerization, and information management systems are applied to government activities and services, the efficiency and efficacy of government are expected to improve with direct benefits to the poorer citizens. ICT and e-governance applications will reduce personal interactions between government and citizens, increasing the transparency of government operations, and saving both time and travel expenses.

1.3 Objectives of the Study

The objective of the study is conducted a diagnostic analysis of the role of ICT sub-sector in facilitating and promoting export sectors of Bangladesh and the role that women currently (or can) play in the ICT enablement of exports. Besides this the specific objectives of the assignment-

- Assessed the current role of ICT in export facilitation for the top ten leading exports of Bangladesh;
- Compared and contrasted the use of ICT in the aforementioned export sectors and the role of women as ICT workers and entrepreneurs/business owners;
- Identified barriers to ICT adoption in aforementioned export sectors, including regulatory barriers, infrastructure needs, and barriers to engaging women in ICT sector; and
- Identified actionable ways in which to increase women's participation in ICT.

1.4 Scope of the Study

The project conducted a diagnostic study that looks at ICT adoption levels in export facilitation, as well as, the role of women in provision of these ICT services. The sectoral diagnostic study examined all relevant critical issues including (but not limited to) the following:

1. Role of ICT in Export Facilitation
2. Role of Women in ICT Service Provision
3. Regulations Analysis

1.5 Rationale of the Study

The study is aimed at fulfilling the requirement of studies suggested by the National Trade and Transportation Facilitation Committee (NTTFC) the Bangladesh Regional Connectivity Project-1 (BRCP-1), jointly financed by the World Bank and the Government of Bangladesh (GoB). The first component of this umbrella project is being implemented by the Ministry of Commerce as a separate technical assistance project. The overall objective of this technical

assistance project is to strengthen trade-related institutional capacity in order to ensure active and sustainable cooperation between multiple trade-related stakeholders and the economic empowerment of women traders. The objective of the study is to conduct a diagnostic analysis of the role of the ICT sub-sector in facilitating and promoting export sectors of Bangladesh and the role that women currently (or can) play in the ICT enablement of exports. The objectives will be accomplished in achieving the activities such as assessing the current role of ICT in export facilitation for the top ten leading exports of Bangladesh, comparing and contrasting the use of ICT in the aforementioned export sectors, and determining the role of women as ICT workers and entrepreneurs/business owners, identifying the barriers to ICT adoption in aforementioned export sectors, including regulatory barriers, infrastructure needs, and barriers to engaging women in the ICT sector and Identifying actionable ways in which to increase women's participation in ICT.

Chapter-2

Methodology

2.0 Methodology

2.1 General Processes: The methodology for the present study used mixed methods and system-wide approach, which is both detailed and participatory. This approach involved wide-ranging and sequenced discussion with the clients to develop an in-depth understanding about the present role of ICT in export facilitation, role of women in ICT sector potential and support required for promotion of exports by women traders involved in ICT sub-sectors.

In accordance with the ToR, the Inception Phase covered two weeks for the diagnostic studies about export promotion in trade sector. During this phase, the consortium, through the Team of consultants, engaged in an open and inclusive process with the client and other stakeholders in order to collect and assimilate all relevant current information that enabled to make an in-depth understanding about the present situation, export potential and support required for promotion of exports by women traders involved in key value chains in this sector and of the pertinence of the ToR vis-à-vis the actual situation. Following discussion, the final approval of inception report will be taken from PD.

Desk Study: Collection and Review of Data, Reports and Information

Immediately after commencement of the project, the team of experts started analyzing relevant documents and existing data including policies/plans and strategies, investment climate and bottlenecks) regime (including licensing and procedural measures) of trades in Bangladesh and its simplification for effective participation of women traders and entrepreneurs in regional and global trade. Required qualitative data analysis techniques and methods used including review of recent studies and researches in Bangladesh and abroad. Some of those documents have already been collected during the phase of preparation of the technical proposal. Further documents asked to relevant stakeholders of the PD-BRCP-1/MoC, EPB, BGMEA, BKMEA, different chambers and other relevant organizations. Those background relevant documents analyzed by the team of experts in order to provide an outline of the initial assessment and fact finding, to be included in the inception report. In addition, review the legal, regulatory regime and impact and potential five regulatory regime which can promote employment, education and income of women and contribute in export sector including ICT policy/plan, Eight Five Year Plan (8 FYP), SDG, Vision 2021 and 2041 etc.

Monitoring and Evaluation

In the wake of the inception phase the team of experts provided comments and recommendations for the tools proposed and prepared by the survey team. The comments included suggesting improvements to the questionnaires and suggested additional questions as well as to their integration into a possible draft instrument. During proposal preparation clear and detailed ideas for such M&E system design have been developed, including the identification of adapted tools and procedures for impact assessment and monitoring of outcomes. We developed draft study questionnaire, a monitoring guide which used for this project in Bangladesh. This document helped the basis for discussions with the client and for preparing the final report of each intervention.

Data Quality Assurance Plan

A detailed Data Quality Assurance Plan has been included in this Technical Proposal. After describing the main objectives of a needed quality assurance plan for collected data, the plan proposes measures to ensure that all the collected data are validated. The plan amended in the wake of the inception phase after conducting various discussions with the client and other relevant stakeholders. At this time a final version of the quality assurance plan will be prepared.

❖ Field-testing/Piloting of questionnaires; and
❖ Preparation of the report on the pilot activity.

2.2 Sample Design

Two types of analysis made to gather information about the study, and these were quantitative and qualitative.

(i) Quantitative Analysis

The population under the study universe constituted of different stakeholders such as owner of the different industry mentioned in the ToR, Management, exporters and other related organization in study area especially in the ICT subsector including women and policy makers in selected trade related areas. Thus, it appropriated to determine a representative sample size of the respondents in selected trade related areas at first. The study team used the appropriate formula fit for calculating the sample size.

We attempted to estimate the accuracy level of the estimates expected to attain with this sample size. Following calculation showed an admissible/allowable error of 3% will give a sample size. This ensured an accuracy level of 97% of the estimates by conducting the study with 1306 respondent's especially women headed establishments in the diagnostic study in the selected subsector.

The formula[1] was given by

$$n = \frac{z^2\,pq}{d^2} * deff$$

Were,
n = Desired sample Size
z = Standardized normal deviate usually set at 1.96, which corresponds to the 95% confidence interval at 5% level of significance
p = Expected proportion in population based on the previous studies or baseline study or pilot study or simple expected outcome. To best our knowledge, we consider the Proportion of Female employment Indicator in Industry according to the Labour Statistics in Bangladesh-An empirical analysis (BBS, 2018[2]). In this study, we apprehend the proportion of female employment in agriculture is about 16.7% (P=0.167). i.e., p =0.167
q = 1-p=1-0.167=0.833
d = Allowable margin of error is the maximum risk in the sample size estimation. Conventionally, an 'absolute' allowable error margin d of ±5 % is chosen, but, as is common

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1 Cochran, W. G. 1963. Sampling Techniques, 2nd Ed., New York: John Wiley and Sons, Inc.

2BBB (2018), Labour Statistics in Bangladesh-An empirical analysis 2018, Bangladesh Bureau of Statistics (BBS), Ministry of Planning, Dhaka

in, if expected p is <10 %, the 95 % confidence boundaries may cross 0, which is impractical. Hence, for an expected the value p 10 to 90 % then the value of d is ±5 % might be a reasonable choice. The choice of 'relative' allowable margin error as opposed to an absolute value is independent of expected p and one might choose it for mid-range values of p, which is a valid approach. In this study, the allowable error of margin, d=3% is 0.03.
Deff = Design Effect = 2.2

Using the above information, the sample size is determined as approximately as follows:

$$n = \frac{(1.96)^2 * (0.167)(0.833)}{(0.03)^2} * 2.2$$

n = 593.787*2.2= 1306.88 ~ 1306 in round figure. Thus, assuming these parameters, the estimated sample size using the above formula is 1306.

Table 2.1: Distribution of Sample Respondents by Sector & Division

Sector	Gender	Administrative Division								Total Number sample
		Dhaka	Mymensingh	Chattogram	Rajshahi	Rangpur	Khulna	Barisal	Sylhet	
Knit	Total	90	20	57	20	0	0	0	20	207
	Male	78	17	49	17	0	0	0	17	178
	Female	12	3	8	3	0	0	0	3	29
Cloth	Total	150	25	98	25	0	0	0	30	328
	Male	129	21	83	20	0	0	0	26	279
	Female	21	4	15	5	0	0	0	4	49
Footwear	Total	55	9	39	8	0	0	0	0	111
	Male	47	9	33	8	0	0	0	0	97
	Female	8	0	6	0	0	0	0	0	14
Textile, worn clothing	Total	40	0	14	0	0	0	0	0	54
	Male	35	0	12	0	0	0	0	0	47
	Female	5	0	2	0	0	0	0	0	7
Paper yarn, woven fabric	Total	9	0	0	0	0	0	0	0	9
	Male	8	0	0	0	0	0	0	0	8
	Female	1	0	0	0	0	0	0	0	1
Fish	Total	0	0	0	0	0	97	30	0	127
	Male	0	0	0	0	0	81	24	0	105
	Female	0	0	0	0	0	16	6	0	22
Leather/ animal gut articles	Total	4	0	1	0	0	0	0	0	5
	Male	3	0	1	0	0	0	0	0	4
	Female	1	0	0	0	0	0	0	0	1
Headgears	Total	65	0	50	0	0	0	0	0	115
	Male	55	0	42	0	0	0	0	0	97
	Female	10	0	8	0	0	0	0	0	18
Raw hides, skins not fur skins, leather	Total	139	0	90	0	0	0	0	0	229
	Male	121	0	78	0	0	0	0	0	199
	Female	18	0	12	0	0	0	0	0	30
Plastics, plastic articles	Total	72	0	49	0	0	0	0	0	121
	Male	60	0	41	0	0	0	0	0	101
	Female	12	0	8	0	0	0	0	0	20
Total Sample										1306

*Top ten exports are: (i) Knit or crochet clothing, accessories; (ii) Clothing, accessories (not knit or/crochet); (iii) Footwear; (iv) Miscellaneous textiles, worn clothing; (v) Paper yarn, woven fabric; (vi) Fish; (vii) Leather/animal gut articles; (viii) Headgears; (ix) Raw hides, skins not fur skins, leather; and (x) Plastics, plastic articles

Sample Technique

In this study, the study team applied the non-probability sampling method, snowball sampling method to accomplish the study.

Snowball sampling

Snowball sampling or Chain-referral-sampling of a hidden population begins with a convenience sample of initial subject, because if a random sample could be drawn, the population would not restrict as hidden. This sampling method generates biased samples because respondents who have great number of social connections are able to provide investigators with a higher proportion of other respondents who have characteristics similar to that initial respondent. The impossibility of making unbiased estimate from snowball samples was believed, but snowball sampling variation is called respondent driven sampling. It allows the investigator to make asymptotically unbiased estimates from snowball samples under some conditions. Using this approach, a few potential respondents contacted and asked whether they know of anybody with the characteristics that you are looking for in your research. Formation of a sample group starts with only one subject and the subject provides only one referral. The referral is recruited into the sample group and he/she also provides only one new referral. This pattern is continued until the sample group is fully formed.

Patterns of snowball sampling
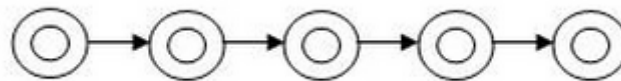
(ii) Qualitative Analysis

Qualitative research generally includes data in form of words rather than numbers. Qualitative methods are also being increasingly used in social study as credible and reliable method of data collection. Qualitative techniques will be used primarily to collect in depth/ perceptual information on selected indicators related to the study. In this study, the Qualitative research Method would be one of the important methodological approaches for addressing the present diagnostic study. Thus, we have decided to adopt Qualitative Method for the present study. In this analysis the most appropriate methods to be used are suggested as follows:
   a) Focus Group Discussion (FGD);
   b) Key Informants Interview (KIIs); and
   c) Public Consultations (PCs) at the selected locations with the relevant stakeholders.

In this analysis the most appropriate tools to be used are suggested as follows:
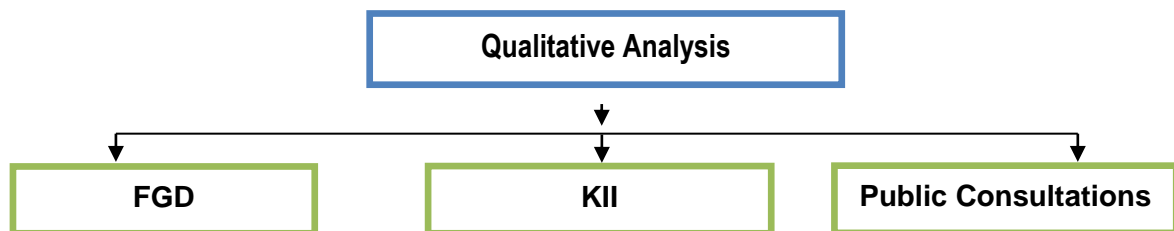
a. Focus Group Discussion (FGD)

For the qualitative analysis, at least 20 Focus Group Discussions (FGD) meetings conducted considering two for each of the export sector. The participants for each FGD conducted 15 respondents. FGD meetings conducted with concerned stakeholders in mix or separate male/female such as top ten exports at study area.

b. Public Consultations (PCs)

The following two types of Consultation conducted at selected locations with relevant stakeholders in discussion with the Implementing Agencies (IAs):

i. **Local Level:** Local level consultations with the stakeholders and institutional consultations conducted with the exporters/businessperson, chambers, local government institute, ICT training institute, university, ICT sector people, women chambers and traders/exporters, and local government authorities. At least 4 (four) local level public consultations conducted at 4(four) different places. The proposed four public consultation conducted at <u>Gazipur, Khulna, Narsinghdi and Chittagong</u>. These also repositioned in consultation with the PIU/PD.

ii. **National Level:** National level consultation conducted with the government agency officials including MoC, WTO Cell, EPB, University, BGMEA, BKMEA, FBCCI, DCCI, think tanks, donors, NGOs, private sector, chambers, associations and women's chambers and associations etc. Nearly 40 persons participated in this national level public consultation at Dhaka. The venue and date finalized in consultation with the PIU/PD.

c. Key Informants Interview (KIIs)

52 Key Informants Interview (KII) were conducted with the stakeholder of EPB, BASIS, Ministry including ICT ministry, WTO Cell, University teachers, Training Institute Instruction, Business person/ exporters, business chambers including women chambers and organizations, policy makers as well as PD/ PIU officials to verify data collected from different respondents.

2.3 Development and Finalization of Questionnaire

The questionnaire designed based on the objectives and scope of work and the needs and indicators for the survey as indicated in the TOR, proposed approach and methodologies, and the long experience of the firm in similar assignments. The survey questionnaire developed to capture necessary indicators specified in the TOR and to fulfill the objectives of the survey. Additions and modifications made during meetings with experts and PD/PIU authorities. After the final approval of the contracting authority the questionnaire put to field-testing.

2.4 Design Online Platform for Data Collection

Kobo Toolbox was free open-source cloud-based software which also provide hosting server facilities. Data uploaded through internet from field. Kobo Toolbox provided its server storage along with the customizable software to use for the data collecting organization. The Consultancy team provided necessary authentication to PIU. So, they were able to access to the server throughout the data collection process and also monitoring overall data collection system, gave us advice if necessary.
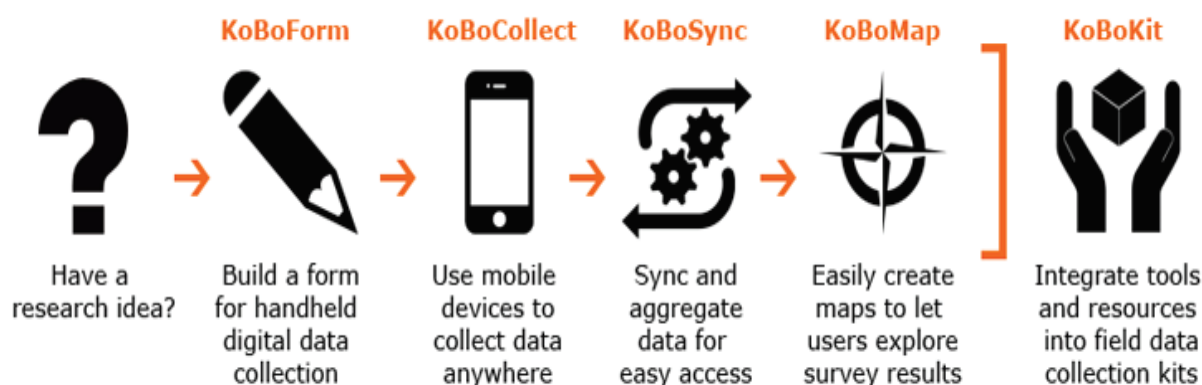
Figure 2.1: Flow Chart for Online data Platform

2.5 Design Data Quality System

The consultant clearly defined the roles and responsibilities of field management, organization before start of data collection. At least the following procedure followed for data quality system:

- Defined roles and responsibilities of the data collection team;
- Periodised supervision of data collection by the Team Leader and other consultants;
- Surprised visit to monitor the activities of the enumerators by consultants and supervisors;
- Re-interviewed, if found inconsistency & Checked dataset every day;
- Created automated feedback files on errors of interview on daily basis;
- Zero tolerance against data manipulation & set logical in all applicable fields for numerical data and supervised for data input and uploading in server; and
- Processing (editing, cleaning.) and sharing with clients (PIU) at every step.

2.6 Method of Data Collection

Two types of data collected for the evaluation study of the assignment, and these were given below:

- Review of Secondary Documents and Literature; and
- Interview of Targeted Respondents.

2.7 Data Collection

The study supervisors placed for supervising the data collection using KoboToolBox and they were also responsible for monitoring, data checking and field verification of collected data. All the field staff reached the study area with required number of questionnaires, guidelines, checklists, and daily progress reports, manual of data collection, and other documents and articles necessary for field activities. The work of enumerators constantly monitored and supervised by the supervisors. The supervisors checked all completed questionnaires in the field and re-interview some of the respondents to be sure about the quality of data. The supervisors would also be responsible for conducting focus group discussions and large gathering. The consultants (specialists) including the Team Leader made random visits to ensure quality control of data collection and also to encouraged the beneficiaries/respondents` and supervisors.

2.8 Quality Assurance Measures of Data

- Data/Information Management
- Data Origination
- Editing and Coding of Questionnaires
- Data Input to Computer
- Data entry and Processing

Analysis Plan

For making a sensible analysis of collected data following statistical tools will be adopted:

- Descriptive summary statistics;
- Graphical representation; and
- Confidence Intervals for crucial variables.

Such analysis results are assumed to help planners and implementers that interventions respond to the needs and requirements and demand of trade. Such results are also useful for evaluating impact of interventions as well.

Chapter- 3

Review of Literature on ICT Use and ICT Policies

3.1 Overview of Export Sector

The study's major goals are to carry out a diagnostic examination of how the ICT sub-sector supports and promotes Bangladesh's export industries and what role women currently (or potentially) play in the ICT enablement of exports. A qualitative and quantitative study on the current role of the use of ICT in export facilitation for the top ten major exports of Bangladesh has been made in order to attain the study's objectives through diagnostic analysis. The sectors are as follows-

1) Knit or crochet clothing, accessories;
2) Clothing, accessories (not knit or crochet);
3) Footwear;
4) Miscellaneous textiles, worn clothing;
5) Paper yarn, woven fabric;
6) Fish;
7) Leather/animal gut articles;
8) Raw hides, skins not fur skins, leather;
9) Plastics and plastic articles; and
10) Others

Findings of the study has been reached through the study and analysis of different contemporary relevant literatures in the ICT sectors and the data collected through field survey, FDGs, KIIs and PCs etc., and based on the findings, conclusions and recommendations have been suggested.

However, as a part of qualitative study, a brief description of the top export sectors has furnished below.

Bangladesh Knitwear Sector:

The growth of Bangladesh economy is led by the growth of RMG sector of Bangladesh during last five years. The contribution of RMG sector export on annual export of Bangladesh was almost 80 percent. Bangladesh's RMG sector contribution in terms of GDP is highly remarkable; it has reached 13 percent of GDP, which was only about 3 percent in 1991. The contribution of Bangladesh Knitwear sector on GDP is 6.92% and the backward linkage sector has another 2% contribution on GDP of Bangladesh. It also plays a pivotal role in promoting the development of other key sectors of the economy like banking, insurance, shipping & Logistic industries, etc.

This sector has contributed to the Bangladesh economy in a distinctive manner particularly contributed in the employment generation, women empowerment, poverty reduction, health and Nutrition improvement etc. The knitwear export growth has also a positive impact on service sector. The service sector has created huge job opportunity for the people. All these, amongst others, have positive impacts in reducing poverty and have resulted in change.

The immediate result of rising knitwear sector translated into rapid urbanization. So far, the industry has created 1.6 million direct jobs and 0.5 million indirect jobs.

The development of knitwear sector has a huge impact on the improvement of purchasing power capacity, particularly for rural female. The purchasing power of the low-income people has increased significantly. The purchasing power of the garment workers has been increased significantly compared to the scenario back in 1980s and 1990s.

Now People can afford more goods than before. This happens because the income level has increased considerably. Due to the increase of purchasing power, as a result, access to medicine and access to registered doctor have increased significantly. Calorie intake of the workers has increased considerably. BKMEA has set up a hospital.

RMG & Woven Sector: The garments sector (RMG) sector of Bangladesh is the biggest earner of foreign currency and has created millions of employment opportunities and contributed significantly to the GDP. Readymade garments (RMG) of Bangladesh are powered by young, urbanizing, workers, where most of them are women.

Present Situation of RMG Sector in Bangladesh:

Bangladesh's readymade garment (RMG) export for the July-May period of FY 2021-22 earned $38.52 billion, according to recently released Export Promotion Bureau (EPB) data. During the first eleven months of FY 2021-22, RMG export recorded 34.87% Y-o-Y growth compared to the same period of the previous year.

In the first eleven months of FY 2021-22, RMG's two main segments knitwear and woven sector earned $20.98 billion and $17.53 billion respectively. Registering a 36.61% and 32.85% year-over-year growth respectively.

Figure 3.1: Bangladesh's RMG Export in July-May FY 2021-22
(*Source: Export Promotion Bureau (EPB), July-May period of FY 2021-22*)

In the July-May period of FY 2021-22, Bangladesh exported $216.17 million worth of cotton and cotton product (yarn, waste, fabrics etc.). While man-made filaments and staple fiber witnessed 84.45% growth and earned $198.8 million. Among other exports, home textile exports earned $1.467 billion, growing by 41.3% year-over-year. Terry towel $42.01 million (26.19% growth), special woven fabric $29.97 million (55.69% growth), knitted fabrics $206.41 million and specialized textiles earned $294.16 million in July- April period of FY 2021-22.

The RMG (both knit and woven) and textile sectors could benefit from the following recommendations to become more IT-enabled.

- Application of the knowledge and skill of the use of ICT for pursuing all trade-related activities such as-
  - integrating logistics operations, financial administration, production formation, and managing a network of customers and suppliers for exporters and producers;

- to place export orders online, digital tracking of export consignments by shipper and buyer;
- use of ICT technologies in various export clearances and digital receipt of payments,
- exploring e-Commerce marketplaces and web-based information sources for their products and services,
- destination country's e-marketplace entry requirements and regulations such as customs duties and procedures, the level of online security, consumer and sales laws, online payments and taxes regulations are emphasized.
- The importance of trade-specific capacity-building quality training-
  - to have access to technology and ICTs for application to business-related activities in line with international and business management, business communications,
  - website development, and business marketing skills, coupled with refreshers' training for updating skills, has been suggested.
- Organization of training programs –
  - for SME managers or owners and employees, particularly Women, and other staff working in different export-oriented industries;
  - focusing on both technical and managerial skills, in cooperation with the business and other sector organizations;
  - online training facilities for the business executives comprising basic, medium, and advanced levels.

Bangladesh leather and Footwear Sector

Leather is one of the oldest industries in Bangladesh. Exporting 10 percent of the global demand for leather, Bangladesh's leather industry has become the country's second-largest source of foreign exchange after RMG. Having a favorable environment for raising and nurturing animals, Bangladesh has 2 percent of the total livestock population in the world. According to a report by EBL Securities LTD, published in August 2019, Bangladesh produces 350 million square feet of leather every year, of which only 20 to 25 percent is required locally, and the rest is exported. Currently, the entire leather industry is divided into different sub-sectors, one of which is 'Tanning & Finishing'. In this sector, several tanneries are producing crust leather, finished leather, and blue wet leather. According to LFMEAB, there are currently 200 tanneries and 3500 MSMEs in Bangladesh. On the other hand, the footwear & Footwear Components producing sector is contributing a large part to the leather industry with 2500 footwear units and 90 large firms. According to the Dhaka Tribune, the market size of the local footwear market in Bangladesh in 2020 was around BDT 17,000 crore. Every year 378 million pairs of shoes are manufactured in Bangladesh, where the local footwear market demand is 200 to 250 million per year.

The rest of the shoes are exported worldwide after meeting the local demand. With this, Bangladesh has become the 8th largest footwear producer in the world by 2020 with a 2.1 percent share of Global Shoe Productions. Brands like ABC Mart, Adidas, Aldo, Esprit, Hugo Boss, H&M, Kate Spade, K-Mart, Michael Kors, Marks & Spencer, Nike, Steve Madden, Sears, and Timber Land, and other prominent brands import their required leather products and footwear from Bangladesh. Besides this, the manufacturing of leather accessories like belts, bags, jackets, suitcases, wallets, and some fancy items is also a prominent sector of the leather industry in Bangladesh. According to LFMEAB, the leather industry in Bangladesh indirectly and directly employs about 0.85 million people, of whom 60 percent are women.

According to the Export Promotion Bureau, Bangladesh's second-largest sector in terms of exports, after RMG, exported leather and leather products worth $941.67 million in the FY 2020-2021which is about 2.43 percent of the total export earnings of the country ($38.758 billion). The leather footwear sector, which accounts for 60.5 percent of the total leather industry exports or products worth $569.88 million, is the largest in are the industry. Similarly, exports of processed or semi-processed leather, as well as other leather products, amounted to $119.14 million and $252.65 million, respectively, contributing 12.65 percent and 26.83 percent to the entire leather industry.

The leather and footwear sectors could benefit from the following steps to become more IT-enabled:

- In the Leather and Footwear sector, 70-80% requirements of for footwear originated from the SME sector, and the rest from the big manufacturers. Backward linkages of the SMEs with big manufacturers for more value addition, sub-sectoral specialization, and development of more specialized skills in design and production areas through division of labor may be attached more importance to the overall development of this sector.

- Develop ICT based human resources ensuring the use of ICT for logistics operations, financial management, production formation, managing a network of clients and suppliers for exporters, product or service certification, accessibility to e-commerce platforms for placing orders, the ability to place export orders online, digital tracking of export consignments by shipper and buyer. Practical training may also be provided to cover topics such as learning about online information sources for their goods and services, e-commerce marketplaces, customs duties and procedures, online security, consumer and sales laws, rules governing online payments and taxes, businesses subject to intellectual property rights and infringements etc.

Fish Sector

Fisheries sector contributed 3.52% to national GDP and 26.37% to the agricultural GDP and 1.39% to foreign exchange earnings by exporting fish products in 2010-11. Fish provides 60% of national animal protein consumption. Fisheries sector also plays an important role in rural employment generation and poverty alleviation. The fisheries sector is one of the most productive and dynamic industries which have a tremendous potentiality for future development in the agrarian economy of Bangladesh. Bangladesh is endowed with vast diversified fisheries resources which are broadly categorized into inland fisheries and marine fisheries. Inland fisheries are covering an area of 47.60 lakh ha, which has two sub-sectors, i.e., inland capture and inland culture (FRSS, 2017). Inland capture includes beel, river, estuary, Kaptai lake, flood plain occupies an area 39.27 lakh ha where inland culture comprises a pond, ditch, baor, pen culture, cage culture, shrimp/prawn farm, seasonal cultured water body covering an area of 8.33 lakh ha. On the contrary, marine capture fisheries cover an area about 1, 18,813 km2 along with 200 nautical miles of EEZ from the baseline (DoF, 2017).

b. Source of Fish Production

There are three categories of major fisheries resources, these are-

1) Inland Capture (27.72%)
2) Inland Culture (57.38%)
3) Marine Capture (14.90%)

c. Inland Fisheries

Inland fisheries comprise of rivers, ponds, estuaries, beels, floodplains, haors, baors, brackish water etc. There are 260 fish and 24 prawn species in inland fresh water in the country. In early sixties inland fisheries contributed about 90% of total fish production of the country. Fish production from aquaculture has increased to a great extent but open water fish production is in slow progress. Now only about 27.72% of total fish production comes from inland open water.

d. Marine Fisheries

The Bay of Bengal is situated in the South of Bangladesh. There is a total of 166,000 sq. km. water area including Exclusive Economic Zone (EEZ). Fishing is only confined within 200-meter depth. About 255 trawlers, 67,669 mechanized and non-mechanized boats are engaged in fishing. Pelagic and deep-sea resources are still untapped. In the year 2019-20 total fish production from Marine source was 6.71 lakh metric MT. Recently Bangladesh has got the right to access 1.00 lakh sq. kilometer water area in Bay of Bengal through International Tribunal for the Law of the Sea (ITLOS).

Major export items of fish products are raw shrimp block frozen, IQF shrimp and white fish, PUD and P&D shrimp block frozen, consumer pack of raw frozen shrimp, chilled & frozen Hilsa, dry, salted and dehydrated fish, live fish, eel fish & crab and a little quantity of value-added fish and shrimp products. Production of Crab through fattening in 2010 was 7756 MT of which 634.7 MT was exported by earning Tk. 375.88 crore. DoF has three inspection and quality control stations located at Khulna, Chittagong and Dhaka facilitated with testing laboratories. DoF is entrusted with the responsibility to ensure the quality of the products as Competent Authority. The following policy-oriented solutions may be suggested for the Fish sector.

- Enterprise Resource Planning (ERP) systems provide the transactional monitoring information and visibility of information within the organization and across its supply chain. It interfaces allow capture of timely and accurate information at dock side, the production plant, the warehouse, then the sales to customers. It handles industry specific requirements like catch certificates, vessel or broker settlements, fishermen payroll and pallet/bin management in fish sector;
- Electronic Data Interchange (EDI) facilitates the placement of rapid, paperless purchase orders with suppliers in fish sector;
- Increase installation of supply chain management software in fish sector aimed to investigate the fish species availability, supply chain, quality loss, price behavior and constrains associated with fish marketing in order to provide better suggestion for efficient fish marketing in overall of Bangladesh;
- The Radio frequency identification (RFID) tag is put on each live fish for fisheries sector database and is regarded as the mediator which links the live fish logistic center, retail restaurants and consumers for identification;
- Introducing frozen food product i.e., frozen shrimp to the world market can play a positive role for overcoming the existing challenge.
- The digitalization for automation development from shrimp and fish farming area to packet processing area and packet processing area to port area should be smooth or have to create alternative way to reach the goods within a short time. In this regard vehicle cargo tracking system should be introduced.

- In order to control Hazardous Pesticide and maintain Traceability, necessary data relating to soil and aqua are also necessary for better cultivation of shrimp and fish.

Plastic Sector

The plastic sector is a major segment of great potential for Bangladesh for making significant contribution in terms of both domestic market-oriented as well as an emerging export-oriented expanding domestic manufacturing base, generating industrial employment, accelerating private investment and inflow of more foreign exchanges as well as growing expansion of markets of diversified products at home and abroad. It has a significant contribution to infrastructure development programmes, construction, general engineering, agro-food processing, automotive, packaging etc.

Plastic products, because of low production costs and energy-efficient production processes, are widely used in almost every facet of modern life for their versatility, durability, lightness and excellent insulating properties. Plastics are now an inevitable part of our lives. Ranging between kitchenware and medical supplies, construction materials and automotive supplies, safety and security devices and packaging materials and, finally, home decorations – plastic products are widely used in almost every facet of modern life. Globally there is a shift in manufacturing from the conventional material-based products to plastic-based product due to conservation of natural resources, energy efficiency, innovative design and other cost saving measures. The global demand of plastic products is also growing steadily at more than 20% year (since 2007). In the past 50 years, the global use of plastics has grown 20-fold, and it has been estimated to be at least double in the next 20 years. Current per capital consumption of plastics in the U.S. is at 109 kg and in China at 38 kg, India at 11 kg and 5-7 kg in Bangladesh compared to the global average consumption of 50 kg per capita per annum and the developed country consumption of 80.0 kg per capita per annum.

The plastic industry in Bangladesh has a potential to become a large global player in plastic products. Bangladesh comprises only 0.6% share of the US$ 570 billion global plastic market. According to a new study by Grand View Research, the global plastic market is expected to reach to USD 721.14 billion by 2025. The total market for our plastic products both at home and abroad is about US$ 2.99 billion – of which 83.4 per cent of these are linked with local market while the rest 16.6 per cent is to be linked with the global market. Despite having a huge potentiality, Bangladesh is far behind to attain full advantage of preferential market access in the exports of plastics products mainly due to lack of proper policy support and enabling business. Although, the plastics industry in Bangladesh has tremendous potential for progress, it still lacks a well-designed approach and a strategic direction to overcome the challenges faced by the sector. Major constraints are lack of testing facilities for quality control, innovative technology, mold designs and mold making facilities, proper management of plastics wastes, business friendly tax and tariff measures etc. which have to be resolved for ensuring sustainable growth of the sector. Without having such strategic approach and distinctive competitive strengths, Bangladeshi plastic products find it difficult to compete in the global market.

The Plastic Industry Development has a set of time bound action matrix to achieve those broad development goals which are as follows-

(a) To ensure continuous 15% growth of this sector each and every year;
(b) To annihilate difficulties and constraints faced by industry start-ups before 2022;
(c) To ensure 10 billion USD market for plastics and packaging industries by 2026 and 20 billion USD by 2030;

(d) To provide 10000 demand driven trainings to create skilled manpower in this sector by 2026;

(e) to create new 500000 employment opportunities in this sector by 2026;

(f) To raise the plastics sector's contribution in total GDP at least 2% by 2026; and

(g) To reach at zero waste nation for plastic and packaging consumption by 2030.

This industry has a lot of potential. ICT utilization could hasten the growth of this industry. If they are given additional financial support, more women entrepreneurs may be involved in this industry. IT-based training on e-commerce, electronic submission of all documents for cross-border trade, logistics operations, financial management, production formation, managing a network of clients and suppliers for exporters, certification of products or services, accessibility to e-commerce platforms for placing orders, the ability to place export orders online, and digital tracking of export consignments by shipper and buyer may be made available to women entrepreneurs. Additionally, practical training on areas like understanding web resources for their goods and services, customs duties and processes, online security, consumer and sales laws, rules governing online payments and taxes etc.

3.2 Concept of International Trade, ICT and Internet Technology Infrastructure and their role

Trade is a crucial factor for economic growth. Earnings from exporting their goods and services to the other countries are considered as a vital source of foreign exchange that ease the pressure on the balance of payments and create employment opportunities in the exporting countries. While technology transfer, international competition and economy of scales effects are seemingly related to exporting, and importing as well. In an increasingly globalized environment, trade landscape has profoundly changed and reshaped by the Information and Communications Technology (ICT) based innovations that gives firms access to larger markets, allowing them to expand their customer base, increase their scale and raise profits. It also forces firms to confront world-class competitors, exposes them to new ideas and expertise, and encourages them to stay abreast of market trends.

In one hand, Country's technology infrastructure plays a critical role in creating a nurturing environment for ICT evolvement and adoption. On the other hand, the Internet technologies create the basis for continual advances with respect to new goods and services, new markets and new business models in the digital economy. This in return provides the basis for e-commerce development. In a broad sense, international e-commerce involves cross-border and/or cross-country transactions over the internet which generates substantial savings in transaction costs. The most important cost-saving aspect of e-commerce is reduction in travel, administration, communication and market search costs. It also fosters entrepreneurship by encouraging small and medium enterprises (SMEs) to identify new market niche or gaining economies of scale through managing their operations and coordinating value chains across borders.

3.3 Review of ICT Policies (Export Policy and other ICT Related Policy Issues):

In June 1997, the GoB recognized ICT as a sector that can make an important development impact. Committee of Export of Software and Data Processing Services was appointed to look into barriers and opportunities to export software from Bangladesh. The committee recommended the government in the short term to support the ICT industry with tax holidays and specific exemptions, to provide the necessary authority to the Bangladesh Computer Council (BCC) to function as the primary facilitator, to review computer science curricula, and to prepare over 1,000 new trainers for national universities. For the medium term the

committee recommended the creation of a 'Market Promotion Fund' to support installation of fiber optic cables and to coordinate setting up a communication hub in Bangladesh. (Ministry of Commerce, GoB, 1997).

Export Policy: The cabinet approved the draft Export Policy 2021-2024 with the aim to almost double Bangladesh's export earnings to $80 billion from $45 billion within the period by facilitating shipments of diversified, non-traditional goods and labour-based products. The latest export policy of Bangladesh has included 12 highest priority sectors considering their special export potentials. Software and ICTeS is one of the priority sectors.

According to the policy paper, best use of ICT will be ensured in the country for the improvement of information communication system, the possibility of setting up marketing centers abroad will be examined, initiatives for establishment of an "IT Village" for export of software will be strengthened, necessary measures will be taken to connect the sub-marine optical fiber cable to the national ICT backbone to facilitate availability of high speed data transmission line, and strengthen the base of the ICT sector regionally, measures will be taken to provide facilities to develop the ICT sector through the IBPC, necessary steps will be taken for country branding through EPB and Bangladesh missions abroad.

Review of ICT Policies and Acts:

Below, relevant ICT-related laws, regulations, and policies have been analyzed, and pertinent issues have been noted. For this study, pertinent ideas have been incorporated as proposals or recommendations.

National Telecommunications Policy 2015:

The National Telecommunications Policy (NTP) was introduced in 1998 that laid the foundation strategy for a liberalized telecommunication sector in Bangladesh. It focused the distinction between the policy, regulation, and operational guidelines that were centralized at that time. Based on the Telecommunications Policy 1998, the government enacted the Bangladesh Telecommunication Regulation Act, 2001. The vision of NTP "provide affordable and universally accessible quality telecommunication services to support the nation's sustainable development goals and to integrate the country with the global knowledge economy" (MoPTIT, 2015b, p.5).

The NTP facilitates common telephone services, like cellular mobile telephones and data services, access to the Internet etc. The Act has been revised and amended several times so far, in order to address the growing needs in the telecommunication sector and for improvement in the service Technology (MoPTIT) following the strategy of the 7th five-year plan. The current telecommunication policies are based on the Bangladesh National Telecommunication Act 1998, which reflected in the Bangladesh Telecommunication Regulating Act (BTRA) of 2001. With some amendments, it was drafted in delivery. To integrate telecommunications and ICT initiatives, the government established the Ministry of Posts, Telecommunications and Information 2013 and finally, Policy was revised and formally adopted in 2015

ICT Policy Framework in Bangladesh

Formulation of National ICT policy (2002), Telecommunication Policy (1998); Telecommunications Act (2001); National ICT Policy (2002); Access to information act (2009); establishment of Bangladesh Telecommunication Regulatory Commission (BTRC) (2002); and the linking with optic fiber submarine connection network as part of the 16

country consortium South East Asia–Middle East–Western Europe 4 (SEA-ME-WE 4) (2006), and South East Asia–Middle East–Western Europe 4 (SEA-ME-WE 5) are such initiatives that have been taken in the ICT sector over the last ten years.

The number of acts, policies and strategies are initiated in the context of digitization process, which is guiding the country towards a digital agenda.

The National ICT Policy (NIP) was introduced in 2015 which has ten objectives, fifty-four strategic themes, and 235 action items. The vision and objectives are aligned with the general national goals and each objective has a number of strategic themes are actions items (MoPTI). According to the NIP, the policy vision is to "Expand and diversify the use of ICTs to establish a transparent, responsive and accountable government; develop skilled human resources; enhance social equity; ensure cost-effective delivery of citizen-services through public-private partnerships; and support the national goal of becoming a middle-income country within 2021 and join the ranks of the developed countries of the world by 2041" (NIP, 2015. P.7) and ensure an ICT driven nation based on 'knowledge-based society' (MoPTIT 2015a, p.6).

There are ten related objectives to achieve the policy vision are, Social Equity, Integrity, Universal Access, Education and Research, Employment Generation Strengthening Exports, Supports to ICTs, Healthcare, Environment, Climate & Disaster Management, and Productivity. These objectives are covered by a substantial range of strategic themes that outline a wide range of action items to be accomplished in the short-term (2016), mid-term (2018) and long-term (2021). The policy is formed based on the constitutional framework of Bangladesh (article19 of the Constitution of The People's Republic of Bangladesh) that emphasized social inclusion and citizen's equal participation in the society. Acceding to article 19, social equity is to promote "equality of opportunity to all citizens' removing social and economic inequality between man and man in order to confirm the equitable distribution of wealth among all citizens" (MoPTIT, 2015a, p.2)

National ICT Policy (NIP) was first adopted in October 2002 and later it was reviewed and modified on 4 May 2008, as a result, the 'National ICT Policy 2009' was delivered. With some minor revisions, finally, the 'National ICT Policy 2015' was issued on 5 August 2015. The NIP is designed and formulated by the ICT Division of the Ministry of Posts and Telecommunication and Information Technology (MoPTIT) and Bangladesh Computer Council (BCC) and Bangladesh Telecommunications Regulatory Commission (BTRC) are assigned as the key agencies for policy implementation.

Governing Provisions

ICT Act-2006

The ICT Act 2006 was the first enactment in the area of ICT use in Bangladesh. The Ministry of Information and Communication Technology, Government of the People's Republic of Bangladesh is charged with the administration of this Act. There have been two amendments to the Information and Communication Technology Act, 2006 namely ICT Act 2008 (amendment) and ICT Act 2009 (amendment).

The Act was enacted with the purpose of establishing a legal validity and security for information and communication technology and for formulation of Rules in this regard by way of the two following ways:

(a) Guaranteeing the legal security of documentary communications between persons, partnerships and the State, regardless of the medium used; and

(b) Introducing consistency of legal rules and their application to documentary communications using media based on information technology.

Effectiveness of the ICT Act-2006

As mentioned before, the ICT-related laws in Bangladesh are yet undergoing significant expansions and modifications. A study was conducted in June 2018 in order to understand the discipline-wise gaps of the ICT Act-2006, its contents, and the apparent suitability of the contents of the laws[3]. The study covered a wide cross-section of populations by age, gender, occupation and level of education.

Capacity to Implement the ICT Act-2006

Results of the study showed that there were several weaknesses in capacity to implement the ICT Act-2006. A 36.6% of the respondents opined that the laws and by-laws were not clear enough for decision-making, and an 8.6% of them said that the articles related to punishment for digital crimes were made opaque by the civil administration.

Table 3.1: Weaknesses in Capacity to Implement the ICT Act-2006

Weaknesses in Capacity to Implement the ICT Act-2006	Frequency	Percentage of Respondents
Police do not have the required ICT skill	24	13.7
ICT skilled man do not have legal knowledge	52	29.7
Implementers have no idea about application fields	20	11.4
The laws and by laws are not clear for effective decision	64	36.6
Punishment sector is made opaque by civil administration	15	8.6
Total	**175**	**100**

The following provisions under different ICT-related enactments seem relevant for professionals and practitioners in the field of foreign trade.

(a) ICT Act-2006:

The ICT Act-2006 lays down the basic tenets of ICT principles in Bangladesh. Anyone using ICT in any sphere of professional activities is expected to know the minimum basic provisions of this act, especially because the other two important acts (Information Technology (Certifying Authorities) rules-2010 and Digital Security Act-2018) are founded based on this initial act.

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[3]*A Study on Information and Communication Technology Act for Cyber Security*; Dr. Kallol Kumar Moulic; World Vision Research Journal Vol. 12, No. 1, 2018.

Table 3.2: Relevant Sections of the ICT Act-2006

Sl. No.	Specific Chapter(s)/ Section(s)	Major Content(s) of the Chapter(s)/Section(s)	Relevance to Professionals and Practitioners in Foreign Trade
1	Section 2	Defines and explains electronic signature and other ICT-related ideas and concepts	(a) Use and safety in use of electronic records and electronic signatures, (b) Governmental practices regarding use of electronic information, records and e-signatures, (c) Information on legally recognized processes for formation and operation of electronic signature certifying authorities, and (d) Precautions needed in legally allowed uses of ICT.
2	Chapter II (Section 5-12)	- Certification of electronic records through e-signatures - Legal recognition to electronic records and signatures - Governmental practices regarding electronic records and electronic signatures	
3	Chapter III	Identity of senders and location electronic information	
4	Chapter IV	Safety in usage of electronic records and electronic signatures	
5	Section 22 (in Chapter V)	License for electronic signature certifying authorities (directly related to the Information Technology (Certifying Authorities) Rules-2010)	
6	Chapter VIII	Digital crimes; and investigation, trials and punishment regarding digital crimes (directly related to the Digital Security Act-2018).	

Digital Security Act, 2016:

Information and Communication Technology (Amendment) Digital Security Act 2016 has been the most contested law in Bangladesh since it was first introduced in 2006. Several updates and amendment made (in 2008 and 2009) to the law until 2013. The Section 57 of the Law created lot of controversies among the Civil Societies and the Journalists. New amendment of Act allows the maximum jail term to 14 years and police can arrest just after the filing of a case under the ICT Act on charges of defamation.

Introduction of Digital Certificates:

This Act provides for Digital Certificates to be used for signing of Documents. The law provided setting up of the Controller of Certifying Authorities and the licensing of the Certifying Authorities. The procedures to be followed by Certifying Authorities are provided for in the ICT Law. The legal enforcement and the appropriate jurisdiction are given in the Act. There is provision for constitution of special tribunal for handling litigation in this domain.

Maintenance of Confidentiality of Information:

Where the information contained in a document is declared by law to be confidential, confidentiality must be protected by means appropriate to the mode of transmission, including on a communication network. Documentation explaining the agreed mode of transmission, including the means used to protect the confidentiality of the transmitted document as evidence.

The validity of the Digital Certificates is apportioned by this law. The Rules under the Act pertaining to Certifying Authorities have been framed and are known as "Information Technology (Certifying Authorities) Rules, 2010". This provides guidelines, advice and information about the factors which the CCA will take into account in its operation and the functioning of the Certifying Authorities. The ICT law provides legal recognition to electronic documents and a framework to support e-filing, e-commerce and m-commerce transactions and also provides a legal framework to mitigate, check cyber-crimes.

This Act has, in total, 90 sections. The most-discussed, controversial section is Section # 57 (relating to rimes based on publication of lies, and vulgar or abusive information), already repealed by the Digital Security Act 2018. Supplementary to this section is Section # 82 that sets the formation of the Cyber Appellate Tribunal having one chairperson and two members. This body's duties and supervisory obligations are described in Sections 83 and 84. Besides, the composition of the Cyber Tribunal is indicated in Section 68 of the Act.

Being a legal cornerstone on use of ICT in Bangladesh, this Act's most important chapters are the following:

- Chapter II: Electronic Signature and Electronic Records, Sections 5-12;
- Chapter IV: Safe Electronic Record and Safe Electronic Signature, Sections 16-17;
- Chapter V: Controlling and Certifying Authority, Sections 18-40; and
- Chapter VIII: Crimes, Investigation, Trials and Rewards, Sections 54-84.

Subsequently, this Act had been amended in 2008, 2009 and 2013. Among these, the amendments made in 2013 were most significant. These amendments were as follows:

- Enhancing punishment for crimes under Sections 54, 56, 57 and 61 from minimum 10 years of imprisonment to minimum of 7 years and maximum of 14 years of imprisonment;
- Turning crimes under Sections 54, 56, 57 and 61 as cognizable and non-bailable; and
- Turning crimes under Sections 55, 58, 59, 60, 62, 63, 64, and 65 as non-cognizable and bailable.

The promulgation of the Digital Security Act-2018, has, however, further made amendments to the sections and clauses related to punishment and modes of investigations in case of different types of ICT crimes.

Information Technology (Certifying Authorities) Rules-2010

The use of electronic signatures is gaining momentum in Bangladesh, but the laws dealing with them are still being expanded. Electronic signatures are recognized under the country's Information and Communication Technology Act 2006 (ICT Act), meaning they can be used to sign any documents that require a signature, subject to certain exceptions.

The Information Technology (Certifying Authority) Rules 2010 (CA Rules), the National Information and Communication Technology Policy 2018, and the Certification Practice Statement published by the Office of the Controller of Certifying Authorities are all pertinent pieces of legislation that deal with electronic signatures in Bangladesh in addition to the ICT Act (CCA). At this time there is no case law that deals with electronic or certificate-based digital signatures. The ICT Act uses the terms electronic signature and digital signature interchangeably. In fact, the Bengali version of the ICT Act refers to "electronic signature"

whereas the English version uses "digital signature". According to the Act, electronic signatures (or digital signatures, in the English version) must be able to:

(a) identify the signatory;
(b) affix with the signatory uniquely;
(c) be created in a safe manner or using means under the sole control of the signatory; and
(d) be related with the attached data in such a manner that is capable of identifying any alteration made in the data thereafter.

Any type of electronic signature will be treated as ineffective if the electronic record related to it is tampered with or amended.

Transacting with public sector entities

Bangladesh has no fixed requirements or restrictions for using digital or electronic signatures when dealing with Government entities. However, restrictions may apply depending on the particular department's terms of engagement. Also, under the ICT Act, the Government and its agencies have no obligation to accept documents in an electronic form.

Use cases that generally require a traditional signature

There are certain types of documents or agreements that cannot by law be signed or executed electronically in Bangladesh. Such documents generally require the person executing them to be physically present before the Government office in question, or to provide a thumb impression along with a "wet signature". Examples of these documents may include:

(a) Will;
(b) Power of Attorney;
(c) Deed of Sale in relation to immovable property;
(d) Agreements where stamp duty is payable;
(e) Documents which need to be signed before the notary public and/or witnessed; and
(f) Documents relating to legal proceedings which need to be sworn before an affidavit commissioner.

Table 3.3: Relevant Sections of the Information Technology (Certifying Authorities) Rules-2010

Sl. No.	Specific Section(s)	Major Content(s) of the Section(s)	Relevance to Professionals and Practitioners in Foreign Trade
1	2	Method in which information can be authenticated by means of electronic signatures	(a) How information can be authenticated by electronic signatures,
2	9	Licensing of certifying authorities	(b) Proper authorities to issue licenses to electronic signature certifying agencies,
3	10	Bank guarantee as one of the requirements to obtain signature certifying license from the Controller	(c) Comprehensive process to submit applications for license to operate as electronic signature certifying authorities,
4	12	Formalities in submission of application for license to become a signature certifying authority	(d) Fees required for issuance and

Sl. No.	Specific Section(s)	Major Content(s) of the Section(s)	Relevance to Professionals and Practitioners in Foreign Trade
5	13	Fees applicable from time to time, for both fresh issuance and renewal of license	renewal of licenses,
6	15	Validity of a license	(e) How a license is issued by the office of the Controller,
7	16	Process of issuance of a license	
8	17	Renewal of a license	(f) Eligibility to become a certifying authority,
9	18	Refusal of a license	
10	19	Cancellation of a license	
11	21	Commencement of operations by a new certifying authority	(g) How electronic signatures are generated and used, and
12	25	Generation and usage of electronic signature certificates	(h) What may result to revocation of a license to operate as an electronic signature certifying authority.
13	27	Lifetime policy of certificates	
14	30	Revocation of certificates	
15	31	Fees for electronic signature certificates.	

Table 3.4: Relevant Sections of the Information Technology (Certifying Authorities) Rules-2018

Sl. No.	Specific Section(s)	Major Content(s) of the Section(s)	Relevance to Professionals and Practitioners in Foreign Trade
1	Chapter III (Section 8-11)	Preventive measures to curb digital crimes, especially including Section 10 (the establishment of one or more Digital Forensic Labs)	(a) Knowing which activities are legally allowed or prohibited, (b) The government's preventive measures to curb digital crimes, and
2	Chapter VI	Offences and Punishment	
3	Chapter VII	Investigation of offences and trial.	(c) In case of the occurrence of a digital crime, what process of amends the government would try to make.

Advantages of the ICT Act, Bangladesh:

The purpose of this Act is to guarantee the legal security of documentary communications between persons, partnerships and the State, irrespective of the medium used; the consistency of legal rules and their application to documentary communications using information technology-based media, whether electronic, magnetic, optical, wireless or otherwise, or based on technology combinations. Online Law / Internet Law, ICT Rules, Regulations.

This Act has provided us with few advantages such as the conduct of important security issues under the ICT Act, 2006, which are so critical to the success of electronic transactions. The Act has provided **legal validity to electronic contracts, recognition of electronic signatures**. Businesses can now conduct electronic commerce using the legislative framework established by the Act. This Act also provided other facilities for the operation of cyber businesses or the information and technology sector.

Limitations of the ICT/Digital Act of Bangladesh:

➢ Practical Difficulty of Application

The legislation was originally intended to apply to crimes committed both in Bangladesh and worldwide but barely people practically can take action to execute their rights under the act for the commission of crime outside the jurisdiction of Bangladesh.

➢ Difficulties with Electronic Transaction

The enactment has an important effect on Bangladesh's e-commerce. But as for the electronic payment of any transaction, it keeps itself almost impractical.

➢ Intellectual property Security

The Act is not vocal on the various intellectual property rights, such as copyright, trademark and e-information, and data patent rights.

➢ Not Addressing Mobile crime and contradicting Email Evidence

One of the limitations of the act is that any crime committed via mobile phones is not addressed under the Act.

3.4 Global Rank of Bangladesh in ICT Use

The business of freelance IT and IT-enabled services outsourcing (ITES) is growing fast in Bangladesh. The country's IT sector has vast prospects for further expansion. The number of internet users in this country increased three times from 6.5% of population in 2013 to 18.02% by 2017.

Bangladesh stood 147th among 176 countries on the ITU's ICT Development Index 2017, a report that captured the level of ICT development[4].

BTRC quotes total internet subscribers at 117.3 million as of May 2021, of whom 9.8 million are broadband connection users and the rest mobile internet users. According to BASIS, more than 1,500 software and IT-related companies are registered. In Bangladesh, this sector employs around one million professionals. Besides, ICT exports are valued at more than USD 1 billion, North America being the major destination of these exports. The ability to operate at significantly lower costs (20-30% lower than India and the Philippines) is one the key value propositions for Bangladesh's IT-ITeS industry. In addition to lower costs, Bangladesh offers a large entry-level workforce, augmented with a blooming technology service freelancing community. Major opportunities in Bangladesh's ICT sector are: mobile applications, data content development, online healthcare and government services solutions, e-commerce applications and solutions. Along with pervading infrastructural weaknesses, high prices and other barriers affect getting more people to enter the digital world. With respect to e-Government practices, Bangladesh stood 115th in the beginning of 2022, rising by nine steps from 124th in the year 2016.While Bangladesh lags behind India, Pakistan, Sri Lanka and Nepal regarding use of Internet, entry of women users into Internet has also been lower than India and Nepal in recent years. But ICT use has increased from 16% to 19% among this country's women from pre-COVID period to now. Major problems that constrict entry of Bangladeshi women into use of ICT are three-fold, such as:
-   Technical Barriers;
-   Social Barriers; and
-   Economic Barriers.

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[4] International Trade Administration, 17 September 2017.

3.4.1 Provisions for Encouragement of ICT Use:

Through 2014-2016, Bangladesh has significantly developed in its operations in the area of ICT sector. This market is currently large, being one of more than160 million people (beginning of the year 2017). Besides, consumer spending was then around USD 130 billion and was growing at 6 percent annually. Following the introduction of 3G services by the Telcos in 2013, internet penetration grew by 22 percent by the beginning of 2015. According statistics maintained by the BTRC (2016), of the 66.8 million active Internet subscribers, around 96 percent were mobile users and 10 million smartphone users[5]. As Internet connectivity increased, cheaper smartphones became more available and social networking got more widespread (23 million plus Facebook users), Bangladesh witnessed a huge increase in the number of digital savvy consumers.

There were three major factors backing this phenomenal growth in ICT sector.

(a) ICT Awareness and the Positive Government Policies

The role played by the Government of Bangladesh was instrumental in promoting the ICT sector. The most significant contribution was made by a2i, the key driver from the Prime Minister's Office, to spread rapid growth or adoption of technologies in delivering public services to the citizens.

There have also been numerous incentives arranged by the government in enhancing the attractiveness of the ICT sector. Such incentives mainly include:

* 100 percent foreign ownership of companies;
* Small-cap exchange for easier raising of capital/listing on capital markets; and
* Software Park which facilitates high speed internet connection trade facilities, similar to Export Processing Zones (EPZs).

(b) Policy and Advocacy by BASIS

BASIS, the software association of Bangladesh, also known as BASIS, helped to enhance the country's emphasis on startup activities in this country. Various useful programmes started by it are: BASIS Soft Expo, BASIS Student Forum, BASIS e-commerce alliance and others, to raise awareness about startups and assist in the growth of this sector. This association also contributed significantly to revising the policy framework of the ICT sector. The following major policies were formulated, modified and improved:

* Seven-year tax holiday for registered IT companies
* Private equity and venture capital policy framework implemented as of July 2015
* VAT for e-commerce reduced to nil.

(c) Developments in the Private Sector

The major phenomena in the private sector that contributed growth in the ICT sector are:

* Startups:

Many new startups have joined the activities in the ICT sector. Both first-time entrepreneurs and people with professional work experience took risk to join the startup life. The major areas of these startups were: e-commerce, tech and impact business.

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1 *ICT opens up new prospects for Bangladesh*; by Mustafizur R Khan and Fayaz Taher; in The Daily Star; 23 February 2017.

* <u>Telcos</u>: They have been one of the major stakeholders, making the infrastructure investment in 3G that practically jumpstarted the Internet-enabled businesses in Bangladesh. Increase in the number of local private device suppliers brought prices of smartphones.

* <u>Investment</u>: A number of financial institutions have invested in various capacities. They mostly include some of the venture capital and private equity companies currently working in Bangladesh.

* <u>Ecosystem builders</u>: Ecosystem building in Bangladesh was pioneered in 2013 by Startup Dhaka also known as SD Asia, Team Engine, Hub Dhaka, EMK Center, Better Stories, Preneur Lab etc. They mostly carry out mentoring and accelerator activities that help startups scale-up their businesses.

* <u>Challenges to Growth of the Ecosystem</u>:
The mindset of young founders needs to change when they are learning at schools and universities. Government education policies need to align with their vision of Digital Bangladesh so that there is a pipeline for talent in the private sector.

Trust of Consumers

Among other factors of consumers' well-being, trust is the most important factor for growth in the ecosystem. It is important to establish consumer protection measures and policies that cover refund, fraudulent activity, and consumer data. There is a serious need for reporting mechanisms and action must be taken so that consumers feel protected.

Government's Grant for Matching Funds Raised by Startups

The government of Bangladesh has a number of grants for technology companies, like the Innovation Fund, but it lacks promotion among the community. It has the potential to be used as a matching grant to the funds raised by local startups.

Regional connectivity

Numerous Southeast Asian countries have a growing startup community. In those countries, a lot of local startups are connecting regionally, but we, in Bangladesh, need to connect from the government level as well. Bangladeshis may use policy frameworks and best practices of these markets. Additionally, the government may provide subsidies to the startups to participate in regional tech events.

Facilitating University-Industry Linkage

Despite many ICT entrepreneurs having gone through a formal education system, some of them did not have the opportunity to access good relevant education for various reasons. As such, vocational training to provide basic knowledge to startup entrepreneurs is necessary to establish robust companies. The government education policies need to align with their vision of Digital Bangladesh so that there is a pipeline for talent in the private sector, through such ways as facilitating acquisition of more relevant job experience through subsidizing paid internship programmes in tech companies.

Necessary role of the most important stakeholders

Telcos, payment providers, logistics services, service companies, and the government (ICT Ministry) need to assist local startups at their early stages. They are the integral parts in making the machine move in the right direction. Besides, the ICT Ministry needs to work with all the parties so that real change can take place.

3.4.2 Digital Security Act-2018

As mentioned before, the laws relating to the use of ICT in Bangladesh are being expanded. At the same time, the citizens, in general, are gradually getting more acquainted with these laws and expressing their preferences in this regard.

Important provisions of the Digital Security Act-2018 are the following:

(a) Chapter II of the Act provides for a Digital Security Agency to be formed by the government. This agency is to be composed of a Director-General and directors.
(b) A National Computer Emergency Response Team is to assist the Digital Security Agency.
(c) Section 10 of the Act outlines the setting up of a Digital Forensic Lab under control and supervision of the Digital Security Agency.
(d) The number of staff at the Digital Security Agency will be 13, including the Director-General, who will act as the Member-Secretary.
(e) In Chapter VI, Sections 17-20, 21-27 mentions punishments for cyber-crimes, including social crimes as well as political terrorism.
(f) Section 30-37 relates to e-commerce practices and e-transactions. These point out that in case of any e-transaction without legal authority will result to punishment of imprisonment for a maximum period of 5 years and/or a fine of BDT 5 lac. In addition, second-time or repetitive crimes on similar grounds will result to a maximum of 7 years of imprisonment and/or a fine of BDT 10 lac.
(g) Section 53 of the Act specifies which of the ICT crimes will be treated as cognizable and non-bailable and which crimes shall be considered non-cognizable and bailable.

This Act repeals the following sections of the ICT Act-2006:

- # 54 (Damage done to computer systems etc.)
- # 55 (Crimes related to changes to computer source codes)
- # 56 (hacking into computer systems)
- # 57 (Lying and publishing vulgar or abusive information in the electronic form)
- # 66 (Crimes using computers).

Certain research conducted into the ICT acts and rules of Bangladesh have shown that majority of the citizens are not aware about these acts and rules[6]. Those who know something the laws, say that certain revisions to the laws are necessary. Abuse of the laws by some people against others on trifling matters was also reported. Besides, the police personnel having significant responsibilities to handle ICT crimes are not aware of the applicable legal provisions. But, at another end, the government has kept the provision for skilling of relevant personnel in handling ICT suits.

Right to Information Act 2009

The Right to Information Act (RTI), 2009 was introduced with an objective to ensure a free flow of information and people's right to access to information. The Act also aims to ensure good governance, transparency and accountability in all public and private organizations. The then caretaker Government enacted the Right to Information Ordinance in 20th October 2008 and later, the following elected government passed the Right to Information Act, 2009. According to the RTI Act, it is mandatory to employ an official in every government and

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[6]*A Study on Information and Communication Technology Act for Cyber Security*; Dr. Kallol Kumar Moulic; World Vision; Vol. 12, No. 1, June 2018, Dhaka.

non-government organizations to deliver the sought information to the applicants. Failing to obtain information within 20 (twenty) working days from getting the request, the applicant can file a complaint to the Information Commission. The Commission, therefore, will imply the authority of the Civil Court to summon both sides and resolve the issue (RTI, 2009).

Table 3.5: The Policy/Acts, the objectives and remarks

Policy/ Act	Ministry/ Agency	Objectives	Remarks
National Telecommunications Policy (NTP) 1998	(MoPTIT) and Bangladesh Telecommunications Regulatory Commission (BTRC)	To ensure rapid growth of telecommunications services both in quality and quantity and the use of telecommunications technology to ensure socio economic development	The policy reflected in the Bangladesh Telecommunication Regulating Act (BTRA) of 2001. Later, the policy was revised and developed in 2013.
Bangladesh Telecommunications Act 2001	MoPTIT and BTRC	Founding an independent Commission to facilitate for development and effective regulation telecommunication services across the country.	The act was revised and developed in 2006(Amendment) and 2010(Amendment).
ICT Policy 2002	MoPTIT, BTRC, Bangladesh Computer Council (BCC) and Prime Minister's Office (PMO)	To promote and facilitate use of ICT in all sectors To ensure transparent and efficient governance	The target for ICT policy 2002 was to develop ICT infrastructure and services by 2006. Later, in 2008, the policy was reviewed and drafted in 2009(amendment) with a 'vision 2021' and 'digital Bangladesh' digital agenda. Finally, in 2015, the policy was revised with the aim for a comprehensive framework and consistent works plan to be implemented in three phases; short term (2016), mid-term (2018) and long term (2021). ICT Policy 2018, Para 2.2.3-Social equity and universal and Para 3.3.1-special attention has been given to women entrepreneurs in ICT use.

Policy/ Act	Ministry/ Agency	Objectives	Remarks
Copyright Act, 2000 Copyright (Amended) Act 2005	Ministry of Law, Justice and Parliamentary Affairs	To ensure intellectual property rights for creative industries and other related modes of Electronic communication.	The Copyright Act, 2000 repealed the Copyright Ordinance, 1962 and was last amended in 2005. According to this Act, copyright registration is voluntary and not obligatory in Bangladesh. The registration gives evidence of ownership in case of copyright arguments. The Act is similar to the Bern Convention and TRIPS Agreement. Women entrepreneurs may be given more access to product and market information in this ACT.
ICT Act 2006	Ministry of Law, Justice and Parliamentary Affairs	the legal recognition and security of information and communication technology	The Act was revised and amended in 2009 and 2013. Special provision can be kept for issuing license and certificate for the women entrepreneurs.

Discussion and conclusion:

It is argued that NIP is framed without contextualizing socio-economic challenges as well as the local aspects of technical, cultural and human resources.

The NIP delivers a general aspiration to **ensure access to ICT for all but have no clear reference to poor or socioeconomically disadvantaged groups or women.** First, in relation to ICT access, policy to a greater extent focuses on infrastructural development such as rapid expansion of ICT networks and services accessible to all the population including socially marginalized groups and communities. Policy also focuses on several actions to ensure ICT access, such as increasing Internet connectivity and setting up computer laboratories. However, it provides insufficient detail on how this policy will be realized with proposed connectivity and digital resources. Moreover, it frequently focuses on **'affordable accessibility'** but no action plan in benefitting or overcoming their socio-economic challenges has been suggested.

Secondly, as the policy and strategy formulation remain largely confined within a techno-centric approach, the nature of ICT uses and engagement offered may not reach and involve common people. Strategies for enhancing the social, cultural, political and civic participation of citizens are not focused in the policy text. Therefore, a more comprehensive and user-centered approach needs to be included within ICT policy strategies.

Thirdly, policy reflects on a market-oriented trend of ICT skills development, which may not have a direct impact on the lives of ordinary and poor people. ICT skills and literacy are addressed using concepts such as 'applied computer' and 'lifelong learning' which need a proper explanation. The linguist divide deprives a major section of population, particularly in the rural areas, to have access to a broader spectrum of ICT content as those are in English.

Although the government has incorporated ICTs into the formal education system, more emphasis should be attached in English language. Moreover, the lack of social security and resources in remote areas limit access to quality education and study facilities, particularly for women. Hence, extension of ICT (skills) programmes beyond formal education is crucial in reaching out to diverse groups, and those living in remote parts of the country.

In the policy the basic concepts like ICT are missing. Rhetoric like *'digital divide', 'e-governance' and 'inclusion'* are addressed in multiple policy themes. Similarly, the policy integrates many topics related to social and economic development in a scattered way. The ambiguity of the policy is reflected in language such as the 'digital divide', which is used without appropriate context and explanation. Several means are mentioned with no proper description, like the idea of 'creating a knowledge-based platform' (which types of knowledge can be shared through which platforms is not clarified).

Relevant Study Articles on ICT:

The following is a brief collection of ICT-related articles authored by some academics in this field, from which some findings and suggestions have been drawn for this study.

<u>Impact of Information Technology in Trade Facilitation on Small and Medium-Sized Enterprises in Bangladesh</u> (Syed Saifuddin Hossain, Uttam Deb, Muhammad Al Amin, Bangladesh Institute of Development Studies)

In Bangladesh, small and medium-sized enterprises (SMEs) accounting for more than 90 per cent of the total industrial units, and having a share of 12 per cent to 40 per cent of total export earnings, any attempt to facilitate trade procedures is likely to have a significant impact on this group of businesses. Thus, the application and optimal use of information technology (IT) is regarded to be of critical importance in efforts to: (a) improve the competitiveness of industries by reducing unnecessary bureaucratic requirements and harmonizing relevant processes., Bangladesh has, during the past two decades, undertaken various customs modernization projects, including the introduction of Automated Software for Customs Data (ASYCUDA) and Direct Traders Input (DTI). However, the expected outcomes from such initiatives could not be realized as these projects failed to ensure a paperless customs clearance process. It was in this context that the Government of Bangladesh (GoB) recently undertook a project to automate the Chittagong Customs House (CCH) with the objectives to automate the custom clearance procedure and to ensure greater revenue earnings by expediting customs clearance procedures.

It is believed that the initiative will result, for example, in the reduction in lodgment, clearance time and costs and corruption, an increase in number of clients for the customs agents and freedom for agents and traders to work outside customs' normal working hours. In line with that majority of the customs agents and traders have set up offices installing new equipment (such as computers, fax machines and Internet connection) to gain access to the service automation process. The automated system at CCH is currently being used by more than 3,000 registered users, including 20-25 large-scale industries.

However, until now, no export-oriented SME users have registered as they find it more convenient to use customs agents rather than handling the clearance procedures by themselves. In view of the expected gains from customs automation and the interest of SMEs in using the system, it is recommended that Government should take proactive measures to ensure meaningful application of IT in trade facilitation, particularly of the SME traders.

Role of Information and Communication Technology (ICT) in improving performance of service SMEs in Bangladesh: An empirical analysis (Mohammad Mizenur Rahaman, Mosaddak Ahmed Chowdhury)

In this competitive business World, the business entities, particularly the SMEs face different challenges from the potential customers very often which need urgent redressal. This necessitates new management systems and technology-based services. ICT application has been presented as an important device to overcome the inherent challenges that make SMEs vulnerable. This study mainly investigated on the service SMEs, explore whether the use of ICT (as information processing technology or as information communication technology) can contribute on the performance of SMEs and help them to cope with these new challenges in developing countries like Bangladesh. Finally, this paper concludes that ICT can directly contribute to improving the performance of service SMEs in Bangladesh in a different way and support the facing of challenges in a competitive business world. To compete with the modern era of businesses, ICT is the most important to improve the performance of service SMEs. Most of the service SMEs is directly or indirectly using ICT for doing their business well. Use of ICT in service SMEs Improved performance Financial Performance, Technical Performance Operational Performance, and Strategic Performance.

Financial Performance:
- Profitability
- Market Value
- Growth

Technical Performance
- Improved communication
- Improved decision making
- Reduce paper work
- Reduced Rework
- Reduce labor works
- Improved response time
- Control of cash flow and inventories

Operational Performance
- Improved service quality
- Improved teamwork
- Improved planning times
- Improved integration with other business functions
- Improved effectiveness and efficiency
- Reduced time to prepare cost plans

Strategic Performance.
- Customer satisfaction
- Employee's satisfaction
- Intangible benefits Source:

It is evident from the study that that ICT is significantly related with the performance of the business entity. Use of ICT has a significant relationship with the use of ICT for general business Activities, maintenance of relationship with Customers, save Operational Time, used for E-mail and Communication. Therefore, the following issues are recommended through this study:

- SMEs should formulate policies that will facilitate the adoption of ICT facilities by SMEs because of its potential in improving firm's growth performance.
- Training programs for SME managers or owners and employees should focus on both technical and managerial skills which need to be provided in cooperation with the business and sector organizations.
- Government should create opportunity for SMEs so that Internet and other ICT support tools can be easily accessible by the SMEs.
- To raise productivity and global competitiveness, SME owners should invest in ICT and its components because they have been proven to significantly influence organizational performance.

Labor Market and Skills Gap in the ICT Sector in Bangladesh: An Exploratory Study-Monzur Hossain1 Senior Research Fellow, Bangladesh Institute of Development Studies (BIDS), E-17 Agargaon, Sher-e-Bangla Nagar, Dhaka, Bangladesh

Introduction:

The ICT sector of Bangladesh currently comprises of about 2000 software firms (997 firms are registered with BASIS), more than 2000 Internet Service Provider firms (557 got license from BTRC and the rest are operating without license, but only 64 firms are registered with ISPAB), 282 licensed call centers (only 76 Call centers are registered with BACCO), 10 mobile phone operators, 34 IIG (International Internet gateway Service), 4 NTTNs (Nationwide Telecommunication Transmission Network) firms, 12 PSTN (Public Switched Telephone Network) operators, 65 VSAT, 26 Interconnection Exchange (ICX) Services and 2500 hardware sales and servicing centers. According to industry insiders, the domestic markets for ICT services have been expanding rapidly.

Manpower strength in the ICT Sector:

The sector currently employs roughly about 0.22 million IT professionals, of which 35000 belong to software industries, 30000 belong to freelance software service, 50000 belong to IT jobs in different NGOs and other sectors. About 50000 IT professionals are now engaged in ISPs, 30000 in call centers, 20000 in other NTTN, PSTN, IIG etc. and only 2500 in hardware sector. (Source: https: / / aric.adb.org/ pdf/ attn/ Paper_Monzur % 20Hossain_ATTDF % 20 Session 3.pdf)

Requirement of IT professionals

The ICT industry basically requires about 10 categories of professionals, namely Project/Product Manager, Programmer, System Analyst, Database administrator, software engineer, hardware/system engineer, web developer, graphic designer, quality and assurance (Q&A) and technician/operator.

IT Professionals and their Skills

The study result suggests that there is a huge need for Programmers/System Analyst/software engineer and Q&A professionals as there exists only about 40% of the required demand. Similarly, existing supply of Project/Product managers (mid-level professionals) and Graphic designers can meet up only about 50% of the current demand.

Level of Skills

For software firms, the most commonly required IT skills include JAVA, Net, HTML5, ASP, JSP, Ruby, Python, C/C++/VC, CSS3, Mongo DB, Postgre SQL, Node JS, Big Data, other

database software/applications (MS SQL, Oracle, UNIX/Linux/Solaris, XML), and mobile applications (Android, iOS, J2ME) as these are recognized by most of the firms. The ISP and call center professionals mainly require knowledge on basic computer literacy, C/C++, JAVA, HTML5 and database applications. The industry stakeholders have identified these as the potential programming languages and applications on which a higher demand for training exists. The level of skills of IT professionals, such as E-governance and mobile-based applications suffer from a dearth of highly skilled professionals while other sectors have been able to acquire a majority of highly skilled professionals to their credit. It is also evident that a certain proportion of semi-skilled professionals are engaged in Graphics and Mobile phone applications. For ISP and call/BPO centers, majority of the staffs are skilled (about 60%). For hardware assembling and repairing services, majority of staffs are reportedly highly skilled (67%) and one-third are just skilled.

Female employment in the sector

The ICT sector appears to be lagging behind in making gender balance in employment. Gender wise breakdown of existing employees in different sub-sectors of the ICT suggest that except for call centers, the proportion of female employee is less than 20% in most of the categories of occupations Therefore, there is a need for labor market strategies to improve gender balance in the ICT sector.

Skills Gap Analysis

The analysis of skills gap in the IT profession is not straightforward and therefore requires a multi-dimensional approach. The gap can be accessed from three perspectives: (i) availability; (ii) Weaknesses of the existing pool of IT professionals and (iii) Mismatch between current skills and future demand.

Mismatch between current skills and future demand

The shortage of skilled manpower and shortage of required professionals for the emerging thrusts of the IT sector are two key challenges for the ICT sector. Since the country currently faces a shortage of about 40% of the required skilled manpower in the sector, industry growth and investments are likely to be severely affected in the future. Proper policies and training programs thus need to be adopted to address this gap of skilled manpower in the ICT sector.

Digital inclusion challenges in Bangladesh: The case of the National ICT Policy-Abdul Aziz

Introduction

This study assesses the impact and effectiveness of the National Information and Communications Technology Policy (NIP) in Bangladesh and its role in the achievement of 'digital inclusion' rather than 'Digital Divide' by the NIP strategies. The study also examines the internal rationality and logic of the NIP on three distinct criteria of the digital inclusion analytical framework: ICT access, use and skills. The analysis argues that the policy is ambiguous and techno-centric, with a narrow digitization frame of reference, which does not comprehensively address the issues associated with digital inclusion. Policy needs to be consistent and relevant to a person's daily life, giving the user a sense of empowerment and skill. It is concluded that that a focus on a skill-based approach and the context of societal challenges of Bangladesh is crucial to ensuring digital inclusion.

Information and Communications Technology (ICT) is often viewed as a catalyst for socio-economic development and it is also perceived that though a 'knowledge-based' and 'digital

society' also has economic and social impacts but 'digital technologies, too, often fail to empower citizens creating 'digital exclusion' which can be located across societal levels in many contexts. It creates barriers to employment and escalates social exclusion among low income, rural people and older or disadvantaged groups. However, in order to establish ICT based development, adoption of broadband and network connectivity has been emphasized in the National ICT Policies. Bangladesh is not an exception to that.

The government of Bangladesh introduced several ICT policies, acts and strategies (see, annex 1) to establish a transparent, inclusive and accountable government for economic growth and social development. However, Bangladesh, in the past, has experienced both success and failure of implementation of policy goals. Recently, there have been quite a number of government initiatives (such as access to information [a2i]) for implementing ICT driven activities, and the government is planning to amend the existing policy to make it more relevant due to the 'emergence of 5G technology and fourth industrial revolution' (New Age, 2018). It is very important that ICT policy always ensures the **social inclusion** in the technology-based development initiatives in the context of socio-economic structures of Bangladesh.

ICT Access

The NIP defines access to 'ensure quality telecommunication technology and internet connectivity to all as a public service obligation'. ICT access is proposed in one of the policy objectives as 'universal accesses' which reflects the goal of reaching all citizens of the country through extending ICT infrastructure through the Internet Protocol (IP-based) telecommunication systems to ensure wide access with a reasonable cost. To ensure ICT access, some solutions are addressed, including submarine and broadband connectivity. In addition, the objective of social equity is envisaged to be ensured through greater participation from users, with explicit focus on the marginalized and people with special needs. Primarily, it aims 'to bridge the digital divide and minimize economic disparity for lower income groups, ethnic minorities and persons with disabilities and special needs. To ensure ICT access, steps such as affordable and reliable rural connectivity via mobile phone, the initiation of citizens' helpdesk in government institutions, development of software, voice content for disabilities, setting up community e-centers are also proposed. Moreover, several conceptual claims are mentioned, such as bridging the digital divide, citizens' participation, access to critical service, access to critical information, critical government offices, social safety net programme and rural connectivity. However, these claims are presented in a scattered way without outlining how ICT access can be confirmed through these.

ICT Use and Engagement

Although there is no specific objective addresses ICT use and engagement. It has been mentioned to increase economic growth, health service, and to tackle the environmental crisis, facilitation to economic growth, including agriculture and small, medium, and micro enterprises (SME) etc. Several means are suggested including community network development, dissemination of agricultural knowledge, as well as innovations through community radio, telecentre and web-based networks, ensuring quality health care to all citizens. It offers the development of a national health database system, telemedicine and audio-visual resources as a means to achieve the goal. Another policy objective ('Integrity') promises ICT use to ensure transparency, efficiency and services delivery to all citizens. In addition to setting up a national data resources centre, the promotion of public-private partnerships (PPP), web based and technical mechanisms (such as video conferencing, IP telephony, LAN) are also proposed.

ICT Skills

The policy has no specific objective to describe ICT skills. It offers some approaches, including ICT skills assessment, adoption of ICT education and professional skills, establishing ICT center, ICT literacy, and courses in primary and secondary education. Moreover, the government has proposed to assess ICT skills during public service entrance exams, creating an imperative for employees in public job to learn basic ICT literacy. Similarly, policy proposes industrial collaborations with universities for ICT research and development of 'market-oriented' ICT skills. However, it does not ensure effective ICT education for all. These multiple strategies are primarily related to ICT infrastructural development having no specific link to digital skills and literacy improvement.

3.5 Five areas of regulatory simplifications to promote the use of ICT, particularly the women entrepreneurs

The following 5 areas have been identified where regulatory simplifications are required that would promote the use of the ICT sector in trade facilitation in Bangladesh. The regulatory simplifications which would promote the employment of women in EXIM trade facilitation through the use of ICT use have been shown below in italic and bold to avoid duplicity.

i. <u>Tax exemption facility for IT-enabled Services:</u>

Currently, 22 IT-enabled services enjoy the tax exemption facility and the five new services are cloud service, system integration, e-learning platforms, e-book publications, mobile application development services, and *freelancing* included. This will create new entrepreneurs on the one hand and on the other hand, the digital transformation of Bangladesh's economy will be accelerated and advanced digital services can be made available to the people at a low cost. The IT sector services currently enjoying tax exemption include software development, software or application customization, NTTN, digital content development and management, digital animation development, website development, website services, web listing, IT process outsourcing, website hosting, and digital graphic design. Tax exemptions are provided subject to the fulfillment of the following criterion such as (1) Tax returns shall be filed regularly; (2) Availing of BASIS membership; and (3) Obtaining Tax exemption certificate on yearly basis from the concerned Tax Office. But the freelancers who are not members of BASIS and earn a huge amount of foreign currency will be deprived of the Tax exemption facility of the government if these conditions are not relaxed. Moreover, the freelancers, particularly the female freelancers, who reside in the remote rural areas, will face difficulties in getting Tax exemption certificates from the concerned tax office.

Hence the following regulatory measures are recommended.

a) The Freelancers who are not members of BASIS but earn a huge amount of foreign currency for Bangladesh every year may be made members of BASIS or an association of the Freelancers, may be called *Freelancers' Association of Bangladesh (FAB)* may be formed. The government may take appropriate steps regarding the relaxation of the above eligibility criterion for tax exemption for the freelancers' association.
b) An arrangement may be made for the issuance of an online tax Exemption certificate from the concerned tax office to save time and reduce the hassle.
c) *Since women are lagging much behind in the use of ICT in top most export sector as well as e-commerce and freelancers, special provisions may be incorporated in the new ICT Act to provide special financial benefits/incentives or relaxation of the conditionality in availing the tax benefit.*

ii. Incentives for the Freelancers:

Freelancing work includes mainly Digital data entry & processing, digital data analytics, geographic information services, IT support & software maintenance services, software lab test services, call center services, overseas medical transcripts services, search engines optimization services, document conversion, robotics process outsourcing and cyber security services are the other services to enjoy the facility. There is huge potential for educated women to get involved in freelancing and earn an appreciable amount of foreign currency working from home even staying at remote areas of the country provided good internet facilities are available or using smartphones. Freelancers may enjoy incentives from the Government provided the following conditions are met. The conditions are:

- the *international market places* concerned need to be recognized by the Information and Communication Technology Division along with appropriate documents.
- In case of Agreements with digital marketplaces, exporters will have to provide the *relevant weblink* to the bank branch that will have to ensure the collection and verification of information on the software and ITES export activities through the marketplace, along with the web link.
- to provide the required *audit trailer web link* for verification along with the submission of the documents of the automatically prepared invoice confirmation, along with the application form that declares money received from export income. However, there have been barriers to getting payments for outsourced work by the IT freelancers as there is a cap on the number of funds that can be transferred through existing channels as the country lacks international payment systems. Payment systems such as PayPal could remove such barriers and increase income from outsourcing could increase, but the PayPal has been barred to work in Bangladesh.

In the light of the above, the following regulatory measures may be made to facilitate the freelancer get their incentives.

a) The capping income level should be enhanced to facilitate the medium and big Freelancers or the ITES providers to receive their export income;
b) The regulatory compliance to get the incentives should be reviewed and made ITES and Freelancers friendly;
c) International payment system (PayPal and another appropriate system) to be introduced to facilitate the transfer of export earnings through existing legal channels;
d) The Freelancers who are not members of BASIS but earn a huge amount of foreign currency for Bangladesh every year may be made members of Basis or an Association of the Freelancers, which may be called *Freelancers' Association of Bangladesh (FAB)* may be formed. The government may take appropriate steps regarding the relaxation of the above eligibility criterion for Tax exemption for the Freelancers' Association.
e) *In order to increase more participation of women in the ICT based businesses such as freelancers and/or ITES providers, special provisions may be made in the ICT Act to provide special financial benefits/incentives or relaxation in conditionality of availing the incentives or having access to the ICT equipment/smartphones or internet facilities in the rural areas.*

iii. Intellectual Property Right on ICT:

In respect of intellectual property rights (IPR), Bangladesh has enacted intellectual property laws. It has incorporated the relevant provisions from international standards in this regard.

Bangladesh has enacted the following laws on IPR:

(i) The Patents and Designs Act, 1911; The Patents Acts, 2022;
(ii) The Trade Marks Act, 2009;
(iii) Copyright: The Copyrights Act, 2000;
(iv) 'The Geographical Indication of Goods (Registration and Protection) Act, 2013'. In order to implement the Act, the Geographical Indication of Goods (Registration and Protection) Rules, 2015 have been enacted.

Compliance with TRIPS and other International Agreements, Treaties, and Protocols: IP laws are in compliance with TRIPS. Bangladesh is currently party to the following agreements, bodies, treaties, and protocols-

I. Convention establishing the World Intellectual Property Organization (WIPO)-May 11, 1985
II. The Paris Convention for the Protection of Industrial Property -March 3, 1991
III. Berne Convention for Protection of Literarily and Artistic Works-May 4, 1999
IV. Universal Copyright Convention -May 5, 1975
V. The GATT & TRIPs (WTO Agreement) -April 15, 1994. Our country is also a signatory of several WTO treaties and agreements. Bangladesh is not a party to the Patent Cooperation Treaty (PCT).

IP and information and communication technology (ICT):

The ICT sector of Bangladesh has started growing and a separate Ministry, the Ministry of Information & Communication Technology has been created to 'give more thrust to the ICT sector. ICT has been, included in the Allocation of Business of the Ministry, and Bangladesh High-Tech Park Authority Act-2010 has been approved. In addition, the Information and Communication Technology Act and ICT Policy-2009 were formulated and the Copyright Act-2000 was amended to protect copyrights of locally designed software. High-Tech Park Authority and Controller of Certifying Authority have been established under the law.

Data is the primary building block of the digital economy which includes *Artificial Intelligence (AI) and Machine Learning (ML)* tools. However, given the creative nature, economic and other values attached to data, it is essential that data are protected as intellectual property. As far as the IP protection of data is concerned, there remain legal and practical challenges. Relevantly, three forms of intellectual property, namely, copyright, patent, and trade secret.

- The existing IP system does not sufficiently provide legal mechanisms to protect data. Moreover, data *per se* is kept open without IP monopoly because of the public policy or public interests.
- To date, AI or ML-generated content is not protected under the existing IP regime. However, 'data ownership' would be a crucial factor in both the input and output processing of data, if AI and ML-generated contents are to be protected in the future. Since IP protection of data inherently is not possible, at least not under the current legal framework, a policy solution as data producer's right- a new special property right for the data producers is essential.

In the light of the above observations and challenges, the following regulatory measures are recommended:

a) Software is protected by copyright as literary work specified in section 2(46) of the Copyright Act, 2000. Effective optical disc regulations should be in place and

enforcement of existing copyright regulations should be ensured to protect the software market hugely hampered by piracy

b) Laws and regulations for electronic transactions should be incorporated in the Custom Acts;

c) Digital trade barriers (e.g., restrictions and other discriminatory practices affecting cross-border data flows, digital products, Internet-enabled services, and other restrictive technology requirements) to be removed;

d) Government should consider enacting new Patents and Designs Law, Copyright Law, and Personal Data Protection Law addressing the legal challenges of intellectual property protection (e.g., inadequate patent, copyright, and trademark regimes and enforcement of intellectual property rights) for data and other ICT products as well.

iv. Bangladesh E-Commerce:

The e-commerce sector started growing in 2000 which has taken momentum after online transactions, permitting online use of international credit cards for the purchase and sale of goods and services. Growth of e-commerce flourishes with the growth of fixed-broadband connections and mobile-broadband subscriptions. Facebook is also a popular means of e-commerce. Facebook remains a popular method for advertising and selling products, to a point that many businesses forgo creating websites. Currently, the following four types of eCommerce are popular in Bangladesh:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Consumer (C2C)
- Business-to-Employees (B2E)

In order to facilitate e-commerce and encourage the growth of information technology, the Information, and Communication Technology (ICT) Act, 2006 was enacted and amended in 2013 including provisions for imprisonment and/or fines for cybercrimes. The enactment of the ICT Act has significant implications for e-commerce and mobile commerce in Bangladesh. The growth of the industry has been inhibited by low usage of credit and debit cards (cash remains the major payment method) and the unavailability or restrictions on major online transaction sites like PayPal. Additional challenges to e-Commerce in Bangladesh include:

- Inadequate delivery mechanisms
- A relatively low internet penetration rate
- The lack of a robust online transaction system
- Prevalence of online fraud
- Undeveloped online marketing practices
- The lack of a robust privacy policy

❖ Cross-border eCommerce remains largely inhibited by a viable online transaction system and capital controls that prevent most outward flows of foreign currency for consumer purposes. In addition, weak logistics infrastructure and irregular customs practices hinder the growth of cross-border eCommerce.

❖ There are many Bangladeshi companies engaged in eCommerce services, including web design, domain name purchasing, secure hosting, digital marketing and advertising, app development, and payment gateways, among others. Many of these companies provide services to clients abroad, especially in North America. Remitting payments from abroad into Bangladesh is an issue.

❖ The present system of trademark protection lacks a sufficient legal framework to protect intellectual property rights. The absence of a legal framework has created opportunities for unscrupulous business practices.

In the light of the above, the following regulatory measures have been suggested:

a) *The trademark protection lacks a sufficient legal framework to protect intellectual property rights. The absence of a legal framework has created opportunities for unscrupulous business practices.*

b) *Cross-border e-Commerce remains largely inhibited by a viable online transaction system and capital controls that prevent most outward flows of foreign currency for consumer purposes. In addition, weak logistics infrastructure and irregular customs practices hinder the growth of cross-border e-commerce. Regulatory measures must be taken to introduce a viable online transaction system;*

c) *Adequate delivery mechanisms should be developed. The government may take initiative to modernize and strengthen the Postal parcel system up to the rural areas ensuring online delivery of the goods of the customer;*

d) Regulatory measures to be taken to have a robust *Privacy Policy* in place.

e) ***In order to encourage the involvement of more women of all strata to ensure equity in e-commerce, ICT policies, Acts and related rules and regulations should be made women-friendly***.

v. Cyber Security:

Cyber security is known as an activity or process, ability or capability, or state whereby information and communications systems and the information contained therein are protected from and or defended against damage, unauthorized use or modification, or exploitation. Other than that, cyber security involves reducing the risk of a malicious attack on software, computers, and networks. Cybercrimes are of various nature and are a major threat in the ICT sector. The various nature of cybercrimes are as follows:

- **Cyber harassment is a distinct Cybercrime**. Various kinds of harassment can and do occur in cyberspace, or through the use of cyberspace. Harassment can be sexual, racial, religious, or other

- **Cybercrimes against persons:** Cybercrimes committed against persons include various crimes of transmission of child pornography and harassment of anyone with the use of a computer such as e-mail. The trafficking, distribution, posting, and dissemination of obscene material including pornography and indecent exposure, constitutes one of the most important Cybercrimes known today.

- **Cybercrimes against property**: The second category of Cyber-crimes is that of Cybercrimes against all forms of property. These crimes include computer vandalism (destruction of others' property), and the transmission of harmful programs

- **Cybercrimes against the government**: The third category of Cyber-crimes relates to Cybercrimes against Government. This crime manifests itself into terrorism when an individual "cracks" into a government military-maintained maintained website. Various types of cybercrimes include:

- **Hacking:** Unauthorized access of hosts-more commonly known as hacking. Hacking can take various forms, some of which might not always involve deep technical knowledge,

- **Spamming** - involves mass amounts of the email being sent in order to promote and advertise products and websites.

- **Email spam** is becoming a serious issue amongst businesses, due to the cost

overhead it causes not only in regards to bandwidth consumption but also to the amount of time spent downloading/ eliminating spam mail. Spammers are also devising increasingly advanced techniques to avoid spam filters, such as permutation of the email's contents and use of imagery that cannot be detected by spam filters.

- **Computer Fraud/ "Phishing" scams**- Phishing is a type of social engineering where an attacker sends a fraudulent (e.g., spoofed, fake, or otherwise deceptive) message designed to trick a person into revealing sensitive information to the attacker or to deploy malicious software on the victim's infrastructure like ransomware. As of 2020, phishing is by far the most common attack performed by cybercriminals.

- **Email phishing:** Most phishing messages are delivered by email, and are not personalized or targeted to a specific individual or company–this is termed "bulk" phishing. The content of a bulk phishing message includes banks and financial services, email and cloud productivity providers, and streaming services.

- **Spear phishing:** Spear phishing involves an attacker directly targeting a specific organization or person with tailored phishing communications. Spear phishing typically targets executives or those that work in financial departments that have access to the

- ***Whaling and CEO fraud:*** *Whaling refers to spear-phishing attacks directed specifically at senior executives and other high-profile targets. The content will be likely crafted to be of interest to the person or role targeted - such as a subpoena or customer complaint.*

- ***Clone phishing:*** *Clone phishing is a type of phishing attack whereby a legitimate, and previously delivered email containing an attachment or link has had its content and recipient address(es) taken and used to create an almost identical or cloned email.*

- **Voice phishing:** Voice phishing or vishing is the use of telephony (often Voice over IP telephony) to conduct phishing attacks.

- **SMS phishing:** SMS phishing or smishing is conceptually similar to email phishing, except attackers use cell phone messages to deliver the "bait". Smishing attacks typically invite the user to click a link, call a phone number, or contact an email address provided by the attacker via SMS message. The victim is then invited to provide their private data; often, credentials to other websites or services. Furthermore, due to the nature of mobile browsers,

- **Page hijacking**: Page hijacking involves compromising legitimate web pages in order to redirect users to a malicious website or an exploit kit via cross-site. Page hijacking is frequently used in tandem with a watering hole attack on corporate entities in order to compromise targets.

- **Calendar phishing** is when phishing links are delivered via calendar invitations. Calendar invitations are sent, which by default, are automatically added to many calendars. These invitations often take the form of RSVPs and other common event requests.

- These are commonly called "Phishing' scams, and involve a level of social engineering as they require the perpetrators to pose as a trustworthy representative of an organization, commonly the victims bank. Computer as an instrument facilitating crime: Cybersecurity Act has been enacted to address Cyber Crimes which are Hacking or unauthorized entry into information systems, Introduction of viruses Publishing or distributing obscene content in electronic form, tampering with electronic documents required by law, Fraud using electronic documents, Violation of privacy rights such as STALKING and Violation of copyright, trademark, or trademark rights

<u>**Limitations of the Cyber Acts of Bangladesh:**</u>

- **Practical Difficulty of Application**

The legislation was originally intended to apply to crimes committed both in Bangladesh and worldwide but barely *people practically can take action to execute their rights under the act for the commission of crime outside the jurisdiction of Bangladesh.*

- **Difficulties with Electronic Transaction**

The enactment has an important effect on Bangladesh's e-commerce. But as for the electronic payment of any transaction, it keeps itself almost impractical.

Intellectual property Security
- The Act is not vocal on the various intellectual property rights, such as copyright, trademark and e-information, and data patent rights.
- **Not Addressing Mobile crime and contradicting Email Evidence.**
- One of the limitations of the act is that *any crime committed via mobile phones is not addressed under the Act.*

In view of the above limitations of addressing the Cybercrimes, the following **regulatory measures have been suggested**:

a) *Regulatory measures should be taken to frame appropriate laws, rules, and regulations to take protective and punitive measures against all sorts of Cybercrimes such as personal and property cybercrimes, hacking, and phishing scams;*

b) *ICT Act of Bangladesh should be reviewed and updated to address the Cybercrimes committed outside the jurisdiction of Bangladesh and should cover the issues regarding electronic payment of any transaction (e-Transaction), crimes on Intellectual Property rights, such as copyright, trademark, e-information, and data patent right, etc. Moreover, Cybercrimes committed via mobile phones cannot be addressed under Digital Act.*

c) ***Women are very much vulnerable to cybercrimes and special regulatory measures should be taken to contain all forms of cybercrimes against women and their ICT equipment and protection of the financial transactions through ICT devices.***

Findings from the above analysis of the above ICT Acts and policies:

The core strength of the Bangladesh's ICT sector is the abundance of human capital with intellectual aptitudes. The main challenge is to train them and prepare them as per the need of the industry.

<u>**Skills gaps in the ICT sector can be summarized as follows:**</u>
- The industry faces shortage of a strong pool of mid-level product/project managers that hampers the expected growth of the industry;
- As the manpower demand in the ICT sector is expected to be doubled in the next 10 years, the corresponding need for training has to be met with appropriate policies to facilitate the growth of the sector as well as the economy;
- Fresh graduates are not adequately trained to enter into the industry due to the outdated curriculums followed by the educational institutions and the lack of linkages between the industry and academia;
- Most of the existing IT training institutions impart sub-standard training programs, which could not fulfill the skills requirements of the industries and, therefore, it is

important to streamline their curriculum and ensure quality need-based training in these institutions;

- Standardized and uniform IT training curriculum should be designed to ensure a minimum level of quality of training;
- Establishment of some centers of excellence in respect of IT training should be established to reduce the skills gap in the ICT sector.

It is also observed that existing training programs offered by respective institution lacks attachment of due diligence to the emerging thrusts of the IT sector. Based on the above skills related issues, establishment of some standard training institutions, updating ICT curriculum, devising proper strategies for linkages between academia and industries may be strongly recommended as the possible measures to meet the existing skills gap in the ICT sector.

3.6 Roles of ICT in Export Facilitation in the Top Ten Export Sectors

3.6.1 Current Roles

The service export data for the past decade suggest that Bangladesh is increasingly moving towards new services and indicates the role of two main factors, policy reforms and liberalization and the country's comparative advantage in labor-based the growth in other business services and computer and information services reflects Bangladesh's large pool of manpower and the growing opportunities in emerging services to export skill-intensive and professional services. The role that ICT plays in trade facilitation of the top ten exports of Bangladesh, especially as it relates to:

Availability of e-commerce platforms for placing orders:

Challenges for the development of e-commerce sector in the country include the lack of appropriate national policies to support the system, specific roadmaps for e-commerce development, financial transaction security, slow and expensive internet, delivery channels, inter-operable infrastructure and lack of human resources. Further, challenges are the lack of a trusted e-commerce environment, the lack of public accuracy and fear of online shopping. Absence of proper mechanism for resolving consumer dissatisfactions is another major drawback. Reluctance to include banking facilities in the e-commerce sector, lack of any incentive package for development of the e-commerce sector and lack of adequate publicity are there too.

The ability to place export orders online: Information technology plays a vital role in all sectors especially in international business. Before 1990s, getting a contact of foreign buyer was a herculean task. The business community always put, as first tool of international marketing, as the utilization of internet service. How to use the service of internet in marketing our product is given below-

a) Exporter have to launch of a quality website is a reflection of their firms and update time to time with necessary information about any product updating. Exporter will get credibility and initial respect on any product and firm as well. Uploading images of any product, manufacturing unit, manufacturing process etc. boost companies' reliability in international market. Search Engine Optimization (SEO) plays a vital role in searching the content tags of any details by anyone looking for a supplier of product similar to products. Joining with social media like Facebook, Twitter, Plaxo, Linked in. Writing articles on company website helps the readers of internet to identify any caliber in the trade.

b) Effective communication plays an important role in business market. If anyone can effectively communicate with the buyer to convince the quality and price of any product, the buyer will surely take initiation to ask sending sample of any product and later place the order.

c) Exporter can send samples as per buyer's requirements. While sending export samples, at least two sets of samples to be drawn properly. Exporter can send to the buyer and can be retained with exporter. The sample retained helps exporter to match with the sample exporter sent to buyer while manufacturing or procuring, once exporter obtained final purchase order from buyer.

Digital tracking of export consignments by shipper and buyer: Digital tracking - track a package, track a parcel, track shipments and check shipment delivery status online. Digital parcels and shipments can be tracked in real time over the internet using several online tracking tools. Developments in information and communication technologies (ICT), satellite positioning systems (SPSs), cellular communication systems (CCS), radio frequency identification (RFID) technology, geographical information systems (GIS) and advances in web-based software with visual graphics and other user-friendly features, offer a tremendous potential to deal with major challenges in cross-border transport. Combined use of these technologies can secure and track vehicles and goods in real time, thereby allowing control authorities to take timely action.

The use of ICT technologies in various export clearances: The application and optimal use of information technology (IT) is regarded to be of critical importance in efforts to (a) improve the competitiveness of industries by reducing unnecessary bureaucratic requirements and harmonizing relevant processes while (b) ensuring that the country is in compliance with international norms and practices introduced by such organizations as the World Trade Organization (WTO) and the World Customs Organization (WCO).

Bangladesh has, during the past two decades, undertaken various customs modernization projects, including the introduction of Automated Software for Customs Data (ASYCUDA) and direct traders' input (DTI). However, the expected outcomes from such initiatives could not be realized as these projects failed to ensure a paperless customs clearance process.
In view of the expected gains from customs automation and the interest of SMEs in using the system, the Government of Bangladesh should implement a number of proactive measures in the short-to-medium term to ensure meaningful application of IT in trade facilitation. These measures include:

(a) Establishing a single window by connecting all relevant government agencies through the automation system;

(b) Ensuring immediate completion of all bureaucratic requirements in order to expedite the operation of the Dhaka Customs House (DCH) automation system;

(c) Ensuring better risk management system by strengthening data mining procedures;

(d) Introducing the concept of Authorized Economic Operator (AEO) in order to reward compliant firms and penalize non-compliant businesses;

(e) Fostering and strengthening both customs-to-customs and custom-to-business cooperation;

(f) Undertaking a country-level needs assessment study in order to benefit from multilateral trade negotiations;

(g) Providing necessary budgetary and policy support to SMEs in the context of the ongoing global economic crisis; and

(h) Closely monitoring the developments taking place in the ongoing Doha Development Round negotiations under WTO.

Digital receipt of payments: Payment system is a set of physical and electronic infrastructures with associated procedures and protocols for the transfer and settlement of financial obligations arising from the exchange of goods and services. It facilitates the Central Bank for conducting efficient monetary policy by allowing better use of market-based instruments to achieve its objectives, enhancing the efficiency of the financial system and the economy as a whole.

One of the main functions of the Bangladesh Bank is - "to promote, regulate and ensure a secured and efficient payment system, including the issue of bank notes." In fulfilling this mandate and considering the importance of having a state-of-the-art payment and settlement system, Department of Currency Management and Payment Systems (DCMPS) of Bangladesh Bank (BB) has been working to implement a secured and efficient payment system in the country. Payment Systems Division (PSD) under DCMPS has been working on the essentials to put into operation a modern National Payment and Settlement System. The PSD is working on the following core areas - Payment Systems Strategy, Automated Cheque Processing System, Electronic Funds Transfer, National Payment Switch, Mobile Financial Services, e-commerce and m-commerce, Legal and Regulatory Framework, Payment Systems Oversight, and Remittance Issues.

With a view to developing an electronic payment system, Bangladesh Bank took maiden initiative to replace the traditional paper-based clearing and settlement system by an IT-centric fast, secured and efficient system. With the technical and financial assistance from Department for International Development (DFID) of United Kingdom (UK), Bangladesh Bank started working to implement Bangladesh Automated Clearing House (BACH) from October 2006, the first electronic clearing house in the country.

Bangladesh Electronic Funds Transfer Network (BEFTN) is the most critical component in the development of a modern payments system infrastructure among the present initiatives. BEFTN started its 'Live Operation' on 28 February 2011 with 47 banks of the country. The network started with credit transactions and will gradually progress to debit transactions. A wide variety of credit transfer applications such as payroll, foreign and domestic remittances, social security, company dividends, retirement, expense reimbursement, bill payments, corporate payments, Government tax payments, veterans payments, Government license fees and person to person payments as well as debit transfer applications such as mortgage payments, membership dues, loan payments, insurance premiums, utility bill payments, company cash concentration, Government tax payments, Government licenses and fees are settled under the network. This system will bring down the operational cost, reduce risk and increase the efficiency of the payments process. The mobile networks will provide the gateway for the non-bank public to reach bank customers and businesses and for bank customers and businesses to reach the non-bank public. The ultimate objective of the EFT system is to lessen paper-based payment methods and encourage paper-less payment methods for faster and cost-effective transactions specially at the corporate levels. The EFT facilitates the transmission of payments between the banks electronically in order to make faster and efficient inter-bank clearing over the existing paper-based system.

Bangladesh Bank has taken initiative to establish National Payment Switch (NPS) in order to facilitate interbank electronic payments originating from different delivery channels e.g., Automated Teller Machines (ATM), Point of Sales (POS), Internet, Mobile Applications, etc. The main objective of NPS is to create a common platform among the existing shared switches already built-up by different private sector operators. NPS will facilitate the

expansion of the card-based payment networks substantially and promote e-commerce throughout the country. Online payment of Government dues, using cards and account number information through internet will greatly be enhanced using NPS.

In order to start m-commerce in Bangladesh, mobile network operators have been given permission to sell railway tickets and tickets of cricket matches organized by the Bangladesh Cricket Board (BCB) using mobile technology. BB has issued directives regarding ecommerce activities like online payment of utility bills; online funds transfer between clients of the banks, credit card-based internet payment in local currency, etc.

3.6.2 Contribution of ICT Use to Export Functions

In Bangladesh, ICT has been identified as one of the major sub-sectors in the service sector of the country. Export policy of Bangladesh, designed for 2015-2018, has included 12 highest priority sectors considering their special export potentials, where software and ICT enabled services is one of them. The policy has some certain goals for promoting export of ICT based services, e.g., ensuring improvement of information communication system, examining possibility of setting up marketing centers abroad, taking initiatives of IT Villages for increasing export, facilitating availability of high speed data transmission line and strengthening the base of the ICT sector regionally, providing facilities to develop the ICT sector through the ICT Business Promotion Council, ensuring country branding through Export Promotion Bureau and missions abroad.

3.6.3 Advantages and Disadvantages of Use of ICT

The dependency of ICT is increasing day by day and it is been more noticeable in pandemic situation.

<u>Advantages:</u>

i. Communication - Speed / time - money can be saved because it's much quicker to move information around. With the help of ICT, it has become quicker and more efficient to work such as transaction accounting, shipment tracking and follow up of the business. The cost of calling through mobile network can be compromised through social network calling and workers in the company continuously communicate with each other through social media (WhatsApp, Imo etc.).

ii. Globalization - Video conferencing saves money on flights and accommodation which is a major advantage in export business. ICT has not only brought the countries and people closer together, but it has allowed the world's economy to become a single interdependent system to contact a business. ICT has made it possible for businesses to be automated giving client's access to a website or voicemail 24 hours a day, 7 days a week**.**

iii. Cost effectiveness & Increase in Production - ICT has also helped to automate business practices, thus restructuring businesses to make them exceptionally cost effective.

<u>Disadvantages:</u>
 i. Cost of Data Plan: The cost of internet and data planning is challenging given that it is vastly used in every sector of the export business area.

ii. Low Quality of Internet: The low speed of internet interrupts consecutive work which lacks the integrity of work efficiency.

iii. Unintelligible: FGD participants implied that although ICT has made their work life quite easier, it is not quite comprehensible for mass people worker. ICT operation needs proper training and companies need trainer to enlighten the workers about ICT operation.

iv. Interrupted flow of Electricity: ICT operated machinery needs uninterrupted flow of electricity but this is a challenging matter in basis of Bangladesh.

3.7 Barriers to ICT Adoption in the Export Sectors

In the survey respondents were asked to rank some problems which were identified from the literature. They rank the problems as following way-

i. Physical infrastructures: Absences of sufficient ICT Park/Software Technology Park, high internet cost, no ample submarine cable, power shortage is some of the common infrastructural problems for most of the ICT enterprises.

ii. International competitors: International competitors manly India and Vietnam are major competitors to our export market of Bangladesh. Though Bangladesh has got the advantage of cheap labor, but in terms of skilled labor they get more advantages. Higher education in our country cannot ensure high performance. There is also problem of efficiency in English Language.

iii. Lack of government initiatives for country branding: Growth of export of ICT industry is below the expected levels due to inadequacy in entrepreneurial dynamism, limited overseas marketing budget and absence of government level initiatives in promoting country brand. Though for first time National ICT Day was celebrated on 12 December, 2017, but more initiatives are needed for promoting international branding.

iv. Lack of finance available for entrepreneurs in the ICT business: ICT companies (mainly the software and ICTeS) have very limited access to institutional financing, both for working capital as well as project financing. Banking and financial institutions are not ready to understand the nature of knowledge industry and their products, services and attitude are not knowledge-industry friendly, not enough market size etc.

v. Transaction of e-business: There is no sufficient legal framework for e-business or e-commerce. People feel helpless if they are cheated through e-business, because they cannot file cases for this.

vi. Pulling away professionals into other sectors: Though a significant number of educated and qualified entrepreneurs have started ICT ventures during last couple of decades, most of ICT enterprises (except for hardware companies) in the country are either stuck in the 'small size-low growth' situation or moving towards other sector because of various reasons including fund constraint for growth investment, unfavorable market situation and lack of required resources.

Other important problems identified from the survey and interviews are-

- Size of domestic market is small due to limited government procurement. Private corporate business segment has also not yet reached significant level to generate enough cash flow for the total number of ICT enterprises. Also, the predominant business model is still very much one-off 'client vendor' model, not long-term solution provider model. Hence the ICT companies cash flow are often erratic and cyclical, not favoring long term strategic growth planning.
- High cost of bandwidth deters growth of domestic market for ICTeS.

- Most of the companies face difficulty in mid and top-level management leadership position that would drive the company growth.
- International money transaction is complex which is creating problem. Although PayPal has been introduced on a small scale, it is not still effective for a large scale of transactions for all. So, a large people are using erratic informal transactions.
- Lack of government incentive of venture capital. Weak internet network in rural areas.
- Though government declared tax exemption for ICT service export, companies face difficulties in getting tax exemption certificate from NBR. As a result, Banks are still deducting 10% AIT.
- There are plenty of individual freelancers in the country who are not under any legal framework as they are not formally registered. There is no specific database of those freelancers. So, it is difficult to get information about their exact transactions.

3.8 Barriers for International Trade

- Although the growth of internet access is widely acknowledged, it imposes numerous integration challenges among different countries to participate in this e-trade mode. For instance, the International Telecommunication Union (ITC) (2015) estimates about 4 billion people from developing countries remain offline, and only 89 million people living in the LDCs use the Internet.
- A reliable and **uninterrupted Internet connectivity** and encouraging greater use of digital technologies is a prerequisite for unlocking the e-trade potentials and to compete in the global trade. The reason of backwardness in international Trade through use of ICT may be the result of limited purchasing power, inadequate legal frameworks for ICT facilitation, broadband and NTTN cost per month:
- In bridging the digital divide, it is required that the **broadband should be made available, affordable and accessible** to the businessmen and they should be encouraged greater use of e-commerce applications and technologies by gradually reducing market distortions while building up effective competition enforcement. At the national level, the internet-based export development among the business community should be focused on two main areas: **1) infrastructure and logistics; and 2) capacity building and training.** Firstly, the need to overcome infrastructural bottlenecks in telecommunications and transport system must be addressed prior to unlocking the potential of e-commerce for the business community. Improvements should be made in the following areas:

3.9 Current Scenario to Engaging Women in ICT Sector (<u>Main challenges faced by women traders in moving forward with digital trade facilitation</u>)
- Unfortunately, in the National Policy level, there is still low gender-specific attention and support. Without gender-specific considerations in the National Policy and specific actions on gender-specific risks, vulnerabilities, including utilizing efficient and affordable ICT services to promote cross-border trade, the economic development of women cannot be ensured. The barriers that may affect women traders in ICT use led business are as follows:
- **Affordability of ICTs.** Affordability is a challenge for all but women traders affected more disproportionally than men. The cost of smart phones was the most significant consideration overall. Another major factor is high cost to connect for Internet consumers. There is higher percentage of women non-mobile owners than that of men who identified affordability as the single most important barrier to owning a mobile.

- **Availability ICT facilities:** Accessibility of speed (e.g., 2G,3G,4G,5G) by the users is really a problem in Bangladesh. Moreover, lack of network coverage by non-mobile phone users is also a barrier. Moreover, Intermittent access can also interrupt and adds friction to user experiences in digital services. Energy infrastructure is also important as lot of rural people in Bangladesh lack access to electricity consequently, it hinders mobile phone usage and adoption of online education initiatives and m-health (e.g., by making it difficult for to run ICT equipment in classrooms). The type of device used for ICT also matters. When digital services are designed to only be accessed by more powerful devices, the poor and marginalized are left out. For example, basic phones are not sufficient to engage with Massive Online Open Courses which require video streaming capabilities and stable Internet connections lack of content in Bengali is also a barrier. One study found that rural m-Health users in Bangladesh could not engage with an m-health initiative because the messages were in English. Similarly, most Open Education Resources are only available in English. Efforts to translate online education materials to Bengali have been slow and incomplete.
- **Digital Literacy (Professional barriers)**: Illiteracy and digital illiteracy further hinder women's ability to access online services. It is difficult for some women to develop necessary skills to read, write, type, and use a keyboard – necessary for using a computer and applying smart phone applications. Moreover, women traders may lack confidence in accessing the Internet also.
- **Socio-cultural barriers and factors (Social Barriers).** In the context of Bangladesh, family may not always support, outright, discourage or even prohibit women from using the Internet and relevant devices. Under our socio-cultural norms consider smart phones as a risk to women's reputation, and perceives their use as threatening females' purity. The prolonged use of smartphones can be incompatible with the perspective of married women's expected role it signals that a female user cannot properly be caring for their family.
- **Misperception or misinformation regarding ICTs.** Some individuals regard ICT and related devices as unnecessary or even unhelpful for import and export processes. This misconception prevents women traders from seeing the value for money in buying a mobile, even if they can afford one. It may so happen that, policymakers may also disregard the relevance of ICTs as a trade facilitation tool, and thus fail to implement them. Although women traders may be willing to take advantage of ICTs to acquire trade-related information, to complete electronic submissions and paperless transactions, these tools may not have been put in place.
- **Online safety and smartphone security.** Women using the Internet can be more exposed to new gender-based risks, including cyberstalking, online harassment or even sexual trafficking. Moreover, potential risks including insufficient data protection procedures when taking advantage of innovative technologies must be also considered in utilizing smart phone enabled solutions in expanding their access to financial services.

Remedial Measures:
Infrastructure and logistics:
- Improve national roads and railway networks, logistic links to ports and airports;
- Improve transport governance and taking effective measures against antitrust and corruption;
- Establish efficient import and export procedures for e-commerce (including fast track handling of intermediate goods under e-commerce transaction);

- Upgrade ICT infrastructure with tax incentives for private sector's participations and encourage foreign investment in ICT-related sectors;
- Upgrade courier services by improving the coverage of postal home delivery and encourage the small- and medium-sized enterprises (SMEs) to participate in this sector.

Capacity building and training (Skill Development for use of ICT in business promotion:
- Access to technology and ICTs must also combined with relevant skills, opportunities and capacities.
- emphasis should be given on aligning curricula with computer science and IT-related courses throughout schools.
- Vocational training should be in line with the subjects of international business and management, business communication, cross-cultural and language learning, as well as website development and business marketing skills.
- Practical training should be given on converting paper-based information into a digital format, integrating logistics operations, financial administration, production formation, and managing a network of customers and suppliers through arranging workshops on organizational and management issues for exporters and producers. The training will include the gaining of knowledge on e-commerce marketplaces and web-based information sources for their products and services, about the destination country's e-marketplace entry requirements and regulations (i.e., customs duties and procedures, the level of online security, Consumer and Sales Laws, online payments and taxes regulations, business subject to intellectual property rights and infringements, roaming charges via mobile devices, and product or service certification). Government and the associated agencies can help fill this gap by establishing an e-commerce specific information Centre to assist exporters and producers or individuals who are interested in global e-commerce participation.

3.10 Actionable Ways to Increase Women's Participation in ICT (Overcoming ICT challenges faced by women traders):

i. Consulting with female traders and women's associations

- To identify and address gender-based barriers, consultations to ensure balanced participation of both genders, networks of women engaged in business may be created, and fostering their active contribution to policy dialogue at the national and regional level.
- NTFCs having a key consultation role, they must make gender-specific considerations a priority. NTFCs should maintain a gender-balanced membership to fully listen to opinions of female members and to maximize women's contribution to the design and coordination of trade facilitation reforms at the national level.
- Mainstreaming **gender-specific trade facilitation in national trade policies** should be a priority to ensure that women can fully benefit from ICT tools and solutions. It is time for NTFCs to fully play their leading and coordinating role in designing gender-sensitive policies to empower women traders with efficient and affordable ICT services to promote the cross-border trade.
- Besides, female cross-border and/or cross-country traders should be encouraged to come together in cooperatives, associations and networks of women traders. By pooling their resources and strengths, women can make a stronger voice for their interests.

- *More women representatives from the ICT sector to be adapted in the NTFC.*

ii. Making ICT tools more accessible for women traders
- Government agencies shall implement initiatives to help reduce the price of devices and services, as well as consider partnering with financial institutions to provide risk capital for smart phone loans for women traders at lower interest rates. Mobile network operators should develop clear and transparent pricing and partner with manufacturers to offer entry-level smart phones to women traders at a reduced cost.
- Furthermore, digital infrastructure should be more accessible and friendly for them. For instance, for enabling the electronic submission of documents and promoting e-payment, authority should build up corresponding channels and services, and the focus should be given to sectors most likely to impact women traders and MSMEs.

iii. Capacity-building on ICT tools and solutions through skill development training (Enrolment in Training Institute and trade compatible training)
- For dealing with the barrier of illiteracy and digital illiteracy, government initiatives to invest more in public education initiatives as well as in specific capacity building training for women involved in international trade, particularly cross-border traders and relevant parsons such as customs officers, designers and creators of trade portal and use of electronic single window.
- New trade facilitation measures involving the use of ICTs should be accompanied with support dedicated to women traders. For instance, when establishing an electronic single window, special training and capacity building should be made available for women traders. As the ability of utilizing ICTs improves, their confidence and comfort in using the Internet will also increase.

iv. Raising awareness on gender equality and digital trade facilitation
- Awareness raising for addressing social-cultural norms barriers, along with designing gender-specific national policies to gradually reverse restrictive and harmful social norms.
- National authorities should firstly fully recognize the importance of ICT tools for facilitating trade, and then ensure that women can get more support from their family and the society.
- Taking effective measures to train up the women to enable women traders to acquire trade-related information online, and to easily complete electronic submissions and paperless transactions and convince women traders to become ICT tools users.

v. Ensuring a safe ICT environment for women (Legal Frame work)
- Development of Legal Framework to protect safety when using the Internet and smartphones involve privacy protection, personal safety, and property security.
- Carrying out initiatives to raise awareness on safety issues to avoid or reduce risks for women traders in collaboration with the stakeholders from the mobile network operators, cyber security experts and women traders' associations should be involved to share knowledge and experience in the safe use of Internet and relevant devices.

Chapter -4

Findings of the Survey

4.1 Analysis of the Data Obtained from the Study

The diagnosis study was conducted through formal and informal interviews such as questionnaires, focus group discussion (FGD), Key Informants Interview (KII), primary and secondary information collection, report review and field visit of project areas, local level Public Consultation (PC) meetings and National level PC meeting. The data obtained from Quantitative analysis and qualitative analyses are presented below.

4.2 Quantitative Analysis

The data was collected through direct interviews from 1306 beneficiaries of 10 export sectors. The data from the Quantitative analysis are analyzed as follows:

4.2.1 Distribution of respondent by Gender

The distribution of respondents by gender is shown in the Figure 4.1. It is observed from the above table that out of 1306 respondents, 186 (14.2%) respondents are female, 1115 (85.4%) respondents are male and the rest 5 (0.4%) respondents are transgender.

Distribution of the respondents by gender
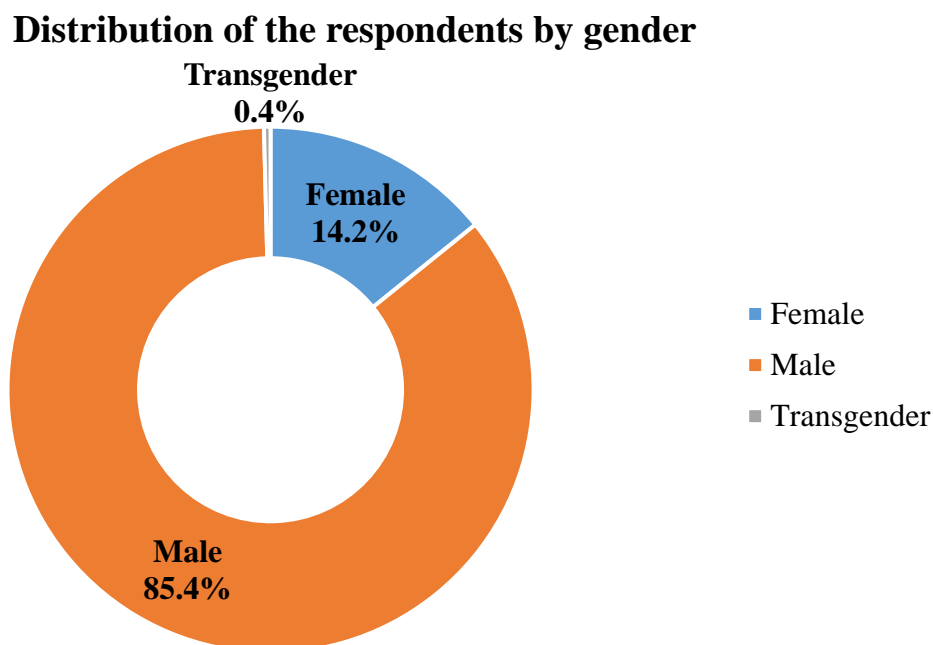
Figure 4.1: Distribution of respondent by Gender

4.2.2 Distribution of respondent by Sector

Sector wise distribution of respondents is explained in the table 4.1. It is found that out of 1306 respondents (100%), 207 (15,85%) are involved in Knit or crochet clothing, accessories, 328 (25.11%) in Clothing, accessories (not knit or crochet), 111 (8.50%) in Footwear, 54 (4.13%) in Miscellaneous textiles and worn clothing, 9 (0.69%) in Paper Yarn and woven fabrics, 127 (9.72%) in Fish, 5 (0.38%) in Leather/animal gut articles, 229 (17.53%) in Raw hides, skins not fur skins and leather, 121 (9.26%) in Plastics, plastic articles and 115 (8.81%) in other areas. It is evident from above table that Knit or crochet clothing, accessories,

Clothing, accessories (not knit or crochet) and Raw hides, skins not fur skins, leather sectors are found to accommodate the maximum number of respondents. Leather/animal gut articles sector is found to be possessed by the lowest number of respondents.

Table 4.1: Distribution of respondent by Sector

Sector	Number of Respondent	%
Knit or crochet clothing, accessories	207	15.85
Clothing, accessories (not knit or crochet)	328	25.11
Footwear	111	8.50
Miscellaneous textiles, worn clothing	54	4.13
Paper yarn, woven fabric	9	0.69
Fish	127	9.72
Leather/animal gut articles	5	0.38
Raw hides, skins not fur skins, leather	229	17.53
Plastics, plastic articles	121	9.26
Headgear	115	8.81
Total	1306	100.00

4.2.3 Education level of the respondents

(a) Gender-wise educational qualification:

Data on educational attainment of the respondents participated in the study is provided in table 4.2. It is seen that about 51.00% of the respondents have completed post-graduation while, 29.48% respondents have completed graduation degree, 9.95% respondents have completed higher secondary education level. Beside this, a few portion respondents also have completed secondary education, lower secondary education, PhD and primary education. There are no sizable variations was observed between male and female respondents with respect of their educational level.

Table 4.2(a): Respondents' Gender-wise educational qualification

Educational level	Male		Female		Total	
	Number	%	Number	%	Number	%
No schooling	1	0.09	0	0.00	1	0.08
Primary Education	1	0.09	2	1.05	3	0.23
Lower secondary	5	0.45	6	3.14	11	0.84
Secondary Education	13	1.17	41	21.47	54	4.13
Higher Secondary	109	9.78	21	10.99	130	9.95
Graduate	344	30.85	41	21.47	385	29.48
Postgraduate	597	53.54	69	36.13	666	51.00
PhD	10	0.90	1	0.52	11	0.84
Other	35	3.14	10	5.24	45	3.45
Total	**1115**	**100.00**	**191**	**100.00**	**1306**	**100.00**

No sizable variations are observed between the percentage of male and female respondents with respect to their educational level, though a predominance of males is observed in the top ten export sectors. The sectors are mostly run by qualified males and females. It indicates the involvement of more qualified male (Graduate- 344 (30.85%), Postgraduate - 597 (53.54%) and female (Graduate - 41(21.47%), Postgraduate – 666 (36.13%) in the top export sectors, which is very supportive for the introduction of modern communication technologies in the management of export business.

(b) Sector-wise educational qualification:

According to the table-4.2, the **Knit or crochet clothing, accessories sector,** it is observed that out of 207 respondents, majority of respondents (44.0%) have completed graduation, while 35.7% respondents have completed post-graduation and 15.0% have completed higher secondary education (table 4.2). Considering the gender and sector wise distribution it is seen that the highest level of education of the respondents are graduate (7.98%), followed by Post graduate level (6.10%). 2.15% of the respondents are found to have Higher Secondary level of education and only 0.27% Post Graduate level educational (Ph.D.) qualifications. Male respondents are graduate (7.98%), followed by Post graduate level (6.10%). 2.15% of the respondents are found to have Higher Secondary level of education and only 0.27% Post Graduate level educational (Ph.D.) qualifications. On the other hand, among the women respondents, 3.66% are observed to have Higher Secondary education level followed by Post Graduate level (3.14%). Among them, 0.52 respondents are observed to have Ph.D. level of education. In this sector, among the women respondents, only 1.05% are found to have graduate level education. It is revealed from the data that graduate level education is more predominant among the male respondents than the female. Post graduate level respondents are also observed to be much higher among the male respondents than the female ones (Appendix-1).

In the sector of **Clothing, accessories (not knit or crochet),** it is observed that out of 328 respondents, majority of respondents (57.9%) have completed post-graduation, while 20.1% respondents have completed graduation and 13.4% have completed secondary education (table 4.2). Considering the gender and sector wise distribution it is seen that about 170 (15.25%) out of total 190 (14.55%) male respondents are found to have postgraduate level education which is very encouraging. This is followed by 60 (5.38%) out of 66 (5.05%) respondents who have graduate level education. It is revealed from the clothing and accessories sector that businesses are done by qualified people. But in case of women respondents involved in this sector, 39 (20.42%) out of 44 (3.37%) respondents are found to have Secondary level education followed by 20 (10.47%) respondents to have postgraduate level education (Appendix-1).

In the sector of **Footwear,** it is observed that out of 111 respondents, majority of respondents (48.6%) have completed post-graduation, while 21.6% respondents have completed graduation and 18.9% have other educational qualification (table 4.2). Considering the gender and sector wise distribution it is seen that male respondents having more academic qualifications than the female respondents are observed to prevail in the **Footwear sector**. It is observed from the table that among the male respondents, 49 (4.39%) respondents, out of 54 (4.13%) respondents, are found to have Postgraduate level qualifications and 22(1.97%) respondents out of 24 (1.84%) are observed to have Graduate level qualifications. On the contrary, only 5 (2.62%) female respondents, out of 54 (4.13%) respondents, are observed to possess Post Graduate level qualifications and 2 (1.05%), out of 24 (1.84%), Graduate level qualifications. From the above analysis it is indicated that only a few women with higher education level are found to occupy the Footwear sector (Appendix-1).

In the **miscellaneous textile, worn clothing sector,** it is observed that out of 54 respondents, majority of respondents (55.6%) have completed graduation, while 38.9% respondents have completed post-graduation (table 4.2). Considering the gender and sector wise distribution it is seen that out of total 30 (2.30%) graduate respondents, and 17(1.52%) male respondents are found to possess Postgraduate level education and 25 (2.24%) Graduate level education. It is observed that in this sector, 2 respondents are found to have Ph. D degree also. On the other hand, 5 (2.62%) female respondents are found to have attained Graduate level

education and 4 (2.09%) post graduate level education. It is evident from the above analysis that this Sector is represented by a greater number by educated personnel (Appendix-1).

In the sector of **Paper yarn, woven fabric,** it is observed that out of 127 respondents, majority of respondents (44.4%) have completed graduation, while 44.4% respondents have other educational qualification (table 4.2). Considering the gender and sector wise distribution it is seen that 3(0.27%) male respondents are found to have graduation level and 1 (0.08%) Postgraduate level education. Only one (0.52%) female respondent is found to have possessed Graduation level education.

Table 4.2(b): Sector-wise educational qualification of the respondents

Education Qualification	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Total	
	%	%	%	%	%	%	%	%	%	%	No.	%
No schooling	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	0.1
Primary Education	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	0.2
Lower secondary	1.4	1.8	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	11	0.8
Secondary Education	1.4	13.4	1.8	0.0	0.0	0.8	0.0	1.7	0.0	0.0	54	4.1
Higher Secondary	15.0	3.7	8.1	0.0	0.0	16.5	20.0	23.1	0.8	1.7	130	10.0
Graduate	44.0	20.1	21.6	55.6	44.4	36.2	40.0	33.6	11.6	27.0	385	29.5
Postgraduate	35.7	57.9	48.6	38.9	11.1	44.9	40.0	36.7	87.6	67.0	666	51.0
PhD	1.9	0.3	0.9	3.7	0.0	0.0	0.0	0.9	0.0	0.9	11	0.8
Others	0.0	1.8	18.9	1.9	44.4	1.6	0.0	3.1	0.0	3.5	45	3.4
Total N	207	328	111	54	9	127	5	229	121	115	1306	100.0

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgear]

In the sector of **Fish**, it is observed that out of 127 respondents, majority of respondents (44.9%) have completed post-graduation, while 36.2% respondents have completed graduation and 16.5% have completed higher secondary education (table 4.2). Considering the gender and sector wise distribution it is seen that out of total 1306 respondents comprising of both male and female respondents, total 127 (9.72%) respondents are found in the **sector Fish** out of which there are 109 male and 18 female respondents. Out of 109 male respondents, 51 (4.57%) respondents found to have Post graduation level, 39 (3.50%) have Graduate level and 16(1.43%) HSC level educational qualifications. On the other hand, among the 18 female respondents, 6(3.14%) are found to have Post graduation level, 7 (3.66%) have Graduation level and 5 (2.62%) HSC level educational qualifications. From the above analysis it is observed that the percentage of female respondents' educational level at Graduation and HSC level are higher than the male respondents (Appendix-1).

In the **Leather/Animal guts articles sector,** it is observed that out of 5 respondents, majority of respondents (40%) have completed graduation and post-graduation separately, while 20.0% respondents have completed higher education (table 4.2).

In the **Raw hides, skins not fur skins, leather,** it is observed that out of 229 respondents, majority of respondents (36.7%) have completed post-graduation and 33.6% respondents have graduation degree, while 23.1% respondents have completed higher education (table

4.2) Considering the gender and sector wise distribution it is seen that highest number of respondents, 229 (17.53%), are observed in the sector **Raw hides, skins not fur skins, leather**. In this sector, most of the respondents are found to be male (217) against 12 female respondents. As regards working experiences, it is observed from the Table that most of the respondents belong to the experienced group between 3-4 years to 6-7 years, after that a decline is noticed. But this sector is also enriched by people having 10-11 years of experience (3.95%). However, it seems that this sector is manned by well experienced personnel (Appendix-1).

In the **Plastics and Plastics articles,** it is observed that out of 121 respondents, majority of respondents (87.6%) have completed post-graduation and 11.6% respondents have graduation degree (table 4.2). Considering the gender and sector wise distribution it is seen that **the Plastics and Plastics articles** sector is comprised of 121 respondents out of which 107 are male and 14 female respondents. It is observed that the respondents are well qualified and none below Graduate level is found. It is clear from the table that among the male respondents, 96 respondents are found to have Post graduation degrees and 14 Graduate degrees. Similarly, out of 15 female respondents, 10 respondents are found to have Postgraduate degrees and 4 graduation degrees. It is clearly observed that this sector is represented by well qualified people (Appendix-1).

In the **Headgear,** it is observed that out of 115 respondents, majority of respondents (67.0%) have completed post-graduation and 27.0% respondents have graduation degree. Considering the gender and sector wise distribution it is seen that the sector **'headgear**" is comprised of 115 respondents out of which 91 respondents are found male and 24 females. As regards educational qualifications of the respondents, it is observed that educational level of most of the male respondents is Post graduation (86 respondents) and Graduation (24 respondents). In this sector, t 15 female respondents are found to have Post graduate degree and 7 have Graduate degrees. It is clearly demonstrated from the analysis that sector 'Others is represented by very well qualified people (Appendix-1.1).

According to the data, all sectors are managed by highly qualified (graduate and postgraduate level) individuals. This is very suitable for the adoption and use of ICT in the development of these sectors.

4.2.4 Experience of the Respondent in the different Sector

The age of the respondent's firm in the sector **Knit or crochet clothing, accessories** is shown in the table 4.3. It is observed from the table-4.3 that most of the respondents 134 (64.73%) firm has the age of more than twenty years. Moreover, 6.76% firms are found to have 16-20 years, 7.25% firms 13-15 years and 6.76% firms have 10-12 years of age. It is evident from the table that most of the respondent's firms are quite old.

Table 4.3: Age of the Respondent' Firms sector wise

Sl. No.	Sector	Age of the Respondent' Firms sector wise						
		1-3 years	4-6 Years	6-9 Years	10-12 Years	13-15 Years	16-20 Years	More than twenty
1	Knit or crochet clothing, accessories	5.80	3.86	4.83	6.76	7.25	6.76	64.73
2	Clothing, accessories (not knit or crochet)	18.90	47.56	14.94	4.57	1.52	3.96	8.54
3	Footwear	1.80	15.32	6.31	16.22	10.81	29.73	19.82
4	Miscellaneous textiles, worn clothing	1.85	0.00	1.85	24.07	24.07	24.07	24.07

Sl. No.	Sector	Age of the Respondent' Firms sector wise						
		1-3 years	4-6 Years	6-9 Years	10-12 Years	13-15 Years	16-20 Years	More than twenty
5	Paper yarn, woven fabric	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	Fish	0.79	7.87	3.94	7.09	0.79	2.36	77.17
7	Leather/animal gut articles	20.00	20.00	20.00	40.00	0.00	0.00	0.00
8	Raw hides, skins not fur skins, leather	0.44	1.75	2.18	1.75	3.49	39.30	51.09
9	Plastics, plastic articles	0.00	0.83	0.00	3.31	6.61	19.01	70.25
10	Headgears	0.00	0.87	0.00	6.09	31.30	60.87	0.87
	Total (%)	6.13	15.16	13.94	7.50	6.97	18.07	32.31
	Total (N)	80	198	78	86	98	259	507

The age of the firms of the sector **Clothing, accessories (not knit or crochet**) is explained in this table. It is observed that the age of 156 (47.6%) respondents' firms has the age of four to six years old, 62 (18.9%) firms the age of 1-3 years, 49 (14.94%) firms the age of 6-9 years. Only 28 (8.54%) firms are found to be more than 20 years old. It is demonstrated from the table that most of the respondents' firms are within 10-12 years old.

It is observed from the table that the in the **Footwear** sector that the firms are quite old. It is observed that 22 (19.82%) firms are of more than 20 years old, 33 (29.73%) firms are 16-20 years, 12 (10.81%) firms 13-15 years and 18 (16.22%) firms are of the age of 10-12 years. From the above observation it is evident that this sector is quite stable.

It is observed from the **Miscellaneous textiles, worn clothing sector** that the age of the highest number of firms 25 (24.07%) are 10-12 years old, 13-15 years old, 16-20 years old and 24.07 years old separately. From the observations it is evident that the respondents' firms in this sector is quite old (Detail in appendix-1.6).

It is evident that the woven, fish, plastic, and knit sectors are quite old and have attained much experience and business maturity. On the contrary, the backward linkage industries of the RMG and textile sectors are thriving along with the footwear and leather sectors. It indicates that the potential of these sectors is well conceived by the new entrepreneurs, and there are ample scopes for the use of ICT in these sectors.

4.2.5 Types of Registration of Respondent Firms

Types of registration or nature of the business of the respondents' firms is shown in the table-4.4. It is observed from the above table that for the knit or crochets clothing, accessories sector, most of the firm's 180 (86.96%) are of proprietorships followed by 24 (11.59%) partnerships. Similarly, in the clothing, accessories (not knit or crochet) sector, 285 (86.89%) firms are found to be proprietorship and 20 (6.10%) partnership. It is observed that in the Footwear sector, ownership of the firms is mixed. It is observed that out of 111 firms, 45 (40.54%) are registered as proprietorship, 38 (34.23%) as partnerships and 28 (25.23%) as limited company. It is revealed from the miscellaneous textiles, worn clothing sector that partnership firms (51.85%) are dominant than the proprietorships (18.52%) and private Limited (3.70%). In the paper yarn and woven fabric sector, 8 firm (88.9%) are not registered as proprietorships, partnerships, or private limited. In the fish sector, it is observed that most of the firm 91 (71.65%) is registered as proprietorships followed by 29 (22.83%) as private limited. In the leather/animal gut articles sector, only 5 firms are registered. It is observed that in this sector most of the firms are registered as proprietorships.

Table 4.4: Types of Registration of Respondent' Firms

Sl. No.	Sector	Types of Registration			
		Proprietorship	Partnership	Private Limited	Others
1	Knit or crochet clothing, accessories	86.96	11.59	1.45	0.0
2	Clothing, accessories (not knit or crochet)	86.89	6.10	0.00	7.0
3	Footwear	40.54	34.23	25.23	0.0
4	Miscellaneous textiles, worn clothing	18.52	51.85	3.70	25.9
5	Paper yarn, woven fabric	0.00	0.00	11.11	88.9
6	Fish	71.65	5.51	22.83	0.0
7	Leather/animal gut articles	80.00	20.00	0.00	0.0
8	Raw hides, skins not fur skins, leather	37.55	24.02	37.99	0.4
9	Plastics, plastic articles	17.36	80.99	1.65	0.0
10	Headgears	69.57	13.91	0.87	7.0
	Total (%)	61.41	21.98	11.72	4.13
	Total (N)	802	287	153	54

It is revealed from the raw hides, skins not fur skins, leather sector that ownership or registration of the firms are evenly distributed as proprietorships 86 (37.55%) and private limited 87 (37.99%). The rest 55 (24.02%) firms are registered as partnership. It is a good sign that all types of business entity are found to prevail in this sector.

In the plastics, plastic articles sector, proprietorship firms are found to dominate this sector. Out of 121 firms, 98 (80.99%) are registered as partnerships and 21 (17.36%) as proprietorships. In the other sector, it is revealed that all the firms are registered as proprietorships.

The table reveals that the majority of the major export industries, including knit, accessories, fish, etc., are owned and operated by sole proprietorships or family businesses, which, to some extent, facilitates making quick decisions about hiring and developing quality human resources, modernizing the business with state-of-the-art machinery and equipment, etc., for expanding the business because too many people are not involved in the decision-making process. These businesses may be able to list on the stock market to ensure their long-term viability and continued growth without incurring significant financial strain.

4.2.6 Total Numbers of Employees in Sector-wise Firms

Sector wise number of employees in the respondents' firms has been shown in table - 4.5. It is observed from the Knit or crochet clothing, accessories sector that 87 (42.03%) firms have been found to have workers 600-700 and 44 (21.26%) firms have workers ranged from 400-500, 18 (8.70%) firms have 200-300 workers. It is evident from the above that most of the firms in this sector are medium in size and employ workers between 200-700.It is observed that most of the firm 'sin the Clothing, accessories (not knit or crochet) sector is found to employ 4,000 workers (40.85%) followed by engagement of 3,000 workers by 68 (20.73%) and engagement of 2000 workers by 25 (7.62%) Firms. On the other hand, small firms 62 (18.90%) who engages less than 50 workers are also observed in this sector. It is evident from the above that the firms having workers within the range of 100-1000 are not visible in this sector.

Table 4.5: Sector-wise number of employees

Range of number of employees	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Total	
	%	%	%	%	%	%	%	%	%	%	No.	%
Less than 50	0.97	18.90	0.90	0.00	0.00	0.79	40.00	72.93	2.48	0.87	239	18.3
100-200 workers	1.93	1.22	18.02	25.93	0.00	96.06	0.00	18.34	5.79	30.43	248	19.0
200-300 workers	8.70	2.44	17.12	16.67	0.00	1.57	20.00	2.62	24.79	11.30	106	8.1
400-500 workers	21.26	1.22	14.41	35.19	0.00	0.79	0.00	0.44	22.31	1.74	114	8.7
500-600 workers	6.76	0.00	0.00	3.70	0.00	0.79	0.00	0.00	19.01	18.26	61	4.7
600-700 workers	42.03	0.61	16.22	3.70	11.11	0.00	20.00	0.87	5.79	13.91	136	10.4
700-800 workers	0.97	0.30	0.90	12.96	0.00	0.00	0.00	4.80	0.83	23.48	50	3.8
900-1000 workers	3.38	5.49	4.50	1.85	33.33	0.00	20.00	0.00	3.31	0.00	39	3.0
1000 workers	2.42	0.61	27.93	0.00	55.56	0.00	0.00	0.00	1.65	0.00	45	3.4
2000 workers	6.76	7.62	0.00	0.00	0.00	0.00	0.00	0.00	4.13	0.00	44	3.4
3000 workers	4.35	20.73	0.00	0.00	0.00	0.00	0.00	0.00	5.79	0.00	84	6.4
4000 workers	0.48	40.85	0.00	0.00	0.00	0.00	0.00	0.00	4.13	0.00	140	10.7
Total N	207	328	111	54	9	127	5	229	121	115	1306	100.0

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgear]

It indicates that by upgrading their production methods and hiring more skilled workers, the raw hide, skin, and seafood industries can increase value addition and foreign exchange revenues.

Proportionate number of firms having the workers 100-200 (18.02% firms), 200-300 (17.12% Firms), 400-500 (14.41% firms), 600-700 (16.22% firms) workers are observed in the Footwear sector. 31 (27.93%) firms having about 1000 workers are also found in this sector. Predominance of big and medium sized firms/industries are observed in this sector. Whereas, it is observed from the sector miscellaneous textiles, worn clothing, most of the firms are found to be small in size and employ workers from 100-500. A few firms 7 (12.96%) who engage 700-800 workers are also observed. Involvements of only 9 firms have been observed in the Paper yarn, woven fabric sector. 5 (55.56%) firms are found to engage 1000 workers and 3 (33.33%) firms to engage 900-1000 workers. On the other hand, most of the firm 122(96.06%) out of 127 in the Fish sector are observed to engage 100-200 workers.

Leather/animal gut articles sector is observed to be a small sector where only 5 firms operate. Out of 5 firms, 2 firms are found to employ less than 50 workers and rest 3 each are observed to employ 200-300, 600-700 and 900-1000 workers. It is also observed from the Raw hides, skins not fur skins, leather sector that less than 50 workers are engaged by 167 (72.93%) firms out of 229 firms followed by engagement of 100-200 workers by 42 (18.34%) firms.

It is observed that in the Plastics, plastic articles sector, out of 121 firms, firms having 200-300 workers, 400-500 workers and 500-600 workers are owned by 30 (24.79%) respondents and 27 (22.31%) respondents. It is observed that firms having 3,000 and more than 6,000 workers are owned by 7 (5.79%) and 5 (4.13%) firms. From the above analysis it is evident that the industries under this sector is more or less of medium sized having the range 200-600 workers.

In the sector 'Headgears' out of 115 firms, having 100-200 workers, 200-300 workers, 500-600 workers, 600-700 worker and 700-800 workers are possessed by 35 (30.43%),13 (11.30%), 21 (18.26%), 16 (13.91%) and 27 (23.48%) respondents respectively. From the above figures it is evident that workers having the range of 500-900 are owned by majority numbers of the respondents. The detail sector wise distribution of the firms regarding the number of employees is presented in appendix-1.8.

4.2.7 Core Value Chain Functions in Sector-wise Firms

From the table-4.6-a that in the Knit or crochet clothing, accessories sector, most of both male and female respondents are found to be engaged in the Input supply and production. A few are involved in processing. From the table-4.6-a, it found that out of total 207 (15.85%) respondents, 90 (8.07%) male and 10 (5.24%) female respondents are involved in input supply business and 91 (8.16%) male and 8 (4.19%) female respondents are involved in the production of Knit or crochet clothing and accessories.

Table 4.6-a: Core Value Chain Functions in Knit or crochet clothing, accessories Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Knit or crochet clothing, accessories	Input Supplier	90	8.07	10	5.24	100	7.66
	Production	91	8.16	8	4.19	99	7.58
	Processing	5	0.45	0	0.00	5	0.38
	Warehousing & Packaging	1	0.09	0	0.00	1	0.08
	Recycling	0	0	2	1.05	2	0.15
Multiple Answer							

In the Clothing, accessories (not knit or crochet) (table-4.6-b), most of the male and female respondents are found to be engaged in the production, processing and input supply. It is observed that out of 325 (25.11%) respondents, 125 (11.2%) male, 48 (25.13%) female respondents are observed to be engaged in the production of the items under this sector; 68 (6.1%) male and 21 (10.99%) respondents are found involved in the processing business and 46 (4.13%) male and 13 (6.81%) respondents are found to be involved in the business of input supply. Rests of the respondents are observed to be involved in warehousing and packing, trading and service business.

Table 4.6-b: Core Value Chain Functions in Clothing, accessories (not knit or crochet) Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Clothing, accessories (not knit or crochet)	Input Supplier	46	4.13	13	6.81	59	4.52
	Production	125	11.2	48	25.13	173	13.25
	Processing	68	6.1	21	10.99	89	6.81
	Warehousing & Packaging,	2	0.18	0	0.00	2	0.15

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
	Trading	4	0.36	0	0.00	4	0.31
	Service	1	0.09	0	0.00	1	0.08
Multiple Answer							

Similarly in the Footwear sector (table-4.6-c), most of male and female respondents are found to be engaged in the business of production and input supply. It is observed that out of 111 (8.50%) respondents, 65 (5.83%) male and 7(3.66%) female respondents are observed to be engaged in production of the products under this sector; 18 (1.61%) male and 1 (0.52%) female are also found to be engaged in the business of input supply.

Table 4.6-c: Core Value Chain Functions in Footwear Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Footwear	Input Supplier	18	1.61	1	0.52	19	1.45
	Production	65	5.83	7	3.66	72	5.51
	Processing	3	0.27	1	0.52	4	0.31
	Warehousing & Packaging,	3	0.27	0	0.00	3	0.23
	Trading	5	0.45	0	0.00	5	0.38
	Service	1	0.09	0	0.00	1	0.08
	Recycling	5	0.45	2	1.05	7	0.54
Multiple Answer							

In the Miscellaneous textiles, worn clothing sector (table-4.6-d), most of the respondents are found involved in input supply business and similarly, in the Paper yarn, woven fabric sector (table-4.6-d), businesses of all the respondents are found involved in input supply.

Table 4.6-d: Core Value Chain Functions in Miscellaneous textiles, worn clothing and Paper yarn, woven fabric Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Miscellaneous textiles, worn clothing	Input Supplier	41	3.68	9	4.71	50	3.83
	Production	3	0.27	0	0.00	3	0.23
	Warehousing & Packaging,	1	0.09	0	0.00	1	0.08
Paper yarn, woven fabric	Input Supplier	8	0.72	1	0.52	9	0.69
Multiple Answer							

In the Fish sector (table-4.6-e), it is observed that the business is dominated by the male. It is observed that highest number of males 63 (5.65%) and female 13 (6.81%) are engaged in processing. It is found from the table that 32 (2.45%) respondents including both male and female (male 28 and female 4) are involved in the production side.

Table 4.6-e: Core Value Chain Functions in Fish Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Fish	Input Supplier	17	1.52	1	0.52	18	1.38
	Production	28	2.51	4	2.09	32	2.45

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
	Processing	63	5.65	13	6.81	76	5.82
	Trading	1	0.09	0	0.00	1	0.08
Multiple Answer							

Similarly, in the Leather/animal gut articles sector (table-4.6-f), no female is found engaged. In this sector only 5 (0.38%) respondents are found involved, out of which 2 (0.18%) are involved in as Input supplier, 2 (0.18%) as traders and 1 (0.09%) in production line.

Table 4.6-f: Core Value Chain Functions in Leather/animal gut articles Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Leather/ani mal gut articles	Input Supplier	2	0.18	0	0.00	2	0.15
	Production	1	0.09	0	0.00	1	0.08
	Trading	2	0.18	0	0.00	2	0.15
Multiple Answer							

It is observed that the Raw hides, skins not fur skins, and leather sector (table-4.6-g), is also dominated mainly by the male. From the table it is evident that highest number of male respondents 96 (8.61%) are found involved in the production followed by 72 (6.46%) in input supply and 23 (2.06%) in processing, 18 (1.61%) in trading. A few are found involved in warehousing and packaging and recycling. On the contrary 9 (4.71%) female are mainly found engaged in input supply followed by 2 (1.05%) in production and 1 (.052%) in processing.

Table 4.6-g: Core Value Chain Functions in Raw hides, skins not fur skins, leather Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Raw hides, skins not fur skins, leather	Input Supplier	72	6.46	9	4.71	81	6.20
	Production	96	8.61	2	1.05	98	7.50
	Processing	23	2.06	1	0.52	24	1.84
	Warehousing & Packaging,	4	0.36	0	0.00	4	0.31
	Trading	18	1.61	0	0.00	18	1.38
	Recycling	4	0.36	0	0.00	4	0.31
Multiple Answer							

The Plastics, plastic articles sector (table-4.6-h) is also dominated by male. It is observed that 94 (8.43%) male and 12 (6.28%) female are found engaged in as input supply, 12 (1.08%) male and 2 (1.05%) female in production line.

Table 4.6-h: Core Value Chain Functions in Plastics, plastic articles Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Plastics, plastic articles	Input Supplier	94	8.43	12	6.28	106	8.12
	Production	12	1.08	2	1.05	14	1.07
	Processing	1	0.09	0	0.00	1	0.08
Multiple Answer							

In the sector 'Headgears'(table-4.6-i), it is observed that 84 (7.53%) male and 24 (12.57%) are found involved in the production line. There are no women involved in the transport or trading. Only a few males are found involved in transport or trading under this sector.

Table 4.6-i: Core Value Chain Functions in Headgears Sector

Sector Name	Core Value Chain Function	Male		Female		Total	
		No.	%	No.	%	No.	%
Headgears	Input Supplier	4	0.36	0	0.00	4	0.31
	Production	84	7.53	24	12.57	108	8.27
	Transport	1	0.09	0	0.00	1	0.08
	Trading	2	0.18	0	0.00	2	0.15
Multiple Answer							

4.2.8 Types of Markets and their and Regional Distributions

Types of Markets and their regional distributions of different sectors are explained in this table-4.7. In this table it has been indicated that the types of market are divided in to two categories such as 'few competitors' and 'many competitors' and as regional distribution it has been categorized as 'domestic', 'export', domestic and export' and 'others. It is observed that in the Knit or crochet clothing, accessories sectors, 103 (7.89%) firms have a few competitors and in the export business, 95 firms are involved in export and 7 firms in the domestic and export. It is also observed that under this sector, 104 (7.96%) firms have many competitors and out of these 59 are exclusively involved in export and 45 in the domestic and export business.

Table 4.7: Types of Markets and their and Regional Distributions

Sector	Types of Market			Regional Distribution				
	Type of market	No of Firms	% Total Firms	Domestic	Export	Domestic & Export	Others	% of Total
Knit or crochet clothing, accessories	Few Competitors	103	7.89	1	95	7	0	7.89
	Many Competitors	104	7.96	0	59	45	0	7.96
Clothing, accessories (not knit or crochet)	Monopoly	3	0.23	0	1	2	0	0.23
	Few Competitors	70	5.36	8	51	11	0	5.36
	Many Competitors	255	19.53	1	198	54	2	19.53
Footwear	Monopoly	1	0.08	0	1	0	0	0.08
	Few Competitors	64	4.90	0	59	4	1	4.90
	Many Competitors	46	3.52	0	44	2	0	3.52
Miscellaneous textiles, worn clothing	Few Competitors	6	0.46	0	6	0	0	0.46
	Many Competitors	48	3.68	1	45	1	1	3.68
Paper yarn, woven fabric	Many Competitors	9	0.69	0	9	0	0	0.69
Fish	Few Competitors	1	0.08	0	1	0	0	0.08
	Many Competitors	126	9.65	0	101	25	0	9.65
Leather/animal gut articles	Many Competitors	5	0.38	0	5	0	0	0.38

Sector	Types of Market			Regional Distribution				
	Type of market	No of Firms	% Total Firms	Domestic	Export	Domestic & Export	Others	% of Total
Raw hides, skins not fur skins, leather	Few Competitors	41	3.14	2	34	5	0	3.14
	Many Competitors	188	14.40	2	104	82	0	14.40
Plastics, plastic articles	Monopoly	1	0.08	0	0	1	0	0.08
	Few Competitors	7	0.54	0	2	5	0	0.54
	Many Competitors	113	8.65	0	21	92	0	8.65
Others	Few Competitors	21	1.61	0	20	1	0	1.61
	Many Competitors	94	7.20	36	8	50	0	7.20
Total		1306	100	51	864	387	4	100

It is evident in the table - 4.7 that the sector Clothing, accessories (not knit or crochet) is very competitive and they are faced with many competitors both in export and domestic business. It is also observed that this sector is dominated by male business entities and only a few are engaged in this business. It is seen from the table that 255 (19.53%) firms have been found to have many competitors. Out of these, 198 are exclusively engaged in export activities and 54 are involve in export and domestic business. It is also observed that only 70 (5.36%) have few competitors. Out of these, 8 are engaged in domestic business, 51 in export and 11 in domestic and export.

It has been observed that in the Footwear sector that, 64 (4.90%) and 46 (3.52%) firms are found to have faced few competitors and many competitors respectively. 59 Firms out of 64 which faced few competitors are involved in export business and 44 firms out of 46 which are faced with many competitors are engaged in export business. It has also been observed from the miscellaneous textile and worn clothing sector that most of the firms (45) are engaged in export of their products though they are faced with many competitors. In the same manner, it has been ascertained that all the 9 (0.695) firms under Paper Yarn and woven fabrics sector are found to export despite they are faced with many competitors.

According to the foregoing analysis of the tabulated data, there are many prospects for business expansion, especially the export of various goods, in less competitive markets as opposed to entering more competitive ones.

In the Fish sector, 126 (9.65%) firms are found to face many competitors of which 101 are engaged in export business and only 25 are involved in domestic and export business. In the Leather/animal gut articles sector, all the 5 firms who faced many competitors are found to export their goods.

In the Raw hides, skins not fur skins, leather sector, 188 (14.40%) and 41(3,14%) firms are found to confront with many and few competitors. Out of these 104 and 34 firms who faced many and few competitors are observed to be involved in export business. In the Plastics and Plastic articles sector, most of the firms (113) are found to face many competitors and they are generally involved in the domestic and export business (92). 21 firms are exclusively engaged in export business. In the 'Other' sector too, most of the firms (94) out of 115 are found to face many competitors and are involved in domestic (36), export (8) and domestic and export (50) businesses.

4.2.9 Ease of recruitment of employees in different sectors

In this table 4.8, ease of recruitment of employees in different sectors have been elaborated. It is observed that in the Knit or crochet clothing, accessories sector, 130 (62.80%) firms have expressed that employee can be recruited easily, whereas 38 (18.36%) and 28(13.53%) respondents opined that recruitment could be done fairly and very easily respectively. In the Clothing, accessories (not knit or crochet) sector, according to 142 (43.29%) and 130 (39.63%) respondents, it is found that recruitment could be done easily and fairly. According to 41 (12.50%), recruitment of employees could be done very easily. In the Footwear sector also, it is revealed that 40 (36.04%) firms and 58 (52.25%) Firms have expressed that engagement of employees is possible very easily and easily. It has been expressed by most of the respondents 49 (90.74%) in the miscellaneous textiles worn clothing sector, that recruitment could be done easily.

In the paper yarn, woven fabric sector, it has been opined that recruitment could be done easily. It is indicated that in the Fish sector, 28.35 respondents of the firms have expressed that employee can be recruited with many difficulties, whereas 25.20% and 23.62% respondents opined that recruitment could be done with difficulties and fairly respectively. However, 18.11% and 4.72% respondents expressed to recruit employee easily and very easily respectively. As observed, the firms have to undergo many difficulties (36 firms), difficulties (32 firms), fairly (30 firms) and easily (23 firms). In the leather/animal gut articles sector, it is found that recruitment could be done easily and fairly. It is also observed in the raw hides, skins not fur skins, leather sector, according to most of the firms, recruitment could be done fairly 96 (41.92%) and easily 92 (40.17%). However, some are found to have opined that recruitment could be done very easily.

Table 4.8: Ease of recruitment of employees in different sectors

Sl. No.	Sector	Types of Registration				
		Very Easily	Easily	Fairly	With Difficulties	With many Difficulties
1	Knit or crochet clothing, accessories	13.53	62.80	18.36	3.86	1.45
2	Clothing, accessories (not knit or crochet)	12.50	43.29	39.63	3.66	0.91
3	Footwear	36.04	52.25	9.01	2.70	0.00
4	Miscellaneous textiles, worn clothing	1.85	90.74	7.41	0.00	0.00
5	Paper yarn, woven fabric	0.00	100.00	0.00	0.00	0.00
6	Fish	4.72	18.11	23.62	25.20	28.35
7	Leather/animal gut articles	20.00	40.00	40.00	0.00	0.00
8	Raw hides, skins not fur skins, leather	9.61	40.17	41.92	6.11	2.18
9	Plastics, plastic articles	3.31	80.17	15.70	0.83	0.00
10	Headgears	29.57	52.17	15.65	1.74	0.87
	Total (%)	**13.55**	**50.69**	**26.57**	**5.51**	**3.68**
	Total (N)	**177**	**662**	**347**	**72**	**48**

In the plastics and plastic articles sector, it has been observed that most of the firms expressed that recruitment could be done easily 97 (80.17%) and fairly 19 (15.70%). In the headgears sector, as observed, in most of the cases, engagement of people could be done easily 60 (52.17%) and very easily 34 (29.57%). From the above observations, conclusion may be

made that recruitment of employees in all the sector areas could be done easily and fairly. The detail distribution regarding ease of recruitment of employee in different sectors are presented in appendix-1.9.

According to the table-4.8, we observed that the ease of recruitment of employees in the footwear sector was very Easily level- 36.04% (40 firms), Plastics & plastic articles sector easily level-80.17% (97 firms); Raw hides, skins not fur skins, leather sector fairly level - 41.92% (96 firms), fish sector with difficulties level -25.20% (32 firms) & with many difficulties level 28.35% (36 firms).

4.2.10 Sector-specific Prospects for Women's Employment

Sector-specific Prospects for Women's Employment is explained in this table-4.9. Prospects are leveled as very high, high, Medium and low. Very high prospect of Women employment in the Knit or crochet clothing, accessories 69 (33.33%), Clothing, accessories (not knit or crochet) 191 (58.23%) and Fish 54 (42.52%) sectors have been observed from the table.

Medium prospect for women has been indicated by Highest number of firms of which 71 (63.96%) in the Footwear sector; 40 (74.07%) in the Miscellaneous textiles, worn clothing sector; 95 (78.51%) in plastic, plastic articles and 79 (68.70%) in Headgears sector. On the other hand, lowest prospect for women employment were found in the Raw hides, skins not fur skins, leather sector (55.46%) and leather/animal gut articles sector (40.00%).

Table 4.9: Sector-specific prospects for women's employment

Sl. No.	Sector	Level of Prospects for Women's Employment (%)				
		Very High	High	Medium	Low	Very Low
1	Knit or crochet clothing, accessories	33.33	18.36	30.92	17.39	0.00
2	Clothing, accessories (not knit or crochet)	58.23	19.51	18.60	3.66	0.00
3	Footwear	4.50	18.02	63.96	9.91	3.60
4	Miscellaneous textiles, worn clothing	1.85	16.67	74.07	5.56	1.85
5	Paper yarn, woven fabric	11.11	0.00	88.89	0.00	0.00
6	Fish	42.52	27.56	26.77	3.15	0.00
7	Leather/animal gut articles	0.00	0.00	40.00	20.00	40.00
8	Raw hides, skins not fur skins, leather	2.18	2.62	24.02	15.72	55.46
9	Plastics, plastic articles	0.00	0.00	78.51	19.83	1.65
10	Headgears	0.87	13.91	68.70	16.52	0.00
	Total (%)	**14.70**	**14.40**	**49.31**	**11.18**	**10.41**
	Total (N=1306)	**192**	**188**	**644**	**146**	**136**

The examination of the table above shows that maximum women are involved in Knit or crochet clothing, accessories, Clothing, accessories (not knit or crochet) and fish sector, more women can participate those industries that have medium- and large-sized opportunities for female employment with the proper capacity-building training.

4.2.11 Prospects for Women as Owners in using ICT as a Tools

Prospects for women as owners in using ICT as a tool are explained in table 4.10. Prospects have been leveled as Very High, High, Medium and Low.

Table 4.10: Sector wise prospects for women as owners in using ICT as a Tools

Sl. No.	Sector	Sector wise prospects for women as owners in using ICT as a tool (%)				
		Very High	High	Medium	Low	Very Low
1	Knit or crochet clothing, accessories	0.00	1.45	16.91	54.59	27.05
2	Clothing, accessories (not knit or crochet)	10.06	9.15	3.35	68.90	8.54
3	Footwear	0.00	5.41	41.44	41.44	11.71
4	Miscellaneous textiles, worn clothing	0.00	7.41	11.11	14.81	66.67
5	Paper yarn, woven fabric	0.00	0.00	0.00	88.89	11.11
6	Fish	11.81	5.51	18.90	22.05	41.73
7	Leather/animal gut articles	0.00	0.00	20.00	20.00	60.00
8	Raw hides, skins not fur skins, leather	0.00	0.44	15.72	14.41	69.43
9	Plastics, plastic articles	0.00	0.00	85.95	13.22	0.83
10	Headgears	0.00	0.00	6.96	37.39	54.78
	Total (%)	**3.68**	**3.91**	**20.75**	**39.97**	**31.62**
	Total (N)	48	51	271	522	413

It is observed that as 'Owners' very high and high prospect has been leveled by 33 (10.06%) and 30 (9.15%) respondents respectively in the Clothing, accessories (not knit or crochet) followed by 15 (11.81%) respondents in the Fish sector.

4.2.12 Respondents' Functional Areas and Field of Use of ICT sector wise

Respondents' functional areas and field of use of ICT for different sectors are presented in the table 4.11a and table-4.11b. In the table the current functional areas and field of use of ICT is demonstrated. In the Knit or crochet clothing, accessories sector, field of use of ICT is found to be highest in the production areas (36.23%) followed by general services (25.12%). Lowest field of use of ICT is observed to be the transportation (0.97%) and physical security area (0.97%). Other important field of use of ICT are observed in the commercial (24.64%), negotiation (22.71%), procurement (21.26%) areas.

Quite extensive ICT was observed in the Clothing, accessories (not knit or crochet) sector. Highest field of use is marketing (51.22%), followed by design (49.70%), production (48.78%), Accounts (47.26%), Finance (44.21%) and commercial (35.37%) have been observed. Lowest area of use is general service (5.79%) and others (4.57%) have also been noticed in the table.

The analysis previously mentioned demonstrates that the potential of employing ICT to advance global trade has not yet been fully fulfilled. In the areas of transportation, physical security, etc., ICT is seldom ever applied. Industry owners may choose to become more involved in how they use ICT to expand their companies.

As field of use of ICT, 'Commercial' has been considered by highest number of respondents (22.52%) followed by accounts (21.62%), marketing by (18.92%) as observed in the sector Fish. Importance on the use of ICT in other fields, as shown in the table 14, has also been attached by the respondents of the sector 'Fish'.

Table 4.11(a): Respondents' Current Functional Areas of Use of ICT

Work area	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Total	
	%	%	%	%	%	%	%	%	%	%	No.	%
Production	48.8	65.9	18.9	25.9	22.2	15.8	0.0	41.9	24.8	14.8	517	39.6
Design	18.4	67.1	17.1	22.2	11.1	0.8	0.0	3.5	22.3	5.2	332	25.4
Marketing	24.2	69.2	25.2	24.1	22.2	36.2	40.0	46.3	34.7	35.7	557	42.6
Procurement	29.0	28.1	16.2	20.4	22.2	11.8	0.0	41.9	36.4	10.4	350	26.8
Negotiation	30.9	32.3	15.3	14.8	11.1	18.1	0.0	43.7	26.5	7.0	359	27.5
Commercial	33.3	47.9	29.7	18.5	22.2	67.7	20.0	59.0	62.8	47.8	624	47.8
Finance	16.4	59.5	14.4	20.4	22.2	33.9	20.0	45.0	35.5	9.6	459	35.1
Accounts	14.0	63.7	28.8	20.4	33.3	47.2	20.0	53.7	37.2	27.0	544	41.7
Transportation	1.5	21.7	5.4	14.8	0.0	24.4	0.0	45.4	5.8	3.5	234	17.9
Logistics	9.7	21.0	11.7	18.5	0.0	26.0	40.0	55.0	19.8	7.8	306	23.4
General Services	34.3	7.9	15.3	18.5	22.2	13.4	20.0	54.2	33.9	12.2	323	24.7
HR	15.5	25.9	21.6	24.1	22.2	11.8	60.0	44.1	37.2	59.1	388	29.7
Data Security	11.6	41.8	11.7	22.2	0.0	11.0	20.0	52.4	18.2	7.0	351	26.9
Physical Security	1.0	13.7	0.9	11.1	0.0	7.1	20.0	41.5	15.7	3.5	182	13.9
Others	1.9	6.4	9.9	1.9	0.0	6.3	0.0	8.3	0.0	3.5	68	5.2
Total N	207	328	111	54	9	127	5	229	121	115	1306	100.0

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

The field of use of ICT In the sector Paper yarn, woven fabric is observed to be limited. Production, design, negotiation, Finance, accounts, general service human resources as the field of use of ICT have been identified by the same percentage of respondents (11.11%) in this sector. In other areas no mention has been made as the field of use of ICT.

In the sector Fish, commercial has been identified by the highest number of respondents (50.39%) followed by Accounts (34.65%), Marketing (26.77%), Finance (25.20%) and Logistics (19.69%). In the area Design (0.79%) in this sector, it is found to have the lowest use of ICT. Importance on the use of ICT in other fields has also been attached.

In the sector Leather/animal gut articles, Human Resources has been identified as the most important field of use of ICT by the highest number of respondents (40.0%). As a field of use of ICT, marketing, commercial, Finance, Accounts, General Service, Data Security and physical security have been identified by the same number of respondents (20.0%).

Table 4.11(b): Respondents' Field of Use of ICT

Work area	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Total	
	%	%	%	%	%	%	%	%	%	%	No.	%
Production	36.2	48.8	13.5	18.5	11.1	11.8	0.0	31.0	18.2	11.3	382	29.2
Design	13.5	49.7	12.6	16.7	11.1	0.8	0.0	2.6	16.5	4.4	247	18.9
Marketing	17.9	51.2	18.9	18.5	0.0	26.8	20.0	34.5	25.6	26.1	411	31.5
Procurement	21.3	20.7	11.7	14.8	0.0	8.7	0.0	31.0	26.5	7.8	256	19.6
Negotiation	22.7	24.1	11.7	11.1	11.1	13.4	0.0	32.3	19.8	5.2	267	20.4
Commercial	24.6	35.4	22.5	13.0	0.0	50.4	20.0	43.7	46.3	35.7	461	35.3
Finance	12.1	44.2	10.8	14.8	11.1	25.2	20.0	33.2	26.5	7.0	340	26.0
Accounts	10.6	47.3	21.6	14.8	11.1	34.7	20.0	39.7	28.1	20.0	403	30.9
Transportation	1.0	15.9	4.5	11.1	0.0	18.1	0.0	33.6	4.1	2.6	173	13.2

Work area	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Total	
	%	%	%	%	%	%	%	%	%	%	No.	%
Logistics	7.3	15.6	9.0	13.0	0.0	19.7	0.0	40.6	14.9	6.1	226	17.3
General Services	25.1	5.8	11.7	13.0	11.1	10.2	20.0	40.2	24.8	8.7	238	18.2
Human Resources	11.6	19.2	16.2	18.5	11.1	8.7	40.0	32.8	28.1	43.5	288	22.1
Data Security	8.7	30.8	9.0	16.7	0.0	7.9	20.0	38.9	14.1	5.2	261	20.0
Physical Security	1.0	10.4	0.9	9.3	0.0	5.5	20.0	31.0	11.6	2.6	138	10.6
Others	1.5	4.6	7.2	1.9	0.0	4.7	0.0	6.1	0.0	2.6	50	3.8
Total N	207	328	111	54	9	127	5	229	121	115	1306	100.0

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

In the sector Raw hides, skins not fur skins, leather, all the fields have been identified as the field of ICT by the respondents. Highest importance has been attached on the commercial by 43.67% respondents followed by Logistics (40.61%), General service (40.17%), Accounts (39.74%), Data Security (38.86%) etc. In the sector Plastics, plastic articles, it has been is observed that almost all the fields are identified by the similar number respondents as field of use of ICT. Top most importance has been attached on Commercial by 46.28% respondents. Transportation has been identified by lowest number of respondent (4.13%). In the sector Others, importance on all the field of use of ICT has been attached by the respondents of this sector. As a field of use of ICT, Human Resources has been identified by the maximum number of respondents (43.48%), followed by commercial by 35.65% respondents, marketing by 26.09% respondents.

Based on the aforementioned assessment of the various industries, the majority of the respondent ranked production, design, finance, accounts, business, logistics, negotiation, human resources, and data security as the top ICT use cases. For improved business, attention should also be paid to the application of ICT in other fields of business.

4.2.13 Impact of use of ICT on the firms' productivity in the top ten export-oriented sectors

A question was asked to the respondents about the impact of the use of ICT on the firms' productivity, as their answer, out of 1306 respondents, highest 89.0% mentioned that the use of ICT on the firms' productivity was accelerated the speed of the work, while 87.9% mentioned the accuracy of work and 71.4% mentioned the better data security. Beside this, 70.0% respondents also mentioned that the use of ICT on the firms' productivity also created the opportunities to work from home/out of office/factory. The respondents also mentioned that the use of ICT on the firms' productivity also provide better data preservation opportunity (67.9%), timely production facilities (54.4%), timely delivery of products/services opportunity (44.2%) (Figure-4.2).
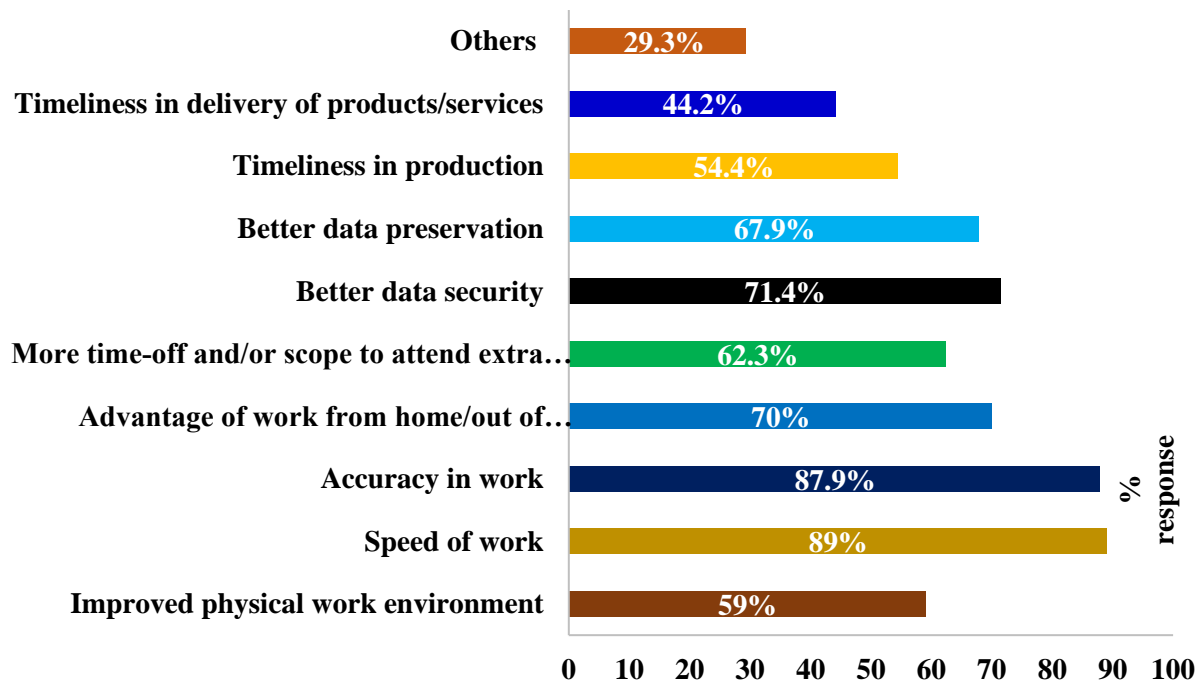
*Multiple responses

Figure 4.2: Impact of Use of ICT on the Firms' Productivity in the top ten export sectors

The study's respondents acknowledged how the use of ICT affects the efficiency of the company. Therefore, to stay up to date with the most recent version of ICT for industrial management, all management and workers involved in procurement, manufacturing, marketing, finance, and accounting should regularly get refresher training.

Impact of use of ICT on the firms' Productivity in the top ten export-oriented sectors is delineated in the table 4.12. In the **Knit or crochet clothing, accessories sector**, it is observed that almost all the areas of work have been widely impacted due to the application of ICT and this has been indicated by the respondents. Impact of ICT on Speed of work, Accuracy in work have been reported by the highest number 190 (91.78%) of the respondents. This is followed by the impact on Advantage of work from home/out of office/factory, more time-off and/or scope to attend extra work or social activities, Improved physical work environment by 174 (84.05%), 136 (65.70%), 135 (65.20%) respondents respectively. Impact of ICT in other sectors have also been focused by appreciable number of respondents.

In the sector **Clothing, accessories (not knit or crochet)**, better data preservation, better data security have been identified by the highest number of respondents 318 (96.95%). Speed of work, accuracy in work, timeliness in production, timeliness in delivery of products/services and improved physical work environment etc. have been identified by 299 (91.16%), 290 (88.41%), 163(49.70%), 30.79% and 24.39% respondents respectively.

As per impression of the respondents of the **'Footwear'** sector, ICT has been found to have impacted in all the areas mentioned in the table. Advantage of work from home/out of office/factory has been indicated by the highest number of respondents 81 (72.97%). Better data preservation, more time-off and /or scope to attend extra work or social activities,

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accuracy in work, speed of work and improved physical work environment has been identified as the field of impact of ICT by above 40% of the respondents.

In the sector **miscellaneous textiles, worn clothing,** impact of ICT in different areas has been recorded or supported by the highest number of respondents of this sector which is a very positive sign. Impact on speed of work and timeliness of production have been identified by 100% of the respondents in this sector. Impact on more time-off and/or scope to attend extra work or social activities, better data security, improved physical work environment have been supported by 98.15% of the respondents. Moreover, impact of ICT in the areas like Accuracy in work, Advantage of work from home/out of office/factory, better data preservation, as observed from the table, have also been supported by the 96.30% respondents of this sector.

In **the Clothing, accessories (not knit or crochet)** sector, positive impact of ICT in all areas of the work in the sector has been supported by the respondents. it has been observed that usefulness of ICT for Better data preservation, better data preservation has been supported by 96.95% respondents. Moreover, ICT's impact on the speed of work, accuracy of work has been agreed by 91.16% and 88.41% respondents. Impact on other sectors is also vindicated by the respondents. From the above data, ICT's impact on the day-to-day administration and management of business for better performance of the companies are amply established.

In the **Paper yarn, woven fabric** sector, impact of ICT in different areas of the work for better performance, as assessed by the respondents, has been found to be profound. It is demonstrated from the table 15 that Improved physical work environment, Speed of work, Accuracy in work, more time-off and/or scope to attend extra work or social activities, better data preservation, Others have been supported by 100% of the respondents. In other areas also importance of ICT has been profusely supported.

It has been observed that in the sector **'Fish'** also, impact of ICT in all the mentioned areas of work of the sector have been supported by the respondents. It is evident from the table that in the areas of work such as Advantage of work from home/out of office/factory, improved physical work environment, more time-off and/or scope to attend extra work or social activities, better data security, positive opinion have been expressed by 92.13%, 89.76%, 88.98%, 88.98% of the respondents respectively. In other areas also support from respondents is found very positive regarding impact of ICT in better performance of the sector.

In the **Leather/animal gut articles** also, the use of ICT on the different areas of work for better performances has been supported by the respondents, particularly in the areas such as Speed of work and Accuracy in work, positive opinion has been expressed by 100% of the respondents. Impact of the ICT In other areas has also been supported by the respondents.

Table 4.12: Impact of Use of ICT on the Firms' Productivity in the top ten export sectors

Sl. No.	Impact	Impact of Use of ICT on the Firms' Productivity in the top ten export sectors (%)										Total	
		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No.	%
1	Improved physical work environment	65.2	24.4	46.9	98.6	100	89.8	40	47.2	97.5	87.0	771	59.0
2	Speed of work	91.8	91.2	67.6	100	100	72.4	100	94.3	99.2	88.7	1162	89.0
3	Accuracy in work	91.8	88.4	64.9	96.3	100	72.4	100	94.3	99.2	88.7	1148	87.9
4	Advantage of work from home/out of office/factory	84.1	38.1	73	96.3	77.8	92.1	40	77.3	100	50.4	914	70.0

| #													Total (N)	%
5	More time-off and/or scope to attend extra work or social activities	65.7	29.6	48.7	98.6	100	89.0	80	88.7	100	20	813	62.3
6	Better data security	60.9	97	31.5	98.2	88.9	89.0	40	60.3	98.4	18.3	933	71.4
7	Better data preservation	58.9	97	42.3	96.3	100	41.7	60	55.0	100	31.3	887	67.9
8	Timeliness in production	59.9	49.7	14.4	100	77.8	34.7	40	62.9	99.2	31.3	710	54.4
9	Timeliness in delivery of products/services	58.5	30.8	12.6	96.3	88.9	37.0	40	40.2	98.4	18.3	577	44.2
10	Others	44.9	2.1	2.7	0.0	100	35.4	40	37.1	97.5	18.3	383	29.3
	Total (N)	207	328	111	54	9	127	5	229	121	115	1306	100.0

Multiple response

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

In the **Raw hides, skins not fur skins, leather** sector, like other sectors, positive impression has been expressed on the impact of ICT in different areas of work. From the Table it is observed that impact of ICT on speed of work and accuracy in work have been supported by 94.32% respondents. Similarly, impact of ICT on more time-off and/or scope to attend extra work or social activities, Advantage of work from home/out of office/factory, Timeliness in production, better data security has been positively reflected by most of the respondents of this sector.

Impact of ICT on the different areas of work of the business under the **Plastics, plastic articles** sector has been attached maximum emphasis by almost all the respondents. Opinion of the respondents on the essentiality of use of ICT on business has been amply demonstrated in the table. From the table, it has been observed that impact on More time-off and/or scope to attend extra work or social activities, Advantage of work from home/out of office/factory, better data preservation has been opined by 100% of the respondents. Moreover, in other areas also, the impact of ICT on the enhancement of performance has been supported by more than 98-99% of the respondents.

In the sector 'Others', impact of ICT on Improved physical work environment, Speed of work, Accuracy in work importance has been attached by more than 88% respondents. Importance on the use of ICT in other work areas has also been focused by the respondents of the business entities of the sector.

Impact on other sectors is also vindicated by the respondents. From the above data, ICT's impact on the day-to-day administration and management of business for better performance of the companies are amply established.

A considerable number of respondents have also concentrated on the impact of ICT in other sectors. ICT's significance for improved sector performance has received strong approval in the majority of categories. Similarly, the majority of respondents in this industry have expressed positive feelings about the impact of ICT on more time off and/or the opportunity to attend extra work or social activities, the benefit of working from home or somewhere other than the office or factory, timeliness in production, and better data security.

The overall effects of ICT use in various working environments of various sectors businesses, the use of ICT as a contemporary business tool for ensuring and increasing work quality, improved data security and data preservation, and the upkeep of company obligations have all been well established. This justifies the adoption of ICT as a tool for business and the effective implementation of it in all local and global corporate activities to make them more modern and competitive.

4.2.14 Impact of use of ICT on the firms' profitability

Opinion of the respondents of different sectoral business entities on the Impact of Use of ICT on the firms' Profitability are delineated in the table 4.12. The areas of profitability due to application of ICT are mentioned in the table 4.12. In the Knit or crochet clothing, accessories sector, Reduction in processing costs has been indicated by the highest number 188 (90.82%) of respondents. This is followed by the impact of ICT on Reduction of time for consultation with buyers, Reduction of costs of sample production and approval, better price for better quality (of products/services), Reduction of wastes (Rejection Costs), Lower procurement costs for raw materials by 174 (84.06%), 141 (68.12%), 124 (59.90%), 112 (54.11%), 95 (45.89%) respondents respectively.

In the Clothing, accessories (not knit or crochet) sector, as impact of ICT use, Scope to easily serve a wider market has been focused by the highest number 283 (86.28%) out of 328 respondents. Similarly, it is observed that as impact of ICT, Reduction of costs of sample production and approval, Lower sales costs, Lower procurement costs for raw materials have been referred by 277 (84.45%), 269 (82.01%), 267 (81.40%) respondents. Impact in other areas such as Reduction in processing costs, better price for better quality (of products/services), Reduction in processing costs etc. have also been identified as the area of benefit if the use of ICT.

In the Footwear sector, as benefit of ICT in business management, reduction in processing costs has been leveled by highest number 74 (66.67%) of respondents. Moreover, as tangible impact of ICT, Reduction of time for consultation with buyers, Reduction of costs of sample production and approval, lower procurement costs for raw materials and Lower sales costs have been indicated by the respondents.

Table 4.13: Impact of Use of ICT on the Firms' Profitability

| SI. No. | Sector | Impact of Use of ICT on the Firms' Profitability (%) | | | | | | | | | | Total | |
		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No.	%
1	Reduction in processing costs	90.8	70.1	66.7	98.2	100.0	100.0	60.0	79.0	99.2	63.5	1058	81.01
2	Lower procurement costs for raw materials	45.9	81.4	49.6	98.2	100.0	33.1	40.0	79.0	99.2	55.7	888	67.99
3	Lower sales costs	48.3	82.0	46.0	98.2	100.0	98.4	60.0	78.2	99.2	27.8	941	72.05
4	Reduction of time for consultation with buyers	84.1	68.9	57.7	100	88.9	95.3	80.0	79.0	97.5	20.0	973	74.50
5	Reduction of costs of sample production and approval	68.1	84.5	55.9	100	100	96.1	80.0	82.1	98.4	23.5	1003	76.80
6	Scope to easily serve a wider market	55.1	86.3	41.4	98.2	88.9	73.2	20.0	61.1	97.5	31.3	892	68.30

Sl. No.	Sector	Impact of Use of ICT on the Firms' Profitability (%)										Total	
		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No.	%
7	Better price for better quality (of products/services)	59.9	67.1	31.5	96.3	77.8	63.0	20.0	45.9	97.5	21.7	767	58.73
8	Reduction of wastes (Rejection Costs)	54.1	18.0	36.9	94.4	100.0	44.1	20.0	74.2	93.4	55.7	676	51.76
	Total (N)	207	328	111	54	9	127	5	229	121	115	1306	100
Multiple response													
[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]													

One advantage of ICT has been its effect on the organization's profitability through lower processing costs, better pricing for improved quality (of goods or services), etc. Additionally, the respondents identified the following tangible effects of ICT: decreased time required for buyer consultation; decreased costs associated with the production and approval of samples; decreased costs associated with the purchase of raw materials; and decreased costs associated with sales. All involved personnel should receive the necessary training to fully profit from the usage of ICT in light of all these real benefits.

It is observed that in the sector Miscellaneous textiles, worn clothing, almost all the areas of the impact of the use of ICT have been supported by almost all the respondents of the sector. From the data it may be stated that the relation between the profitability and use of ICT has been fully realized by the respondents of this sector.

From the tabulated data of the Paper yarn, woven fabric, it is observed that all the areas of the impact of ICT on the profitability of the firms have been pin pointed by almost all the respondents of this sector. It is apprehended that the impact of ICT on the profitability of the business entity is well conceived understood by the respondents.

In the sector Fish, it has been observed that as an impact of ICT, reduction in processing costs has been indicated by all the respondents. Moreover, Lower sales costs, Reduction of costs of sample production and approval, Reduction of time for consultation with buyers and Scope to easily serve a wider market have been identified as the area of profitability by 125 (98.43%), 122 (96.06%), 121 (95.28%), 93 (73.23%) respondents respectively. *From the above analysis a strong nexus between profitability and ICT use appears to be established.*

In the Leather/animal gut articles sector, as an impact of ICT on profitability, Reduction of time for consultation with buyers, Reduction of costs of sample production and approval, have been identified by the 80% of the respondents. This is followed by the identification of the area of profitability like Reduction in processing costs, Lower sales costs by 60% respondents. *A bright prospect of profitability of business using ICT is ushered in this sector.*

In the Raw hides, skins not fur skins, leather sector, it is observed from the table that all types of Impact of the use of ICT on the profitability of firms have been indicated by the maximum number of respondents. Contribution of ICT on the business profitability has been recognized by almost all the respondents. Reduction of costs of sample production and approval has been focused by the highest number 188 (82.10%) respondents. In addition to that, impact on profitability caused due to Reduction of costs of sample production and approval, Lower procurement costs for raw materials, Reduction of time for consultation with buyers have

been pointed out by 181 (79.04%) respondents and Lower sales costs by 179 (78.17%) respondents. *In the Plastics, plastic articles sector, all types of impact of ICT on business profitability have been recorded by almost all the respondents of this sector. It is observed that realization of the use of ICT for business profitability is fully conceived and recognized by the respondents of this sector.*

It is observed that in the sector 'Others', impact of ICT on the business profitability are focused mainly on Reduction in processing costs, Reduction of wastes (Rejection Costs), Lower procurement costs for raw materials by 73 (63.48%), 64 (55.65%) respondents. In other types of impact also are supported by some respondents. It is apprehended that in this sector, the use of ICT may have limited scope of use.

4.2.15 Problems in Use of ICT in Respective Work Areas

Opinion of the sector specific respondents on the different problems on the Use of ICT in the respective Work Area in different sectors has been elaborated in table 4.13. In the Knit or crochet clothing, accessories sector, shortage of relevant skills, Lack/Shortage of in-house mentors/trainers at workplace and others (not specified) have been identified as major areas of concern by 126 (60.87%), 82 (39.61%) and 192 (92.75%) respondents. *Concern has been expressed by the respondents in other areas such as Power outages, High cost of ICT hardware / software, Outdated/Obsolete hardware, Social or family-based constraints in use of ICT outside of normal office/factory hours also.*

In the Clothing, accessories (not knit or crochet) sector, Power outages and Lack/Shortage of in-house mentors/trainers at workplace has been indicated as constraint by 257 (78.35%) respondents followed by Shortage of relevant skills by 255 (77.74%), Countrywide non-availability of hardware/ software 211 (64.33%), High cost of ICT hardware / software High cost of ICT hardware/ software by 209 (63.72%), Outdated/Obsolete hardware by 140 (42.68%) respondents. Problems in other areas have also been indicated by the respondents.

In the Footwear sector also, it has been observed that problems in various areas on the use of ICT has been indicated by the respondents at large. Out of 111 respondents in this sector, Power outages has been indicated by the highest number 81 (72.97%) respondents followed by Outdated/Obsolete hardware by 68 (61.26%), Lack/Shortage of in-house mentors/trainers at workplace by 61 (54.95%), Countrywide non-availability of hardware / software by 45 (40.54%) respondents. In addition to these, problems in the use of ICT in other areas have been focused by the respondents.

In Miscellaneous textiles, worn clothing sector, as observed, problems in the use ICT use are that much focused or mentioned by the respondents. Shortage of relevant skills, High cost of ICT hardware / software, Power outages are indicated as problems by 9 (16.67%), 12 (22.22%), 11 (20.37%) respondents. However, problems like others (not specified) are mentioned by 32 (59.26%) respondents.

In the Paper yarn, woven fabric sector, problems in almost all areas have been indicated by the respondents (9). Problems like Outdated/Obsolete hardware, Outdated/Obsolete software, Power outages have been mentioned by 6 (66.67%), 5 (55.56%), 5 (55.56%) respondents respectively. Moreover, Power outages and ICT work for me not socially or family-wise accepted/respected have also been identified by some respondents.

In the Fish sector, Shortage of relevant skills has been indicated by the highest number 123 (96.85%) out of 127 (100%) respondents. This is followed by identification of problems like Lack/Shortage of in-house mentors/trainers at workplace by 90 (70.87%) respondents, Power

outages by 81 (63.78%) respondents. However, problems (not specified) are indicated by 113 (88.98%) respondents.

In the Leather/animal gut articles sector, almost all the mentioned problems on ICT are referred by most of the respondents in this sector. Problems like power outages and Shortage of relevant skills have also been identified by 4(80.0%) respondents. ICT work for me not socially or family-wise accepted/respected and Countrywide non-availability of hardware / software have also been identified by the respondents as the area of problems.

In the Raw hides, skins not fur skins, leather sector, Shortage of relevant skills, Power outages, Lack/Shortage of in-house mentors/trainers at workplace have been identified as major problems by 203 (88.65%), 198 (86.46%) and 173 (75.55%) respondents in this sector. Problems like Countrywide non-availability of hardware/software, High cost of ICT hardware/software, Outdated/Obsolete software, ICT work for me not socially or family-wise accepted/respected, Social or family-based constraints in use of ICT outside of normal office/factory hours are also been focused by the respondent.

Table 4.14: Problems in Use of ICT in Respective Work Areas

Sl. No.	Sector	Problems in Use of ICT in Respective Work Areas (%)										Total	
		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No.	%
1	ICT work for me not socially or family-wise accepted/respected	2.9	2.1	23.4	7.4	33.3	0.8	60.0	4.4	95.9	31.3	212	16.23
2	Social or family-based constraints in use of ICT outside of normal office/factory hours	3.4	7.6	22.5	3.7	22.2	0.8	40.0	9.2	96.7	16.5	221	16.92
3	Shortage of relevant skills	60.9	77.7	61.3	16.7	11.1	96.9	80.0	88.7	98.4	52.2	968	74.12
4	Lack/Shortage of in-house mentors/trainers at workplace	39.6	78.4	55.0	0.0	22.2	70.9	60.0	75.6	98.4	43.5	837	64.09
5	Outdated/Obsolete hardware	10.1	42.7	20.7	0.0	66.7	3.9	20.0	10.9	96.7	11.3	351	26.88
6	Outdated/Obsolete software	5.3	39.9	11.7	1.9	55.6	3.9	20.0	13.5	96.7	15.7	333	25.50
7	Countrywide non-availability of hardware / software	5.3	64.3	40.5	1.9	0.0	19.7	60.0	35.8	98.4	20.0	520	39.82
8	High cost of ICT hardware / software	7.7	63.7	21.6	22.2	33.3	23.6	20.0	13.5	97.5	34.8	484	37.06
9	Power outages	14.0	78.4	73.0	20.4	55.6	63.8	80.0	86.5	100.0	13.9	803	61.49
10	Others (Please specify)	92.8	50.6	62.2	59.3	11.1	89.0	80.0	87.8	99.2	60.0	967	74.04
	Total (N)	207	328	111	54	9	127	5	229	121	115	1306	100

Multiple response

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

It is observed that in the Plastics, plastic articles sector, out of 121 respondents, all the mentioned problems in the table have been equally focused by almost all the respondents equally. From the observations of the response of the respondents it is evident that respondents are quite conscious about the problems confronted in the use of ICT in their

business. In the sectors Others, Shortage of relevant skills has been identified as the major are of concern by 60 (52.17%) respondents. Lack/Shortage of in-house mentors/trainers at workplace, High cost of ICT hardware / software, ICT work for me not socially or family-wise accepted/respected are also indicated as major areas of problems by 50 (43.48%), 40 (34.78%), 36 (31.30%) respondents respectively. In other areas problems concern have been expressed by the respondents.

The respondents have also voiced concern about other issues, including the absence of internal trainers, power outages, the expensive cost of ICT hardware and software, outmoded or obsolete hardware, social or familial barriers to using ICT outside of regular office or factory hours, etc. Depending on the results of this investigation, appropriate actions might be performed.

4.2.16 Information about receiving any training in ICT

It is observed from the figure 4.4 that out of 1306 respondents, 914 (69.98%) had received some training in ICT and the rest 392 (30.02%) did not receive any training.

Information about participated any training in ICT
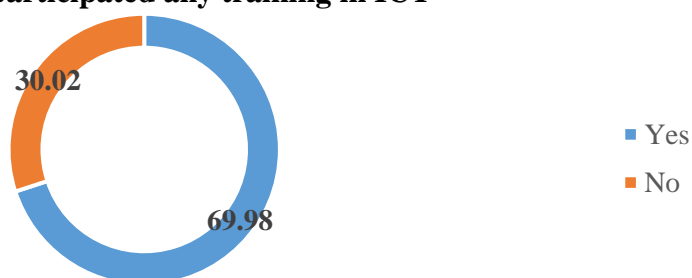
Figure 4.3: Information about received any training in ICT

4.2.17 ICT contributes more to the top ten sectors in export

The contribution of ICT to the top ten exports sector is shown in the table 4.15. It is observed that the highest numbers of respondents use ICT to make digital receipt payments (61.9%) followed by export clearances (59.1%). Digital tracking is used by the lowest number of respondents (36.0%). *ICT is also used extensively to place online export orders and e-commerce.*

Table 4.15: Contribution of ICT tools in top ten sectors regarding export activities

Response	Contribution of ICT tools in export activities										Total	
	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No	%
	%	%	%	%	%	%	%	%	%	%		
To place placing order in an e-commerce	48.8	59.1	45.9	25.9	33.3	38.6	40.0	52.8	48.8	56.9	662	50.7
To export orders online	48.8	60.1	53.2	20.4	22.2	37.8	20.0	59.8	42.1	100.0	693	53.1
To digital track	46.9	33.2	29.7	31.5	22.2	37.0	20.0	38.0	34.7	48.6	470	36.0
To export clearances	64.3	67.4	73.0	38.9	33.3	51.2	20.0	71.2	36.4	93.1	772	59.1
To make a digital receipt payment	55.6	71.3	64.0	42.6	44.4	64.6	20.0	64.6	63.6	93.1	808	61.9
N	207	328	111	54	9	127	5	229	121	115		
Multiple response												

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

In Knit or crochet clothing, accessories sector, it is observed that the highest numbers of respondents (64.3%) use ICT to export clearances followed by digital receipt payment (55.6%). In this sector, digital tracking is used by the lowest number of respondents (46.9%). In Clothing, accessories (not knit or crochet); Footwear; Miscellaneous textiles, worn clothing; Paper yarn, woven fabric and Fish sector more or less similar trend was observed regarding this aspect, where highest number of respondents use ICT to make digital receipt payments followed by export clearances. *Digital tracking is also used by the lowest number of respondents in these sectors.*

4.2.18 Information about the ICT Tools to use for ICT work

Information about ICT tools and their use to ICT work has been explained in the table-4.16. It is observed that ICT tools is used for Internet browsing for searching information (Google, Google Chrome, Mozilla Firefox, Internet Explorer, Safari etc.) by the highest number of respondents (78.7%) followed by the use of MS excel (71.4%) for calculation/salary sheet/balance sheet preparation, use email by 70.4% respondents for communication (Gmail, Yahoo, Hotmail, etc.), use MS word by 62.8% respondents for note/application preparation, use mobile apps like Rocket/Bkash/Nagad in his/her own mobile for money transaction by 55.5% respondents.

Table 4.16: Information about the ICT Tools to use for ICT work

Response	Information about the ICT Tools to use for ICT work										Total	
	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	No.	%
	%	%	%	%	%	%	%	%	%	%		
MS Word	90.3	69.5	69.4	61.1	22.2	49.6	40.0	53.3	38.8	51.3	820	62.8
MS Excel	67.6	80.5	76.6	53.7	33.3	71.7	20.0	76.4	55.4	67.0	932	71.4
MS PowerPoint	20.3	18.6	18.0	18.5	11.1	34.6	20.0	21.8	28.9	26.1	294	22.5
MS Spreadsheet	54.1	51.8	45.0	20.4	33.3	37.0	40.0	43.2	57.0	19.1	585	44.8
MS Outlook	51.7	53.7	61.3	31.5	33.3	46.5	0.0	50.2	47.1	40.0	648	49.6
MS Publisher	30.4	19.5	24.3	29.6	44.4	40.2	40.0	20.1	19.0	30.4	331	25.3
Email communication (Gmail, Yahoo, Hotmail etc.)	48.8	76.5	98.2	38.9	44.4	70.1	20.0	74.7	76.0	70.4	920	70.4
Banking Transaction (Mobile Apps)	58.0	54.0	55.0	59.3	44.4	52.8	60.0	70.7	44.6	39.1	725	55.5
Internet Browsing	83.6	82.6	76.6	72.2	66.7	78.0	40.0	79.0	68.6	77.4	1028	78.7
N	207	328	111	54	9	127	5	229	121	115		
Multiple response												

[Here, Sector-1=Knit or crochet clothing, accessories; Sector-2=Clothing, accessories (not knit or crochet); Sector-3=Footwear; Sector-4=Miscellaneous textiles, worn clothing; Sector-5=Paper yarn, woven fabric; Sector-6=Fish; Sector-7=Leather/animal gut articles; 8=Raw hides, skins not fur skins, leather; 9=Plastics, plastic articles; 10=Headgears]

While a very few respondents also use ICT tools for power point, spreadsheet preparation. More or less similar trend is observed among the top ten exporting sectors regarding the information about ICT tools and their use to ICT work.

4.2.19 Information about the improvements have made to the business using ICT Tools

Improvements in the business made due to the application of ICT have been demonstrated in the figure 4.4. The creation of the Global product market through e-commerce has been identified by the highest number of respondents, followed by HR service improvement, creation of a profitable process of commerce, and reduction of s manpower wastage.
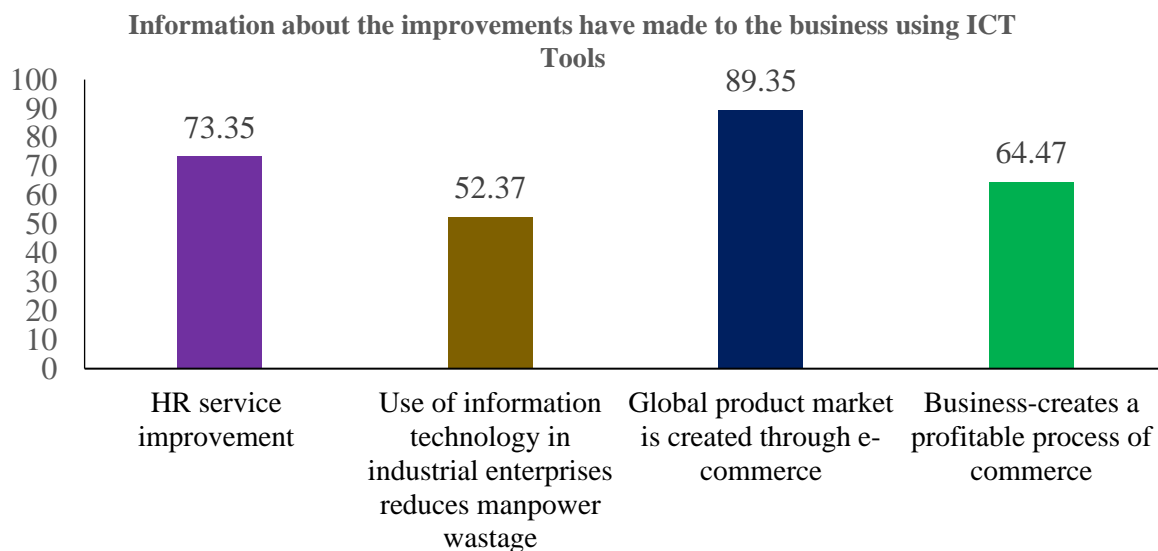
Figure 4.4: Information about the improvements have made to the business using ICT Tools

4.3 Qualitative Analysis

A total of 20 Focus Group Discussions (FGDs), 52 Key Informant Interviews (KIIs), and 5 Public Consultations (PCs) (4 local level and 1 national level) were conducted under the study. Based on the findings of qualitative survey, following discussions were made:

4.3.1 Analysis and Findings from Key Informant Interview (KII) and Focus Group Discussion (FGD)

The Role of Women in ICT Provision

a) The ICT sector has a transversal importance to every sector in an economy. Its impressive growth in recent years and the exponential expansion projected for the future will entail an increasing demand for highly-qualified workers. Women, due to their small presence in ICT, could constitute an important pool of potential candidates to enter several export sectors. In order to attract women to ICT-related courses and into the working field of information and communication technologies, some obstacles should firstly be countered. These can be divided into two different sets: one regarding education and the other regarding employment of women in ICT in export industries.

b) Education has two different phases that demand different approaches in order to successfully encourage girls to pursue courses in the field of ICT. In high school, a range of incentives should be established in order to counter myths of girls having non-technical minds and the bias of teaching materials and techniques; in higher education, the attention should be focused on young women who have chosen ICT-related courses in order to encourage them to pursue a career in this field, through the setting up of mentoring schemes with female role models, for instance.

c) Even though women now constitute more than fifty percent of university graduates, they continue to be underrepresented in ICT-related courses. The percentage of female graduates in mathematics, sciences and technical disciplines is only forty percent. What is more, this percentage decreases at post-graduate levels, which seems to suggest that many women do not complete their courses or do not pursue higher-level studies in these fields. In Bangladesh, women occupy less than twenty percent of the ICT sector jobs in export industries. There is a variation in percentage according to different occupations, from just eight percent in software engineers to sixty in the lower skill-level computer operator group. Women are also underrepresented in decision-making positions in the ICT fielding export industries, as is the case with many other fields. Moreover, despite growth in this sector being very remarkable across the Asian in recent years, the share of female workers in the ICT workforce has actually fallen.

Accessibility ICT tools for women traders

a) Affordability of internet connectivity for trade, and the level of skill of the Women to handle trade-related activities through ICT tools, have been identified as potential barriers through skill development training provided in this sector by COEL and other training centers.

b) Earnings of the IT-based companies (More than 500) are about US$ 1.4 Billion per year through exporting to 80 Countries of the World that are reported to still be dominated by males. The involvement of more women from the present level of around 25-30% in this sector is required;

c) Affordability by reduction of bandwidth, NTTN, and cost of smartphones by the poorer section of people, particularly by the women, and accessibility of ICT facilities (ensuring last-mile internet connectivity at an affordable price) are suggested to be ensured.

Capacity building and training (Skill Development for use of ICT in business promotion)

a) Effective, sufficient, and well-designed skill development training on the use of ICT to suit the needs (after training, job prospect, and industry linkage is absent) and enhance the level of competency, particularly for women by the BASIS, is necessary.

b) The use of ICT is observed only in a few areas and by a few exporters. It has been recommended for the organization of more training and initiation of extensive use of ICT in the production, management, accounts, quality control, addressing compliance issues, and making sure of the availability of uninterrupted high-speed internet connectivity among the exporters and traders in this sector. The enabling technologies may include, (a) Electronic Data Interchange-EDI (to facilitate the placement of instantaneous, paperless purchase orders with suppliers), (b) Enterprise Resource Planning (ERP) systems (provide the transactional tracking and global visibility of information from within the company and across its supply chain), (c)Supply Chain Management software and Radio Frequency Identification (RFID) for traceability

management; (d) High-speed uninterrupted Internet connectivity to keep pace with the international buyers and facilitate all kinds of trade-related transactions; (e) Use of comprehensive Accounts and billing software for management of accounts and finance;

c) Department of Women Affairs (DWA) has been providing e-commerce support, forming IT savvy groups of Women, and developing a web portal, database, IP TV, and MIS on the use of ICT to the women inhabitants in the Bangladeshi enclaves bordering India as a part of their e-commerce support. Jatiyo Mahila Sangstha (National Women's Association) under the Ministry of women and Children Affairs (MoWCA) has been providing skill development training through a project titled 'TothyaApa (Information Sister)' in all the Upazilas (492) of Bangladesh with the objectives to motivate about 10 million women;

d) All the companies involved in export-import business, particularly the top 10 exporting companies in Bangladesh, should organize more need-based ICT training programmes to enhance the ICT based capacity of the officials;

e) To tap the full benefit of ICT by the business community, harmonization of the bandwidth capacity of the government offices (higher uploading capacity document such as by RJSC), engagement of sufficiently ICT trained officials in the commercial wing of foreign Mission, the transformation of the public offices with more automation by ICT based of the system are required to be ensured.

Digital trade facilitation

a) Attitudinal changes in the use of ICT, as a business tool among the traders resulting positive impact on the sector, have been reported. This has been caused due to compulsion of the use of ICT as a means of effective communication tool with the international buyers (During Covid situation). However, many small and medium enterprises, particularly women, have benefitted through their use of ICT;

b) Involvement of women employees in the ICT-based finance and operation side along with production are suggested to be encouraged to have balanced participation of the women in all sectors.

Digital Infrastructure

a) As a part of ICT based financial transactions, the popularization and facilitation of an online Payment Gateway is necessary;

b) Extensive use of ICT facilities for trade has been suggested for more trade growth and economic development;

c) Messages regarding Fish advice, Doctor Fish, Fisheries School, and Fish cultivator's messages are conducted through customized Apps. It has been reported that monitoring, control, and services in the deep sea are controlled by satellite-based MCS systems;

d) It is required that all trade-related information is regularly hosted on the Web site of the DoF;

e) Due to policy advocacy globally against the manufacture and use of synthetic Footwear, increasing flow of Joint Venture and Foreign Direct Investment (FDA), involvement of more international experts for design and quality products, strong adherence/observance of compliance issues of International buyers, government's supportive policy towards workers (Introduction of competitive wage structure by the Government), quota-free and duty-free accessibility to the international market, etc., potential growth in this sector has been done. The growth of more women

entrepreneurs in this sector, with the growth of the use of leather-made Footwear and other products, both in the domestic and international market, have also been observed;

f) Comprehensive use of ICT at all levels of business such as in banks, customs, VAT/Income Tax, etc., and the necessity of integrated interfacing of all such organizations in an ICT-based network is emphasized;

Policy Measures

a) Suggestions have been made for the issuance of soft copies of different certificates for export purposes;

b) Branding of ICT use at the international level, more investment in the use of ICT, in addition to the top 10 export sectors, formulation of IT-friendly financial policies for entry of the IT-based companies into the Stock market is essential;

c) Early implementation of the plan that has been envisaged by the Government to ensure Internet connectivity to all the inaccessible areas of the country (Coverage of 2,600 Unions under Info-Sarker Phase 3);

d) Introduction of 5G, high-speed internet connectivity 5G, for better communicability has been planned for implementation;

e) Bangladesh Telecommunication Regulatory Commission (BTRC) concentrates on the regulatory aspects of ICT, the precautionary measures aspects of the use of ICT, particularly, the possible apprehension of financial fraudulence, like money laundering, cheating, etc. has been focused. Acts and laws should be more on ICT policy and potential use to trade based rather than having more biasness to the controlling aspects of its use. High spectrum cost causing high mobile-based internet cost has been identified as a barrier;

f) Submission of soft copies of all certifications followed by submission of hard copies by the regulating bodies, which is the present norm for international trade, should be waived for effecting international trade hassle-free;

g) Process of draw-back duties in connection with the import of raw materials for exportable products has been suggested to be simplified and made easier with the use of online facilities.

h) Mandatory submission of hard copies of Certifications by the customs of importing countries, in addition to the availability of soft copies, is suggested to negotiate with the concerned countries for ease of doing international trade; however, the use of QR codes in certification may deter any apprehended fraudulence;

i) Ensuring low cost and high-speed internet connectivity, with the lowering of bandwidth and NTTN cost and introduction of 5G internet services are suggested to be essential as ICT is extensively used by the already trained personnel in the RMG sector, particularly for opening master L/C, B2B L/Cs, for sourcing raw materials, showcasing products, selection of design, placement of the order, proceeds realization, etc. Moreover, ICT is also used in bank functions, documentation, customs/NBR/EPB clearance, and the shipping sector;

j) Inclusion of the Fish sector in the National Single Window (NSW) has been recommended;

k) Necessity of automation of the use of ICT for issuance of FIQC certificates, traceability certificate, and trade-related documents have been recommended;

l) Enactment of ICT policy-based Laws, rules, and regulations with provisions for facilitation of all kinds of trade, ICT based human resource development of all sections of people, particularly the women; It has been reported that ICT based system is not fully developed and ICT is not practiced due to the very limited use of ICT in this sector has been suggested;

m) Automation of all ports to reduce clearance time has been emphasized.

Others:

➕ Production of the companies:

Knit or crochet clothing, accessories, footwear, miscellaneous textiles, worn clothing, paper yarn, woven fabric, fish, leather/ animal gut articles, headgear, raw hides, skins not fur skins, plastics, plastic-articles et cetera are some of the highest dollar value export products in Bangladesh Global Shipments during 2019. This part is to highlight which of the sectors our FGD participants cover in their export business.

➕ Competitiveness of the export business:

The findings of this part based on FGD illustrate that the competitiveness has increased more than previously during this time period as the number of export business has increased in an uprising form. Companies which provide quality standard product and maintain business excellence and have a strategic draught remain in the strong position in the export zone.

➕ Prospects for Employment

There is a huge prospect of employment in export driven company. Human resource flow is highly noticeable in this zone. Leather based export companies illustrated that they have huge employment prospects comparatively to other export areas. Several knit based export companies have remarked that they have moderate employment opportunity which depends on several variables such as timing period, termination of work of previous employee. Some of the knit based export company has implied that there is a huge opportunity of employment in their sector. Newly established export companies have more employment prospects than comparatively the old ones. CEPT certificate is required for leather export business and the certification enhances the opportunity of employment in a leather export business.

➕ Prospects for Employment of Particularly Women

Export companies based on leather, yarn dyeing, wet blue does not have a prospect for employment of women. Pure leather finishing and year dyeing sector has 5%-10% women. Although around 60% worker in footwear section of those leather companies are woman. Institutions based on knit/garments have around 65%-80% female workers. The percentage of women in newly employed in various field in knitwear section is 30%- 40%. Women are prioritized to the knit section as women are regarded sincere and punctual to their work.

➕ Operational Function Area

The FGD participants are mostly designated as Assistant Manager, Manager, Selector, Store Keeper, Supervisor, AGM, PM, HR- Executive, Senior Officer, Marketing Salesman, Merchandiser, Commercial Person, Floor In-charge etc.

➕ Usage of ICT in Workplace

The usage of ICT in workplace is increasing day by day. Workers tend to be digitalized throughout their working sector for a proper administration. The ICT is being used for entire management of the company. Monitoring, cyber security system, communication with buyer, Industrial appliance which is controlled by ICT, Money Order and Transaction, Email communication, Workshop, Seminar, Procurement, Accounts, LC: every platform is being held by ICT in this digital time. 90% work is done by ICT in the company on an average. Some of

the sector or area are managed by analog system according to the convenience. ICT is more applied in knit and plastic based export business rather than leather item export business.

🞂 Adequacy of ICT-related Laws

30% of FGD respondents do not have a solid idea on the adequacy of ICT related laws. Only 10% thinks that ICT related laws are adequate. The remaining percentages of participants think that although there are enough ICT related laws but the implementation is not satisfactory. Abuse of law and cyber bullying is seen everywhere even if there exists a strong Digital Law act. Technology is more advanced in other countries comparatively to Bangladesh. As a result, Bangladesh is lagging behind on this matter of law adequacy and implementation. People are unaware of the law and feel ashamed to report after being abused through ICT.

🞂 Development of Export Business through ICT related Action

- **Training:** Training on fundamental knowledge of business learning through ICT needs be implemented for the development of export business. A sound knowledge in developed technology is required for business inflation in order to keep pace with digital business world. ICT training business magnitude helps to gain proficiency those results in progressive action. FGD participants suggested that an ICT training should be conducted in every export business company weekly two or three times for one or two hours. E-commerce and E-learning is necessary for export business affluence. New entrepreneur and skilled worker need ICT training for the fulfillment of reasonable demands of foreign buyers.

- **Simplification and Implementation of ICT-laws:** Simplification of the ICT laws on the subject of export business is needed to be clear and simple for the better gumption for mass people involving in export business. Proper management and appropriate implementation of law is equally significant as simplification of laws.

- **Low-Cost ICT equipment:** Everyday use of ICT in business sector can be challenging with the high cost of internet packages and data plan whereas Bangladesh is a country with minimum GDP. In many developing countries the internet cost is low and tax free which should be a reason to compare in the matter of ICT influence. Easy availability and low-cost ICT equipment can result in diversity development and constructive change in export business world.

- **Quality Assurance of Internet:** Uninterrupted and fast internet is necessary for business advancement. FGD participants also suggested that a server solely for business purpose is required in order to get fast internet in business paradigm.

- **Availability of Foreign Currency Transaction:** A highly significant sector of export business is exchange of foreign currency. An easy, sustainable and lawfully embedded way of foreign currency transaction can minimize the hassle and it can be proficient in export business.

- **Betterment of Working Environment:** ICT helps to change a company outlook. It opens a broaden possibility and aspects of an export business.

4.4 Advantages and Disadvantages of use of ICT

The dependency of ICT is increasing day by day and it is been more noticeable in pandemic situation.

Advantages:

a) **Communication**: Speed / time – money can be saved because it's much quicker to move information around. With the help of ICT, it has become quicker and more efficient to work such as transaction accounting, shipment tracking and follow up of the business. The cost of calling through mobile network can be compromised through social network calling and workers in the company continuously communicate with each other through social media (WhatsApp, Imo) etc.).

b) **Globalization**: Video conferencing saves money on flights and accommodation which is a major advantage in export business. ICT has not only brought the countries and people closer together, but it has allowed the world's economy to become a single interdependent system to contact a business. ICT has made it possible for businesses to be automated giving client's access to a website or voicemail 24 hours a day, 7 days a week**.**

c) **Cost effectiveness & Increase in Production**: ICT has also helped to automate business practices, thus restructuring businesses to make them exceptionally cost effective.

Disadvantages:

a) **Cost of Data Plan:** The cost of internet and data plan is challenging given that it is vastly used in every sector of export business area.

b) **Low Quality of Internet:** The low speed of internet interrupts consecutive work which lacks the integrity of work efficiency.

c) **Unintelligible:** FGD participants implied that although ICT has made their work life quite easier, it is not quite comprehensible for mass people worker. ICT operation needs proper training and companies need trainer to enlighten the workers about ICT operation.

d) **Interrupted flow of Electricity:** ICT operated machinery needs uninterrupted flow of electricity but this is a challenging matter in basis of Bangladesh.

e) **Increasing Productivity and Profitability through IC:** The expenditure of production has lessened a lot with automation materials and machinery controlled by ICT. The total time of production is also minimized through the usage of ICT. Several work such as monitoring, designing the layout of a work plan with more graphics, quality assurance can be supervised together. A company can achieve more than one output at once per hour. Documents are preserved in a digitalized way which increases proficiency of the work. As a result, human resource is also less needed comparatively than before. It has conserved money, time and resources. All of these factors are responsible for increasing productivity and profitability.

4.5 Constraints in using ICT

a) **Unintelligible**: FGD participants implied that although ICT has made their work life quite easier, it is not quite comprehensible for mass people worker. ICT operation needs proper training and companies need trainer to enlighten the workers about ICT operation.

b) **Interruption:** Speed of internet and electricity flow are another two common constraints which workers face every day. FGD participants has reported that for several months they are suffering from busy server and also illustrated that according to international census Bangladesh has scored the lowest rank in terms of Internet-Speed-Ranking. Internet provider companies provide good bandwidth in name only although it is not quite effective in application term. On the other hand, those who uses mobile data plan for internet, they cannot enjoy the service (3G/4G) they are supposed to have.

c) **Data Security:** Sometimes data security is compromised and it leads to unavoidable business chaos.

d) **Natural Disaster:** Natural disaster causes barrier using ICT and the ICT operated systems stand still, it causes a good amount of loss in company record.

4.6 Requirement of New Skill in ICT

a) According to FGD participants, workers in the company need basic business knowledge in ICT and a vast training for respective business field alongside. In export business training on online order, shipments, portal-based agreement, LGD supervision are some sectors that is vastly required. They also illustrated that workers here are more motivated to do e-business and proper training and skill will help to secure a platform in e-business platform.

b) Training on new software and hardware is also required for better business analysis and efficiency. Machineries has been upgraded throughout years and workers need advanced training on these heavy and critical machineries to keep up with the pace of the global business world.

c) Most of the FGD participants suggested that they need advanced ICT learning to meet up with company and user satisfaction.

d) Online security has been a major issue in business world. Data security learning is also required for workers. Digital Security Act should be a part of the training as abuse of data and other information has been an issue throughout these days.

4.7 Places where ICT skills needs be fulfilled from

Government should play a vital role in terms of ICT training especially for workers in business. Skilled trainer should be provided to each of the export business company by BKMEA, BGMEA, and BEPZA under supervision of government. ICT training can be threefold: **In-hour training, Institute training** and **international training**. Government needs to include non-governmental and business organizations alongside for ICT learning as per as convenience.

4.8 Findings from Public Consultations (PC):

The following findings are obtained from the Public Consultations (4 Local Level & National Level) in different places. Local Level Public Consultation at Gazipur, Narsinghdi, Chattogram and Khulna and National Level Public Consultation at BFTI, Dhaka.

a) <u>Findings and conclusions from PC (Local Level& National Level):</u>

➢ In the Public Consultation, the leather sector has been identified as a very potential export sector having high-value addition scope. In this sector, only 5-10% of employees are found women out of which only about 2% work at the executive level having a low capacity for the use of ICT which is very essential for this sector. The use of ICT in this sector has also been emphasized in the SDG. Access to technology and ICTs, combined with relevant skills, and has been recommended in PCs.

➢ The establishment of business, particularly international trade, through online/e-commerce platforms such as Alibaba/Amazon, etc., and the use of ICT, on converting paper-based information into a digital format, integrating logistics operations, financial administration, production formation, and managing a network of customers and suppliers for exporters and producers, including the gaining of knowledge on e-Commerce marketplaces and web-based information sources for their products and services, finding the destination country's e-marketplace, entry requirements and regulations, such as customs duties and procedures, availability of

e-commerce platforms for placing orders, the ability to place export orders online, digital tracking of export consignments by shipper and buyer, and use of ICT technologies in various export clearances and digital receipt of payments has been emphasized by the participants.

➢ Adherence to the compliance issues of the buyers' regarding the involvement of women employees in the use of ICT for business purposes and in other areas has been suggested. Considering the vast scope and potential in ICT freelancing, the engagement of more women in this sector having the opportunity to work from home has been advocated by the respondent.

➢ In the Leather and Footwear sector, 70-80% requirements of for footwear originated from the SME sector, and the rest from the big manufacturers. Backward linkages of the SMEs with big manufacturers for more value addition, sub-sectoral specialization, and development of more specialized skills in design and production areas through division of labor have been attached more importance to the overall development of this sector. As an example, Azad Shoes of Mymensingh has been cited.

➢ As a woman, the engagement of more women in the Plastic sector such as in the areas of Management, Import/Export, etc. have been reported by the respondent. Enhancement of the level of competency in various areas of trade and commerce other than only MS office skills has been emphasized and recommended.

➢ Application of the knowledge and skill of the use of ICT for pursuing all trade-related activities such as integrating logistics operations, financial administration, production formation, and managing a network of customers and suppliers for exporters and producers, to place export orders online, digital tracking of export consignments by shipper and buyer, use of ICT technologies in various export clearances and digital receipt of payments, exploring e-Commerce marketplaces and web-based information sources for their products and services, destination country's e-marketplace entry requirements and regulations such as customs duties and procedures, the level of online security, Consumer and Sales Laws, online payments and taxes regulations has been emphasized.

➢ The importance of trade-specific capacity-building quality training to have access to technology and ICTs for application to business-related activities in line with international and business management, business communications, website development, and business marketing skills, coupled with refreshers' training for updating skills, has been suggested. Organization of training programs for SME managers or owners and employees, particularly Women, and other staff working in different export-oriented Industries, focusing on both technical and managerial skills, in cooperation with the business and other sector organizations are also suggested. Availability of online training facilities for the business executives comprising basic, medium, and advanced levels has been advocated by the respondent.

➢ Job-specific pragmatic training with insurance of placement to specific jobs has been suggested for optimal utilization of the imparted training.

➢ The reduction of disparity in the recruitment of women, maintenance of the congenial environment such as personal safety and security, provision of special leave facilities including maternity leave, and establishment of other physical facilities for women in the workplace have been suggested to be addressed.

➢ Balancing of time between family and workplace, lack of career opportunities, gender disparity as regards salary, lack of daycare centers in the workplace and proper transportation facilities for women have been identified as barriers to working women and suggested for appropriate measures to reduce the drop-out from the workplace.

➢ Various socio-cultural, and technical barriers undermining the perception of the

capacity of women in the engagement of women employees in higher executive positions, using ICT as a business tool, courage to handle the logistics having a deterring effect on the employment of more women in this sector has been referred in the PCs.

➤ Development of a Legal Framework ensuring the protection of safety when using the Internet and smartphones involving privacy protection, personal safety, and property security, initiatives to raise awareness on safety issues, reducing risks for women traders from gender-based risks, including cyberstalking, online harassment or even trafficking has been emphasized. Moreover, the importance of potential risks including insufficient data protection procedures when taking advantage of innovative technologies such as utilizing smartphone-enabled solutions in expanding their access to financial services has also been attached. Simplification of procedure by the NBR to get the tax exemption certificate and tax relief for ICT service export has been suggested.

➤ Development of a Legal Framework to protect women's safety when using the Internet and smartphones which involves privacy protection, personal safety, and property security, ensuring smartphone security, gender-based risks, including cyberstalking, online harassment, or even trafficking, has been reported to be of crucial importance. Moreover, attachment of priority to potential risks including insufficient data protection procedures when taking advantage of innovative technologies in utilizing smartphone-enabled solutions in expanding their access to financial services has also been suggested.

➤ To create new policy, new exporting destination, introducing to the world market as a new product,

➤ To find foreign investor for development of the sector, keeping stable political atmosphere, development of pertinent infrastructure and introducing labour law following by ILO and practice accordingly.

➤ The proper human resource management can play a vital role to take the sector vibrant. Skilled, innovative and committed labour can make dramatic change in the business performance and sustainability. Labour satisfaction of this sector can play an important role for higher growth and productivity. An unhappy labour will never work for progress and prosperity however, dissatisfied worker create unrest. So, satisfaction of frozen food worker is also important to overcome the challenges. Adequate salary, bonus and admissible benefit may satisfy the shrimp and fish worker. In order to ensure the frozen food worker safety and build their legitimate rights telephone helpline may introduce for mitigate their grievance. Directorate of Labour (DL) may open a new wing under the supervision of DL to receive aggrieved worker complain call and can suggest accordingly. It will play a better role for mitigate the grievance or workers.

➤ Introducing frozen food product i.e., frozen shrimp to the world market can play a positive role for overcoming the existing challenge. As GSP facility has suspended for readymade garment export from June 2013 to the American market, frozen shrimp can take over the same market as a quality food.

➤ Government can allocate bank loan in a soft condition and lower rate like 6 to 7 per cent interest to the investor specially shrimp farmer. Even though, the bad loan practices discourage bank authorities to sanction loan in favor of businessman. According to Bangladesh Bank, in 2014, bank made operational profit $212.65 billion (Tk. 21,265 crores). It was almost 17% profit dropped on year-on-year in 2014 due bad lone practice. However, it should monitor that how many shrimp farmer has been defaulting to pay bank loan.

➢ Infrastructure development is more important to overcome the crisis of frozen food. The road and highway communication development from shrimp and fish farming area to packet processing area and packet processing area to port area should be smooth or have to create alternative way to reach the goods within a short time. Port area infrastructures have to develop and corruption free. Government can allocate a portion in upcoming budget in the fiscal year 2014-2015 for developing infrastructure. This sector may facilitate to import duty free modern technological raw for frozen food process and high productive species for proper fertility of shrimp and fish.

➢ In order to diseases control in the shrimp and fish project government can provide vermicide to the project owner. There are several evidence that farmer has been losing to fulfill the target of cultivation shrimp and fish due to shrimp diseases disruption. Providing proper environment for fisheries and bio-secure management practices is essential for overcoming this challenge.

➢ It is also a huge backward that shrimp farmer has no genetically improved shrimp stocks. So, a sustainable policy for shrimp farm by acquisition land and proper training to investor can resolve the problem.

➢ Government subsidy can play a significant role model as a motivation of the shrimp farmer.

➢ Proper price of shrimp and fish has to be ensuring for reinvest and booming this sector.

➢ Political instability is playing vital role for loosing this sector. So, political party's morality and ethic should be improved within the all-political parties for the sake of economic development.

➢ Due to climate change and physical environmental factors including natural hazards such as floods, drought, tornado etc. making sector vulnerable. So, it may over come to introduce new farming policy with adaptation of environmental atmosphere.

➢ Lack of technological support for cultivating and processing fish is a problem to the shrimp and fish famer in Bangladesh. So technological support may improve by the government, prospective buyer other pertinent stockholder.

➢ Lack of pre plane and inadequate plane for farming fish and shrimp remain the sector poor situation. So, by acquisition of new land may build modern fishery industry in Bangladesh.

➢ Inland water shrimp and fish farming area may expand to the whole prospective area of Bangladesh.

➢ Reduction of electricity bill, exemption of tax and duty on shrimp feed and introduction of cash incentive for shrimp farmers may consider for the sustainable development of this sector.

➢ Self-monitoring, Government monitoring, and Stakeholder monitoring may over come from the crisis.

➢ Shrimp and fish firm might be brought under a certification and yearly licensing system and yearly renew system.

➢ Shrimp and fish firm registration, written lease documents may control form forgery made by dishonest business man.

➢ In order to control hazardous pesticide, necessary data relating to soil and aqua are also necessary for better cultivation of shrimp and fish.

4.9 Findings from validation Workshop

The validation Workshop was presided over by Chief guest-Mr. Md. Hafizur Rahman, Director General (Additional Secretary), WTO Cell, MOC, and Chairperson-Mr. Md. Mijanur Rahman, Project Director (Joint Secretary), BRCP-1, MOC held on July 27, 2022.

Others ministries officers were also present. It has been very exciting to know that almost all the women were found engaged in ICT-based trade, including international trade, pursuing their business through using Smartphones and other appliances.

Women entrepreneurs and exporters in Bangladesh face various challenges in every step of their business including cross-border export-import operations. Despite having significant quantity and quality products at a very low price, women entrepreneurs are unable to sell their products in the international markets even in the neighboring countries like India, Bhutan, Nepal and Myanmar. Moreover, during the Covid-19 pandemic, women entrepreneurs are not able to continue business without government support. As a result of the prolonged pandemic, a large number of small and micro level women entrepreneurs are forced to lose their income. Most of the women entrepreneurs have to reduce their business significantly, some of them fully closed their businesses and many of them have shifted their business to their homes from showrooms and had to layoff substantial number of workers. Due to the lingering Covid-19 pandemic, their businesses have been closed or partly closed since March 2021 but they have to pay house rent, tax, VAT, utility bills, staff salary etc. As a result, women entrepreneurs are facing social and economic challenges and mental depression, resulting in domestic violence, lowered buying capacity and stress during the pandemic. Some major findings of the study are given below:

Lack of Access to Finance: In Bangladesh, access to finance is the main obstacle for the women entrepreneurs in establishing and continuing business. As most of the women have no inherited property and other resources of their own, they do not have the capital to start or expand their business. It is very difficult for them to get loan from banks or any other formal financial institutions. In terms of bank loan, most of the women face problem while submitting required documents and certificates. When they do not get family support and guarantor and cannot manage papers for mortgage, it becomes very difficult to process loan applications for business expansion. The situation becomes worse for the startup businesses.

In order to support and compensate the entrepreneurs in the pandemic situation, the government has already introduced stimulus package for businesses but there are no special facilities for women entrepreneurs, that's why they are facing problem in receiving bank loans.

Inadequate Training and Capacity Building: It is identified in the study that most of the women traders in Bangladesh face difficulty in managing financial aspects of their businesses, especially they are weak in proper book-keeping, accounting, documentation, profit and loss calculation, buyer sourcing, participation in the international fairs, collection of purchase order and delivery, export- import readiness etc.

Inadequate Infrastructure and Testing Facilities: Many women traders responded that they face difficulty in storing their products if they receive bulk orders. On the other hand, testing and certification agencies/institutions are insufficient in the country.

Domestic And International Sales and Marketing Have Been Reduced Significantly: All the festival markets (two Eid festival, new year celebrations etc.) are missed due to the pandemic. Export and import business with other countries got totally stopped due to boarder closer and flight cancelation for an uncertain period.

Inadequate Transportation Facilities: Women entrepreneurs who have international buyers but do not have export- import license is not in a position to produce and submit required

documents for foreign trade. They use FedEx, DHL, UPS courier service etc. Due to high transportation cost for sending their goods using courier services, they cannot profit.

Challenges in Scaling Up Businesses: In the manufacturing sector, women entrepreneurs face difficulties, especially in maintaining quality and regulatory standards of products, sealing and packaging, branding and labeling, and application of other mandatory standards that are pre-requisites to international trading.

Lack of Knowledge in Digital Economy and Connection with Global Buyers and Communication Skills: Although a number of women entrepreneurs at the grassroots level use smart phones for their business purpose and are familiar with social media, they have very little idea about how they will connect with the global buyers and how they can create a market of their products at the international level.

Lack of Gender Sensitivity: Since Bangladeshi society is conventional and often follows patriarchal norms, there is a lack of gender sensitivity among the working male population. These hindrances pose a major challenge for women entrepreneurs in starting and scaling up their businesses.

Recommendations: Recommendations for the small, mid-range women entrepreneurs to increase their participation in exporting in using ICT as a Tools are as follows:

- Enlarge opportunities for women to increase their effective participation in the workforce both as white color workers and entrepreneurs by removing social and legal barriers and gender-bias embedded in the existing policies and institutions geared to enterprise development. While selected financing schemes are in place for the micro, cottage and SME enterprises, they are yet to be vigorously implemented to encourage more and more women to build up their own enterprises and contribute to the nation building process.
- Facilitate women's access to productive resources such as capital, especially bank loans, skills training programmes, information about technology, innovation of new products and processes and market channels at home and abroad which will foster growth of an **"entrepreneurial economy and society"** through removing various distortions leading to **"market failures".**
- Set up dedicated women's cells and centers in the business development services providing organizations and agencies to ease their access to extension, promotion, and advisory services designed for women entrepreneurs. Arrangement for delivering various support services to women through **"one-stop"** delivery facilities may be an important step to enable WEs to avoid harassments and obtain quick and easy access to business promotion facilities.
- Promote development of **"women entrepreneurs' networks"** to facilitate knowledge and information sharing about business developments at national and international levels to promote **"production networking"** beyond national borders and enjoy the advantages of value chain arrangements and entry into local markets. In this context, setting up and operation of a **"go-to"** website portal for women entrepreneurs by the SME Foundation may be helpful to facilitate women's business growth through consolidating business information and **"match-making"** among the prospective WEs at regional and global levels.
- Establish a separate Women's Bank to adequately address the special financing needs of women entrepreneurs. Meanwhile the existing banks could also bolster their efforts by opening separate windows for the women clients as per Bangladesh Bank guidelines.
- Set up **"National Women Entrepreneurship Development Taskforce"** to constantly monitor progress of implementation of the women entrepreneurship development policies

and programmes by reviewing them periodically and introduce necessary revisions if needed to obtain best possible impacts of the on-going policies.

- The government should facilitate for more working capital for women entrepreneurs. Simplification of the loan procedure of banks, speedy disbursement of stimulus packages as well as reasonable time for repayment of loan are crucially needed.
- Gender specific components must be included in foreign trade, industrial, finance and other economic policies.
- Fees for participation in international trade fairs should be reduced and TAX/VAT should at a lower rate for the women entrepreneurs involved in export and import.
- Government, specifically the ministry of commerce, Ministry of Industries and Ministry of Finance, non-government organizations and business chambers and industry associations should initiate skill-based training courses and capacity building programmes for women traders, exporters and entrepreneurs regularly.
- Officials working for government institutions such as industry ministry, commerce ministry, banks, insurance firms, customs and district industrial offices etc. must be sensitized on gender issues.
- Bangladesh needs to have more institutions and infrastructure facilities for international trade such as testing laboratories, storage facilities with modern facilities. New institutions and infrastructures of such kind should be established and existing institutions must be upgraded with modern facilities.
- Citizen Charter for ensuring quality services should be introduced in all offices. Women entrepreneur-friendly environment and dedicated desk for one stop service must be established in the land ports and other relevant offices.
- Traders and entrepreneurs should be encouraged to explore non-traditional businesses and product segments which are in high demand in developed countries.
- Awareness campaigns need to be organized regularly targeting women traders and entrepreneurs so that they can get necessary information regarding schemes, subsidies and network opportunities timely and easily.
- Grievance redressal mechanism needs to be established in trade, finance and other major institutions that can facilitate easy solution of the challenges raised by women entrepreneurs.
- **Export Promotion Bureau (EPB)** should ensure special arrangements for exporting goods by women entrepreneurs through land borders.
- Quality of internet services, especially Wi-Fi service, is not up to the mark at the grassroots level. Towards ensuring digital economy and digital Bangladesh, the quality must be improved and cost should also be reduced at a significant level.

Pictorial View of Validation Workshop:

Figure 4.5: Pictorial view of Validation Workshop Meeting at CIDRAP, Dhaka, Bangladesh

Usually, women entrepreneurs in Bangladesh are dynamic and they are very much dedicated to their work. They want to do business at the local and international levels. Right now, in the new normal situation due to Covid-19 pandemic, they are focusing more on online business. It is cost effective and hence this should be adequately facilitated.

With a view to encouraging more women in business, they must be supported by the government and all concerned. The challenges and concerns including the recommendations of the women entrepreneurs must be addressed and at the same time access to finance needs to be ensured for them. Accordingly, women being new in the formal business sector, they require information, training and capacity building support. It is crucially important for the government to identify short, medium term and long-term interventions and introduce some specific policies in conducting smooth business by women entrepreneurs.

4.10 Five areas of regulatory simplifications to promote the use of ICT, particularly the women entrepreneurs

The following 5 areas have been identified where regulatory simplifications are required that would promote the use of the ICT sector in trade facilitation in Bangladesh. The regulatory simplifications which would promote the employment of women in EXIM trade facilitation through the use of ICT use have been shown below in italic and bold to avoid duplicity.

i.   Tax exemption facility for IT-enabled Services:

Currently, 22 IT-enabled services enjoy the tax exemption facility and the five new services are cloud service, system integration, e-learning platforms, e-book publications, mobile application development services, and *freelancing* included. This will create new entrepreneurs on the one hand and on the other hand, the digital transformation of Bangladesh's economy will be accelerated and advanced digital services can be made available to the people at a low cost. The IT sector services currently enjoying tax exemption include software development, software or application customization, NTTN, digital content development and management, digital animation development, website development, website services, web listing, IT process outsourcing, website hosting, and digital graphic design. Tax exemptions are provided subject to the fulfillment of the following criterion such as (1) Tax returns shall be filed regularly; (2) Availing of BASIS membership; and (3) Obtaining Tax exemption certificate on yearly basis from the concerned Tax Office.

But the freelancers who are not members of BASIS and earn a huge amount of foreign currency will be deprived of the Tax exemption facility of the government if these conditions are not relaxed. Moreover, the freelancers, particularly the female freelancers, who reside in the remote rural areas, will face difficulties in getting Tax exemption certificates from the concerned tax office. Hence the following regulatory measures are recommended.

The Freelancers who are not members of BASIS but earn a huge amount of foreign currency for Bangladesh every year may be made members of BASIS or an association of the Freelancers, may be called *Freelancers' Association of Bangladesh (FAB)* may be formed. The government may take appropriate steps regarding the relaxation of the above eligibility criterion for Tax exemption for the Freelancers' Association.

An arrangement may be made for the issuance of an Online Tax Exemption Certificate from the concerned tax office to save time and reduce the hassle.

Since women are lagging much behind in the use of ICT, particularly as Freelancers, special provisions may be incorporated in the ICT Act to provide special financial benefits/incentives or relaxation of the conditionality in availing the Tax benefit.

ii. Incentives for the Freelancers:

Freelancing work includes mainly Digital data entry & processing, digital data analytics, geographic information services, IT support & software maintenance services, software lab test services, call center services, overseas medical transcripts services, search engines optimization services, document conversion, robotics process outsourcing and cyber security services are the other services to enjoy the facility. There is huge potential for educated women to get involved in freelancing and earn an appreciable amount of foreign currency working from home even staying at remote areas of the country provided good internet facilities are available or using smartphones. Freelancers may enjoy incentives from the Government provided the following conditions are met. The conditions are:

- *International market places* concerned need to be recognized by the Information and Communication Technology Division along with appropriate documents.
- In case of Agreements with digital marketplaces, exporters will have to provide the *relevant weblink* to the bank branch that will have to ensure the collection and verification of information on the software and ITES export activities through the marketplace, along with the web link.
- to provide the required *audit trailer web link* for verification along with the submission of the documents of the automatically prepared invoice confirmation, along with the application form that declares money received from export income.
  However, there have been barriers to getting payments for outsourced work by the IT freelancers as there is a cap on the number of funds that can be transferred through existing channels as the country lacks international payment systems. Payment systems such as PayPal could remove such barriers and increase income from outsourcing could increase, but the PayPal has been barred to work in Bangladesh.

In the light of the above, the following regulatory measures may be made to facilitate the freelancer get their incentives:

- ➢ The capping income level should be enhanced to facilitate the medium and big Freelancers or the ITES providers to receive their export income;
- ➢ The regulatory compliance to get the incentives should be reviewed and made ITES and Freelancers friendly;
- ➢ International payment system (PayPal and another appropriate system) to be introduced to facilitate the transfer of export earnings through existing legal channels;
- ➢ The Freelancers who are not members of BASIS but earn a huge amount of foreign currency for Bangladesh every year may be made members of Basis or an Association of the Freelancers, which may be called *Freelancers' Association of Bangladesh (FAB)* may be formed. The government may take appropriate steps regarding the relaxation of the above eligibility criterion for Tax exemption for the Freelancers' Association.
- ➢ *In order to increase more participation of women in the ICT based businesses such as freelancers and/or ITES providers, special provisions may be made in the ICT Act to provide special financial benefits/incentives or relaxation in conditionality of availing the incentives or having access to the ICT equipment/smartphones or internet facilities in the rural areas.*

iii. Intellectual Property Right on ICT:

In respect of intellectual property rights (IPR), Bangladesh has enacted intellectual property laws. It has incorporated the relevant provisions from international standards in this regard. Bangladesh has enacted the following laws on IPR:

(v) The Patents and Designs Act, 1911; The Patents Acts, 2022;
(vi) The Trade Marks Act, 2009;
(vii) Copyright: The Copyrights Act, 2000;
(viii) 'The Geographical Indication of Goods (Registration and Protection) Act, 2013'. In order to implement the Act, the Geographical Indication of Goods (Registration and Protection) Rules, 2015 have been enacted.

Compliance with TRIPS and other International Agreements, Treaties, and Protocols: IP laws are in compliance with TRIPS. Bangladesh is currently party to the following agreements, bodies, treaties, and protocols-

I. Convention establishing the World Intellectual Property Organization (WIPO) - May 11, 1985
II. The Paris Convention for the Protection of Industrial Property -March 3, 1991
III. Berne Convention for Protection of Literarily and Artistic Works –May 4, 1999
IV. Universal Copyright Convention -May 5, 1975
V. The GATT & TRIPs (WTO Agreement) -April 15, 1994. Our country is also a signatory of several WTO treaties and agreements. Bangladesh is not a party to the Patent Cooperation Treaty (PCT).

IP and information and communication technology (ICT):

The ICT sector of Bangladesh has started growing and a separate Ministry, the Ministry of Information & Communication Technology has been created to 'give more thrust to the ICT sector. ICT has been, included in the Allocation of Business of the Ministry, and Bangladesh High-Tech Park Authority Act-2010 has been approved. In addition, the Information and Communication Technology Act and ICT Policy-2009 were formulated and the Copyright Act-2000 was amended to protect copyrights of locally designed software. High-Tech Park Authority and Controller of Certifying Authority have been established under the law.

Data is the primary building block of the digital economy which includes *Artificial Intelligence (AI) and Machine Learning (ML)* tools. However, given the creative nature, economic and other values attached to data, it is essential that data are protected as intellectual property. As far as the IP protection of data is concerned, there remain legal and practical challenges. Relevantly, three forms of intellectual property, namely, copyright, patent, and trade secret.

- The existing IP system does not sufficiently provide legal mechanisms to protect data. Moreover, data *per se* is kept open without IP monopoly because of the public policy or public interests.
- To date, AI or ML-generated content is not protected under the existing IP regime. However, 'data ownership' would be a crucial factor in both the input and output processing of data, if AI and ML-generated contents are to be protected in the future. Since IP protection of data inherently is not possible, at least not under the current legal framework, a policy solution as data producer's right- a new special property right for the data producers is essential.

In the light of the above observations and challenges, the following regulatory measures are recommended:

➤ *Software is protected by copyright as literary work specified in section 2(46) of the Copyright Act, 2000. Effective optical disc regulations should be in place and enforcement of existing copyright regulations should be ensured to protect the software market hugely hampered by piracy*

➤ *Laws and regulations for electronic transactions should be incorporated in the Custom Acts;*

➤ *Digital trade barriers (e.g., restrictions and other discriminatory practices affecting cross-border data flows, digital products, Internet-enabled services, and other restrictive technology requirements) to be removed;*

➤ *Government should consider enacting new Patents and Designs Law, Copyright Law, and Personal Data Protection Law addressing the legal challenges of intellectual property protection (e.g., inadequate patent, copyright, and trademark regimes and enforcement of intellectual property rights) for data and other ICT products as well.*

vi. Bangladesh E-Commerce:

The e-commerce sector started growing in 2000 which has taken momentum after online transactions, permitting online use of international credit cards for the purchase and sale of goods and services. Growth of e-commerce flourishes with the growth of fixed-broadband connections and mobile-broadband subscriptions. Facebook is also a popular means of e-commerce. Facebook remains a popular method for advertising and selling products, to a point that many businesses forgo creating websites. Currently, the following four types of eCommerce are popular in Bangladesh:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Consumer (C2C)
- Business-to-Employees (B2E)

In order to facilitate e-commerce and encourage the growth of information technology, the Information, and Communication Technology (ICT) Act, 2006 was enacted and amended in 2013 including provisions for imprisonment and/or fines for cybercrimes. The enactment of the ICT Act has significant implications for e-commerce and mobile commerce in Bangladesh. The growth of the industry has been inhibited by low usage of credit and debit cards (cash remains the major payment method) and the unavailability or restrictions on major online transaction sites like PayPal. Additional challenges to e-Commerce in Bangladesh include:

- Inadequate delivery mechanisms
- A relatively low internet penetration rate
- The lack of a robust online transaction system
- Prevalence of online fraud
- Undeveloped online marketing practices
- The lack of a robust privacy policy

❖ Cross-border eCommerce remains largely inhibited by a viable online transaction system and capital controls that prevent most outward flows of foreign currency for consumer purposes. In addition, weak logistics infrastructure and irregular customs practices hinder the growth of cross-border eCommerce.

❖   There are many Bangladeshi companies engaged in eCommerce services, including web design, domain name purchasing, secure hosting, digital marketing and advertising, app development, and payment gateways, among others. Many of these companies provide services to clients abroad, especially in North America. Remitting payments from abroad into Bangladesh is an issue.

❖   The present system of trademark protection lacks a sufficient legal framework to protect intellectual property rights. The absence of a legal framework has created opportunities for unscrupulous business practices.

In the light of the above, the following regulatory measures have been suggested:

➢ *The trademark protection lacks a sufficient legal framework to protect intellectual property rights. The absence of a legal framework has created opportunities for unscrupulous business practices.*

➢ *Cross-border e-Commerce remains largely inhibited by a viable online transaction system and capital controls that prevent most outward flows of foreign currency for consumer purposes. In addition, weak logistics infrastructure and irregular customs practices hinder the growth of cross-border e-commerce. Regulatory measures must be taken to introduce a viable online transaction system;*

➢ *Adequate delivery mechanisms should be developed. The government may take initiative to modernize and strengthen the Postal parcel system up to the rural areas ensuring online delivery of the goods of the customer;*

➢ Regulatory measures to be taken to have a robust *Privacy Policy* in place.

➢ ***In order to encourage the involvement of more women of all strata to ensure equity in e-commerce, ICT policies, Acts and related rules and regulations should be made women-friendly***.

5. Cyber Security:

Cyber security is known as an activity or process, ability or capability, or state whereby information and communications systems and the information contained therein are protected from and or defended against damage, unauthorized use or modification, or exploitation. Other than that, cyber security involves reducing the risk of a malicious attack on software, computers, and networks. Cybercrimes are of various nature and are a major threat in the ICT sector. The various nature of cybercrimes are as follows:

- **Cyber harassment is a distinct Cybercrime**. Various kinds of harassment can and do occur in cyberspace, or through the use of cyberspace. Harassment can be sexual, racial, religious, or other

- **Cybercrimes against persons:** Cybercrimes committed against persons include various crimes of transmission of child pornography and harassment of anyone with the use of a computer such as e-mail. The trafficking, distribution, posting, and dissemination of obscene material including pornography and indecent exposure, constitutes one of the most important Cybercrimes known today.

- **Cybercrimes against property**: The second category of Cyber-crimes is that of Cybercrimes against all forms of property. These crimes include computer vandalism (destruction of others' property), and the transmission of harmful programs

- **Cybercrimes against the government**: The third category of Cyber-crimes relates to Cybercrimes against Government. This crime manifests itself into terrorism when an individual "cracks" into a government military-maintained maintained website. Various types of cybercrimes include:

- **Hacking:** Unauthorized access of hosts-more commonly known as hacking. Hacking

can take various forms, some of which might not always involve deep technical knowledge,

- **Spamming** - involves mass amounts of the email being sent in order to promote and advertise products and websites.
- **Email spam** is becoming a serious issue amongst businesses, due to the cost overhead it causes not only in regards to bandwidth consumption but also to the amount of time spent downloading/ eliminating spam mail. Spammers are also devising increasingly advanced techniques to avoid spam filters, such as permutation of the email's contents and use of imagery that cannot be detected by spam filters.
- **Computer Fraud/ "Phishing" scams**- Phishing is a type of social engineering where an attacker sends a fraudulent (e.g., spoofed, fake, or otherwise deceptive) message designed to trick a person into revealing sensitive information to the attacker or to deploy malicious software on the victim's infrastructure like ransomware. As of 2020, phishing is by far the most common attack performed by cybercriminals.

Limitations of the Cyber Acts of Bangladesh:
- **Practical Difficulty of Application**

The legislation was originally intended to apply to crimes committed both in Bangladesh and worldwide but barely *people practically can take action to execute their rights under the act for the commission of crime outside the jurisdiction of Bangladesh.*

- **Difficulties with Electronic Transaction**

The enactment has an important effect on Bangladesh's e-commerce. But as for the electronic payment of any transaction, it keeps itself almost impractical.

Intellectual property Security

- The Act is not vocal on the various intellectual property rights, such as copyright, trademark and e-information, and data patent rights.
- **Not Addressing Mobile crime and contradicting Email Evidence.**
- One of the limitations of the act is that *any crime committed via mobile phones is not addressed under the Act.*

In view of the above limitations of addressing the Cybercrimes, the following **regulatory measures have been suggested**:

- *Regulatory measures should be taken to frame appropriate laws, rules, and regulations to take protective and punitive measures against all sorts of Cybercrimes such as personal and property cybercrimes, hacking, and phishing scams;*
- *ICT Act of Bangladesh should be reviewed and updated to address the Cybercrimes committed outside the jurisdiction of Bangladesh and should cover the issues regarding electronic payment of any transaction (e-Transaction), crimes on Intellectual Property rights, such as copyright, trademark, e-information, and data patent right, etc. Moreover, Cybercrimes committed via mobile phones cannot be addressed under Digital Act.*
- ***Women are very much vulnerable to cybercrimes and special regulatory measures should be taken to contain all forms of cybercrimes against women and their ICT equipment and protection of the financial transactions through ICT devices.***

4.11 Duty Drawback Regulations in Bangladesh

Export-oriented companies will only get refunds of customs and regulatory taxes from the Director General, Duty Exemption and Drawback Office (DEDO). All exporters have to apply for refund of taxes within six months after export.

The National Board of Revenue (NBR) has issued the Duty Drawback Regulations 2021. According to the regulations, the duties will be refunded under these rules. NBR reimburses the export-oriented companies for the various products, including raw materials and goods in the supply chain. Exporters will have to apply for a refund at the Director General.

Exporters have to apply in a specific form with proof within six months of exporting the goods to get the import duty refunded. After the submission of the application form and documents of the applicant, Director General will take necessary steps to verify and select it. If necessary, on-the-spot inspection will also be done. Within 21 working days of inspection or within 15 working days if inspection is not required, Director General will issue the refund as a cheque in favor of the applicant's account.

Garment Exporters Association has called for an overall reduction in interest rates and corporate tax rates, besides removal of anomalies in excise and custom duties to reverse the recent slowdown in garment export industry. As the international market, which was already highly competitive, has become more tough, GEA in its Prebudget recommendations has requested the Government to reduce the transaction cost and grant necessary fiscal and commercial relief for the garment sector of the textile industry to enable it to face increasing international competition. Garments Exporters Association (GEM, the basic objective of the budget should be to make exports competitive as well as profitable. The GEA hopes that following Pre-Budget recommendations would receive due consideration of the finance minister while finalizing the Budget proposals: -

GEA Recommendations:

- To hike duty drawback rates by 5 percent by increasing the scope and coverage of duty drawback scheme so as to ensure full reimbursement of Excise duties, Custom duties, Service tax, education and various state level taxes.
- To provide adequate and need based funds to exporters at reasonable rates of interest which should not exceed 7 per cent as applicable to agriculture sector and restore 4 per cent interest rate subvention on export credit.
- To restore 100% exemption to export earnings under Section 80 HHC of Income Tax Act at least for the next five years.
- In view of acute power shortage, Government should encourage captive power generation by providing diesel at international prices and exempted from Excise duty and local levies.
- To exempt from Service tax all the export related services to avoid blockage of capital of exporters, as the procedure for refund is time-consuming, resulting in unnecessary delays and harassment.
- GEA would like the Government to implement GST (Goods & Service Tax), at the earliest.
- The Custom duty on import of textiles machinery, accessories and fabrics should be abolished allowing free import at nil rate.
- Import duty on man-made fibers to be reduced to zero, so that the garment exporters can get cheaper man-made fabrics available in the country for manufacture and export garments at more competitive prices.

- The Government should also arrange refund of State levies on exports, amounting to 6% of f.o.b. value.

The withdrawal of certain tax exemptions and fiscal benefits earlier granted by the Ministry of Finance have already adversely affected the export performance and reduced competitiveness of Indian garment exporters in international market.

- Apart from taxation relief, GEA would expect the Government to reduce the transaction cost by simplifying administrative procedures by avoiding delays at customs clearance of goods; improving loading and unloading of cargo and infrastructure at ports to avoid congestion at various ports.

The withdrawal of certain tax exemptions and fiscal benefits earlier granted by the Ministry of Finance have already adversely affected the export performance and reduced competitiveness of Bangladeshi garment exporters in international market. The garment exporters are still facing crisis because of worldwide recession and low unit value realization from the overseas market and it would take some more time for the world economy and the apparel trade to revive the worst ever global slowdown which started during 2007-08 and intensified to a crisis in 2008-09.

Further, pointed out that GEA has already drawn the attention of the concerned authorities regarding difficulties being faced by garments exporters because of global economic slowdown, adverse fiscal and commercial policies of the Government of India. He said that Indian economy is passing through a critical phase of uncertainty, transition and restructuring. It continues to be under severe strain because of demand recession and declining trend in industrial production and exports. He pointed out that increasing input cost, tight credit policy and high interest rate, severe liquidity crunch, rigid and outdated labour laws, poor infrastructure and high transaction cost, high power cost and frequent power cuts have caused a setback to industrial production and exports. The recent steep hike in fabric prices have also affected the competitive strength and performance of Indian apparel industry. He also said that the time has not yet come to withdraw the concessions provided to the exporters as the main problem confronting the export sector is recent steep hike in production and transaction cost and ongoing fluctuations in the rupee rate against dollar.

The need for bold textile policies and effective measures to revive the Indian exports and pointed out that the Bangladeshi apparel industry, one of the most dynamic sectors of the Bangladeshi economy will continue to play a very significant role in economic development of the country as the Government of Bangladesh has recognized the importance of this labor-intensive industry as the focus area to meet the challenge of generating more employment during the Eighth Plan period.

4.12 Steps taken by Bangladesh Bank for women entrepreneurs

Women entrepreneur Development Unit (WEDU) formed at all branches of Bangladesh Bank including SME & Special Programmes Department of Head Office vide Administrative Circular No.-21 of Human Resources Department-1 dated-30/11/2014. This Unit renders business friendly services to women entrepreneurs', receives complain and settle thereof, carries out promotional activities for the development of women entrepreneurs' and also monitors and evaluates the women entrepreneur's development initiatives of Banks/Non-Bank Financial Institutions.

To encourage women entrepreneurs in taking initiatives or becoming women entrepreneur WEDU operates Small Enterprises Refinance Scheme to provide low-cost fund. This unit is

also entrusted with the responsibilities of promoting women entrepreneurship and supporting women entrepreneurs. If a woman is the owner or proprietor in the case of a privately owned or proprietary company or owns another 51% (fifty one percent) share among the directors or shareholders of a private company registered in the "Partnership Firm" or "Register of Joint Stock Companies and Firms", she or they will be considered as women entrepreneurs and the enterprise will be considered as women. Considering the importance of the country's sustainable economic growth, micro, small and medium enterprise (CMSME) sector, Bangladesh Bank is providing various types of policy support to encourage women entrepreneurs. Steps taken by Bangladesh Bank for the development of women entrepreneurs:

- Loan distribution to the SME sector in the overall loan portfolio of all banks and economic institutions and the SME women entrepreneur loan rate among the total SME loans is set to increase to 15% by 2024;
- It has been decided to provide a total of 2% incentive facility at the rate of 1% to each bank/financial institution at the non-customer level to encourage timely coordination/realization/payment of investments/investments given to women entrepreneurs. This facility is applicable against loans / investments disbursed on July 01, 2021 till December 31, 2024.
- The "Small Enterprise Refinance Scheme" run by Bangladesh Bank provides 100% refinancing of all loans to SME women entrepreneurs with 0.5% of the customer phase.
- The amount of funds of Small Enterprise Refinance Scheme has been increased from 850 crores to 1500 crores. SME is playing an important role in providing loans to women entrepreneurs. Under the said refinancing scheme, from 2004 to June, 2021, a total of 29863 women entrepreneurs were given refinancing of Tk 3765 crore against loans. Out of which a total of 3039 women entrepreneurs were given refinance of Tk 550 crore against the loans given in the financial year 2020-2021
- Among other refinancing schemes operated by Bangladesh Bank, the amount of refinancing fund for new entrepreneurs in cottage, micro and small sector has been increased from 500 crores to 1000 crores and the amount of funds under the refinancing scheme for setting up profit-based industries for processing of agricultural products has been increased from 700 crores to 1400 crores. has been A minimum of 15% has been earmarked for women entrepreneurs under these two refinancing schemes. Under this scheme, maximum interest rate is 7% at customer level and 3.00% at bank and financial institution level. 171 women entrepreneurs have been refinanced under Cottage, Micro and Small Sector New Entrepreneurs Refinance Fund and 1968 women entrepreneurs have been refinanced under the Refinance Scheme for Setting Up Profitable Industries for Processing of Agricultural Products.
- To recover from the adverse impact on the CMS sector due to the outbreak of the Corona virus in order to increase the flow of credit / investment in the non-negotiable sector Credit Guarantee Scheme has been introduced against unsecured loans / investment in the CMS enterprise sector and Banks and financial institutions have been introduced to the Portfolio Guarantee Limit (PGL). A minimum of 10 percent of women entrepreneurs are provided with conservation guidelines.
- All Scheduled Banks and Financial Institutions have adopted a program of finding at least 03 (three) women entrepreneurs interested in taking up initiatives in the areas covered by their respective branches every month and providing loans to at least 01 people in the cottage, micro or small sector;
- In order to accelerate the economic development of the country, to further encourage women entrepreneurs in the cottage, micro and non-small sector, to continue granting

loans in their favor and on the basis of banker customer relationship, 03 months in case of 01-year term loan and 03/06 in case of long-term loan. Instructions have been given regarding granting of grace period;

🔸 Banks and financial institutions continue to be encouraged to provide refinancing facilities against unsecured loans up to a maximum of Tk 25.00 lakhs against personal guarantees to women entrepreneurs;

🔸 For the purpose of strengthening the monitoring activities for the development of women entrepreneurship, Bangladesh Bank's branch offices and head offices of all bank non-financial institutions have formed "Women Entrepreneurship Development Unit" and its successful implementation is ongoing;

🔸 In order to provide business support services to women entrepreneurs, receive and resolve their complaints, separate "Women Entrepreneur's Dedicated Desk" has been set up in all branches of every bank and financial institution;

🔸 In order to facilitate all entrepreneurs including women entrepreneurs in the SME sector especially in the cottage, micro, micro and small sectors and to speed up the receipt of loans in a short time, separate application forms have been introduced in Bengali language for SME entrepreneurs' loans/investments;

🔸 On last 13/04/2020 through SME SPD Circular No.-1 instructions have been given to provide loan/investment facility of Rs. 5 percent has been directed to be given to women entrepreneurs. Apart from this, in order to ensure the liquidity flow in the banking sector, this department has formed a Revolving Refinance Scheme of 10 (ten thousand) crores by Bangladesh Bank through SME SPD Circular No-2 on 26/04/2020. Under SMEOSPD Circular No-01/2020, refinancing facility is being provided from the scheme up to a maximum of 100% of the disbursed loan/investment status from the amount allotted to banks/financial institutions. Women entrepreneurs will also get this benefit under the said refinancing scheme till June, 2021 a total of 5435 women entrepreneurs were given refinancing of Tk 760 crore against loan waiver.

🔸 Banks have been instructed to organize awareness programs, exchange meetings/seminars in the region for the proper implementation of "Special Loan/Investment Facility -SME Package" to combat Novel Corona Virus.

🔸 Policy of group-based loan disbursement has been introduced to facilitate the borrowing of cottage and micro women entrepreneurs.

🔸 Banks and financial institutions have given instructions to the bankers regarding the selection and application of special banking strategies for financing women entrepreneurs, taking the support of Women Entrepreneurs Chamber/Association in the selection of women entrepreneurs, giving priority to women entrepreneurs in considering their loan applications.

🔸 If a woman entrepreneur is harassed in taking a loan or receiving financial services, direct contact to the problem solution center of the SME and Special Programs Department, written application and e-mail, and to have the facility to speak directly to the Bangladesh Bank in case of filing a complaint has been

🔸 Through FID Circular Letter No-01 issued on 08 June 2021, 25 percent of small entrepreneurs and small entrepreneurs of the Tk 3000 crore revolving refinancing scheme formed by Bangladesh Bank to ensure inclusive development and sustain economic activities of marginalized communities affected by Corona virus. Being given as a loan.

🔸 Through FID Circular No. issued on September 05, 2021, under the financial inclusion program, marginal/landless farmers, low-income professionals and small

businessmen with Rs. Employed women entrepreneurs are being given benefits on priority basis.

Selection of lead Banks in each district to coordinate with other local scheduled banks for SME lending:

- Our Stand: - Bangladesh Bank (BB) issued Lead Bank Guidelines (15 January 2020) & developed a Lead Bank Calendar for the year 2020. This is a yearly calendar & selected lead Bank for every district. Lead Bank disseminates CMSME related information like CMSME target-based lending, sector wise financing, women entrepreneur financing in the grass root level through discussion. Seminar, view exchange programmes (Virtual Meeting through Zoom App.) At outbreak of COVID-19 Pandemic Lead Bank TOR has been revised.
- Lead Bank play an important role in organizing CMSME view exchange programmes engaging all Divisional/District Level bank Branches in consultation with BB Branch Offices. At the outbreak of COVID-19 Pandemic Govt. announced stimulus packages of BDT Tk 20,000 crore for the CMSME sector in the country. Under this package, the banks will provide working capital support to the CMSME sector at 9% interest rate, of which the entrepreneurs will pay 4% and the rest 5% will be reimbursed by the government to the banks/NBFIs as subsidy. Lead Bank will work for the implementation of Govt. stimulus packages.
- BB introduced Tk 10,000 crore Refinance Scheme (Revolving) to provide working capital facility for the CMSMEs within this stimulus packages. Banks & Financial Institutions can avail this refinance facility up to 50% of their disbursed amount against stimulus packages at 4% interest rate. Women Entrepreneurs can also avail these facilities. Lead Bank will also play a pivotal role in implementing BB Refinance Schemes & women entrepreneurs development activities.
- Lead Bank facilitates affected entrepreneurs specially women entrepreneurs due to outbreak of COVID-19 to avail hassle free credit facilities under stimulus packages.
- Lead Bank cannot be selected for any other purposes which are not stipulated in the TOR of Lead Bank set by BB.

Recommendation:

The support provision for women cited above are generalized for all sectors, specific provisions for support for the women in the ICT sector is solicited.

4.13 Demand oriented training for skill development of women entrepreneurs/traders

In Bangladesh most of the rural women are uneducated, poor and lack sufficient arrangement to protect them from insecurity and illiteracy. Different types of barriers are also created by the surrounding society to the development of their potentiality (like knowledge and skills) through training both vocationally and technically. Female entrepreneurs are repeatedly mistreated and given fewer opportunities by the male community to build up their entrepreneurial skills to run their enterprises smoothly in rural areas in Bangladesh.

Female entrepreneurs cannot make transition to enterprise business without providing the essential blend of education, training and social security and social awareness, Studies prove that less than 13% of the enterprise development program trainees are women in Bangladesh. Among the seven countries in South Asia, the percentage of females enrolled in secondary vocational education in Bangladesh is the second lowest position.

Among the respondent's 80 percent of them strongly agreed that lack of proper training facility is another hurdle in the development of women entrepreneurship 80 percent strongly agreed, 18 percent agreed, 2 percent disagreed in this regard. Women entrepreneurs of Bangladesh are a backward position because of lack of training. So, demand oriented training for skill development of women entrepreneurs/traders are given below:

Sl. No.	Module No. & Name	Use of ICT in Trade	Topics
1	Module 1- Basic Computing	Computer, Hardware & software Basic, using a computer & internet; safety &Maintenance etc.	Computer& its associations; the different types of computers; Basic Parts of a Computer; Buttons and Ports on a Computer; Inside a Computer; Laptop Computers; Mobile Devices; Understanding Operating Systems; Understanding Applications; Types of application software; Installing new applications; How to install and uninstall third party software in a computer/ laptop; Setting Up a Computer; Getting Started with the First Computer; Getting to Know the OS; Connecting to the Internet; Getting Started with the Internet; Understanding the Cloud; Keeping Your Computer Clean; Protecting Your Computer; Using Firewall-How to configure windows firewall, Best practices for configuring Window Defender Firewall; Creating a Safe Workspace-Computer ergonomics; Basic Troubleshooting Techniques; How to Use Your Computer's Built-in Help; Learning a New Program; Bringing Your Files with You; Using Accessibility Features etc.
2	Module 2- MS Word (Basic to Advance)	Word Basic, working with & Layout and Printing; Working with Objects; Collaboration and reviewing; Doing More with Word	Getting Started with Word; Creating and Opening Documents; Saving and Sharing Documents; Text Basics; Formatting Text; Using Find and Replace; Indents and Tabs; Line and Paragraph Spacing; Lists; Hyperlinks; Page Layout; Printing Documents; Breaks; Columns; Headers and Footers; Page Numbers; Pictures and Text Wrapping; Formatting Pictures; Shapes; Text Boxes; Aligning, Ordering, and Grouping; Objects; Tables; Charts; Checking Spelling and Grammar; Track Changes and Comments; Inspecting and Protecting Documents; SmartArt Graphics; Applying and Modifying Styles; Concept of mail merge; Step by step Email merge etc.
3	Module 3- MS Excel (Basic to Advance)	Excel Formulas; Introduction to excel charting; Pivot table; Infographics in excel; Advanced data	Excel Formula Basics; Logical Formulas in Excel Math Formulas in Excel Lookup and Reference Formulas Excel; Statistical Formulas in Excel; Text Formulas in Excel; Date and Time Formulas in Excel; Introduction to Excel Charting; Advanced Excel Charting Examples; Dynamic Charts in Excel; Sparklines in Excel; Overview of Excel Pivot Table; Pivot Chart; Infographics with Excel;

Sl. No.	Module No. & Name	Use of ICT in Trade	Topics
		analysis	Advanced sorting & filtering; What if analysis ; Consolidation; Power Query introduction, Power query Installation; Power query - using function; Power query - Append Query, Merge Query; Print settings for worksheet, workbooks, Header & footer; Print with Grid lines & Headings etc.
4	Module - MS PowerPoint (Presentation Advance)	PowerPoint Basics; working with Slides; Text and Objects; More Object; Review and Collaborating; Customizing Your Presentation	Getting Started with PowerPoint Creating and Opening; Presentations Saving Presentations; The PowerPoint interface; Working with the PowerPoint environment; Using the Tell me feature; The Quick Access Toolbar Exporting presentations; Sharing presentations; Slide Basics; Organizing slides; Customizing slide layouts; Customizing slides; Text Basics; Applying Themes; Applying Transitions; Managing Slides; Using Find & Replace; Printing; Presenting Your Slide Show; Lists; Indents and Line Spacing; Inserting Pictures; Formatting Pictures; Shapes; Aligning, Ordering, and Grouping Objects; Animating Text and Objects; Inserting and managing Videos; Inserting and working with Audio; Tables; Charts; SmartArt Graphics; Checking Spelling and Grammar; Reviewing Presentations; Inspecting and Protecting Presentations; Modifying Themes; Slide Master View; Hyperlinks; Action Buttons; Rehearsing and Recording Your Presentation; Sharing Your Presentation On line etc.
5	Module 5- Digital Communication (Email and others)	Email Basics, Getting started with email, Common email terms and actions, email attachment etiquette, email safety, All about online communication	Getting to know email; Email advantages; Understanding email addresses Email productivity features; Setting up your own email account; Understanding the email interface; Understanding the basics of compose, inbox, CC, BCC; Contacts basics; Calendar basics; Tips for email success; Digital signature adding; Mention included attachments; Consider file size and format, only include related file, using email in business, email safety maintenance, how people communicate online, staying safe online, chat and instant messaging, Online Phone Calls, Video Chat and Group Calls, Text Messages, Texting without a mobile phone, Direct Messages, Social Posts, Status Updates, and Tweets, Communicating in a social network Blogging, free instant messenger services etc.
6	Module 6 – Data Security	Introduced to Data Security, Data Security	What You Should Know about Data Security? What are the Main Elements of Data Security? What are Data Security Considerations? Computer

Sl. No.	Module No. & Name	Use of ICT in Trade	Topics
		Technologies, how do you ensure data security? Understanding Threats and preventions, basic principles of information security	security, how to ensure computer security? What are Data Security Technologies? Data Auditing, Data Real-Time Alerts, Data Risk Assessment, Data Minimization, Hackers and Predator, Spyware, and Malware, Solutions on social media threat, Secure Passwords, Two-Factor Authentication, Methods to browsing the web safe! How Do You Ensure Data Security? Types of viruses-nature of the virus, SPAM, Phishing, dealing with spam, Other common email scams, What are the reasons for spreading virus from internet? Effects on Data/Information, How to disinfect viruses or prevent from threats, Quarantine Sensitive File, Track User Behavior against Data Groups, Data Security Regulations, How Varonis Helps with Data Security, Confidentiality, Integrity, Availability, Authenticity; Accountability; The need for Information security; Threats to Information Security; Unsecure or Poorly Secured Systems; Active and Passive attacks in Information; Security(Masquerade, Modification of messages, Repudiation, Replay, Denial of service) etc.
7	Module 7- Digital Marketing and Research	Digital marketing concept, concept of affiliate marketing, Social media marketing, mobile and SMS marketing, Facebook campaign, email campaign, concept of market research, types of market research, how to do market research, competitive analysis and how to conduct	Concept of Digital Marketing, what is Digital Marketing? Types of Digital Marketing; Benefits of Digital Marketing; How Digital Marketing Works? How does Digital Marketing work? B2C (Business to Customer) B2B (Business to Business); Digital Marketing Roles and Responsibilities; What's the Difference between Inbound Marketing and Digital Marketing? Email Marketing: A Complete Step-by-Step Guide to Start On; What is Email Marketing? How to Practice Email Marketing? What is Affiliate Marketing? What is the Process of Affiliate Marketing? How to Succeed in Affiliate Marketing (Merchant)? Benefits of Affiliate Marketing for a Merchant; How to Become an Affiliate Marketer? How Do I Use Google Data Studio? What is Social Media Marketing? What is Social Media Marketing? The Benefits of Social Media Marketing; How does social media marketing work? SEO and Social Media concept; functions of social media for business, Mobile analytics, data analytics; What is SMS Marketing? The Benefits of SMS Marketing? Best Practices for Any SMS Marketing Campaign; Email as a marketing tactic, how does email marketing work? Advantages of email marketing- SMS marketing as

Sl. No.	Module No. & Name	Use of ICT in Trade	Topics
		a market opportunity analysis	a strategy; examples of effective email marketing; Email marketing vs. SMS marketing: who wins? Facebook ads management services; Why is Facebook good for marketing? Benefits of Facebook Marketing; Formats of Facebook Marketing (Video ad, Image ads, Carousel ads, Collection ad, Slideshow ads, Lead generation ads); What is market research? What is Online Market Research? Why do market research? What is Purpose of Online Market Research? Primary Research; Secondary Research; Primary vs Secondary Research; Interviews; Focus Groups; Product/ Service Use Research; Qualitative research; Quantitative research; Observation-Based Research; Buyer Persona Research; Market Segmentation Research; Competitive Analysis Research; Customer Satisfaction and Loyalty Research; Brand Awareness Research; Campaign Research; Conduct keyword research; Define your buyer persona; Identify a persona group to engage; Prepare research questions for your market research participants; List your primary competitors; Summarize your findings; Market Research Report Template; SWOT analysis Template; market Survey Template; What is completive market analysis? Benefits of conducting competitive analysis; How to Conduct a Market Opportunity Analysis; Tools & Resources for Conducting Market Research etc.
8	Module 8- e-commerce	E-Commerce concept; E-Commerce - Business Models; Concept of E-Commerce - Payment Systems	What is E-Commerce? Features; E-Commerce advantages can be classified in three major categories; Business - to - Business (B2B); Business - to - Consumer (B2C); Consumer - to - Consumer (C2C); Consumer - to - Business (C2B); Business - to - Government (B2G); Government - to - Business (G2B); Government - to - Citizen (G2C); Credit Card; Debit Card; Smart Card; E-Money; Electronic Fund Transfer (EFT); SSL; SHTTP; Secure Electronic Transaction etc.
9	Module 9- Graphic Design	Intro to Graphic Design; Fundamentals of Design, Adobe in design; Adobe Photoshop;	Concept of Graphics Design; Elements of Design; typography; Color concept; Layout and Composition; The basis of art, design and more; Line; Shape; Form; Texture; Balance; Putting it all together; Knowing about industry standards design Apps-Photoshop, Illustrator, Adobe in design; The industry standard for Page layout; Create layouts with text, color, and graphics; Create multi-page

Sl. No.	Module No. & Name	Use of ICT in Trade	Topics
		Adobe Illustrator; Branding and Identity	documents such as brochures, books, magazines, and more; Prepare files for final output, such as a print or PDF; The industry standard for Photo Retouching; Retouch photos, create graphics, and more; Adjust color, contrast, and more; Draw vector graphics for web or in print; The industry standard for Drawing, Logos, and Graphics; Create graphics: logos, icons, patterns, packaging, and more; Draw vector graphics for web and print; Logo; Color; Typography; Images; Putting it all together etc.
10	Module 10- ICT Legal Environment Awareness in Bangladesh	Overview; ICT ACT; The Digital Security Act; Legal Bases	A Brief History of Security Awareness; ICT Policy of Bangladesh; Law on Information Technology; Information Security and Data; Protection Laws; What is the purpose of the ICT Act in Bangladesh (Online Law / Internet Law in Bangladesh ICT)? Criticism of the ICT Act; Digital Security Act; Data protection authority -regulatory authority; Main regulator for data protection Consent; Contract with the data subject; Legal obligations etc.

4.14 Road Map/Timeline for how the top ten export sectors ICTs to improve the conditions for women's entrepreneurship development (WED) in Bangladesh

Sl. No.	Activities	Range	Timeline
1	Campaigns to raise awareness of new information and communication technology (ICT)–enabled business opportunities for women entrepreneurs.	Short Term	2022-2025
2	Helping women entrepreneurs set up an online presence can expand their market reach to regional and international markets;	Short Term	2022-2025
3	Information and communication technology–enabled mentoring program for women entrepreneurs to grow successful businesses in the top ten export sectors;	Short Term	2022-2025
4	SMS (short messaging service)-based information alert service for women entrepreneurs in the top ten export sectors;	Short Term	2022-2025
5	Loan programs for women entrepreneurs to set up businesses in the entrepreneurs in the top ten export sectors through online businesses, or invest in information and communication technology–related equipment;	Mid Term	2024-2028
6	To increase access to gender-sensitive finance initiatives or special financing programs for women; Capacity building for government-based women's entrepreneurship development focal points, women	Mid Term	2024-2028
7	entrepreneurs' associations, and nongovernment organizations	Mid	2024-

Sl. No.	Activities	Range	Timeline
	that work with women entrepreneurs to increase effectiveness of information and communication technologies;	Term	2028
8	Leveraging information and communication technologies to enable access to gender-sensitive financial services and alternative access to finance, especially for women entrepreneurs in rural and peri-urban areas.	Mid Term	2024-2028
9	To provide top management position for women must be considered in the top ten export sectors.	Mid Term	2024-2028
10	Skill, resource, infrastructure and advance technology enhance in the top ten export sectors.	Long Term	2025-2030
11	Development sector wise women-friendly business models	Long Term	2025-2030
12	Best practice insurance models that prepare women for both foreseeable and unforeseen events will be necessary for providing the safety net women entrepreneurs will need in order to be successful.	Long Term	2028-2035
13	How to improve women's market access through procurement policies and third-party certification would help create businesses that are likely to grow and be sustainable over the longer term.	Long Term	2028-2035
14	Gender based violence, sexual harassment, and entrepreneurship, standard monitoring and evaluation of government and private sector programs concerning women's economic empowerment should track indicators on intimate partner violence, sexual harassment, and violence in the workplace	Long Term	2028-2035
15	The Use of Crowdfunding and Peer-to-Peer Funding to Support Women Entrepreneurs	Long Term	2028-2035

Chapter-5

Conclusions and Recommendations

5.0 Conclusions

➢ Most of the top 10 export sectors' ICT usage is dominated by men, while women lag behind. ICT has a great deal of potential to boost numerous business sectors' productivity and development. In order to ensure that women are included in the use of ICT, it is thought essential for business to be promoted, technology to be accessible, and opportunities to be created for women. This can be accomplished by taking a number of specific measures, such as making sure that all school and college curricula include computer science and IT-related courses, providing career training in fields like global business and management, business communication, and cross-cultural language learning, and making sure that the curriculum is in line with these topics. Additionally, hands-on instruction is needed in business management procedures, online information sources for customers and products, and the e-commerce sector.

➢ ICT government strategy that places a higher priority on user- and tech-centric methods above the market-oriented trend of ICT talent.

➢ To ensure their use as a successful business tool, various ICT technologies must be made accessible to them. In addition, with a focus on women, the digital infrastructure needs to be made more accessible and user-friendly.

➢ Steps must be taken to modernize business practices (custom modernization for paperless transactions like the NSW system), upgrade ICT infrastructure with tax incentives for private sector participation, particularly by women, upgrade courier services, and develop human resources in accordance with the government's policy (ICT-based business skill development).

➢ It is imperative that government policy on ICT be created, with an emphasis on more user- and techno-centric approaches that directly impact people as opposed to just the market-oriented trend of ICT skill development. To ensure that everyone has access to ICT, special consideration must be given in the policies, with a focus on women and poor or socioeconomically disadvantaged groups. Policies should promote ICT use by SMEs, particularly those run by women. ICT-based human capital development plans and industry requirements must be compatible for the business sector to prosper, and ICT-based educational and IT training institutions must have curricula that meet these criteria. To minimize any legal ramifications with the handling of foreign currency, specific regulations must be devised for freelancers and exports of ICT services.

➢ Increased family support and gender-specific governmental measures are required to overcome the many restrictive and harmful social norms that women must face. Women experience a range of concerns with personal safety and property security when using the Internet and smart phones, such as online harassment, human trafficking, and inadequate data protection standards when using Smartphone-based banking services.

➢ Proper policy formulation is important to reduce these hazards. Social policy changes are also required to lessen the linguist gap, which prohibits a sizeable percentage of the population, particularly in rural areas, from having access to the entire spectrum of

English-language ICT content.

➢ Women must be protected from a variety of restrictive and harmful social standards by ensuring better family support and enacting gender-specific national legislation. Women experience a range of concerns with personal safety and property security when using the Internet and smart phones, such as online harassment, human trafficking, and inadequate data protection standards when using Smartphone-based banking services. Proper policy formulation is important to reduce these hazards. Social policy changes are also required to lessen the linguist gap, which prohibits a sizeable percentage of the population, particularly in rural areas, from having access to the entire spectrum of English-language ICT content.

➢ Encourage the development of networks of women at different levels and make sure the policy dialogue has a gender-balanced membership in order to increase women's participation and mainstream gender-specific trade facilitation in national trade policies and ICT and telecom-related laws, rules, and regulations. The National Trade Facilitation Committee ought to guarantee the advancement of women.

➢ It was found that most Bangladeshi women company owners were young, married, educated, employed full-time as business owners, and supported by family members, primarily their husbands. Women worked in many different industries, but the industrial and service sectors gave them more opportunities. Due to entrepreneurial education and training, female entrepreneurs were able to grow in confidence. Although these are enduring truths, a lack of role models with an entrepreneurial attitude and ambition might have inspired female business owners to be more innovative, creative, and risk-takers. Women Company owners would be more empowered to adopt cutting-edge technologies and take calculated risks in order to pursue substantial investments if they were more innovative.

➢ Women's resource mobilization experiences improved their decision-making skills. Lack of operating capital, however, had a major negative impact on how well female business owners performed. Due to a lack of marketing training for international trade and expositions, it was also discovered that they were dependent on other people for marketing activities such as advertising, sales promotion, participation in trade fairs, and marketing research. To enhance their market share, the majority of female business owners prioritize mass production at lower costs over product quality. Unskilled labor was another barrier to the success of women-owned enterprises. Few of them could utilize the internet and had their own company websites. For female business entrepreneurs, this made networking and communication challenging. They perceived communication technologies as being expensive. One reason for this operational problem was the quick pace of technological advancement.

➢ How effectively women entrepreneurs do is affected by a number of factors, including the high borrowing interest rate, the rigorous collateral policy, the poor law-and-order situation, and bureaucratic red tape. Additionally, they find it challenging to operate efficiently due to economic factors such as the rate of inflation, the cost of raw materials, and the lack of essential infrastructure. The scarcity of raw materials, the high cost of labor, the dearth of trained laborers, and the high cost of legal support services all have an impact on how successful women entrepreneurs are. The report claims that because they are lacking in these areas, female entrepreneurs must improve their knowledge of company planning, marketing, accounting and bookkeeping, ICT, e-commerce, and regulatory procedures. It was found that there weren't enough instances of public training, despite certain NGOs offering training in a few selective places. Despite the gendered reality and a number of factors that had an impact on their performance, women entrepreneurs had been significantly contributing to the country's prosperity,

largely through the creation of jobs and gender mainstreaming. Their concentration on hiring more female personnel is the cause of this. These female entrepreneurs have supported their families financially by saving and spending.

5.1 Recommendations:

a) Role of ICT in export Facilitation:

i. **Capacity building and training (Skill Development for Use of ICT in Business Promotion):**
   - On subjects like digitizing paper-based data, integrating logistics operations, financial management, production formation, managing a network of clients and suppliers for exporters, product or service certification, accessibility to e-commerce platforms for placing orders, the ability to place export orders online, digital tracking of export consignments by shipper and buyer, and use of IC, very well-organized practical training should be offered. The training may cover topics such as learning about online information sources for their goods and services, e-commerce marketplaces, customs duties and procedures, online security, consumer and sales laws, rules governing online payments and taxes, businesses subject to intellectual property rights and infringements, and mobile device roaming fees, as well as the requirements and regulations of the destination country for entering an e-marketplace;
   - The involved organizations have been encouraged to increase their training initiatives and start utilizing ICT significantly in production, management, accounts, quality control, and dealing with compliance issues. The training on enabling technologies may include: (a) Electronic Data Interchange (EDI) systems (to provide the transactional tracking and global visibility of information from within the company and across its supply chain); (b) Enterprise Resource Planning (ERP) systems (to provide the instantaneous, paperless purchase order placement with suppliers); (c) Supply Chain Management software and Radio Frequency Identification (RFID) for traceability management; and. (d) Ongoing, high- speed Internet access to keep up with worldwide buyers and speed up all kinds of trade-related transactions; (e) Managing money and accounts with comprehensive accounting and billing software;
   - Government initiatives should be made to invest more in public education initiatives and targeted capacity-building training, especially for women involved in international trade, especially cross-border trade, and for relevant parties, with a special focus on women officials, such as customs officers, designers and creators of trade portals, and users of the electronic single window for submission of 15 to 20 trade-related documents using ICT tools.
   - Institutions offering vocational training and other Institutions should integrate courses in cross-cultural communication, website development, business marketing, and global business and management in their curricula.
   - For SME managers, owners, and employees, particularly women, as well as other staff members working in various export-oriented industries, training courses, with an emphasis on both technical and management skills, are to be developed in collaboration with business and sector organizations.
   - To create human capital for the freelancing industry, specialized training programs will need to be created, including ITES capacity-building training like multimedia product development. Online resources include brochures and periodicals. 2D and 3D presentations and animation audio and video editing, Animation Personalized Smart

Card Database Program in a Cartoon website development, Create Web Content Services to Update the Web Data entry in architectural design, call center or bank officer services, processing of all types of medical transcription, analytics of digital data, GIS, software lab testing, document conversion, outsourcing of robotic processes, cyber security services, etc. are just a few of the services available.

+ Newcomers to the freelancing industry would be provided specialized training on a variety of issues, including how to find websites, sign up for accounts, write and submit proposals, utilize the billing system, and other compliance requirements for receiving incentives and tax deductions.

ii. **Policy Measures:**

+ The acts and laws established by the Bangladesh Telecommunication Regulatory Commission (BTRC) should be more ICT policy and prospective commercial use-oriented rather than being more biased toward the regulatory aspects of ICT usage. Excessive spectrum charges that drive up the cost of mobile internet connection should be looked at and kept at a reasonable level in order to increase traders' accessibility to trading.

+ The current requirement that all certifications be submitted in soft copy first, then in hard copy, by the regulating organizations, needs to be modified for hassle-free international trade.

+ In order to make the drawback duty process related to the import of raw materials for exportable products easier and more convenient, online processing of papers should be introduced.

+ However, the use of QR codes in certification may dissuade any identified fraud. For the ease of conducting international trade, the customs of importing nations be convinced to allow submission of hard copies of certificates in addition to the availability of soft copies.

+ It is essential to ensure low-cost and high-speed 5G internet connectivity with the reduction of bandwidth and NTTN costs because ICT is heavily used by the already trained staff in the RMG sector, particularly for opening master L/Cs and B2B L/Cs, for sourcing raw materials, showcasing products, choosing a design, placing an order, realizing proceeds, etc. ICT is also used in the maritime sector, for customs/NBR/EPB clearance, and for paperwork in the banking sector;

+ Fish sector should be included in the National Single Window system.

+ Ensure use of ICT to automate the issuance of FIQC certificates, traceability certificates, and trade-related documentation.

+ Adoption of laws, rules, and regulations based on ICT policies that include provisions for the facilitation of all trade and ICT-based human resource development;

iii. **Infrastructure and logistics**

+ Customs department should be modernized as soon as possible, particularly with the implementation of the Automated System for Customs Data (ASYCUDA), to provide paperless custom clearing operations to help exporters and ensure meaningful application of IT in trade facilitation, the creation of efficient import and export processes for online transactions, including quick handling of intermediary items,

+ By providing tax advantages to the private sector, particularly women entrepreneurs, and encouraging foreign investment in ICT-related companies, it may improve the ICT infrastructure;

+ Enhance courier services by expanding postal home delivery coverage and encouraging small and medium-sized businesses (SMEs) to enter this market.

- To close the skills gap in the ICT industry, a few centers of excellence for IT training should be established.
- In collaboration with ISPs, IIGs, submarine/ITC cable providers, and NTTN operators, BTRC should put comprehensive procedures into place to guarantee that the costs of data plans are reasonable and more reasonable.
- In order to promote collaboration between business entities and governmental organizations, the government should act fast to automate all ministries, divisions, and departments involved in trade, exports, and imports;
- The government should undertake relevant and applicable legal reforms in coordination with the Ministry of Law, Justice, and Parliamentary Affairs in order to ensure that all departments, ministries, and other organizations involved in international commerce can effectively interface online.
- In order to reduce the risk of the IT Divide, emphasis be focused on the widespread use of ICT at all business levels, including banks, customs, VAT/Income Tax, etc., as well as the necessity for seamless interoperability between all such entities in an ICT-based network.
- Introduction of supporting technologies for their EXIM fish trade to manage the worldwide supply chain. These are as follows:
  a) Enterprise Resource Planning (ERP) systems (which allow the transactional monitoring and worldwide visibility of information from within the organization and across its supply chain);
  b) Electronic Data Interchange (EDI) (to facilitate the placement of rapid, paperless purchase orders with suppliers);
  c) Electronic certification in the industry;
  d) supply chain management software;
  e) Radio frequency identification (RFID) Fisheries Sector Data Base.

iv. **Bangladesh e-Commerce:**
- The government may decide to strengthen and modernize the postal parcel system up to rural areas in order to guarantee online delivery of client items.
- In order to facilitate cross-border e-commerce, regulatory actions must be made to implement a robust privacy policy and a functional online transaction system.
- To encourage the participation of more women from all socio-economic strata and to promote gender equality in e-commerce, ICT policies, Acts, and related rules and regulations should be made more favorable to women.

b) Role of Women in ICT Service Provision:

i. **Providing incentives and making ICT tools more accessible for women traders**
- Governmental organizations should provide incentives to lower the price of all ICT-related goods and services. In order to supply risk capital for low-interest smartphone loans for entrepreneurs, particularly women traders, firms can also consider a collaboration with financial institutions. Mobile network operators should work with manufacturers to establish clear and open pricing regulations in order to offer entry-level handsets to female traders at a lower cost.
- Additionally, the digital infrastructure needs to be more accessible and user-friendly for them. For instance, with a focus on the ICT sectors most likely to have an impact on female entrepreneurs and SMEs, the authorities should build relevant channels and services to enable electronic document submission and promote e-payment.

- The government may adopt specialized and focused policy measures to encourage the development of human resources through services in the fields of software development, software or application customization, NTTN, digital content development and management, digital animation development, website development, website services, web listing, IT process outsourcing, website hosting, cloud service, system integration, e-learning platforms, e-book publications, and mobile devices. Digital data entry and processing, geographic information services, data analytics, IT support and software maintenance, call center services, overseas medical transcription services, search engine optimization services, document conversion, robotic process outsourcing, cyber security services, and other comparable services could be a sizable source of foreign exchange earnings and job creation in the country.

ii. **Raising awareness on gender equality and digital trade facilitation**
- Raise awareness of ways to make it simpler to enact national legislation that are gender-specific, which will gradually remove undesirable and limiting social conventions.
- A practical approach should be employed when creating ICT policy to contextualize socioeconomic concerns as well as the unique features of the local human, cultural, and technological resources.
- To examine the demand for goods and services and use the ICT trade site, each of the roughly 18 women's chambers may have access to their internal networking tools.

iii. **Ensuring a safe ICT environment for women (Legal Framework)**
- Development of a legal framework that safeguards users' rights to privacy, security, and safety when using cell phones and the internet.
- Collaborating with key players from the mobile network providers, cyber security specialists, and women traders' associations to advance safety initiatives to minimize or reduce risks for women traders and to share knowledge and skills in the secure use of the Internet and pertinent technology;
- Female traders may be more susceptible to new gender-based risks including cyber stalking, online harassment, and even human trafficking, which could compromise their online safety and Smartphone security. Additionally, while using Smartphone-enabled solutions to expand their access to financial services, possible risks including shoddy data protection procedures must also be taken into account.
- The linguist-cultural divide should be narrowed by the implementation of specific governmental measures.

iv. **Consultation with female traders and women's associations**
- In order to identify and remove gender-based barriers and guarantee the balanced participation of both genders, networks of women in business may be developed, encouraging their active participation in policy dialogue at the national and regional levels.
- Given their significant consultative role, NTTFCs should prioritize gender-specific concerns, maintain a gender-balanced membership, and pay particular attention to the views of their female members as voiced through various women's business organizations.
- Incorporating gender-specific trade facilitation in national trade policies as well as telecom- and ICT-related laws, rules, and regulations to make sure that female entrepreneurs fully utilize ICT tools and solutions In order to provide effective and affordably priced ICT services to women traders and promote international trade,

NTT COM should have as much of a leadership and coordinating role as is practicable.

- Additionally, it's critical to support the establishment of cooperatives, associations, and networks by female cross-border and/or cross-country traders. Combining resources and advantages enables women to more successfully advocate for their issues.

C) Regulation Analysis:

i) Tax Exemption Facility for IT-Enabled Services (ITES)

- A Freelancers' Association of Bangladesh (FAB) may be established, or freelancers who are not members of BASIS but produce considerable quantities of foreign cash for Bangladesh each year may join BASIS. The government may take the required steps to relax the aforementioned prerequisites for qualification for the tax exemption of the Freelancers' Association.
- An online tax exemption certificate may be issued by the relevant tax office in order to save time and effort.
- Because women are disproportionately underrepresented in the use of ICT, particularly as self - employed, exceptional provisions may be incorporated to the ICT Act to provide specific financial rewards, incentives, or a relaxation.

ii) Incentives for Freelancers:

- Regulations must be reviewed, streamlined, and made more ITES and freelancer friendly in order to be eligible for the rewards. In order to help medium and big freelancers or ITES providers collect their export money, the capping income level (US $5,000.00) should be increased. In addition, the regulatory compliance requirements should be examined, made easier to understand, and more accommodating to ITES and freelancers.
- To make the transmission of export earnings through already-existing legal channels easier, PayPal and other similar technologies should be created.
- It may be possible to follow the freelancers and ITES in a database and provide support as required.
- The necessity for a legal structure for the freelancers is necessitated by the fact that they are not officially registered. To learn more about these freelancers' specific transactions, a specific database of them needs to be created. The ICT Act may be amended to include particular regulatory rules that provide unique financial advantages.

iii) Cyber Security:

- Regulations should be put in place to combat all types of personal cybercrimes with both protective and punitive measures (such as the transmission of child pornography and harassment of anyone using a computer, such as e-mail), the trafficking, distribution, posting, and dissemination of obscene material (including pornography and indecent exposure, etc.), as well as property cybercrimes (computer vandalism by malicious users). Regulations should be used to address personal cybercrimes like the dissemination of child porn and harassment of anyone using a computer or email.
- The Bangladesh ICT Act should be examined and changed in light of all forms of cybercrime in order to protect freelancers and exporters of IT-enabled services from cyberattacks. It is important to handle cybercrimes committed outside of Bangladesh's borders, issues with electronic transactions (e-Transactions), and crimes committed

against intellectual property rights like copyright, trademark, e-information, and data patent rights.

vi) **Intellectual property protection:**

- ✦ Software is protected by copyright as a literary work, as stated in Section 2(46) of the Copyright Act, 2000. Effective optical disc rules should be put in place, and current copyright laws should be enforced, to protect the software industry, which is adversely impacted by piracy.
- ✦ It is necessary to pass legislation safeguarding integrated circuit layout and design as well as utility models, trade secrets, and unreported knowledge.
- ✦ Digital transactions should be governed by laws and regulations under the Customs Acts;
- ✦ The government should think about enacting new patent and industrial design laws, trademark laws, copyright laws, regulatory regimes, and other measures to address the legal issues surrounding intellectual property protection (such as insufficient patent, copyright, and trademark regimes and enforcement of intellectual property rights) for data and other ICT products.
- ✦ Add a specific time slot in the CCI and E licensing modules for issuing ERCs and IRCs to women.

Appendix-1

Survey Findings Table

Appendix-1.1: Respondents' Education Levels by Gender and Sector

Sector	Education Qualification	Male		Female[1]		Total	
		No.	%	No.	%	No.	%
Knit or crochet clothing, accessories	Primary Education	0	0.0	1	5.0	1	0.5
	Lower secondary	2	1.1	1	5.0	3	1.4
	Secondary Education	1	0.5	2	10.0	3	1.4
	Higher Secondary	24	12.8	7	35.0	31	15.0
	Graduate	89	47.6	2	10.0	91	44.0
	Postgraduate	68	36.4	6	30.0	74	35.7
	PhD	3	1.6	1	5.0	4	1.9
	Total	**187**	**100**	**20**	**100**	**207**	**100**
Clothing, accessories (not knit or crochet)	Illiterate	1	0.4	0	0.0	1	0.3
	Primary Education	1	0.4	1	1.2	2	0.6
	Lower secondary	1	0.4	5	6.1	6	1.8
	Secondary Education	5	2.0	39	47.6	44	13.4
	Higher Secondary	5	2.0	7	8.5	12	3.7
	Graduate	60	24.4	6	7.3	66	20.1
	Postgraduate	170	69.1	20	24.4	190	57.9
	PhD	1	0.4	0	0.0	1	0.3
	Others	2	0.8	4	4.9	6	1.8
	Total	**246**	**100.0**	**82**	**100.0**	**328**	**100.0**
Footwear	Secondary Education	2	2.0	0	0.0	2	1.8
	Higher Secondary	9	9.0	0	0.0	9	8.1
	Graduate	22	22.0	2	1.8	24	21.6
	Postgraduate	49	49.0	5	4.5	54	48.6
	PhD	1	1.0	0	0.0	1	0.9
	Others	17	17.0	4	3.6	21	18.9
	Total	**100**	**100.0**	**111**	**100.0**	**111**	**100.0**
Miscellaneous textiles, worn clothing	Graduate	25	55.6	5	55.6	30	55.6
	Postgraduate	17	37.8	4	44.4	21	38.9
	PhD	2	4.4	0	0.0	2	3.7
	Others	1	2.2	0	0.0	1	1.9
	Total	**45**	**100.0**	**9**	**100.0**	**54**	**100.0**
Paper yarn, woven fabric	Graduate	3	37.5	1	100	4	44.4
	Postgraduate	1	12.5	0	0	1	11.1
	Others	4	50	0	0	4	44.4
	Total	**8**	**100**	**1**	**100**	**9**	**100.0**
Fish	Secondary Education	1	0.9	0	0.0	1	0.8
	Higher Secondary	16	14.7	5	27.8	21	16.5
	Graduate	39	35.8	7	38.9	46	36.2

Sector	Education Qualification	Male		Female[1]		Total	
		No.	%	No.	%	No.	%
	Postgraduate	51	46.8	6	33.3	57	44.9
	Others	2	1.8	0	0.0	2	1.6
	Total	**109**	**100.0**	**18**	**100.0**	**127**	**100.0**
Leather/animal gut articles	Higher Secondary	1	20.0	0	0	1	20
	Graduate	2	40.0	0	0	2	40
	Postgraduate	2	40.0	0	0	2	40
	Total	**5**	**100.0**	**0**	**0**	**5**	**100**
Raw hides, skins not fur skins, leather	Lower secondary	2	0.9	0	0.0	2	0.9
	Secondary Education	4	1.8	0	0.0	4	1.7
	Higher Secondary	51	23.5	2	16.7	53	23.1
	Graduate	70	32.3	7	58.3	77	33.6
	Postgraduate	81	37.3	3	25.0	84	36.7
	PhD	2	0.9	0	0.0	2	0.9
	Others	7	3.2	0	0.0	7	3.1
	Total	**217**	**100.0**	**12**	**100.0**	**229**	**100.0**
Plastics, plastic articles	Higher Secondary	1	0.9	0	0.0	1	0.8
	Graduate	10	9.3	4	28.6	14	11.6
	Postgraduate	96	89.7	10	71.4	106	87.6
	Total	**107**	**100.0**	**14**	**100.0**	**121**	**100.0**
Headgear	Higher Secondary	2	2.2	0	0.0	2	1.7
	Graduate	24	26.4	7	29.2	31	27.0
	Postgraduate	62	68.1	15	62.5	77	67.0
	PhD	1	1.1	0	0.0	1	0.9
	Others	2	2.2	2	8.3	4	3.5
	Total	**91**	**100.0**	**24**	**100.0**	**115**	**100.0**
		1115	100	191	100	1306	100

Appendix 1.2: Sector wise prospects for women as owners and workers sector wise in using ICT as a Tools

Sector	Women's Prospects as Owners		
	Level of Prospect	No.	% Response
Knit or crochet clothing, accessories	Very High	0	0.00
	High	3	1.45
	Medium	35	16.91
	Low	113	54.59
	Very Low	56	27.05
Clothing, accessories (not knit or crochet)	Very High	33	10.06
	High	30	9.15
	Medium	11	3.35
	Low	226	68.90
	Very Low	28	8.54
Footwear	Very High	0	0.00

Sector	Women's Prospects as Owners		
	Level of Prospect	No.	% Response
	High	6	5.41
	Medium	46	41.44
	Low	46	41.44
	Very Low	13	11.71
Miscellaneous textiles, worn clothing	Very High	0	0.00
	High	4	7.41
	Medium	6	11.11
	Low	8	14.81
	Very Low	36	66.67
Paper yarn, woven fabric	Very High	0	0.00
	High	0	0.00
	Medium	0	0.00
	Low	8	88.89
	Very Low	1	11.11
Fish	Very High	15	11.81
	High	7	5.51
	Medium	24	18.90
	Low	28	22.05
	Very Low	53	41.73
Leather/animal gut articles	Medium	1	20
	Low	1	20
	Very Low	3	60
Raw hides, skins not fur skins, leather	Very High	0	0.00
	High	1	0.44
	Medium	36	15.72
	Low	33	14.41
	Very Low	159	69.43
Plastics, plastic articles	Medium	104	85.95
	Low	16	13.22
	Very Low	1	0.83
Headgears	Very High	0	0.00
	High	0	0.00
	Medium	8	6.96
	Low	43	37.39
	Very Low	64	54.78
Total		1306	

Appendix-1.3: Impact of Use of ICT on the Firms' Productivity in the top ten export sectors

Sector	Impact on Firm's Productivity		
	Type of Impact	Frequency	% of Sector-wide Firms
Knit or crochet clothing, accessories	Improved physical work environment	135	65.2
	Speed of work	190	91.78
	Accuracy in work	190	91.78
	Advantage of work from home/out of office/factory	174	84.05

Sector	Impact on Firm's Productivity		
	Type of Impact	Frequency	% of Sector-wide Firms
	More time-off and/or scope to attend extra work or social activities	136	65.70
	Better data security	126	60.87
	Better data preservation	122	58.94
	Timeliness in production	124	59.90
	Timeliness in delivery of products/services	121	58.45
	Others (please specify)	93	44.93
Clothing, accessories (not knit or crochet)	Improved physical work environment	80	24.39
	Speed of work	299	91.16
	Accuracy in work	290	88.41
	Advantage of work from home/out of office/factory	125	38.11
	More time-off and/or scope to attend extra work or social activities	97	29.57
	Better data security	318	96.95
	Better data preservation	318	96.95
	Timeliness in production	163	49.70
	Timeliness in delivery of products/services	101	30.79
	Others (please specify)	7	2.13
Footwear	Improved physical work environment	52	46.85
	Speed of work	75	67.57
	Accuracy in work	72	64.86
	Advantage of work from home/out of office/factory	81	72.97
	More time-off and/or scope to attend extra work or social activities	54	48.65
	Better data security	35	31.53
	Better data preservation	47	42.34
	Timeliness in production	16	14.41
	Timeliness in delivery of products/services	14	12.61
	Others (please specify)	3	2.70
Miscellaneous textiles, worn clothing	Improved physical work environment	53	98.15
	Speed of work	54	100.00
	Accuracy in work	52	96.30
	Advantage of work from home/out of office/factory	52	96.30
	More time-off and/or scope to attend extra work or social activities	53	98.15
	Better data security	53	98.15
	Better data preservation	52	96.30
	Timeliness in production	54	100.00
	Timeliness in delivery of products/services	52	96.30
Paper yarn, woven	Improved physical work environment	9	100.00
	Speed of work	9	100.00

Sector	Impact on Firm's Productivity		
	Type of Impact	Frequency	% of Sector-wide Firms
fabric	Accuracy in work	9	100.00
	Advantage of work from home/out of office/factory	7	77.78
	More time-off and/or scope to attend extra work or social activities	9	100.00
	Better data security	8	88.89
	Better data preservation	9	100.00
	Timeliness in production	7	77.78
	Timeliness in delivery of products/services	8	88.89
	Others (please specify)	9	100
Fish	Improved physical work environment	114	89.76
	Speed of work	92	72.44
	Accuracy in work	92	72.44
	Advantage of work from home/out of office/factory	117	92.13
	More time-off and/or scope to attend extra work or social activities	113	88.98
	Better data security	113	88.98
	Better data preservation	53	41.73
	Timeliness in production	44	34.65
	Timeliness in delivery of products/services	47	37.01
	Others (please specify)	45	35.43
Leather/animal gut articles	Improved physical work environment	2	40
	Speed of work	5	100
	Accuracy in work	5	100
	Advantage of work from home/out of office/factory	2	40
	More time-off and/or scope to attend extra work or social activities	4	80
	Better data security	2	40
	Better data preservation	3	60
	Timeliness in production	2	40
	Timeliness in delivery of products/services	2	40
	Others (please specify)	2	40
Raw hides, skins not fur skins, leather	Improved physical work environment	108	47.16
	Speed of work	216	94.32
	Accuracy in work	216	94.32
	Advantage of work from home/out of office/factory	177	77.29
	More time-off and/or scope to attend extra work or social activities	203	88.65
	Better data security	138	60.26
	Better data preservation	126	55.02
	Timeliness in production	144	62.88
	Timeliness in delivery of products/services	92	40.17

Sector	Impact on Firm's Productivity		
	Type of Impact	Frequency	% of Sector-wide Firms
	Others (please specify)	85	37.12
Plastics, plastic articles	Improved physical work environment	118	97.52
	Speed of work	120	99.17
	Accuracy in work	120	99.17
	Advantage of work from home/out of office/factory	121	100.00
	More time-off and/or scope to attend extra work or social activities	121	100.00
	Better data security	119	98.35
	Better data preservation	121	100.00
	Timeliness in production	120	99.17
	Timeliness in delivery of products/services	119	98.35
	Others (please specify)	118	97.52
Others	Improved physical work environment	100	86.96
	Speed of work	102	88.70
	Accuracy in work	102	88.70
	Advantage of work from home/out of office/factory	58	50.43
	More time-off and/or scope to attend extra work or social activities	23	20.00
	Better data security	21	18.26
	Better data preservation	36	31.30
	Timeliness in production	36	31.30
	Timeliness in delivery of products/services	21	18.26
	Others (please specify)	21	18.26
Multiple Response			

Appendix-1.4: Impact of Use of ICT on the Firms' Profitability

Sector	Impact on Firm's Profitability		
	Type of Impact	Frequency	% of Sector-wide Firms
Knit or crochet clothing, accessories	Reduction in processing costs	188	90.82
	Lower procurement costs for raw materials	95	45.89
	Lower sales costs	100	48.31
	Reduction of time for consultation with buyers	174	84.06
	Reduction of costs of sample production and approval	141	68.12
	Scope to easily serve a wider market	114	55.07
	Better price for better quality (of products/services)	124	59.90
	Reduction of wastes (Rejection Costs)	112	54.11
Clothing, accessories (not knit	Reduction in processing costs	230	70.12
	Lower procurement costs for raw materials	267	81.40
	Lower sales costs	269	82.01

Sector	Impact on Firm's Profitability		
	Type of Impact	Frequency	% of Sector-wide Firms
or crochet)	Reduction of time for consultation with buyers	226	68.90
	Reduction of costs of sample production and approval	277	84.45
	Scope to easily serve a wider market	283	86.28
	Better price for better quality (of products/services)	220	67.07
	Reduction of wastes (Rejection Costs)	59	17.99
Footwear	Reduction in processing costs	74	66.67
	Lower procurement costs for raw materials	55	49.55
	Lower sales costs	51	45.95
	Reduction of time for consultation with buyers	64	57.66
	Reduction of costs of sample production and approval	62	55.86
	Scope to easily serve a wider market	46	41.44
	Better price for better quality (of products/services)	35	31.53
	Reduction of wastes (Rejection Costs)	41	36.94
Miscellaneous textiles, worn clothing	Reduction in processing costs	53	98.15
	Lower procurement costs for raw materials	53	98.15
	Lower sales costs	53	98.15
	Reduction of time for consultation with buyers	54	100.00
	Reduction of costs of sample production and approval	54	100.00
	Scope to easily serve a wider market	53	98.15
	Better price for better quality (of products/services)	52	96.30
	Reduction of wastes (Rejection Costs)	51	94.44
Paper yarn, woven fabric	Reduction in processing costs	9	100.00
	Lower procurement costs for raw materials	9	100.00
	Lower sales costs	9	100.00
	Reduction of time for consultation with buyers	8	88.89
	Reduction of costs of sample production and approval	9	100.00
	Scope to easily serve a wider market	8	88.89
	Better price for better quality (of products/services)	7	77.78
	Reduction of wastes (Rejection Costs)	9	
Fish	Reduction in processing costs	127	100.00
	Lower procurement costs for raw materials	42	33.07
	Lower sales costs	125	98.43
	Reduction of time for consultation with buyers	121	95.28
	Reduction of costs of sample production and approval	122	96.06
	Scope to easily serve a wider market	93	73.23
	Better price for better quality (of	80	62.99

Sector	Impact on Firm's Profitability		
	Type of Impact	Frequency	% of Sector-wide Firms
	products/services)		
	Reduction of wastes (Rejection Costs)	56	44.09
Leather/animal gut articles	Reduction in processing costs	3	60.00
	Lower procurement costs for raw materials	2	40.00
	Lower sales costs	3	60.00
	Reduction of time for consultation with buyers	4	80.00
	Reduction of costs of sample production and approval	4	80.00
	Scope to easily serve a wider market	1	20.00
	Better price for better quality (of products/services)	1	20.00
	Reduction of wastes (Rejection Costs)	1	20.00
Raw hides, skins not fur skins, leather	Reduction in processing costs	181	79.04
	Lower procurement costs for raw materials	181	79.04
	Lower sales costs	179	78.17
	Reduction of time for consultation with buyers	181	79.04
	Reduction of costs of sample production and approval	188	82.10
	Scope to easily serve a wider market	140	61.14
	Better price for better quality (of products/services)	105	45.85
	Reduction of wastes (Rejection Costs)	170	74.24
Plastics, plastic articles	Reduction in processing costs	120	99.17
	Lower procurement costs for raw materials	120	99.17
	Lower sales costs	120	99.17
	Reduction of time for consultation with buyers	118	97.52
	Reduction of costs of sample production and approval	119	98.35
	Scope to easily serve a wider market	118	97.52
	Better price for better quality (of products/services)	118	97.52
	Reduction of wastes (Rejection Costs)	113	93.39
		121	
Others	Reduction in processing costs	73	63.48
	Lower procurement costs for raw materials	64	55.65
	Lower sales costs	32	27.83
	Reduction of time for consultation with buyers	23	20.00
	Reduction of costs of sample production and approval	27	23.48
	Scope to easily serve a wider market	36	31.30
	Better price for better quality (of products/services)	25	21.74
	Reduction of wastes (Rejection Costs)	64	55.65
Multiple Responses			

Appendix-1.5: Problems in Use of ICT in Respective Work Areas

Sector	Problem	Number of Respondents	% of Sector-wide Respondents
Knit or crochet clothing, accessories	ICT work for me not socially or family-wise accepted/respected	6	2.90
	Social or family-based constraints in use of ICT outside of normal office/factory hours	7	3.38
	Shortage of relevant skills	126	60.87
	Lack/Shortage of in-house mentors/trainers at workplace	82	39.61
	Outdated/Obsolete hardware	21	10.14
	Outdated/Obsolete software	11	5.31
	Countrywide non-availability of hardware / software	11	5.31
	High cost of ICT hardware / software	16	7.73
	Power outages	29	14.01
	Others (Please specify)	192	92.75
Clothing, accessories (not knit or crochet)	ICT work for me not socially or family-wise accepted/respected	7	2.13
	Social or family-based constraints in use of ICT outside of normal office/factory hours	25	7.62
	Shortage of relevant skills	255	77.74
	Lack/Shortage of in-house mentors/trainers at workplace	257	78.35
	Outdated/Obsolete hardware	140	42.68
	Outdated/Obsolete software	131	39.94
	Countrywide non-availability of hardware / software	211	64.33
	High cost of ICT hardware / software	209	63.72
	Power outages	257	78.35
	Others (Please specify)	166	50.61
Footwear	ICT work for me not socially or family-wise accepted/respected	26	23.42
	Social or family-based constraints in use of ICT outside of normal office/factory hours	25	22.52
	Shortage of relevant skills	68	61.26
	Lack/Shortage of in-house mentors/trainers at workplace	61	54.95
	Outdated/Obsolete hardware	23	20.72
	Outdated/Obsolete software	13	11.71
	Countrywide non-availability of hardware / software	45	40.54
	High cost of ICT hardware / software	24	21.62
	Power outages	81	72.97
	Others (Please specify)	69	62.16
Miscellane	ICT work for me not socially or family-	4	7.41

Sector	Problem	Number of Respondents	% of Sector-wide Respondents
ous textiles, worn clothing	wise accepted/respected		
	Social or family-based constraints in use of ICT outside of normal office/factory hours	2	3.70
	Shortage of relevant skills	9	16.67
	Lack/Shortage of in-house mentors/trainers at workplace	0	0.00
	Outdated/Obsolete hardware	0	0.00
	Outdated/Obsolete software	1	1.85
	Countrywide non-availability of hardware / software	1	1.85
	High cost of ICT hardware / software	12	22.22
	Power outages	11	20.37
	Others (Please specify)	32	59.26
Paper yarn, woven fabric	ICT work for me not socially or family-wise accepted/respected	3	33.33
	Social or family-based constraints in use of ICT outside of normal office/factory hours	2	22.22
	Shortage of relevant skills	1	11.11
	Lack/Shortage of in-house mentors/trainers at workplace	2	22.22
	Outdated/Obsolete hardware	6	66.67
	Outdated/Obsolete software	5	55.56
	Countrywide non-availability of hardware / software	0	0.00
	High cost of ICT hardware / software	3	33.33
	Power outages	5	55.56
	Others (Please specify)	1	11.11
Fish	ICT work for me not socially or family-wise accepted/respected	1	0.79
	Social or family-based constraints in use of ICT outside of normal office/factory hours	1	0.79
	Shortage of relevant skills	123	96.85
	Lack/Shortage of in-house mentors/trainers at workplace	90	70.87
	Outdated/Obsolete hardware	5	3.94
	Outdated/Obsolete software	5	3.94
	Countrywide non-availability of hardware / software	25	19.69
	High cost of ICT hardware / software	30	23.62
	Power outages	81	63.78
	Others (Please specify)	113	88.98
Leather/ animal gut articles	ICT work for me not socially or family-wise accepted/respected	3	60.00
	Social or family-based constraints in use of ICT outside of normal office/factory hours	2	40.00

Sector	Problem	Number of Respondents	% of Sector-wide Respondents
	Shortage of relevant skills	4	80.00
	Lack/Shortage of in-house mentors/trainers at workplace	3	60.00
	Outdated/Obsolete hardware	1	20.00
	Outdated/Obsolete software	1	20.00
	Countrywide non-availability of hardware / software	3	60.00
	High cost of ICT hardware / software	1	20.00
	Power outages	4	80.00
	Others (Please specify)	4	80.00
Raw hides, skins not fur skins, leather	ICT work for me not socially or family-wise accepted/respected	10	4.37
	Social or family-based constraints in use of ICT outside of normal office/factory hours	21	9.17
	Shortage of relevant skills	203	88.65
	Lack/Shortage of in-house mentors/trainers at workplace	173	75.55
	Outdated/Obsolete hardware	25	10.92
	Outdated/Obsolete software	31	13.54
	Countrywide non-availability of hardware / software	82	35.81
	High cost of ICT hardware / software	31	13.54
	Power outages	198	86.46
	Others (Please specify)	201	87.77
Plastics, plastic articles	ICT work for me not socially or family-wise accepted/respected	116	95.87
	Social or family-based constraints in use of ICT outside of normal office/factory hours	117	96.69
	Shortage of relevant skills	119	98.35
	Lack/Shortage of in-house mentors/trainers at workplace	119	98.35
	Outdated/Obsolete hardware	117	96.69
	Outdated/Obsolete software	117	96.69
	Countrywide non-availability of hardware / software	119	98.35
	High cost of ICT hardware / software	118	97.52
	Power outages	121	100.00
	Others (Please specify)	120	99.17
Others	ICT work for me not socially or family-wise accepted/respected	36	31.30
	Social or family-based constraints in use of ICT outside of normal office/factory hours	19	16.52
	Shortage of relevant skills	60	52.17
	Lack/Shortage of in-house mentors/trainers at workplace	50	43.48

Sector	Problem	Number of Respondents	% of Sector-wide Respondents
	Outdated/Obsolete hardware	13	11.30
	Outdated/Obsolete software	18	15.65
	Countrywide non-availability of hardware / software	23	20.00
	High cost of ICT hardware / software	40	34.78
	Power outages	16	13.91
	Others (Please specify)	69	60.00
Multiple Response			

Appendix-1.6: Age of the Respondent' Firms sector wise

Sector	Age of the Firm(s)	Number of Firms	% Of Sector-total Firms
Knit or crochet clothing, accessories	One – Three years	12	5.8
	Four – Six Years	8	3.86
	Six -Nine Years	10	4.83
	Ten- twelve Years	14	6.76
	Thirteen -Fifteen	15	7.25
	Sixteen -Twenty	14	6.76
	More than twenty	134	64.73
Clothing, accessories (not knit or crochet)	One – Three years	62	18.9
	Four – Six Years	156	47.56
	Six -Nine Years	49	14.94
	Ten- twelve Years	15	4.57
	Thirteen -Fifteen	5	1.52
	Sixteen -Twenty	13	3.96
	More than twenty	28	8.54
Footwear	One – Three years	2	1.8
	Four – Six Years	17	15.32
	Six -Nine Years	7	6.31
	Ten- twelve Years	18	16.22
	Thirteen -Fifteen	12	10.81
	Sixteen -Twenty	33	29.73
	More than twenty	22	19.82
Miscellaneous textiles, worn clothing	One – Three years	1	1.85
	Six -Nine Years	1	1.85
	Ten- twelve Years	1	24.07
	Thirteen -Fifteen	25	24.07
	Sixteen -Twenty	13	24.07
	More than twenty	13	24.07
Paper yarn, woven fabric	More than twenty	9	100.00
Fish	One – Three years	1	.79
	Four – Six Years	10	7.87
	Six -Nine Years	5	3.94
	Ten- Twelve Years	9	7.09

Sector	Age of the Firm(s)	Number of Firms	% Of Sector-total Firms
	Thirteen -Fifteen	1	0.79
	Sixteen -Twenty	3	2.36
	More than twenty	98	77.17
Leather/animal gut articles	Ten- Twelve Years	1	20
	Sixteen -Twenty	4	20
	Four – Six Years	5	20
	Six -Nine Years	1	40
Raw hides, skins not fur skins, leather	One – Three years	1	0.44
	Four – Six Years	4	1.75
	Six -Nine Years	5	2.18
	Ten- twelve Years	4	1.75
	Thirteen -Fifteen	8	3.49
	Sixteen -Twenty	90	39.30
	More than twenty	117	51.09
Plastics, plastic articles	Four – Six Years	1	0.83
	Ten- Twelve Years	4	3.31
	Thirteen -Fifteen	8	6.61
	Sixteen -Twenty	23	19.01
	More than twenty	85	70.25
Headgear	Four – Six Years	1	0.87
	Ten- twelve Years	7	6.09
	Thirteen -Fifteen	36	31.30
	Sixteen -Twenty	70	60.87
	More than twenty	1	0.87

Appendix-1.7: Types of Registration of Respondent' Firms

Sector	Type of Registration	Number of firms	% Of Sector-specific Number of Firms
Knit or crochet clothing, accessories	Proprietorship	180	86.96
	Partnership	24	11.59
	Private Limited	3	1.45
Clothing, accessories (not knit or crochet)	Proprietorship	285	86.89
	Partnership	20	6.10
	Others	23	7.0
Footwear	Proprietorship	45	40.54
	Partnership	38	34.23
	Private Limited	28	25.23
Miscellaneous textiles, worn clothing	Proprietorship	10	18.52
	Partnership	28	51.85
	Private Limited	2	3.70
	Others	14	25.9
Paper yarn, woven fabric	Proprietorship	1	11.11
	Others	8	88.9
Fish	Proprietorship	91	71.65
	Partnership	7	5.51
	Private Limited	29	22.83

Sector	Type of Registration	Number of firms	% Of Sector-specific Number of Firms
Leather/animal gut articles	Proprietorship	4	80
	Partnership	1	20
Raw hides, skins not fur skins, leather	Proprietorship	86	37.55
	Partnership	55	24.02
	Private Limited	87	37.99
	Others	1	0.04
Plastics, plastic articles	Proprietorship	21	17.36
	Partnership	98	80.99
	Private Limited	2	1.65
Others	Proprietorship	80	69.57
	Partnership	16	13.91
	Private Limited	1	0.87
	Others	18	7.0

Appendix-1.8: Total Numbers of Employees in Sector-wise Firms

Sector	Range of Number of Employees	Frequency of Firms	% of Sector-wide Total Firms
Knit or crochet clothing, accessories	Less than 50	2	0.97
	100-200 workers	4	1.93
	200-300 workers	18	8.70
	400-500 workers	44	21.26
	500-600 workers	14	6.76
	600-700 workers	87	42.03
	700-800 workers	2	0.97
	900-1000 workers	7	3.38
	1000 workers	5	2.42
	2000 workers	14	6.76
	3000 workers	9	4.35
	4000 workers	1	0.48
Clothing, accessories (not knit or crochet)	Less than 50	62	18.90
	100-200 workers	4	1.22
	200-300 workers	8	2.44
	400-500 workers	4	1.22
	600-700 workers	2	0.61
	700-800 workers	1	0.30
	900-1000 workers	18	5.49
	1000 workers	2	0.61
	2000 workers	25	7.62
	3000 workers	68	20.73
	4000 workers	134	40.85
Footwear	Less than 50	1	0.90
	100-200 workers	20	18.02
	200-300 workers	19	17.12
	400-500 workers	16	14.41
	600-700 workers	18	16.22
	700-800 workers	1	0.90
	900-1000 workers	5	4.50

Sector	Range of Number of Employees	Frequency of Firms	% of Sector-wide Total Firms
	1000 workers	31	27.93
Miscellaneous textiles, worn clothing	100-200 workers	14	25.93
	200-300 workers	9	16.67
	400-500 workers	19	35.19
	500-600 workers	2	3.70
	600-700 workers	2	3.70
	700-800 workers	7	12.96
	900-1000 workers	1	1.85
Paper yarn, woven fabric	600-700 workers	1	11.11
	900-1000 workers	3	33.33
	1000 workers	5	55.56
Fish	Less than 50	1	0.79
	100-200 workers	122	96.06
	200-300 workers	2	1.57
	400-500 workers	1	0.79
	500-600 workers	1	0.79
Leather/animal gut articles	Less than 50	2	40.00
	200-300 workers	1	20.00
	600-700 workers	1	20.00
	900-1000 workers	1	20.00
Raw hides, skins not fur skins, leather	Less than 50	167	72.93
	100-200 workers	42	18.34
	200-300 workers	6	2.62
	400-500 workers	1	0.44
	600-700 workers	2	0.87
	700-800 workers	11	4.80
Plastics, plastic articles	Less than 50	3	2.48
	100-200 workers	7	5.79
	200-300 workers	30	24.79
	400-500 workers	27	22.31
	500-600 workers	23	19.01
	600-700 workers	7	5.79
	700-800 workers	1	0.83
	900-1000 workers	4	3.31
	1000 workers	2	1.65
	2000 workers	5	4.13
	3000 workers	7	5.79
	more than 6000 workers	5	4.13
Others	Less than 50	1	0.87
	100-200 workers	35	30.43
	200-300 workers	13	11.30
	400-500 workers	2	1.74
	500-600 workers	21	18.26
	600-700 workers	16	13.91
	700-800 workers	27	23.48
Total		1306	

Appendix-1.9: Ease of recruitment of employees in different sectors

Sector	Level	No of Firms	% Firms
Knit or crochet clothing, accessories	Very Easily	28	13.53
	Easily	130	62.80
	Fairly	38	18.36
	With Difficulties,	8	3.86
	With many Difficulties	3	1.45
Clothing, accessories (not knit or crochet)	Very Easily	41	12.50
	Easily	142	43.29
	Fairly	130	39.63
	With Difficulties,	12	3.66
	With many Difficulties	3	0.91
Footwear	Very Easily	40	36.04
	Easily	58	52.25
	Fairly	10	9.01
	With Difficulties,	3	2.70
Miscellaneous textiles, worn clothing	Very Easily	1	1.85
	Easily	49	90.74
	Fairly	4	7.41
Paper yarn, woven fabric	Easily	9	100
Fish	Very Easily	6	4.72
	Easily	23	18.11
	Fairly	30	23.62
	With Difficulties,	32	25.20
	With many Difficulties	36	28.35
Leather/animal gut articles	Very Easily	1	20
	Easily	2	40
	Fairly	2	40
Raw hides, skins not fur skins, leather	Very Easily	22	9.61
	Easily	92	40.17
	Fairly	96	41.92
	With Difficulties,	14	6.11
	With many Difficulties	5	2.18
Plastics, plastic articles	Very Easily	4	3.31
	Easily	97	80.17
	Fairly	19	15.70
	With Difficulties,	1	0.83
Others	Very Easily	34	29.57
	Easily	60	52.17
	Fairly	18	15.65
	With Difficulties,	2	1.74
	With many Difficulties	1	0.87
		1306	100.00

Appendix-1.10: Respondents' Functional Areas and Field of Use of ICT

Sector	Work Area	Current Functional Area		Field of Use of ICT	
		Number	% Response	Number	% Response
Knit or crochet clothing, accessories	Production	101	48.79	75	36.23
	Design	38	18.36	28	13.53
	Marketing	50	24.15	37	17.87
	Procurement	60	28.99	44	21.26
	Negotiation	64	30.92	47	22.71
	Commercial	69	33.33	51	24.64
	Finance	34	16.43	25	12.08
	Accounts	29	14.01	22	10.63
	Transportation	3	1.45	2	0.97
	Logistics	20	9.66	15	7.25
	General Services	71	34.30	52	25.12
	Human Resources	32	15.46	24	11.59
	Data Security	24	11.59	18	8.70
	Physical Security	2	0.97	2	0.97
	Others (Please specify)	4	1.93	3	1.45
Clothing, accessories (not knit or crochet)	Production	216	65.85	160	48.78
	Design	220	67.07	163	49.70
	Marketing	227	69.21	168	51.22
	Procurement	92	28.05	68	20.73
	Negotiation	106	32.32	79	24.09
	Commercial	157	47.87	116	35.37
	Finance	195	59.45	145	44.21
	Accounts	209	63.72	155	47.26
	Transportation	71	21.65	52	15.85
	Logistics	69	21.04	51	15.55
	General Services	26	7.93	19	5.79
	Human Resources	85	25.91	63	19.21
	Data Security	137	41.77	101	30.79
	Physical Security	45	13.72	34	10.37
	Others (Please specify)	21	6.40	15	4.57
Footwear	Production	21	18.92	15	13.51
	Design	19	17.12	14	12.61
	Marketing	28	25.23	21	18.92
	Procurement	18	16.22	13	11.71
	Negotiation	17	15.32	13	11.71
	Commercial	33	29.73	25	22.52
	Finance	16	14.41	12	10.81
	Accounts	32	28.83	24	21.62
	Transportation	6	5.41	5	4.50
	Logistics	13	11.71	10	9.01
	General Services	17	15.32	13	11.71
	Human Resources	24	21.62	18	16.22
	Data Security	13	11.71	10	9.01

Sector	Work Area	Current Functional Area		Field of Use of ICT	
		Number	% Response	Number	% Response
	Physical Security	1	0.90	1	0.90
	Others (Please specify)	11	9.91	8	7.21
Miscellaneous textiles, worn clothing	Production	14	25.93	10	18.52
	Design	12	22.22	9	16.67
	Marketing	13	24.07	10	18.52
	Procurement	11	20.37	8	14.81
	Negotiation	8	14.81	6	11.11
	Commercial	10	18.52	7	12.96
	Finance	11	20.37	8	14.81
	Accounts	11	20.37	8	14.81
	Transportation	8	14.81	6	11.11
	Logistics	10	18.52	7	12.96
	General Services	10	18.52	7	12.96
	Human Resources	13	24.07	10	18.52
	Data Security	12	22.22	9	16.67
	Physical Security	6	11.11	5	9.26
	Others (Please specify)	1	1.85	1	1.85
Paper yarn, woven fabric	Production	2	22.22	1	11.11
	Design	1	11.11	1	11.11
	Marketing	2	22.22	0	0.00
	Procurement	2	22.22	0	0.00
	Negotiation	1	11.11	1	11.11
	Commercial	2	22.22	0	0.00
	Finance	2	22.22	1	11.11
	Accounts	3	33.33	1	11.11
	Transportation	0	0.00	0	0.00
	Logistics	0	0.00	0	0.00
	General Services	2	22.22	1	11.11
	Human Resources	2	22.22	1	11.11
	Data Security	0	0.00	0	0.00
	Physical Security	0	0.00	0	0.00
	Others (Please specify)	0	0.00	0	0.00
Fish	Production	20	15.75	15	11.81
	Design	1	0.79	1	0.79
	Marketing	46	36.22	34	26.77
	Procurement	15	11.81	11	8.66
	Negotiation	23	18.11	17	13.39
	Commercial	86	67.72	64	50.39
	Finance	43	33.86	32	25.20
	Accounts	60	47.24	44	34.65
	Transportation	31	24.41	23	18.11
	Logistics	33	25.98	25	19.69
	General Services	17	13.39	13	10.24

Sector	Work Area	Current Functional Area		Field of Use of ICT	
		Number	% Response	Number	% Response
	Human Resources	15	11.81	11	8.66
	Data Security	14	11.02	10	7.87
	Physical Security	9	7.09	7	5.51
	Others (Please specify)	8	6.30	6	4.72
Leather/ animal gut articles	Production	0	0.00	0	0.00
	Design	0	0.00	0	0.00
	Marketing	2	40.00	1	20.00
	Procurement	0	0.00	0	0.00
	Negotiation	0	0.00	0	0.00
	Commercial	1	20.00	1	20.00
	Finance	1	20.00	1	20.00
	Accounts	1	20.00	1	20.00
	Transportation	0	0.00	0	0.00
	Logistics	2	40.00	0	0.00
	General Services	1	20.00	1	20.00
	Human Resources	3	60.00	2	40.00
	Data Security	1	20.00	1	20.00
	Physical Security	1	20.00	1	20.00
	Others (Please specify)	0	0.00	0	0.00
Raw hides, skins not fur skins, leather	Production	96	41.92	71	31.00
	Design	8	3.49	6	2.62
	Marketing	106	46.29	79	34.50
	Procurement	96	41.92	71	31.00
	Negotiation	100	43.67	74	32.31
	Commercial	135	58.95	100	43.67
	Finance	103	44.98	76	33.19
	Accounts	123	53.71	91	39.74
	Transportation	104	45.41	77	33.62
	Logistics	126	55.02	93	40.61
	General Services	124	54.15	92	40.17
	Human Resources	101	44.10	75	32.75
	Data Security	120	52.40	89	38.86
	Physical Security	95	41.48	71	31.00
	Others (Please specify)	19	8.30	14	6.11
Plastics, plastic articles	Production	30	24.79	22	18.18
	Design	27	22.31	20	16.53
	Marketing	42	34.71	31	25.62
	Procurement	44	36.36	32	26.45
	Negotiation	32	26.45	24	19.83
	Commercial	76	62.81	56	46.28
	Finance	43	35.54	32	26.45
	Accounts	45	37.19	34	28.10
	Transportation	7	5.79	5	4.13

Sector	Work Area	Current Functional Area		Field of Use of ICT	
		Number	% Response	Number	% Response
	Logistics	24	19.83	18	14.88
	General Services	41	33.88	30	24.79
	Human Resources	45	37.19	34	28.10
	Data Security	22	18.18	17	14.05
	Physical Security	19	15.70	14	11.57
	Others (Please specify)	0	0.00	0	0.00
Others	Production	17	14.78	13	11.30
	Design	6	5.22	5	4.35
	Marketing	41	35.65	30	26.09
	Procurement	12	10.43	9	7.83
	Negotiation	8	6.96	6	5.22
	Commercial	55	47.83	41	35.65
	Finance	11	9.57	8	6.96
	Accounts	31	26.96	23	20.00
	Transportation	4	3.48	3	2.61
	Logistics	9	7.83	7	6.09
	General Services	14	12.17	10	8.70
	Human Resources	68	59.13	50	43.48
	Data Security	8	6.96	6	5.22
	Physical Security	4	3.48	3	2.61
	Others (Please specify)	4	3.48	3	2.61
Multiple Response					

Appendix-2

Beneficiaries Questionnaire for Female Entrepreneurs / Managers / Workers Working in Any of the Ten Selected Export Sub-sectors

	Respondent's General Profile:	Code
1.0	**Name of the Respondent**	
1.1	Gender (1= Male, 2= Female, 3= Transgender):	
1.2	Education (1= Illiterate, 2= Literate, 3= Primary Education, 4= Lower secondary, 5= Secondary Education, 6= Higher Secondary, 7= Graduate, 8=Post Graduate, 9= PhD, 10= Others, (Please specify name…………….)	
2.0	**Company Address**	
2.0.1	Division:	
2.0.2	District:	
2.03	Upazilla:	
2.1	Current Position in the Company (1= Executive, 2= Assistant Manager, 3= Manager, 4= Assistant General Manager, 5= General Manager, 6= Director, 7= Executive Director, 8= Chief Executive officer, 9= MD, 10= Chairman 11= others (Please specify ………….)	
2.2	Duration in the Current Position (1= 1-2 Years, 2= 3-4 Years, 3= 4- 5 Years, 4= 6-7 Years, 5= 8-9 Years, 6=10- 11 Years, 7=others (Please specify name ………………………)	
3.0	**Company Profile**	
3.1	Name of Sub-sector (1=Knit or crochet clothing, accessories,2=Clothing, accessories (not knit or crochet),3=Footwear,4=Miscellaneous textiles, worn clothing,5=Paper yarn, woven fabric,6=Fish,7=Leather/animal gut articles,8=Headgear,9=Raw hides, skins not fur skins, leather,10=Plastics, plastic articles,11=Others (Please specify Name……………………)	
3.2	Age of the Company (1= One – Three years, 2= Four – Six Years, 3= Six -Nine Years, 4 = Ten- Thirteen Years and 5= others (please specify years ……………………)	
4.0	**Products / Services:**	
4.1	Product (1 = Knit or crochet clothing, accessories, 2 = Clothing, accessories (not knit or crochet), 3 = Footwear, 4 = Miscellaneous textiles, worn clothing, 5 = Paper yarn, woven fabric, 6 = Fish, 7 = Leather/animal gut articles, 8 = Headgear, 9 = Raw hides, skins not fur skins, leather, 10 = Plastics, plastic articles, 11 = Others (Please specify Name……………………)	
	Product Group (1 = Knit or crochet clothing, accessories, 2 = Clothing, accessories (not knit or crochet), 3 = Footwear, 4 = Miscellaneous textiles, worn clothing, 5 = Paper yarn, woven fabric, 6 = Fish,7 = Leather/animal gut articles, 8 = Headgear, 9 = Raw hides, skins not fur skins, leather, 10 = Plastics, plastic articles, 11 = Others (Please specify Name……………………)	
	Product Mix (1 = ladies, 2 = Gents, 3 = Nightwear, 4 = Casual, 6 = sports and 7 = others …………….)	
5.0	**Business Type:**	
5.1	Legal (1= Proprietorship, 2= Partnership, 3= Private Limited, 4= Cooperative, 5= others? (Please specify name ……….)	
5.2	Total Number of Workers (1= Less than 50, 2= 100-200 workers, 3= 200-300 workers, 4 = 400-500 workers, 5= 500-600 workers, 6= 600-700 workers, 7= 700-800 workers, 8=900-1000 workers, 10= 1000 workers, 11=2000 workers, 13 = 3000 workers, 14= 4000 workers, 15 = 5000 workers and 16= more than workers, 17= others (Number………………)	
5.3	Value Chain Core Function(s) [1=Input Supplier, 2=Production, 3=Processing,	

	4=Warehousing & Packaging, 5=Transport, 6=Trading, 7=Service, Recycling, Others (Please specify ……………………]
6.0	Type of market (1= Monopoly, 2= Few Competitors, 3= Many Competitors, 4= others (Please specify name …………...)
7.0	Regional of Concentration of Market (1=Domestic, 2= Export (Please name Countries), 3= Domestic & Export (Please name Countries), 4= others (Please specify ………….)
7.1	Yes, do this company engages in export (Country Name: ……………………)
7.2	Yes, do this company engages in export and domestic (Country Name: ……………………)
8.0	**Employment**
8.1	Have any new employment in your company? (1= Yes, 2= No)
8.2	Number of new employments:
8.3	New Employment Prospects [1=Very High,2= High, 3=Medium,4= Low, 5= Very Low]
8.4	Factors Influencing Employment [1=Market Size, 2=Availability of Raw Materials, 3=Availability of Human Resources, 4=-Level of Technology,5= Funds, 6=Ease in Compliance 7= others (specify name ……)
8.5	Can Labour Employment be made? [1=Very Easily, 2=Easily,3= Fairly, 4=With Difficulties, 5=With many Difficulties]
9.0	**Women's Employment**
9.1	Have any new women employment in your company? (1= Yes, 2= No)
9.2	Number of new women employments:
9.3	Current Level of Women's Employment: [1=Very High, 2=High, 3=Medium, 4=Low,5=Very low]
9.4	Functions where Women's Employment predominate
	--
	--
9.4.1	Prospects for Women as Owners [1=Very High, 2=High, 3=Medium, 4=Low, 5= Very low]
9.4.2	Why ----
	--
	--
9.4.3	Prospect for Women as Workers [1=Very High, 2=High, 3=Medium, 4=Low, 5= Very Low]
9.4.4	Why
	--
	--
10.0	**Specific Questions: Functional Area(s):**
10.1	In which functional area of the company do you currently work? (Multiple responses possible)

#	Work Area	Description of Activities you are engaged into
	Production	
	Design	
	Marketing	
	Procurement	
	Negotiation	
	Commercial	

	Finance	
	Accounts	
	Transportation	
	Logistics	
	General Services	
	Human Resources	
	Data Security	
	Physical Security	
	Others (Please specify)	
10.2	Since when have you been working in this area?	
10.3	In which work areas out of those you mentioned in response to Question #	
10.3.1	**1. (a), use of ICT is relatively more frequent?**	
	Work Area	**Please specify**
	Production	
	Design	EXAMPLE 1: Online Digital Presentation of swatches in an RMG Factory Example 2: Use of CAD (Computer-aided Designs)
	Marketing / Sales	EXAMPLE 1: Product showcasing EXAMPLE 2: Online placement of orders (e-commerce platform-based) EXAMPLE 3: Online placement of export orders EXAMPLE 4: Digital tracking of export consignments by shipper and/or buyer Example 5: Use of ICT technologies in various export clearances, **connected to regulatory bodies**
	Procurement	EXAMPLE: Placing online orders for Raw Materials
	Commercial	LC, Port of Landing / Loading etc.
	Negotiation	EXAMPLE: Portal-based agreement signed
	Finance	EXAMPLE: Digital Payment / Receipt of Costs, **connected to regulatory bodies**
	Accounts	
	Transportation	
	Logistics	
	General Services	
	Human Resources	
	Data Security	
	Physical Security	
	Others (Please specify)	
10.4	**Scale of Use of ICT:**	
	--	
10.4.1	Please describe step-wise the use and frequency of use of ICT in your activities	

10.5. Activity 1:

Step of Activity	Type(s) ICT used	Frequency [1 = Daily A few times, 2 = weeks a few times, 3 = week, 4 = A few times month, 5 = Occasionally]
Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		

10.6. Activity 2: -----

Step of Activity	Type(s) ICT used	Frequency [1 = Daily A few times, 2 = weeks a few times, 3 = week, 4 = A few times month, 5 = Occasionally]

Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		
10.7. Activity 3: ---- **-**		
Step of Activity	Type(s) ICT used	Frequency [1 = Daily A few times, 2 = weeks a few times, 3 = week, 4 = A few times month, 5 = Occasionally]
Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		

10.6	Awareness about Legal Environment of ICT Use in Bangladesh:	
10.6.1	Are you aware about the legal framework of use of ICT in Bangladesh? (1= Yes, 2= No)	
10.6.2	If 'Yes', what are the legal provisions you are aware of?	
10.6.3	What are the general binding constraints and rules for work in ICT in this country?	
10.6.7	Are the legal provisions enough in Bangladesh? (1= Yes,2= No)	
	If 'No' to the above, why?	
	1……………………………………………………………………..	
	2………………………………………………………………….	
	3…………………………………………………………………	
10.6.8	What should be done to make them enough?	
	1……………………………………………………………………..	
	2………………………………………………………………….	
	3……………………………………………………………………………	
10.6.9	Please name 5 most important regulatory simplifications that would promote the use of ICT in trade facilitation in Bangladesh.	
	1……………………………………………………………………..	
	2…………………………………………………………………..	
	3…………………………………………………………………………	
	4………………………………………………………………………………	
	5…………………………………………………………………….	
10.6.1 0	Please name 5 most important regulatory simplifications that would promote employment of women in EXIM trade facilitation through the country's ICT sector.	
	1……………………………………………………………………..	
	2…………………………………………………………………..	
	3……………………………………………………………………….	
	4……………………………………………………………………………	
	5…………………………………………………………………….	
11.0	**Advantages and Disadvantages of Using ICT in Respective Work Area(s):**	
11.1	**With ICT**	
11.1.1	Advantages	
	1……………………………………………………………………..	
	2………………………………………………………………….	
	3…………………………………………………………………………	
11.1.2	Disadvantage	
	1……………………………………………………………………..	
	2………………………………………………………………….	
	3…………………………………………………………………………	
11.2	**Without ICT**	
11.2.1	Advantages	
	1……………………………………………………………………..	
	2…………………………………………………………………….

	3……………………………………………………………………………………	
	Disadvantage	
	1…………………………………………………………………………..	
	2……………………………………………………………………	
	3…………………………………………………………………………	
12.0	**How has the Use of ICT in you work Impacted on the Company's Productivity & Profitability?**	
	-- --	

	Impact	**How (Examples, please)**
	Improved physical work environment	
	Speed of work	
	Accuracy in work	
	Advantage of work from home/out of office/factory	
	More time-off and/or scope to attend extra work or social activities	
	Better data security	
	Better data preservation	
	Timeliness in production	
	Timeliness in delivery of products/services	
	Others (please specify)	

12.0	**Impact on Profitability**	

	Impact	**How (Examples, please)**
	Reduction in processing costs	
	Lower procurement costs for raw materials	
	Lower sales costs	
	Reduction of time for consultation with buyers	
	Reduction of costs of sample production and approval	
	Scope to easily serve a wider market	
	Better price for better quality (of products/services)	
	Reduction of wastes (Rejection Costs)	
	Others (Please specify)	

13.0	**Problems/Constraints in Using ICT in Respective Work Area(s):**	
13.1	What are the problems or constraints you have been facing in optimally using ICT in your work area?	

	Problem/Constraint	**How the Problems/Constraints Affect Work (Examples, please)**
	ICT work for me not socially or family-wise accepted/respected	
	Social or family-based constraints in use of ICT outside of normal office/factory hours	
	Shortage of relevant skills	
	Lack/Shortage of in-house mentors/trainers at workplace	
	Outdated/Obsolete hardware	
	Outdated/Obsolete software	
	Countrywide non-availability of hardware / software	
	High cost of ICT hardware / software	
	Power outages	
	Others (Please specify)	

14.0	**Skills Profile:**	

14.1	**How would you grade your current skills level for purpose of your current work?[1=Very High, 2=High, 3=Medium, 4=Low,5=Very low]**	
14.2	**Why**	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
14.3	What are the skills areas where you feel the need for further improvements?	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
14.4	**What type(s) of skills upgrading is needed (Please describe)?**	

	Skills in a new/different area	**Additional/Higher skills in the existing / current area**	**Refreshing Knowledge on emerging skills in the same area**	**Don't know**	**Others (Please specify)**
1					
2					
3					

14.5	(To your knowledge, where and how, in Bangladesh, can your need for skills upgrading be met)	
	1……………………………………………………………………….	
	2……………………………………………………………….	
15.0	Social Acceptance & Recognition:	
15.1	In your perception, how well is your work in ICT respected in your family (1 = Proactively supportive, 2 = Supportive, 3 = Neutral, 4 = Undermining, 5 =Very undermining)	
15.2	Why?	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
15.3	In your perception, how well is your work in ICT respected in the society? (1 = Proactively supportive, 2 = Supportive, 3 = Neutral, 4 = Undermining, 5 =Very undermining)	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
16.0	Managing through the Pandemic COVID-19:	
16.1	How had your work in general and work in ICT been before the advent of COVID-19 in Bangladesh?	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
16.2	How has COVID-19 impacted on your work in general and in ICT? (1 = Increased demand, 2 = Demand usual, 3 = Reduction in demand, 4 = Change in organizational strategy needed, 5 = No sign of possible recovery, 6 = Others, If Others reason, please specify	
	1……………………………………………………………………….	
	2……………………………………………………………………….	
	3……………………………………………………………………………	
16.3	Does your company have any plans to tackle the possible emerging situation? (If 1= Yes, 2= N0)	
16.4	If yes, what is that Specifically	
	1……………………………………………………………………….	
	2……………………………………………………………….	

--- THANK YOU ---

Appendix-3

FGD Questionnaire for Female Entrepreneurs / Managers / Workers Working in Any of the Ten Selected Export Sub-sectors

A. RESPONDENT'S GENERAL PROFILE:

1. Name:
2. Gender:
3. Education:
4. Company & Address:
5. Current Position in the Company:
6. Duration in the Current Position:

B. COMPANY'S PROFILE:

1. Name of Sub-sector:
2. Age of the Company:
3. Products / Services:
   (a) Product (Usually, one of the 10 Sub-sectors) [Example: RMG]

   (b) Product Group [Knit, Woven, Specialized etc.]

   (c) Product Mix [Ladies', Gents', Nightwear, Casual, Sports etc.]

   ----
4. Business Type:
(a) Legal Form [Proprietorship, Partnership, Private Ltd., Cooperative etc.]

(b) Total Number of Workers

(c) Value Chain Core Function(s) [Input Supplier, Production, Processing, Warehousing & Packaging, Transport, Trading, Service, Recycling]

----
5. Type of Market:
(a) Monopoly
(b) Few Competitors
(c) Many Competitors

6. Regional Concentration of Market:
(a) Domestic
(b) Export (Please name Countries)
(c) Domestic & Export (Please name Countries)

7. Employment:
(a) New Employment Prospects [Very High, High, Medium, Low]
(b) Factors Influencing Employment [Market Size, Availability of Raw Materials, Availability of Human Resources, Level of Technology, Funds, Ease in Compliance]

(c) Can Labour Employment be made? [Very Easily, Easily, Fairly, With Difficulties, With many Difficulties]

8. Women's Employment:
(a) (i) Current Level of Women's Employment: [Very High, High, Medium, Low]
   (ii) Total Number / Total Employees?
(b) Functions where Women's Employment predominate
(c) (i) Prospects for Women as Owners [Very High, High, Medium, Low]
   (ii) Why?
(d) Prospect for Women as Workers [Very High, High, Medium, Low]
   (ii) Why?

C. SPECIFIC QUESTIONS:

1. Functional Area(s):
(a) In which functional area of the company do you currently work? (**Multiple responses possible**)

Sl. No.	Work Area	Description of Activities you are engaged into
	Production	
	Design	
	Marketing	
	Procurement	
	Negotiation	
	Commercial	
	Finance	
	Accounts	
	Transportation	
	Logistics	
	General Services	
	Human Resources	
	Data Security	
	Physical Security	
	Others (Please specify)	

(b) Since when have you been working in this area?
(c) In which work areas out of those you mentioned in response to Question # 1. (a), use of ICT is relatively more frequent?

Work Area	Please specify
Production	
Design	EXAMPLE 1: Online Digital Presentation of swatches in an RMG Factory Example 2: Use of CAD (Computer-aided Designs)
Marketing / Sales	EXAMPLE 1: Product showcasing EXAMPLE 2: Online placement of orders (e-commerce platform-based) EXAMPLE 3: Online placement of export orders EXAMPLE 4: Digital tracking of export consignments by shipper and/or buyer Example 5: Use of ICT technologies in various export clearances, **connected to regulatory bodies**
Procurement	EXAMPLE: Placing online orders for Raw Materials
Commercial	LC, Port of Landing / Loading etc.

Negotiation	EXAMPLE: Portal-based agreement signed
Finance	EXAMPLE: Digital Payment / Receipt of Costs, **connected to regulatory bodies**
Accounts	
Transportation	
Logistics	
General Services	
Human Resources	
Data Security	
Physical Security	
Others (Please specify)	

2. Scale of Use of ICT:

(a) What are the activities in which you use ICT?

(b) Please describe step-wise the use and frequency of use of ICT in your activities

Activity 1: -----

Step of Activity	Type(s) ICT used	Frequency [Daily A few times/weeks, A few times/ month], Occasionally
Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		

Activity 2: -----

Step of Activity	Type(s) ICT used	Frequency [Daily A few times/weeks, A few times/ month], Occasionally
Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		

Activity 3: -----

Step of Activity	Type(s) ICT used	Frequency [Daily A few times/weeks, A few times/ month], Occasionally
Step 1 of the Activity		
Step 2 of the Activity		
Step 3 of the Activity		

3. Awareness about Legal Environment of ICT Use in Bangladesh:

(a) Are you aware about the legal framework of use of ICT in Bangladesh?

Yes

No

(b) If 'Yes', what are the legal provisions you are aware of?

(c) What are the general binding constraints and rules for work in ICT in this country?

(d) Are the legal provisions enough in Bangladesh?

Yes

No

(e) If 'No' to the above, why?

(f) What should be done to make them enough?

(g) Please name 5 most important regulatory simplifications that would promote the use of ICT in trade facilitation in Bangladesh.
  (i) ---------------------
  (ii) ---------------------
  (iii) ---------------------
  (iv) ---------------------
  (v) ---------------------
(h) Please name 5 most important regulatory simplifications that would promote employment of women in EXIM trade facilitation through the country's ICT sector.
  (i) ---------------------
  (ii) ---------------------
  (iii) ---------------------
  (iv) ---------------------
  (v) ---------------------

4. **Advantages and Disadvantages of Using ICT in Respective Work Area(s):**
(a) What are advantages of the use of ICT in your respective work area?

(b) How do they compare with work without use of ICT (in this work area)?

Sl. No.	With ICT (Please describe)		Without ICT (Please describe)	
	Advantages	Disadvantages	Advantages	Disadvantages
1				
2				
3				
4				
5				

5. **How has the Use of ICT in you work Impacted on the Company's Productivity & Profitability?**
(a) Impact on Productivity

impact	How (Examples, please)
Improved physical work environment	
Speed of work	
Accuracy in work	
Advantage of work from home/out of office/factory	
More time-off and/or scope to attend extra work or social activities	
Better data security	
Better data preservation	
Timeliness in production	

Timeliness in delivery of products/services	
Others (please specify)	

(b) Impact on Profitability

impact	How (Examples, please)
Reduction in processing costs	
Lower procurement costs for raw materials	
Lower sales costs	
Reduction of time for consultation with buyers	
Reduction of costs of sample production and approval	
Scope to easily serve a wider market	
Better price for better quality (of products/services)	
Reduction of wastes (Rejection Costs)	
Others (Please specify)	

6. Problems/Constraints in Using ICT in Respective Work Area(s):

(a) What are the problems or constraints you have been facing in optimally using ICT in your work area?

Problem/Constraint	How the Problems/Constraints Affect Work (Examples, please)
ICT work for me not socially or family-wise accepted/respected	
Social or family-based constraints in use of ICT outside of normal office/factory hours	
Shortage of relevant skills	
Lack/Shortage of in-house mentors/trainers at workplace	
Outdated/Obsolete hardware	
Outdated/Obsolete software	
Countrywide non-availability of hardware / software	
High cost of ICT hardware / software	
Power outages	
Others (Please specify)	

7. Skills Profile:
(a) How would you grade your current skills level for purpose of your current work?

Very High	High	Medium	Low	Very Low

(b) Why (Please explain)?

(c) What are the skills areas where you feel the need for further improvements?
(i)   ----------------------
(ii)   ----------------------
(iii)   ----------------------

(d) What type(s) of skills upgrading is needed (**Please describe**)?

Skills in a new/different area	Additional/Higher skills in the existing / current area	Refreshing Knowledge on emerging skills in the same area	Don't know	Others (Please specify)
(Description)				

(e) To your knowledge, where and how, in Bangladesh, can your need for skills upgrading be met?

----

8. Social Acceptance & Recognition:

8.1 (a) In your perception, how well is your work in ICT respected **in your family**?

Proactively supportive	Supportive	Neutral	Undermining	Very undermining

(b) Why?

8.1 (a) In your perception, how well is your work in ICT respected **in the society**?

Proactively supportive	Supportive	Neutral	Undermining	Very undermining

(a) Why?

----

9. Managing through the Pandemic COVID-19:

(a) How had your work in general and work in ICT been before the advent of COVID-19 in Bangladesh?

(b) How has COVID-19 impacted on your work in general and in ICT?

Increased demand	Demand usual	Reduction in demand	Change in organizational strategy needed	No sign of possible recovery

(c) Does your company have any plans to tackle the possible emerging situation?

Yes

(d)

No

(e) If 'Yes' to # 9.c, what is that specifically?

--- THANK YOU ---

Appendix-4

Qualitative KII Checklist for BASIS / BCS / BTRC / Chambers / e-Cab / ICT Division & Ministry / Policymakers

Section A	RESPONDENT'S PROFILE:	
1.0	Name of the respondent:	
1.1	Current Position in this organization (1= Executive, 2= Assistant Mannger, 3= Manager, 4= Assistant General Manager, 5= General Manager, 6= Director, 7= Executive Director, 8= Chief Executive officer, 9= MD, 10= Chairman 11= others (Please specify ………….)	
1.2	Duration of Encumbrance in this position (1= 1-2 Years, 2= 3- 4 Years, 3= 4-5 Years, 4= 6-7 Years, 5= 8-9 Years, 6=10- 11 Years, 7=others (Please specify name ……………………..)	
Section B	ABOUT THIS ORGANIZATION:	
2.0	Year of Establishment:	
	Goal and Objectives:	
	1.	
	2.	
	3.	
	4.	
2.1	How is your organization linked with or engaged into policy formulation of the country's ICT administration?	
	1.	
	2.	
	3.	
	4	
2.2	What have been this organization's Major Achievements so far?	
	1.	
	2.	
	3.	
	4.	
Section C	LEGAL ENVIRONMENT:	
3.0	There have been numerous ICT regulations in Bangladesh since the year 2006. Do you think that these have enough? (1= Yes, 2= No)	
3.1	Why?	
	1.	
	2.	
	3.	
	4.	
3.2	What else should have been done in this regard?	
	1.	
	2.	
	3.	
	4.	
3.3	In your opinion, do you see any legal encumbrances on way to use of ICT across the country?	
	1.	
	2.	
	3.	
	4.	

3.4	If we attempt to classify Bangladesh's policies into two different categories like Controlling and Encouraging Policies in the ICT Sector, how would you classify them?	

Controlling	Encouraging

3.5	How would you sum up the Government's incentives to the citizens en masse for enhanced and more effective use of ICT across the country?	
	1.	
	2.	
	3.	
	4.	
Section D	**COORDINATION AMONG VARIOUS STATE AGENCIES:**	
4.0	(a) It clear that numerous state-level agencies are involved in countrywide administration of ICT in Bangladesh. How has coordination among them maintained so far? (1=Excellent, 2=Very Well, 3=Fairly, 4=Below Average, 5=Poor)	
4.1	Why do you think so?	
	1.	
	2.	
	3.	
	4.	
4.2	What would be your suggestions to improve in this area?	
	1.	
	2.	
	3.	
	4.	
Section E	**ACCESS TO ICT:**	
5.1	How has people's access to ICT been in the last two decades? (1=Excellent, 2=Very Well, 3= Fairly, 4=Below Average, 5=Poor)	
5.2	Why do you think so?	
	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
5.3	What has been the Unmet Needs so far?	
	1.	
	2.	
	3.	
	4.	
Section F	**USE OF ICT IN THE EXPORT SUB-SECTOR:**	
6.1	The GoB plans to widen the scope for various enterprises in the export sub-sector. What would be your suggestions in this regard?	
	1.	
	2.	
	3.	

		4.	
6.3	What are the specific functions in this regard where improvement of the use of ICT is most sought?		
		1.	
		2.	
		3.	
		4.	
6.3	Are there any particular sub-sectors in EXIM trading where enhanced use of ICT would draw maximum benefits?		
		1.	
		2.	
		3.	
		4.	
Section G	**IMPACT OF COVID-19 AND THE WAY FORWARD:**		
7.1	How has COVID-19 affected the socio-economic pattern in Bangladesh?		
		1.	
		2.	
		3.	
		4.	
7.2	How has COVID-19 affected particularly the country's ICT sector and the EXIM functions		
		1.	
		2.	
		3.	
		4.	
7.3	What would you suggest for a recovery from the negative impact that COVID-19 left on the export sector?		

--- THANK YOU ---

Appendix-5

Qualitative KII Checklist for Export Promotion Bureau

Section A:	Respondent's Profile:	
1.0	Name:	
	Current Position at EPB (1= Chaiman, 2= Vice Chairman, 3= Director, 4= Deputy Director, 5= Research officer,6= Assistant officer, 7= Others)	
1.1	Duration of Encumbrance in this position (**1= less than One Year, 2= One- two Year, 3= Three- four Year, 4= Five – Six Year, 5= Seven – Eight Years 6= Nine – Ten Years 7= more than ten years**	
Section B	About EPB:	
2.1	Year of Establishment:	
2.2	Goal and Objectives:	
	1.	
	2.	
	3.	
	4.	
2.3	What have been this organization's Major Achievements so far?	
	1.	
	2.	
	3.	
	4.	
Section C	Priority Areas for Export:	
3.1	What are the priority areas for export from Bangladesh?	
	1	
	2.	
	3.	
	4.	
3.2	On what basis is this list of priorities set?	
	1	
	2.	
	3.	
	4.	
3.3	What are the benefits admissible for the exporters belonging to this list of priorities?	
	1	
	2.	
	3.	
	4.	
Section D	ICT Sector:	
4.0	Is there any priority allowed to the ICT Sector for export? (1=Yes, 2= No)	
4.1	If 'Yes' to the above, what are the permissible priorities or preferences?	

	1.	
	2.	
	3.	
	4.	
4.5	How effective has been this arrangement of sector-wise priority? (1= Very good,2=Good, 3=Average ,4=Below Average, 5= Poor)	
4.5.1	If Average-Poor, what would be your suggestions for further improvements in this regard?	
	1.	
	2.	
	3.	
	4.	
Section E	**Incentives For Use of ICT for Exports:**	
5.0	1. (a) Is there any incentives for use of ICT in exports? (1=Yes, 2= No)	
5.0.1	If 'yes', what are those incentives?	
	1.	
	2.	
	3.	
	4.	
5.0.2	If 'No', what would be your suggestions?	
	1.	
	2.	
	3.	
	4.	
Section F	**Use of ICT in Export Functions:**	
6.0	1. In your opinion, how has been the use of ICT in the country's export trade? (1=Very good, 2=Good Average,3=Below Average,4=Poor, 5= Very poor)	
6.1	If further improvements are needed, what would be your suggestions?	
	1.	
	2.	
	3.	
	4.	

--- THANK YOU ---

Appendix -6

Qualitative KII Checklist for Universities / Institutes / Teachers / Instructors

Section A: Respondent's Profile		
1.0	**Respondent of the Respondent**	
1.1	**Name:**	
	Current Position (1= Research Assistant /Research Fellow, 2= Lecturer, 3= Assistant Professor, 4= Associate professor, 5= Professor, 6= others (Please specify ……)	
1.2	**Duration of Encumbrance in this position: (1= less than One Year, 2= One- two Year, 3= Three- four Year, 4= Five – Six Year, 5= Seven – Eight Years 6= Nine – Ten Years 7= more than ten years**	
Section B: About This University/Institute:		
2.0	Year of Establishment: (1= Less than three Years, 2= Three – Six Years, 3= Seven – Nine years, 4= Ten Years to Twelve Year, 5 = more than 12 Years)	
2.1	Goal and Objectives:	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	
	3…………………………………………………………………………………………	
	4…………………………………………………………………………………………	
2.2	How is your university/institute linked with or engaged into policy formulation of the country's ICT administration?	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	
	3…………………………………………………………………………………………	
	4…………………………………………………………………………………………	
2.3	What have been this university's/institute's Major Achievements so far?	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	
	3…………………………………………………………………………………………	
	4…………………………………………………………………………………………	
Section C: Legal environment		
3.0	**There have been numerous ICT regulations in Bangladesh since the year 2006. Do you think that these have enough (1= Yes, 2= No)**	
3.1	**Why**	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	
	3…………………………………………………………………………………………	
	4…………………………………………………………………………………………	
3.2	**What else should have been done in this regard?**	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	
	3…………………………………………………………………………………………	
	4…………………………………………………………………………………………	
3.3.	**In your opinion, do you see any legal encumbrances on way to use of ICT across the country?**	
	1…………………………………………………………………………………………	
	2…………………………………………………………………………………………	

	3………………………………………………………………………………………………		
	4…………………………………………………………………………………………….		
3.4	**If we attempt to classify Bangladesh's policies into two different categories like Controlling and Encouraging Policies in the ICT Sector, how would you classify them?**		

	#	Controlling	Encouraging
	1.		
	2.		
	3.		
	4.		

3.5	**How would you sum up the Government's incentives to the citizens end masse for enhanced and more effective use of ICT across the country**
	1.
	2.
	3.

Section D: Enrolment, Graduation and Employment of Women Students:

4.0	Are there any separate courses for on ICT for women in this institute/university? (1= Yes, 2= No)
	If 'Yes', what are those courses? Name of the Course
	1.
	2.
	3.
4.1	What are the major women entrepreneurship development projects in Bangladesh?
	1.
	2.
	3.
4.1.1	How has been these projects' plans and achievements so far?
	1.
	2.
	3.
4.2	3. What are the major strengths and weaknesses of the projects for women entrepreneurship development activities in the ICT Sector of Bangladesh? --
4.3	In Bangladesh, what is the proportion of women (compared to men) having access to Internet and the job opportunities reserved for them (Women) in the ICT Sector? --
4.4	5. What is the proportion of organizations in the ICT Sector where women have been working as 'independent decision-makers? --
4.5	6. What is the proportion of women entrepreneurs in the ICT Sector? --
4.6	7. What is the proportion of women getting admitted into ICT-related courses? --
	8. What is the proportion of women students in ICT-related disciplines at the university level? --
4.7	What is the proportion of women students engaged into ICT-related jobs after completing their ICT-related education? --

Appendix-7

Terms of Reference (TOR)

1.0 Background
1.1 Project Brief

The Government of the People's Republic of Bangladesh has received an SDR 150 million Credit from the International Development Association (IDA) - a member of the World Bank Group - for financing the cost of the Bangladesh Regional Connectivity Project 1(BRCP-1), being jointly implemented by the Bangladesh Land Port Authority (BLPA), National Board of Revenue (NBR) and Ministry of Commerce. The second component of this umbrella project is being implemented by the Ministry of Commerce as a separate technical assistance project. The overall objective of this technical assistance project is to strengthen trade related institutional capacity in order to ensure active and sustainable cooperation between multiple trade-related stakeholders and economic empowerment of women traders.

This technical assistance project consists of following three (3) components:

- Component A: Develop (pilot) programs to support female traders and entrepreneurs. This component will pilot activities to help address barriers to women becoming more integrated into regional and global supply chains and trading opportunities.
- Component B: Capacity Development Support for the National Trade and Transport Facilitation Committee. The inter-ministerial National Trade and Transport Facilitation Committee (NTTFC) has been set up during the preparation of the proposed Project to coordinate all trade and transport-related policies and activities in Bangladesh, and will also serve as the Advisory Committee for the Project.
- Component C: Improvements to Bangladesh Trade Portal and to set up a National Enquiry Point for Trade. The Bangladesh Trade Portal (BTP) was launched in March 2016. This component will support further upgradation of the BTP to expand its functionality to include information of relevance to potential Bangladesh exporters and to ensure that content is kept up to date. This component will also set up the National Enquiry Point for Trade, which will help Bangladesh to meet a key requirement of WTO Trade Facilitation Agreement.

This technical assistance project intends to apply part of the IDA Credit for procuring consultancy services from qualified research/consulting firm to conduct Diagnostic Studies to Assess Female Traders and Entrepreneurs Export Potential in Three Identified Sub-sectors to have in-depth understanding about the present situation, export potential and support required for promotion of exports by the women traders in these sectors. The diagnostic studies will also examine the regulatory regime and suggest necessary adjustments for facilitation of export by women traders. These diagnostic studies will enable the government to take appropriate measures for enhancing the capacity of women traders through facilitating and promoting their export potential in rockfall and international markets.

1.2ICT and Women: A Bangladesh Perspective
A recent study examining the impact of Internet and e-commerce adoption on bilateral trade flows using a panel of 21 developing- and least-developed countries and 30 OECD countries finds that better access to the modern ICT and adoption of e-commerce applications stimulate bilateral trade flows at various levels. The study notes that the efficient use of ICT equipped

with highspeed internet and secured servers is a crucial milestone for unlocking the e-trade potentials for developing- and least-developed countries.

The vision and mission of the Government of Bangladesh is to ensure reliable and secure Information and Communication Technology (ICT) towards sustainable development and support attainment of overall socio-economic development of the country by establishing universal access to ICT for all through research, development successful utilization and digital management of ICT.

In Bangladesh, as elsewhere in the developing world, women play a central role in family, community and social development. However, women often remain invisible and unheard. Women more than men have to balance the complexities of surviving in extreme poverty, yet these women are excluded from discussion because they are often illiterate, they lack confidence and they lack mobility. ICT offer the opportunities for direct, interactive communication even by those who lack skills, who are illiterate, lack mobility and have little self-confidence. Here are some aspects of life which have a direct influence of ICT especially on women:

(i)Women's increased access to job Market and improve entrepreneurship using ICT:
In the past women were only considered for household work and were left outside the mainstream of development. In today's Bangladesh, the scenario has not changed much. But with the advent of ICT, this conservative outlook about women is diminishing gradually. As a result, we find more women are employed in various knowledge-based industries such as computer-aided designing, graphic designing, composing etc. With this growing number of women employments, the job environment is becoming more convenient and friendly for women. The provisions for ladies' common room, green room etc. are considered as a necessity now a day. This changed scenario indicates a positive attitude towards women employment. Consequently, parents are becoming more aware about ICT and are interested to send their daughter to study computer science for better prospects in life even if they have to pay a fortune for their child's education. ICT is not only creating employment for women but also creating a chance for them to emerge as entrepreneurs especially in SME. Women are encouraged to take initiatives to invest in ICT and they are also improving their competence using ICT as an entrepreneur in different sectors. For example, Grameen Telecommunications has an explicit goal of helping Grameen Bank members shift from relatively low-yield traditional ventures, like animal husbandry, into the technology sector by creating micro-enterprises that can both generate individual income and provide whole village phones. And it has succeeded in many cases in this regard. Village Phones have increased income and savings accumulation among phone owners, mostly women. Moreover, women entrepreneurs in other sectors apart from ICT are having more access to market information and as a result they enjoy distinct competency.

(ii)Increase of average household income in villages: The women phone operators are generally poorer than the average villager is. However, the income that they earn is significant, generally accounting for 30-40% of household income and averaging $300 over year in a country where average per capita incomes $ 602. The operators are likely end (90%), and half of them have no formal education. Another quarter has primary education and the remaining quarter, some secondary education. 36 % identify themselves as housewives, and only 6% have some kind of formal employment (in government or business). The women operate their phone businesses while doing household chores or operating another business. The phones are used primarily for calls relating to financial matters, particularly relating to remittances, which are a significant source of village income.

Strikingly among poor villagers, 38% of phone users had one or more family member living abroad.

(iii)Women empowerment: The role of women in family affairs, especially indecision-making, are no longer ignored. Now women earn for their family by means of ICT and this substantial revenue stream has elevated the women's positions in their own households, and the society they belong to. The role models of women who actively participate in the socio-economic development can increase self-esteem and self-confidence of other women and therefore encourage them to push for changes in their own social status. Information and communication technology (ICT) is not just a technology but an inalienable weapon of women empowerment. In the era of knowledge- based culture, Bangladeshis can achieve excellence through proper use of the ICT. For example, Grameen telecom, Bangladesh have created a 'phone culture' among women by enabling their access to communication tools from which they might otherwise be excluded. They have also shown that poor, largely uneducated women can master the skills and run a small business. Women phone operators have achieved economic and social empowerment within their households and communities.

(iv) Shrinking Information Asymmetry: Women in Bangladesh are now acquiring more bargaining power as they are exposed to ICT, especially World Wide Web through mobile phone, computer, Internet. They have become a potential store house of various news and reports. As Women entrepreneurs globally have said that access to information, especially market information, is their first priority in accelerating the growth of their business. We can reform the economic status of women by shrinking information asymmetry through ICT.

(v)Improved Governance: ICT is also particularly useful in increasing the transparency and accountability of government, an application from which women can particularly make profit. One example demonstrates how women used ICT to call upon a national government and a local administration for greater accountability and transparency. When women students in Bangladesh faced administrative inaction in response to increasing instances of campus rape, they publicized their situation on the Internet. The resulting international and national response pressured the university administration to conduct an inquiry.

(vi)Indigenous Knowledge: Traditionally, women have been the incubators and transmitters of knowledge relating to food processing, preservation, and storage, the growing of specific crop, nutrition, and health. Much of the knowledge that women in rural areas possess are scientific. IT can help organize and transfer this knowledge to outside communities that might benefit from it [11], Thus, IT can also help empower women through codification and dissemination of their indigenous knowledge. For example, a knowledge center in Bangladesh is assisting the Self-Help Groups of the village to establish a transparent database of saving and credit, and village youths are being enabled in computer application training and services. All these dreams of the past have come to reality now. The process is working well in the southern region of Bangladesh, where 20 villages have been brought under a program called 'Amader Gram Knowledge Centre, Bangladesh' by Bangladesh Education Friendship Society to develop a participatory monitoring and learning system at the village level by using ICT quality of lives of the poor and the unemployed.

(vii)Easy-Family communication: The use of mobile and Internet even at home has given a widen opportunity to women in general to communicate the world. Women remaining in close- doors or of conservative atmosphere to have the privilege to know about, the where about their relatives and friends by the blessing of ICT.

(viii)Increase Social awareness: Mass media have up righted the position of women in ICT sector all the more, advertisements, cartoons, telecasting, broadcasting all this projects female awareness in society. Female no more lack in knowledge in fitting themselves in right places. This positively highlights the influence of ICT.

2.Objectives and Scope of Consultancy Services:

2.1 Objectives
The objective of the study is to conduct a diagnostic analysis of the role of ICT sub-sector in facilitating and promoting export sectors of Bangladesh and the role that women currently (or can) play in the ICT enablement of exports.

To accomplish this, the diagnostic study will assess: (a) the current role of ICT in export facilitation for the top ten leading exports of Bangladesh; (b) compare and contrast the use of ICT in the aforementioned export sectors and the role of women as ICT workers and entrepreneurs/business owners; (c) identify barriers to ICT adoption in aforementioned export sectors, including regulatory barriers, infrastructure needs, and barriers to engaging women in ICT sector; (d) identify actionable ways in which to increase women's participation in ICT.

2.2 Scope of Works of the Studies Diagnosis and Scoping:
The project will conduct a diagnostic study that looks at ICT adoption levels in export facilitation, as well as, the role of women in provision of these ICT services. The sectoral diagnostic study will examine all relevant critical issues including (but not limited to) the following:

Role of ICT in export facilitation:
a) The role that ICT plays in trade facilitation of the top ten exports of Bangladesh, especially as it relates to: (i) availability of e-commerce platforms for placing orders; (ii) the ability to place export orders online; (iii) digital tracking of export consignments by shipper and buyer; (iii) use of ICT technologies in various export clearances; and (iv) digital receipt of payments.
b) Compare and contrast the adoption levels across the dimensions mentioned above in (a) for the ten leading export sectors of Bangladesh. Identify reasons behind why adoptions levels vary (if they do).

Role of Women in ICT Service Provision:
c)Identify the present strengths and weaknesses of the women entrepreneurship development in the ICT sector of Bangladesh, number of ICT institutes having separate courses for Women, proportion of Women who have access to Internet and other latest technology .and the Job opportunities reserved for Women in ICT industry.
d)Level of social acceptance: Number of Women receiving support from the family for working in the ICT industry or number of Women supporting their family by working in the ICT industry. families accepting ICT industry as a feasible working place for Women (Per hundred).
e) Number of organizations were working at the independent decision maker in the ICT organizations and overall number of women entrepreneurs in the ICT industry (Per hundred).
f) Level of Education: Proportion of Women Students in ICT related disciplines at the University Level, engaged in ICT related job after completing their ICT education. Number of women getting chance in studying in ICT related disciplines (Per hundred). Number of organizations recognizing female ICT graduates as competent as their male counterparts (Per hundred).
g) Preparation of a comprehensive database of ICT sector women traders and entrepreneurs

h) Analysis of current involvement of women in the four roles of ICT in export facilitation that are identified in (a). Highlight the barriers that women face in these roles. And perform a needs assessment for support facilities to encourage women at work in ICT sector;

Regulations Analysis
i) Review of the existing regulatory regimes governing the use of ICT (including policies/plans and strategies, investment climate and bottlenecks, standards, licensing and procedures, and so on) for EXIM trade facilitation in Bangladesh.
j) Identification of regulatory regimes (in B1) that disproportionately negatively (or positively) impact females.
k) Identification of the 5 most important regulatory simplifications that would promote of the use ICT sector in trade facilitation in Bangladesh.
l)Identification of the 5 most important regulatory simplifications that would promote employment of women in EXIM trade facilitation through the ICT sector. These can be partially overlapping with simplifications identified in (k).
m)Performing regulatory impact analysis or regulatory impact assessment of the regulatory simplification identified in (k) and (I). This impact analysis should cover both the intended and unintended consequences of the proposed regulatory change.
n)What are the bottlenecks and gaps identified and suggest adjustments or modifications are required for making the Women entrepreneurs in ICT Industries efficient, effective and harmonized for trade facilitation;

The PIU will refine the abovementioned areas of diagnostic studies in consultation with the Ministry of Commerce and World Bank to organize the agendas under different diagnostic themes. The project will also have flexibility to organize the abovementioned issues in limited/a greater number of themes depending on the discussion with the MOC and WB.
This study/research will be conducted under a single package or separately as agreed by the World Bank to explore best output from the study.

3. Timeframe of the Services:
The studies on different themes will be conducted concurrently depending on the budget allocation of the project. The PIU will advise the consultancy firm/institution about the chronology of studies. The contract may be a framework agreement with the potential firms/institutions based on procurement rules agreed by the World Bank. The duration for assignments of a single study will be sixth months depending on the volume and nature of the study.

4. Methodology of Study
Survey: a survey with appropriate questionnaire would be carried out to collect data, which will satisfy the objective of the study.

Sampling: Depending on scope of studies, the sampling unit will be decided in consultation with the implementing agency(s). A sample frame including number of participants in different data collection methods will be developed using standard sampling framework for each study area according to agreed catchment area(s)/ principles and discussion with the implementing agencies.

Document Review: The studies will have a large number of document reviews analysis of regulatory (including policies/plans and strategies, investment climate and bottlenecks) regime (including licensing and procedural measures) of trades in Bangladesh and its simplification for effective participation of women traders and entrepreneurs in regional and global trade. Required qualitative data analysis techniques and methods will be used.

Questionnaire: The survey questions will be developed and agreed with the related implementing agency (ies). Testing of the questions will be required.

Key Informants Interviews:
To verify data collected from beneficiaries, group or individual interviews with informants will need to be organized. Approach to selecting KII and guide is to be elaborated by the firm.

Focus Group Discussion:
The study team may use the FGDs tool. FGDs will complement the data generated from the survey questions and through other methods. The FGDs will be carried out in mix separate male/female groups as appropriate and will be carried out based on an elaborated guide approved beforehand by the related implementing agency (ies). Detailed documentation the/proceedings of the FGDs will be maintained.

Public Consultations:
These studies will also include public consultations at selected locations with the relevant stakeholders in discussion with the implementing agency (ies).
Data Analysis and reporting

The data will be processed in SPSS or similar data processing software. The qualitative data will be analyzed by using NVIVO or other similar software. Privacy of the diagnosis study data will be strictly maintained by the consultant/firm.

5. Expected deliverables from the firms/institutions:
The consultancy firm will at least submit the following reports to the project authority:
a) Inception Report
b) Inception Workshop
c) Draft Report
d) Final Report and all relevant input files like quantitative datasets and FGD/KII transcripts.
e) Dissemination Workshop

The Inception Report (IR) will contain scopes, methodologies and work plan in detail. The report must have an elaboration of study questions and objectives. This elaboration should follow the detail of research methodologies to be applied for each of the studies. The detail plan of quantitative and qualitative analysis and methods for data analysis will also have to be included in the inception report. The methodologies should include justification for choosing a particular method of data collection, sampling design and indicators, data sources, detail of data collection methods and a set of data collection instruments to be used in each of the areas, detail of field survey or study and limitations in study. The inception report should also contain the detail of key persons engaged in the study and their specific responsibilities. It should also contain the plan for monitoring and evaluation of study progress by the consultancy/research firm and the client's representatives. The work plan also needs to be detail so that the client understands how the studies will reach to final stage of report writing.

Draft Final Report (DFR) will contain detailed findings, qualitative and quantitative analysis on findings. The structure of DFR should at least contain executive summary of the study, introduction, literature survey, methodology of the study, findings of the study, discussion and analysis, recommendations and conclusions, references and annexures. Report should be delivered in English version.

The Final Report (FR) of the study should be submitted to PD/PIU on agreed formats before end of the contract period. The report should at least contain executive summary introduction, literature survey, methodology, findings, discussions and analysis, lesson learned, recommendations/suggestions, conclusions, references and database in the annexure The FR should also have a discussion about the observations of the stakeholders including clients and their answers. Report should be delivered in English version.

All reports will be evaluated by the technical committee of the project and fit recommendations of the technical committee will have to be reflected in the reports before finalization of the same.

The consultant will arrange for proof reading, if required to maintain the quality. All field notes and the data set should be submitted as annexure with the final report. Follow up meetings will be held time-to-time between the contracted agency/consultant and BRCP MOC. Ten (10) printed copies of the final report should be submitted along with soft copies. any other information that is important may be added /deleted during discussion periods, which may become an integral part of the TOR.

6. Consulting Firms qualification and experiences
The interested consulting firm should provide evidence of the following in their applications:
- The Consulting firm shall have the legal capacity to enter into the contract;
- The firm should have at least 10 years of general experience in providing consulting services out of which at least 05 years of experience in national / international ICT trade related research or studies for public and private sector;
- The firm should have successfully completed at least one service contract related to ICT Sub-sector of Bangladesh within last 5 years;
- The firm should have experience in working with development partner's funded projects (IDA financed project experience would be desirable);
- The required average annual turnover of the consulting firm shall be at least Tk. 1.00 crore in last three years;
- A capacity statement on available training facilities, IT equipment, logistics support, transport and office space;
- Undertaking that the firm has not been blacklisted or debarred by any Government Organization or by IDA;
- List of key professional staff including proposed core team for the assignment, showing qualification and experience including the projects/assignment on which they have worked, their role in the assignment/project and duration of their engagement with the assignment/project.
- The firm should have active web-page with necessary information of company management, legal status, experience and present work with client list.

Required Documents: The Company must submit the following documents:
a) Company Registration document (Trade License/incorporation Certificate), Up to date Tax payment certification and VAT registration certificate;
b) Audited Financial statement (last 03 Years);
c)Company Brochure;
d)ISO Certified company will be given preference.

7. Team Composition and their Qualifications
The proposed services under this Terms of Reference shall be carried out by using a firm (Consultant) with adequate experience in designing and delivering the expected output of the

study. The firm should propose the structure and composition of its team members) It should list the main disciplines of the assignment, the key experts, technical and support staff. An indicative team structure may be as follows:

Position	Duration (man months)	Qualification, Experience and Responsibility
Team Leader	06	Team Leader (TL) must have a minimum of 15 years of general experience out of which at least 10 years' relevant prior experience. He must have relevant Master's degree from a recognized university preferably in International Trade, Computer Science and Information technology, Business Administration or other related areas. She/he must have experience in working with ICT trade related agencies and familiarity with trade environment and related international agreements. Must have experience of working with complex, multi-system environments in public sector. The Team Leader will take the overall responsibility for the execution of the assignment in accordance with the TOR and also for the coordination of all professional inputs. She/he will be responsible to the Employer and maintain close contact with Project Director (Employer's representative) to ensure that the contract is implemented in accordance with the World Bank guidelines. The Team Leader will act as the Consultant's authorized representative for both the design and implementation supervision phase and make decisions on all matters pertaining to the consulting services.
System Analyst	04	System Analyst must have a minimum of 10 years of general experience out of which at least 5 years' relevant experience in Information Technology. He must have relevant Master's degree from a recognized university preferably in Computer Science and Information Technology. Preference will be given having experience in working with ICT based entrepreneurship development /value chain development activities and familiarity with processing, value chain development, and marketing related assignment as well as working experience with Software Development, Ecommerce etc. Must have experience of working with complex, multi-system environments in public sector. Consultant will take the overall responsibility for the execution of the assignment in accordance with the TOR and also for the coordination of all professional inputs. She/he will be responsible to the Employer and maintain close contact with Project Director (Employer's representative) to ensure that the contract is implemented in accordance with the World Bank guidelines.
Entrepreneurship Development Expert	04	Entrepreneurship Development Expert must have a minimum of 10 years of general experience out of which at least 5 years' relevant experience. He must have relevant Master's degree from a recognized university preferably in Computer Science and Information Technology, Business administration or trade and economics related other areas. She/he must have experience in working with ICT business and production, processing, research and consultancy services and familiarity with ICT business strategy, digital commerce etc. Must have experience of working with complex, multi-system environments in public sector. Consultant will take the overall responsibility for the execution of the assignment in accordance with the TOR and also for the coordination of all professional inputs. She/he will be responsible

		to the Employer and maintain close contact with Project Director (Employer's representative) to ensure that the contract is implemented in accordance with the World Bank guidelines.
Export Promotion Expert	04	The export promotion expert must have a minimum of 10 years of general experience in leading export sectors of Bangladesh out of which at least 03 years' relevant experience in export related studies/projects especially in ICT and ICT related products. She/he must have relevant Master's degree from a recognized university preferably in International Trade, Business Administration, economics, or other related areas. She/he must have experience in export promotion/facilitation of female trader and entrepreneur, logistics, infrastructure/connectivity assessment and planning of ICT products. She/he must have experience of regulatory (including policies/plans and strategies, investment climate and bottlenecks) regime (including licensing and procedural measures) of trades in Bangladesh and its simplification for effective participation of women traders and entrepreneurs in regional and global trade. She/he should have strong written and verbal skills in English Knowledge and understanding of business practices of trade regulating agencies.
Senior Programmer	04	The Information Technology (IT) Expert must have a minimum of 10 years of general experience out of which at least 03 years' relevant experience in Information Communication Technology (ICT) services for access to potential market, financial management, storage and efficient transportation management/tracking and capacity development of female trader to avail ICT based services in export. She/he must have relevant Master's degree from a recognized university preferably in Computer Science, IT or other related areas. Experience of working with trade related studies and project will be given preference. She/he should have strong analytical skills and understanding of export promotion and value chain analytical of products in Bangladesh.
Statistician	02	The Statistician must have a minimum of 1C/years of general experience out of which at least 05 years' relevant experience in sampling design, data cleaning/and analysis, Questionnaire design etc. in different development studies, evaluation, and survey. She/he must have relevant Master's degree from a recognized university preferably in Statistic. She/he must have experience of working with donor funded projects will be given preference.

The Consulting firm will also propose diagnostic study office and field support staff as per their work plan.

8.   Payment
Payments shall be made in line with agreed-on outputs according to the following schedule:
- Inception Report: Twenty (20%) per cent lump-sum of contract price shall be paid upon submission of the Inception Report duly accepted by the Client.
- Draft Final Report: Forty (40%) per cent lump-sum of contract price shall be paid after submission the draft report duly accepted by the Client and
- Final Report: Forty (40%) per cent lump-sum of contract Price shall be paid after submission the final report duly accepted by the Client.
- All relevant taxes and VAT shall be deducted at source at the applicable rates by the Government of Bangladesh.

9.   Selection Method, Duration and Remuneration:

The Consulting firm will be selected by Quality and Cost-Based Selection (QCBS) method following World Bank's Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011 (Modified in April 2015) ("Consultant Guidelines") available in the website: http://documents1.worldbank.org/curated/en/615761468322433244/pdf/578440PUB0REPL0 nqli sh0Final0Jan2011.pdfand PPA 2006 and PPR 2008. The diagnostic studies should be completed within maximum of 180 days from the date of Contract Signing. The proposed financial proposal must include VAT & Taxes. The payment will be made including VAT and Tax as per NBR rules. There will be no provision for advance payment.

10.   Client Supports and Facilities

The consulting firm will facilitate monitoring of studies by the employer, and World Bank officials. The project will provide to the Consulting firm all key program documents & reports such as:

- Relevant extract of Technical Assistance Project proposal (TAPP), if required;
- Sharing relevant up to date project information for a better understanding of the project;
- Providing timely feedback to the consulting firm on inception report, questionnaire, sampling, training module, draft reports etc.;
- Any logistic support such as transportation as well as office space will be provided the client.

Appendix-8

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Appendix-10

Study Team Composition

The study team consisted of the following members in their respective positions making up different areas of responsibilities for efficient completion of the study:

- **Mr. Monoj Kumar Roy** : Team Leader
- **Dr. Md. Shafiqul Islam** : Export Promotion Expert
- **Mr. Mozammel Hoque** : Entrepreneurship Development Expert
- **A. M. M. Nasim Arafat Ridoy** : Senior Programmer
- **Mr. Muhammad Ashfaq E Zaman** : System Analyst
- **Md. Ismail Hossain** : Statistician

Appendix-11

Pictorial view of Field Survey