

**"What are the Factors Affecting the Adoption of Business-to-Business
Electronic Commerce by Ready-Made Garments export SMEs in
Bangladesh?"**

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Administration

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2020

Declaration Sheet

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Abstract

Main Focus:

This study aimed to investigate the factors that affect B2B e-commerce adoption by the RMG export SMEs in the developing country context of Bangladesh. All over the world, e-commerce has considerably transformed ways of conducting business. A great deal of evidence shows, however, that SMEs in developing countries are lagging behind their counterparts in developed countries. This research will guide manufacturing SMEs in developing countries, such as Bangladeshi RMG export SMEs, in the adoption of B2B e-commerce.

Data Collection Techniques:

This research undertaken, using an interpretive paradigm for collecting data from the selected RMG export SMEs, large RMG export organisations and experts associated with the RMG export business. The principal data collection tools and techniques used were open-ended semi-structured questions through face-to-face interviews, as well as document analysis.

Conceptual Framework:

A conceptual framework developed to gather different factors associated with e-commerce adoption as defined in the research question: "What are the factors affecting the adoption of Business-to-Business (B2B) Electronic Commerce (E-commerce) by Ready-Made Garments (RMG) export SMEs in Bangladesh?". Data collected from the interviews were analysed to gather deeper insights into the findings based on the elements of the TOE framework and CATWOE analysis. The elements of data include:

- 1) The nature and characteristics of the business;
- 2) The use of ICT and web applications by the company;
- 3) Senior management's perceptions of B2B e-commerce adoption;
- 4) The factors that affect and influence B2B e-commerce adoption;
- 5) Identification of government initiatives for the adoption of B2B e-commerce, and
- 6) Suggestions to ease the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

Principal Findings:

Several factors have been identified that have a negative impact on the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. These mentioned below-

A lack of senior management knowledge about the global scope and benefits of B2B e-commerce for organisations; a lack of financial ability in the organisations and more comprehensive investment for adopting technology; a lack of financial support from financial institutions; a lack of quality B2B e-commerce software; a lack of combination of IT skilled human resources with RMG business knowledge; a lack of support from business partners and their readiness to take part in B2B e-commerce; a lack of support from government and BGMEA to improve ICT infrastructure in the RMG sector; the complexity of legal issues related to online transactions; political instability and uncertainty; language and communication problems when using the internet.

Also, there are some of the other factors identified in this research that will influence the adoption decision of B2B e-commerce by the RMG export SMEs in Bangladesh. These are as follows, access to new markets; the sourcing of raw materials; improving communication with clients and better marketing opportunities; the availability of a third-party website for B2B e-commerce; support from the government and BGMEA.

Contribution to Knowledge:

This study makes a theoretical contribution to this research area by combining the TOE framework with a CATWOE analysis of the factors identified for a broader perspective of B2B e-commerce adoption. That has, until now, been absent from the current literature of B2B e-commerce adoption in the context of SMEs. Also, this study provides a conceptual framework to guide government of Bangladesh, BGMEA, RMG export SMEs, software developer and other associated stakeholders in creating a system so that RMG export SMEs can efficiently adopt B2B e-commerce without massive changes to their businesses. This conceptual framework can potentially be used in the context of manufacturing industries of different developing countries.

Keywords: E-commerce, B2B, Ready-Made Garment Industry, Export SMEs, Developing countries

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I extend my gratitude to the participants of this study and BGMEA officials for allowing me to interact with them.

This thesis dedicates to Dr Stephen Sommerville 1948 – 2020 who never got to read the final draft. You are the determination on every page. Forever you will be remain in my heart.

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Acronyms

RMG	Ready Made Garments
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
EDI	Electronic Data Interchange
EFT	Electronic Fund Transfer
B2B	Business to Business
B2C	Business to Consumer
SME	Small and Medium Enterprises
PERM	Perceived Electronic Readiness Model
RBT	Resource Based Theory
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TOE	Technology Organisation Environmental Framework
SSM	Soft System Methodology
CATWOE	Client, Actor, Transformation, Weltanschauung, Owner, Environmental Constraints.
WWW	World Wide Web
WTO	World Trade Organisation
DTI	Department of Trade and Industry
ICT	Information and Communication Technology
SCM	Supply Chain Management
SEM	Search Engine Marketing
e-commerce	Electronic Commerce
IT	Information Technology

List of Abbreviation of Participants

Participants from RMG export SMEs	MW, MN, MS1, MZA, MZR, MMHF, MH, NA, MISJ, HAB, Dr MAMT, NC, HAJ, SAM, ZH, MAR, MSA, SS, SH, MIH, SA1, KIH, MDH, BS, MFH, FE.
Participants from Large RMG export Organisation	MAAK, MS2, SSA, SA2.
Expert participants	IHQ, MKH, MRH, MMR, BA, NMAR

Chapter-1

1.0: Introduction to the Research

This research examines the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. Since the advent of internet business, especially from 2000 onwards, there has been a massive uptake, in developed countries, of the emerging technology related to e-commerce (Agwu and Murray, 2014; Elbeltagi *et al.* 2016). Many ICT related studies, however, have identified that developing countries still lag behind in adopting technology for business activities (Awiagah, Kang and Lim, 2016; Chong *et al.* 2009; Evi, Arif and Daniel, 2015; Fleenor and Raven, 2011; Kurnia *et al.* 2015; Vaithianathan, 2010; Wenjie, 2011). As a developing country, Bangladesh is in a similar situation to other developing countries (Azam and Quaddus, 2009a; Rashid, 2012). For example, recent data shows that Bangladesh is in the seventieth position on the inclusive internet index (The Inclusive Internet Index, 2020), which indicates that it is a long way behind developed countries in terms of overall internet experience. Hence, the senior management of SMEs of developing countries has little knowledge of using the power of e-commerce for business activities (Shemi, 2012; Wang, 2016).

On the other hand, a developed country's export SMEs achieve economic growth by adopting B2B e-commerce (Al-Bakri, Cater-Steel and Soar, 2010). A study conducted by Gao and Duncombe (2014) argued that B2B e-commerce changed the pattern of business transactions domestically and internationally. Also, they indicated that developing countries' organisations could benefit extensively from using B2B e-commerce to expand their businesses globally (*ibid*). Similarly, as a developing country, Bangladeshi RMG export SMEs may be able to achieve economic growth by using the power of ICT, if they follow the same path as the SMEs of developed countries. There are, however, cultural, political, economic, technological, business environmental issues which affect the adoption of B2B e-commerce by RMG export SMEs in Bangladesh (Hoque and Boateng, 2017).

That is the area, therefore most needs to be studied. Also, in developing countries, in the export SMEs' context, it appears that technological integration is under-used (Zhou, 2011). In this research, therefore, the emphasis is placed on identifying the factors that affect B2B e-

commerce adoption by RMG export SMEs in Bangladesh. That will facilitate the senior management of Bangladeshi RMG export SMEs to understand what they need to consider for the adoption of B2B e-commerce and can aid to expand their businesses globally. In the following section, the background of the research is discussed to illustrate the idea to conduct this research.

1.1: Background of the Research

Bangladesh is a well-known ‘Ready-Made Garments’ manufacturing country (Azam and Quaddus, 2009a). Unfortunately, people from other countries are unable to buy RMG products from Bangladesh using an online platform (Hoque and Boateng, 2017). Neither they are able to make contact easily with companies because of insufficient information. There is a website managed by the BGMEA that provides the necessary information about registered RMG export organisations (BGMEA, 2017). However, it does not include detailed information about individual companies; for example, this website does not categorise which RMG export organisations have expertise in making particular products. There is, therefore, no straightforward identification process for identifying those organisations. Also, there is no existing B2B e-commerce platform in Bangladesh, where RMG export organisations can perform their business activities (Hoque and Boateng, 2017; Azam and Quaddus, 2009a).

Furthermore, currently, Bangladeshi RMG export SMEs are struggling to keep their businesses running owing to a variety of issues, including finding customers, entering new markets and identifying the best suppliers of raw materials (Azam and Quaddus, 2009a). In the Bangladeshi RMG export SMEs’ context, this is becoming a significant problem. To resolve those issues, Hoque and Boateng (2017) suggested that RMG organisations need to adopt virtual communication and transaction facilities. These facilities can also help them to find new clients and extend their businesses globally (ibid.). It is evident that China has benefited from ICT business activity and there are clear examples of Chinese companies successfully using B2B e-commerce and trading through websites, such as Alibaba.com and DHgate.com (Gracie, 2014; Martinsons, 2008; Tan, 2016; Tong, 2013; Zhai, 2010). Use of these websites allows people from around the globe to buy products, mostly from China (Millward, 2016).

According to Ordanini and Rubera (2010), B2B e-commerce technologies mainly introduced to revolutionise trading activities between two business organisations. Participating

organisations, however, need to implement ICT related equipment at their business premises to make them competent for conducting their business activities through online networks (Zhao, Wang and Huang, 2008). Although B2B e-commerce is quite costly to implement, it enables organisations to operate their businesses internationally without any obstructions (Hamad, Elbeltagi and El-Gohary, 2018). In the context of developing countries, Rabie (2013) has pointed out that the implementation of B2B e-commerce by SMEs would help them to lower their costs by facilitating access to the world markets. For example, regularly visiting clients is costly and time-consuming, as clients located at various locations around the world (Hamad, 2014). Similarly, buyers needing to travel to find organisations who can produce their goods is also costly and time-consuming. Hence, if both parties were able to meet by using a virtual platform, then they would not need to travel, saving time, money and unnecessary hassle.

The following section discusses the importance of this research in the context of RMG export SMEs in Bangladesh.

1.2: Importance of the Research

RMG export SMEs are playing a significant role in the overall economic development of Bangladesh (Abdin, 2014). Currently, the RMGs sector plays a vital role in boosting the gross domestic product (GDP) through export revenue (ibid.). For example, in the fiscal year 2014-15, the total GDP was USD 173.82 billion, of which the Bangladeshi export industry comprised USD 31.2 billion, and to which the RMG sector alone contributed 81.69% (approximately USD 25.6 billion). Also, this sector offers employment to about 4.2 million Bangladeshis; these are mainly women from low-income families (Bangladesh Bureau of Statistics, 2015). In recent years, however, finding new clients has become more difficult, especially in the aftermath of the tragic 'Rana Plaza' disaster of 2013 (Salminen, 2018).

Consequently, the majority of RMG export SMEs in Bangladesh are struggling to attract new orders and, also, competition is very high between themselves and the larger RMG organisations. Hence, finding future clients from across the globe is crucial to the RMG export SMEs survival. Also, in recent years, Vietnam (currently in the third position in the world market, whereas Bangladesh is in the second position) become a principal competitor in the apparel industry (Hossain, 2019). For example, in 2018, Bangladesh made up 6.4% of the

world's total RMG exports, whereas Vietnam made up 6.2%. In 2015, however, the difference between these two countries was much more significant with Bangladesh at 5.9% and Vietnam at 4.8% of the world's total RMG exports (ibid.). It is clear, therefore, that it is essential for Bangladeshi RMG export organisations to identify new clients by using digital platforms, contrarily, Bangladesh might soon lose their second position to Vietnam.

Another crucial point is that the current Bangladeshi government has a plan that, by 2021, Bangladesh should become a 'medium-income economy' and, to achieve this target, they have focussed on RMG export revenue. They aim to reach a goal of USD 50 billion by 2021 (Abdin, 2014). Though, in 2019, Bangladesh exported apparel worth only USD 33.07 billion (BGMEA, 2019). There is, however, no clear plan set by either the government or the BGMEA regarding how the RMG sector might be able to achieve their 2021 target. This research, therefore, explores whether RMG export SMEs in Bangladesh will be able to increase their exports of RMG products by using a virtual platform.

Individually, in the export and import industry, ICT is playing a significant role in trade through the use of online platforms (Zhu and Kraemer, 2005). Currently, therefore, organisations can use e-commerce as a vehicle to expand their businesses in the global markets (Azam and Quaddus, 2009a; Mohammed *et al.* 2008). Furthermore, a study conducted by Turban *et al.* (2008) pointed out that, at present, business activities go beyond physical boundaries, as organisations can trade with distant geographical regions by adopting e-commerce. That enables organisations to reach more customers and, thus, the generation of more orders. Which ultimately help to generate more revenue, that will directly improve the country's economy (Chang and Dasgupta, 2015). This revenue will play a vital role in a country's overall economic development.

As discussed above, the adoption of an e-commerce platform would help RMG export SMEs to identify new clients and obtain new orders. Undoubtedly, therefore, B2B e-commerce can play a significant role in achieving the RMG export target set up by the Bangladeshi government (Abdin, 2014; Zhai, 2010). However, developing countries, such as Bangladesh, do not fully utilise the ICT infrastructures which restricts SMEs in the expansion of their businesses or even completing business transactions over the internet (Zhao, Wang and Huang, 2008). For a better understanding of the problems related to B2B e-commerce adoption by

RMG export SMEs in Bangladesh, detail discussion conducted in the following section. That helps to identify the research gap leading to conduct this research.

1.3: The Problem Statement Domain of the Research

1.3.1: Rationale of SMEs E-commerce Adoption

E-commerce adoption has not been easy for SMEs worldwide (Chee, Suhaimi and Quan, 2016; Jones and Beynon, 2011; Mutula and Van Brakel, 2007) because of the various needs of both local and global businesses, as well as the constant changes in ICT (Novika and Reza, 2014; Olatokun and Kebonye, 2010). In previous studies related to ICT adoption by SMEs identified that SMEs do not use and capitalise on the ability of the internet to expand their businesses (Bai, Law and Wen, 2008; Molla and Licker, 2005a) except in the simple use of ICT, such as e-mail (Mpofu and Watkins-Mathys, 2011). The adoption of B2B e-commerce by SMEs, therefore, remains critical (Parker and Castleman, 2009; Okadapau, 2016).

Moreover, the adoption of B2B e-commerce by SMEs in developed countries also depends on many other factors (Oliveira and Martins, 2010). That includes the equal distribution of ICT infrastructure, urban and rural SMEs, developed or developing countries SMEs, the range of products and services SMEs offer, the economic conditions of SMEs, compatibility with the adoption of e-commerce and so on (ibid, Beige and Abdi, 2015; Sila, 2013). For those SMEs in developing countries, however, it is even more difficult because of the lack of availability of ICT and the cost of embracing the technology (Heeks, Jagun and Whalley, 2009). Another major problem that SMEs in developing countries face is the availability of dedicated B2B e-commerce solutions designed for specific industries in specific contexts, thus creating inappropriate solutions for their problems (Prasad, 2009).

Many deterrents affect the adoption of B2B e-commerce by SMEs in developing countries (Zhao, Wang and Huang, 2008). This study does not, however, conduct research into all of those developing countries contexts but instead focuses on a specific developing country's particular sector that plays an essential role in its economic development. Although some research has been carried out on e-commerce adoption by SMEs in developed countries, there has been very little research conducted on the developing countries context, especially the

RMG sector. It is not clear, therefore, which factors affect the adoption of B2B e-commerce by RMG export SMEs.

In the context of the Bangladesh RMG sector, very little research (discussed in chapter 2; section 2.11) conducted to identify the factors related to the adoption of ICT or B2B e-commerce. A study conducted by Hoque and Boateng (2017) on the adoption of B2B e-commerce in developing countries provides evidence of the RMG industry in Bangladesh. They, however, examined the overall Bangladesh RMG sector B2B e-commerce adoption and used a survey method for data collection. On the other hand, this research mainly focused on the identification of factors associated with B2B e-commerce adoption by RMG export SMEs in Bangladesh. Besides, this study uses face-to-face interviews to obtain primary data from specifically selected participants for this research. This data collection procedure helps to get raw data by digging deeper into the problem (Hashim, 2011) rather than just using a structured survey method. This study, therefore, facilitates the identification of those factors that play an enormous role in the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. This unique knowledge will eventually contribute to the existing literature.

1.3.2: Theoretical Rationale of the Research

To identify the factors affecting B2B e-commerce adoption, I used the (TOE) framework in combination with the Soft System Methodology (SSM), particularly the CATWOE analysis, to gain an in-depth understanding of the factors identified by the individual participants of this study. One of the main reasons for using the TOE framework is because it helps to identify the technological, organisational and environmental factors, that inhibit and promote the adoption of ICT (Chiu, Chen and Chen, 2017). I used this simplistic framework to guide and develop the questions and to maximise gathering the data needed for a deeper understanding of the factors (Rizzuto, Schwarz and Schwarz, 2014) affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh. Another reason for using the TOE framework is because the participants of this research are not very aware of B2B e-commerce adoption. Hence, I used this simplistic framework to help develop questions by including all three major components of the TOE that facilitate covering different angles of the factors affecting the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

The TOE framework, however, does not indicate where the actual problems persist. On the other hand, the CATWOE analysis helps to locate the problems from the identified factors, using the TOE framework. For example, in this study, the TOE framework identified the issues related to the technological, organisational and environmental factors (discussed in chapter 5; sections: 5.1.4 to 5.1.6), while the CATWOE analysis helped to locate the problems from those identified by the TOE. That helped to determine who owns the problem and where it persists (discussed in chapter 5; section: 5.2). It seems that other researchers missed the opportunity to use the CATWOE analysis in association with the TOE framework to gain a more in-depth understanding of the adoption of technology in the context of RMG export SMEs in Bangladesh.

In the following section, the scope of the study is discussed in relation to business development-

1.4: Scope of the Research

This study is associated with the e-commerce adoption by RMG export SMEs; however, some of the participants (MFH, NMAR) of this study believe that using B2B e-commerce is quite complicated for this type of sector. They argued that this industry's business is highly dependent on the 'touch and feel' of the products and that this plays a vital role in the decision to make purchases. It is, therefore, essential to identify how this obstruction can remove to facilitate B2B e-commerce adoption. Furthermore, SMEs need to identify their strengths and weaknesses to create value and to calculate the effort involved in the implementation of B2B e-commerce, before making any investment in ICT. Questions that arise from being aware of the multitude of activities that can facilitate through online digital technologies would be to ask the RMG businesses in Bangladesh:

'Will the use of B2B e-commerce enable RMG export SMEs in Bangladesh to share their trading documents more quickly and efficiently with other business organisations in different regions of the world?' Also, 'Would the adoption of B2B e-commerce help RMG export SMEs in Bangladesh to create more opportunities for themselves?'

It is necessary to gather more information to answer the above questions. Also, it is essential to understand the factors associated with the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. It is also vital to inspect in which ways the Bangladesh government's

"Digital Bangladesh" initiatives are associated with the country's second-highest remittance sector (RMG export organisations). That would help to explore whether there are any initiatives which the Bangladesh government and the BGMEA have created to support the RMG export SMEs in their attempts to survive in the competitive world markets, as well as how they might make a strong presence in those markets.

This study, thus, focuses on the various activities of the Bangladeshi RMG export SMEs, based on their contextual and holistic views of e-commerce that best suit their business environments. Also, this research focuses on exploring the factors of both the internal and external environments of RMG export SMEs. Furthermore, categorisation of the main factors, to understand how the phenomena of B2B e-commerce has been comprehended and applied in the developing country context. Finally, this study will build a well-documented body of knowledge leading to the development of a conceptual framework that can guide policymakers of Bangladesh government, BGMEA and individual RMG export SMEs. That conceptual framework will ultimately help to develop a support programme for the adoption of this technology by RMG export SMEs in Bangladesh.

With this in mind, I have developed this research based on the research question mentioned below in the following section 1.5. The research question will facilitate to explore and gain an in-depth understanding of the factors that promote and restrict B2B e-commerce adoption in the RMG export SMEs context in Bangladesh.

1.5: Research Questions

"What are the factors affecting the adoption of Business-to-Business Electronic Commerce by Ready-Made Garments export SMEs in Bangladesh?"

To obtain answers to the above question, I have set out my aim and objectives in the following section, which will offer guidance for following the data collection process.

1.6: Aim and Objectives of the Research

“This study aims to understand the factors relating to the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.”

The following objectives were set to gather information to answer the research question and achieve the aim of the research. These objectives are-

- i) An investigation of the internal and external factors associated with the B2B e-commerce adoption by RMG export SMEs in Bangladesh.
- ii) A categorisation of the main factors that RMG export SMEs, and their supporting industries, need to consider for the adoption of B2B e-commerce.
- iii) The development of a conceptual framework that RMG export SMEs could use as a guide for the successful adoption of B2B e-commerce.

The first objective is to gather information and identify the factors related to the subject matter. The second objective is to help with labelling the identified factors according to their importance. The third objective is to pull those factors together to develop a conceptual framework to assist senior management of RMG export SMEs in Bangladesh with what they need to consider for the adoption of B2B e-commerce. The aim of this study is not to generalise the findings but to offer an in-depth understanding of why and how RMG export SMEs in Bangladesh use the internet and B2B e-commerce, and to what extent technological, organisational and environmental factors influence this use.

From the above discussion, it is clear that the RMG export SMEs are struggling to obtain new business orders, which raises serious concerns for their survival. This research, therefore, facilitates recognising the issues that affect RMG export SMEs about the adoption of B2B e-commerce. Also, it will help the senior management of RMG export SMEs to review their business activities and consider doing business using an online platform. Furthermore, this research is necessary because it will contribute to the current body of knowledge in the area of B2B e-commerce adoption by the RMG export SMEs in Bangladesh.

1.7: Structure of the Research

This thesis consists of six chapters for achieving the study's aim and objectives through answering the questions outlined in the previous section (1.6).

The first chapter gives an overview and discusses the central concept of the study. It starts with reviewing the background, importance, problem statement and scope of this study to identify the research gap. Furthermore, the research questions, aims and objectives are specified to reach the desired goal of this study.

The second chapter starts by briefly stating the different process was followed to identify the literature related to this study. Then, the definitions of SMEs, a background of the issues, history and different types of e-commerce that highlighted in the previous literature will be investigated. Also, this chapter will review the various factors affecting e-commerce adoption in different context and benefits associated with that adoption by the SMEs. Furthermore, the theoretical background associated with the adoption of e-commerce and the application of the TOE framework, CATWOE analysis and e-commerce network model for this research explained.

The third chapter discusses the method adopted by this research for the design of appropriate instruments for collecting and analysing the data on this subject matter. The empirical work is performing by using semi-structured interviews with senior management and experts related to the RMG export business and ICT industry. Furthermore, this chapter states how I managed and used the data to obtain valid and reliable research results. Finally, there is an explanation of the ethical considerations for collecting, storing and effective use of the data.

In chapter 4, I provide an overview and analysis of the collected research data, as well as a discussion of all the answers, using a step-by-step, descriptive analysis. The discussion in this chapter helps with identifying the factors by considering technological, organisational and environmental perspectives. Furthermore, the primary motivating and inhibiting factors are discussed and displayed using an NVivo tree chart. That helps to identify which factors (either motivating or inhibiting) affect the adoption of B2B e-commerce by RMG export SMEs. This chapter also presents an interpretation of the findings of the Bangladeshi RMG export SMEs' B2B e-commerce adoption from different perspectives. That includes how "Digital

Bangladesh” initiatives are associated with RMG export SMEs’ e-commerce adoption processes and identify the opportunities that RMG export SMEs can create by adopting B2B e-commerce.

Chapter 5 presents a discussion of the research results and draws up a framework based on the findings. The discussion of the findings based on the various aspect of B2B e-commerce adoption. Also, there is an explanation of how the CATWOE analysis facilitates a deeper understanding of the factors. In this chapter, I developed a conceptual framework to help guide the decision makers, system developers in their consideration of which factors need to be considered for a well-equipped B2B e-commerce platform. Importantly, in this research, the notion of a system is not used to refer to the development of technology, rather a collection of processes, procedures and collaborations to enable RMG export SMEs to exploit the benefits of e-commerce adoption. I also developed a novel conceptual framework using the Kettinger and Hackberth’s (1997) e-commerce network model as a foundation and to further guide and justify using this particular theoretical model.

In chapter 6 states the contribution of the research to business development, as well as the academic input arising from this study. It concludes with recommendations for systems developers and identifies the limitations of the research that future studies might embrace and take forward.

Summary of the Chapter:

This chapter started with an outline of the origin and background of the research. It explained the importance of the study and where the actual problems persist. Furthermore, this chapter presented the scope accompanying this study, as well as the research question and objectives. An outline of the overall research is presented by providing details of the material discussed in the following chapters.

Chapter-2

2.0: Literature Review

The previous chapter addresses the background, importance, problem statement domain, scope, research question, aims and objectives set out to achieve the goal of the study. This chapter reviews the literature related to developing countries B2B e-commerce adoption, especially in the context of SMEs. The focus of this review is guided by the research question reported in the previous chapter. The literature search criteria involved search terms that included developing countries B2B, e-commerce adoption, especially in the context of SMEs, and export RMG in Bangladesh, information systems theories, adoption stages, adoption factors, e-commerce readiness and models of e-commerce adoption. The exclusion criteria included culture, strategy, ethics categories. I follow a systematic literature review (LR) approach to identify the different categories of secondary source under various higher-level headings, then reviews each collection of sources under each category. Within each section, these categories are reviewed narratively and inter-linking according to their relationship within the main category. The literature included in the chapters are in the public domain and are sourced from grey literature including government reports, research papers, journal articles that report relevant data studies and facts related to developing countries SMEs, B2B e-commerce adoption, and refer to export RMG in Bangladesh. Also, the existing literature has reviewed to gather secondary data for this study. There have been several additional criteria set out to qualify and review the literature for this research. For example, literature needs to be relevant for this study, the time frame is mainly considered within the last 'ten years' from commencing the study, peer-reviewed and vastly cited in a various journal article, research paper. Moreover, the literature review focuses on the selection of documents, directed by the research question outlined in the introductory chapter.

The literature review chapter mainly investigates the literature related to e-commerce adoption by SMEs in a variety of contexts in developing countries. It also includes ICT related research, as it offers a broader view of the subject matter. This study is associated with identifying the factors that affect B2B e-commerce adoption by RMG export SMEs in Bangladesh. I have, therefore, constructed an extensive literature review (LR) for an in-depth understanding of the different factors involved in the e-commerce adoption process. This research focuses on the previous research papers identifying how to trade using e-commerce in a variety of industrial

and national contexts and what factors affect the adoption of B2B e-commerce. It is evident from the findings of previous research that adoption of e-commerce varies from sector to sector and from country to country for a variety of reasons (Azam and Quaddus, 2009a; Chong and Pervan, 2007). Therefore, it is vital to review the previous research that is related to the subject matter (Chitura *et al.* 2008; Mohanna *et al.* 2011; Moses, 2016). That enables researchers to obtain a wider view and a deeper understanding of the subject matter (Oliveira and Martins, 2011).

The following section, therefore, starts with defining the RMG SMEs in the context of Bangladesh; this definition stated below:

2.1: Definition of RMG SMEs

The government of Bangladesh mainly differentiates industries into two main sectors:

i) the manufacturing sectors and ii) the service sectors

Currently, the Bangladesh Central Bank categorises SMEs by considering the amount of investment (replacement cost plus the value of fixed assets, excluding land and factory buildings) and the numbers of workers employed by them (The Daily Star, 2017). However, the Bangladesh Central Bank defines RMG SMEs as separate from the SMEs of other sectors (ibid.). One of the main reasons that RMG SMEs are categorised separately from other industries is because the RMG industry has a much larger workforce than other business. To make it fair for such a highly populated staff as the RMG sector, the Bangladesh Central Bank has given them a distinct category.

The table 1, below shows the two main categories, where the only exception for RMG SMEs is in the number of employees of the manufacturing medium enterprise category. In general, the manufacturing medium enterprise category's number of employees ranges from between 121 to 300, whereas the number of employees of RMG SMEs in the same category is 121 to 1000 (ibid.). For easy identification of the facts and figures of the definition of RMG SME's, stated in the table below:

Type of Industry		The amount of Investment without Land and Building Price	Number of Employees
Small Enterprise	Manufacturing	75 lakhs to 15 crore takas	31 to 120
	Service	10 lakhs to 2 crore takas	16 to 50
Medium Enterprise	Manufacturing	15 crores to 50 crore takas	121 to 300 (however for RMGs this is 121 to 1000)
	Service	2 crores to 30 crore takas	51 to 120

Table 1: Definition of SMEs in Bangladesh (Source: *ibid.*)

For this study, I consider only those RMG manufacturing SME enterprises in Bangladesh that mainly focus predominantly on export business activities, as well as the number of employed workers (one thousand or below). One of the reasons I am excluding the ‘amount of investment’ column is because of a lack of available information about the amount of investment from an authentic source. I have tried to access that information from many respondents, but I was unable to obtain reliable information because employers were afraid to reveal it. Moreover, there is not enough information available on either the government or the BGMEA databases.

To identify the desirable participants for this study, I developed ‘question number 2’. Then the responses of ‘question number 2’ were used to compare with the information in the above table 1 to identify the right participants for this research. Also, ‘question number 3’ was designed to find the type of business organisation operating. Through these focused ‘questions number 2 and 3’, the answers will help me in separating RMG export SMEs from larger RMG export organisations.

For detail understanding of e-commerce, the following section, I discussed the background of e-commerce.

2.2: Background of e-commerce

In recent years, e-commerce has become an inevitable and necessary modern development tool in the field of ICT (Cragg, Caldeira and Ward, 2011, Wilson, Daniel and Davies, 2008; Jones and Beynon, 2011). It has become one of the pillars of the modern business system that facilitates a massive shift from the traditional form of trade to the contemporary format of e-commerce (Kapurubandara, 2009). In this chapter, (figure 3 and 4), I present a diagram of both the traditional and e-commerce methods of performing trade for easy identification of the difference between them (Korper and Ellis, 2000).

E-commerce is an inter-organisational system that allows buyers and sellers to participate in exchanging information, such as products and price (Agwu and Murray, 2014; Sin *et al.* 2016; Tan, 2016; Tibbs *et al.* 2015). E-commerce mainly uses modern ICT, which enables business organisations to expand their businesses across the regions of the world (MacGregor and Vrazalic, 2007). In the later part of the twentieth-century, e-commerce was one of the new, unpredictable global variables that promoted business needs. (Alrubaiee, Alshaibi and Al-bayati, 2012; El-Gohary, 2010). It changes the way businesses operate with buyers and sellers becoming responsive to each other as well as, it allows them to complete the transactions without face-to-face interaction (Alrubaiee, Alshaibi and Al-bayati, 2012; Millward, 2016). For a better understanding of e-commerce and its importance to the export business, in below, I discussed some relevant aspects of it in detail.

2.2.1: E-commerce – What are the Definitions?

E-commerce, also known as internet commerce, refers to the buying and selling of goods or services by exchanging money or information to execute transactions using the help of the internet (Middleton and Byus, 2011; Rahayu and Day, 2017). In earlier research, numerous researchers define e-commerce in different ways (Jahanshahi, Zhang and Brem, 2013). Some of the widely used definitions are stated below for a clear understanding of e-commerce.

Turban *et al.* (2008) define e-commerce as the method of interacting and exchanging products and services using the internet.

Kurnia and Ali (2012) state that e-commerce is the execution of transactions and the exchange of information through virtual interaction between individuals and enterprises.

Papazoglou and Ribbers (2006) define e-commerce as the platform for buying and selling products and services, and the transfer of funds by using digital networks.

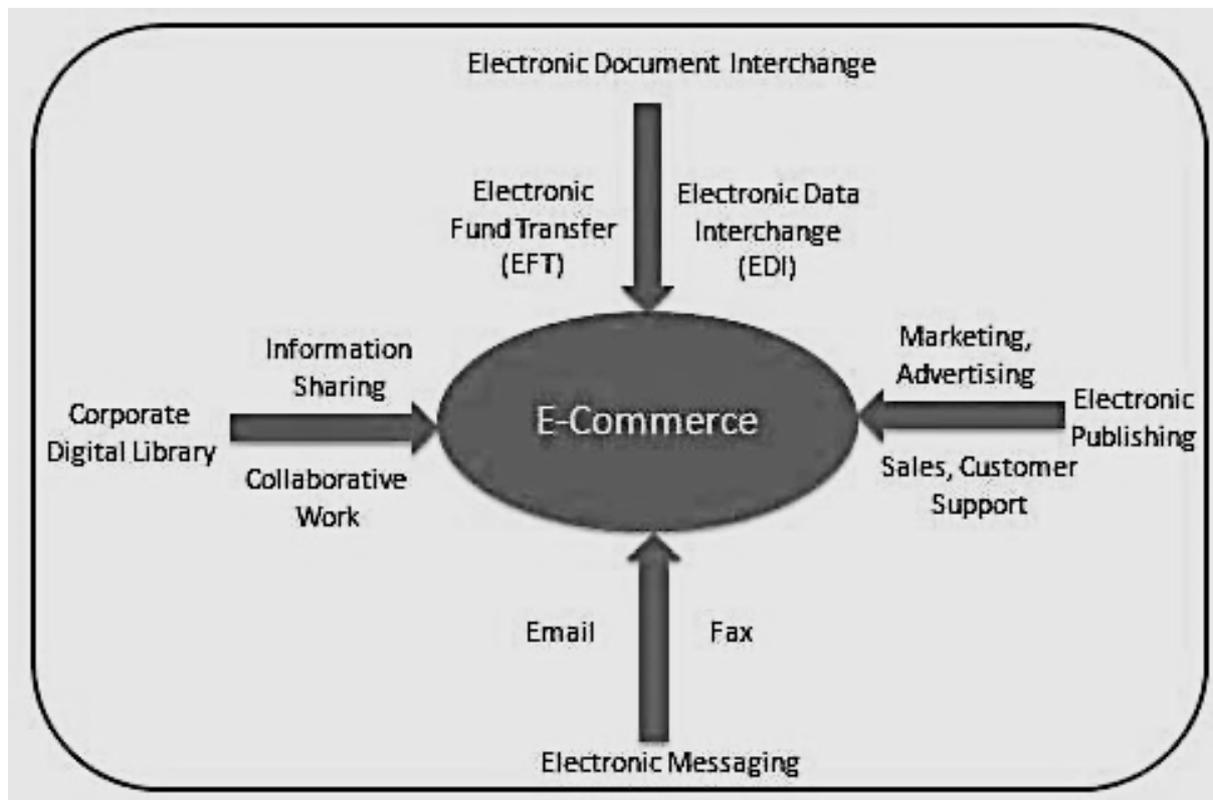


Figure 1: Concept of e-commerce (Source: Tutorialpoint, nd.)

Lee, Pak and Lee (2003) define B2B e-commerce as the sharing of a business platform that helps to maintain a business relationship and execute a business transaction with the help of telecommunication networks.

These definitions indicate that e-commerce is not just buying and selling but also helps to build a relationship between stakeholders (Abou-Shouk, Phil and Wai, 2013; Alrubaiee, Alshaibi and Al-bayati, 2012; Middleton and Byus, 2011). Also, B2B e-commerce facilitates manufacturers directly supplying their products to giant retailers or wholesalers, and even to smaller buyers, by eliminating the distributors from the transmitted channels (Korper and Ellis, 2000). In the Bangladesh RMG export SMEs context the price of the RMG products plays a crucial role to retain the existing buyer as well as attracting new buyers (Hossain, 2019). It is

evident from the previous research that B2B e-commerce can eliminate middle parties by offering direct communication with target customers (Alrubaiee, Alshaibi and Al-bayati, 2012; Bigne-Alcaniz *et al.* 2009; Jones and Beynon, 2011). Similarly, Bangladeshi RMG manufacturer can use these facilities and supply directly to the foreign buyer with competitive pricing for their RMG products (Hoque and Boateng, 2017).

Moreover, in the earlier research, it has been identified that there are enormous benefits organisations can get by adopting e-commerce to conduct their business (Abou-Shouk, Phil and Wai, 2013; Alrubaiee, Alshaibi and Al-bayati, 2012; Bigne-Alcaniz *et al.* 2009; Molla and Heeks, 2007). For example, e-commerce has advanced direct marketing and the sale of products and services, as it reduces the time associated with traditional carrier and distribution channels (Ray and Ray, 2006). In the RMG export business context, both buyers and sellers need to exchange information quickly and efficiently because the RMG industry is associated with a rapidly changing business environment. For example, currently, fashion changes regularly hence the design, to keep up with the trend, RMG business organisations must use enhanced communication processes through B2B e-commerce platforms that help them to keep updated with trends. For a better understanding of the origin of e-commerce, in the following section, I discuss the brief history of e-commerce and its importance to the business context.

2.2.2: A Brief History of e-commerce

In the early 1960s, the development of e-commerce began, although the majority of the innovation associated with electronic fund transfer (EFT) started during the 1970s (Turban *et al.* 2008). The primary method of online business was electronic data interchange (EDI), electronic fund transfer (EFT), fax, e-mail and the internet (Iacovou, Benbasat and Dexter, 1995).

The introduction of EDI allowed an organisation to make business transactions, such as placing an order with other business organisations and receiving invoices electronically, following standards and agreed with procedures (Turban *et al.* 2008; Papazoglou and Ribbers, 2006).

In the 1990s, the World-Wide-Web (WWW) introduced. After that came the rapid evolution of the internet, as well as the changes in graphical user interfaces ensuring easy to use the software, that enabled organisations to exchange their information certainly and frequently, as

it was more affordable than the traditional medium of EDI (Turban *et al.* 2008). Since the 1990s, ICT has played a significant role in the business environment, thus leading to the formation of the network economy (Kannabiran and Dharmalingam, 2012). However, in the year 2000, business organisations experienced the inevitable dot.com crash, which heralded the decline of e-commerce (DTI, 2000). Yet it was short-lived, especially on the stock markets, as it was realised that the new, technical, internet-based businesses needed to show long-term strategies to their investors who were shrewd in their investment decisions (Burgess, Sellitto and Karanasios, 2009). Since then, organisations and practitioners have been trying to find the best ways to employ information and communication technologies (ICT) that can help reduce systems failure and overall losses to organisations (Delia, 2008).

The number of internet users has increased immensely both at the personal and commercial level in recent years, resulting, the e-commerce user has increased for exchange of goods and services by B2B, B2C and so on (Asare, Gopolang and Mogotlhwane, 2012). In addition, in the context of logistics and supply chain management (SCM), ICT influences both at the operational and strategic levels (Cullen and Taylor, 2009). In recent years, it has transformed companies' internal logistics operations, as well as external relationships with suppliers, intermediaries and customers through integrated SCM (Alrubaiee, Alshaibi and Al-bayati, 2012). Most importantly, integrated SCM creates end-to-end visibility, reduces inventories and cycle time, minimises the bullwhip effect and improves overall distribution channels (Jahanshahi, Zhang and Brem, 2013). Similarly, in the Bangladeshi RMG export SMEs context, SCM can play an important role to increase the efficiency of their business operations.

Like many other innovations, e-commerce changed the way that businesses operate (Jones and Beynon, 2011; Teriz, 2011). According to Kraemer *et al.* (2005) without an online presence, it is more challenging than ever before to build a successful business. In recent years, e-commerce itself has been changing, moving business operations and using a variety of devices. For example, pre-2015 e-commerce mainly based on personal computer interactions through websites and services provided by organisations (Rahayu and Day, 2017). After 2015, it entered to a new period that was more focused on mobile platforms which can operate on tablets and smartphones, as well as user-generated content and social media platforms (Wang, Pauleen and Zhang, 2016). That enabled people to use and conduct e-commerce while they got on with their daily lives (Arshad, 2018). Therefore, there are no comparable services in the physical world that can compare with what e-commerce platforms can offer (Panula, 2017).

On the other hand, in the developing country context, the use of e-commerce has been prevalent in large organisations, while the adoption rate of e-commerce within SMEs has been slow (Rahayu and Day, 2017). Hence, the overall adoption rate of e-commerce in developing countries is abysmal, where consideration of it by SMEs is little (Kapurubandara, 2009). Similarly, in the Bangladesh RMG export SMEs' context, the adoption of B2B e-commerce is extremely poor (Azam and Quaddus, 2009b). Therefore, it is vital to identify why the adoption rate is low and what factors are affecting Bangladeshi RMG export SMEs not to consider adopting B2B e-commerce. Previously one research (Hoque and Boateng 2017) had been conducted predominantly in the context of B2B e-commerce adoption by RMG organisation. On the other hand, this study mainly focuses on issues related to the endorsement of B2B e-commerce by RMG export SMEs in Bangladesh.

The following section state the different types of e-commerce and detail explanations of B2B e-commerce as this study mainly focuses on such types of e-commerce.

2.2.3: Types of e-commerce

There are various categories of e-commerce that organisations are using to expand their business, such as business to business, business to consumers, intra-business e-commerce and mobile e-commerce (Awiagah, 2016).

Each type of e-commerce may have several business models that organisations can use more than one of these to complete transactions (Chong *et al.* 2011). For example, B2B e-commerce can produce a sale from a catalogue or at auctions (Choudhury and Choudhury, 2010). As this study is mainly associated with B2B e-commerce adoption, I would, therefore, like to discuss in the following sections and focus mainly on B2B e-commerce.

- **B2B e-commerce:**

The definition of a business to business (B2B) e-commerce is the process between business organisations where they are using online platforms to complete transactions (Kohli, 2016). According to the World Trade Organisation (WTO, 2013), B2B e-commerce is the way organisations relate to each other when sharing information and making and processing orders electronically. The payment and the actual delivery of goods and services, however, does not

need to be conducted through the online method to complete B2B e-commerce. Also, the WTO (2013) pointed out that transactions made via fax, telephone calls and standard types of email not classified as e-commerce. A study conducted by Lee, Pak and Lee (2003) distinguished B2B e-commerce adoption in two different forms: essential and collaborative. Essential B2B e-commerce is there to facilitate the exchange of financial documents in an automated way. On the other hand, collaborative B2B e-commerce is related to creating inter-firm operations with channel partners (ibid). Besides, Lee, Pak and Lee (2003) have pointed out that organisations are unlikely to achieve their desired goals through B2B e-commerce if they adopt basic, rather than collaborative, B2B e-commerce.

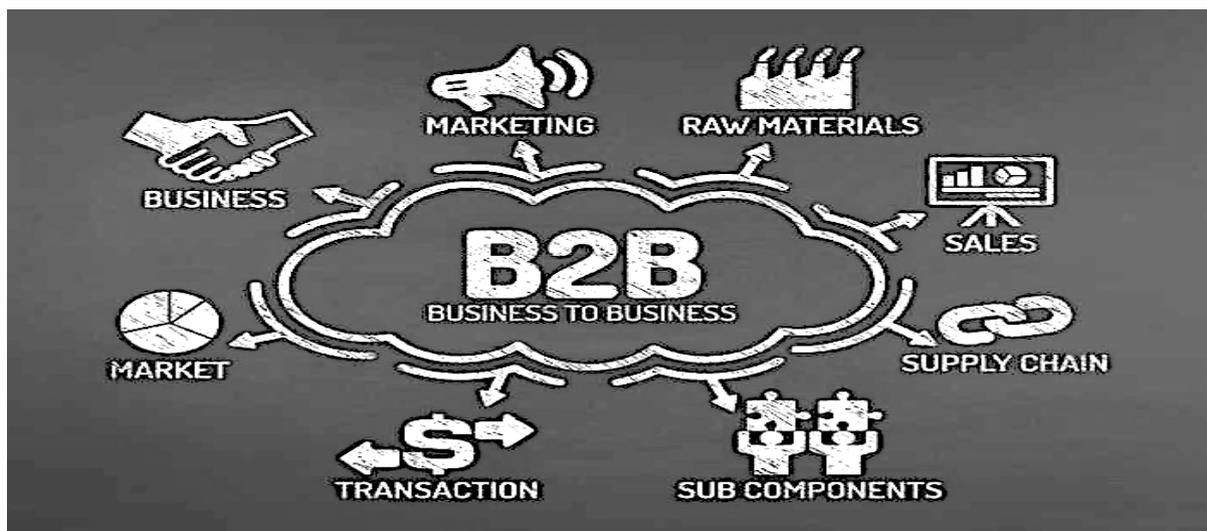


Figure 2: Concept of B2B e-commerce (Source: Virtocommerce, 2018).

To understanding the value of B2B e-commerce, in the following section, I discuss the benefits of B2B e-commerce adoption and how these contribute to the success of SMEs.

2.2.4: Benefits of B2B e-commerce Adoption to SMEs

Although, the benefits of B2B e-commerce are associated with the early adoption stages, however, tangible outcomes are not visible when SMEs are planning to adopt it (Xing, 2018). On the other hand, MacGregor and Vrazalic (2007) stated that the benefits of B2B e-commerce are tangible outcomes occurring after e-commerce implementation. This wait and see approach often viewed as a deterrent to the initial outlay of costs, which only replenished further downstream when business activity is understood to rely on these B2B e-commerce

mechanisms. A study conducted by Mohamed and El-Fitouri (2015) identified that both individuals and organisations could benefit from adopting B2B e-commerce. For example, increased geographical reach, the increased speed of interaction between various activities, improved productivity, easy and quick information sharing, lower cost, competitive advantage and so on (ibid.). These are discussed below-

- **Geographical Reach and Better Communication:**

E-commerce enables organisations to reach every ‘corner’ of the world through communication networks, where the internet is available (Middleton and Byus, 2011; Xing, 2018). Also, e-commerce facilitates better communication between buyer and suppliers, which plays a significant role in gaining a competitive advantage (Xing, 2018). Therefore, adopting e-commerce certainly increases the communication process between business organisations (Chaffey, 2011; Wang, Pauleen and Zhang, 2016). Furthermore, a study conducted by the Department of Trade and Industry (2000) identified that organisations that adopted e-commerce maintained a better communication channel with both buyers and sellers. Although the DTI survey result is dated, it still provides useful insights into the issues that many SMEs are currently addressing in today’s business world. Similarly, Bangladeshi RMG export SMEs can use the B2B e-commerce platform to reach potential clients all over the world, which was not easy to achieve beforehand. In addition, the adoption of B2B e-commerce by RMG export SMEs in Bangladesh would enhance the communication process between them and their business partners.

- **Speed to Interact with Clients:**

B2B e-commerce enables users to interact with each other within the quick timeframe (Wang, Pauleen and Zhang, 2016). For example, using B2B e-commerce, business documents can transfer faster than any other communication method (Xing, 2018). The faster communication process helps to resolve any problems that might arise during the production process, which ultimately increases the efficiency of the business process (Bolloju and Murugesan, 2012). Industries, such as the Bangladeshi RMGs, therefore, should consider operating their businesses by using a B2B e-commerce platform, so that communication can perform quickly without delays.

- **Productivity:**

ICT allows businesses to make transactions very quickly hence organisations can focus on other activities, thus helping them to become more productive and deliver more work than they might have anticipated (Iyanda and Ojo, 2008). For example, an organisation could share information if questions arise before or during the production process (Ocloo, 2018). Even corrections needed by the buyer or manufacturer can be addressed through quick communicating with each other, using the e-commerce platform to rectify the problem (Ocloo, 2018, Wang, Pauleen and Zhang, 2016). That helps both buyers and sellers to reduce the risk of any mistakes and speeds up the production process, as orders can be completed promptly (Wenjie, 2011). The RMG industry is highly informative during the whole process of transactions, as such use of ICT could help them to improve their business activities.

- **Sharing Information:**

According to Mpofu and Watkins-Mathys (2011) use of ICT technology, users can transfer any information. There are many ways of communicating by using ICT technologies. For example, using an e-commerce platform is a more efficient and effective way to share information because organisations using email for the sharing of documents may result in those documents being deposited in the junk folder mailbox and not delivered to the recipients (Xing, 2018). The sharing information through an e-commerce platform, however, is a more reliable method for ensuring that participants will receive that information (Middleton and Byus, 2011). In the RMG export SMEs' context in Bangladesh, organisations can update every step of the production process by delivering information via the e-commerce platform. It makes it possible for them to plan updates they receive from the seller and, thus, to focus upon the next stage of the process. That eventually builds a good reputation and relationship between the business partners.

- **Reduction of Cost:**

E-commerce helps to reduce business costs, as both the buyer and seller can communicate with each other through ICT (i.e., e-commerce) (Mohamed and El-Fitouri, 2015). They do not need to visit each other and, therefore, they could save both in travelling time and money (Savrul, Incekara and Sener, 2014). Also, the buyer can directly contact the seller without the help of intermediaries and, therefore, the seller can offer a better price to the buyer (Ueasangkomsate, 2015). Furthermore, the buyer does not need to use postal services too often to send

documentation that can eventually save both money and time (Xing, 2018). Therefore, by using an e-commerce platform, both parties (Bangladeshi RMG export organisations and foreign buyers) can resolve any issues quickly and efficiently without hampering their business activities. That also reduces the risk of cancelled orders, which ultimately protects organisations against tremendous losses.

- **New Features:**

E-commerce allows new features added to services and products, which is another benefit for potential e-commerce users (Xing, 2018). For example, an organisation can take part in ‘live chat’ and amend product design within seconds by doing so; this can benefit both business parties by saving both money and time (ibid.).

- **Competitive Advantage:**

An organisation that has implemented useful e-commerce facilities with others who do similar sorts of business that can help them to gain a competitive advantage (Ribadu, Abubakar and Suleiman, 2014). For example, organisations can communicate effectively with their potential customers regarding upcoming products and services by using e-commerce facilities (Alrubaiee, Alshaibi and Al-bayati, 2012). In the context of the Bangladeshi RMG export SMEs, they can use an e-commerce platform to reach a vast number of customers situated around the globe. Also, RMG export SMEs can potentially obtain new orders from new clients, which helps them to gain an advantage over their competitors.

A study conducted by Eriksson, Hultman and Naldi (2008) identified that mainly large organisations benefit from adopting e-commerce, especially organisations in developed nations, owing to their broader disposal resources. On the other hand, SMEs in developing countries are given little assistance from the surrounding business and political environment regarding resources and competencies for boosting the adoption of e-commerce (OECD, 2004; Ribadu, Abubakar and Suleiman, 2014).

Above discussion helps to understand how B2B e-commerce could help SMEs to expand their business. However, in the following section, I discuss the benefits of B2B e-commerce adoption in the context of manufacturing SMEs, as this study mainly focuses on the manufacturing RMG export sector.

2.3: Benefits of B2B e-commerce Adoption for Manufacturing SMEs

In the global context, e-commerce significantly reforms manufacturing worldwide (Ocloo *et al.* 2018). E-commerce enables manufacturing organisations to move from mass production towards demand-driven production and to customise manufacturing systems for ‘just-in-time’ demand (Yee-Loong *et al.* 2014). In addition, e-commerce enables the strategic flexibility of an organisation with the personalisation of products, while it maintains its economic advantage of mass production (Ray and Ray, 2006). B2B e-commerce provides an excellent opportunity for the manufacturer to sell and distribute their products directly to the customers (Ocloo *et al.* 2018).

E-commerce improves the organisational flow of information. Therefore, supply chain management may improve thus reducing costs and increasing efficiency across the industry (Alrubaiee, Alshaibi and Al-bayati, 2012). It provides an excellent opportunity for the organisation to gather knowledge about customers, competitors and potential new markets (Yee-Loong *et al.* 2014). It aids an organisation’s ability to understand customers’ needs and to circulate that market information throughout the organisation, thus ultimately helping them to assess market demand. (Cullen and Taylor, 2009). Actually, e-commerce offers numerous organisational benefits which include improved customer service, reduced cost involvement for transactions, operations, distribution, communication, purchasing, delivery, advertising, administration and management (Abou-Shouk, Phil and Wali, 2013; Bigne-Alcaniz *et al.* 2009; Molla and Heeks, 2007). According to Korper and Ellis (2000), e-commerce helps both buyers and manufacturers to achieve a better price and higher margins by removing the middleman from the traditional selling chain of products and services. Below I present both a traditional and e-commerce selling chain model to facilitate understanding the structural differences between them.

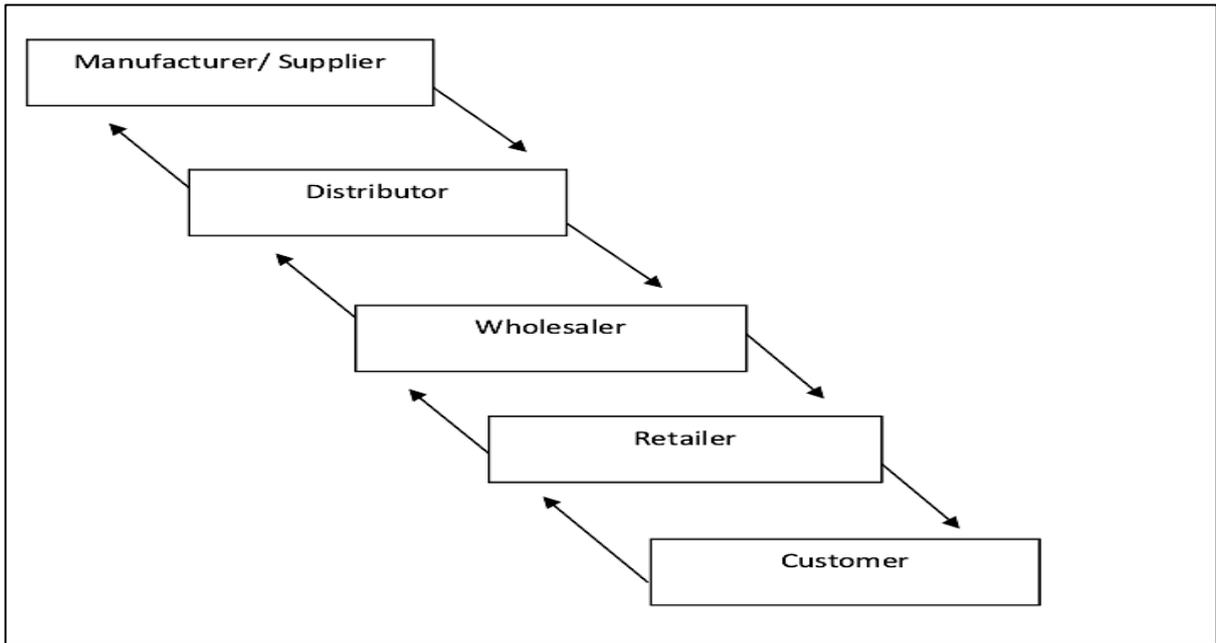


Figure 3: Traditional Selling Chain (Source: Korper and Ellis, 2000, p. 13)

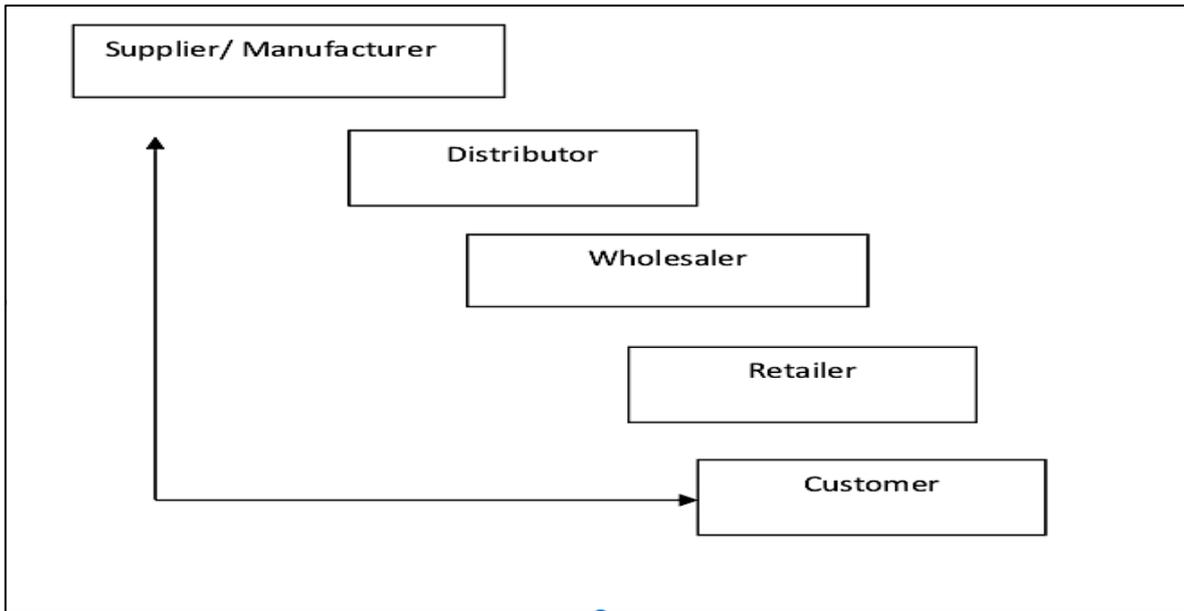


Figure 4: E-commerce Selling Chain (Source: Korper and Ellis, 2000, pp. 14-15)

Moreover, in the following section, I discuss the effect of B2B e-commerce adoption on SMEs to understand the way it helps expand and grow the business.

2.3.1: Effect of B2B e-commerce Adoption on SMEs

Gibbs, Kraemer and Dedrick (2003) identified that B2B e-commerce becomes the primary position for regular business activities around the globe. Although their findings reported more than ten years ago, they are even more useful today for the daily activities of current businesses.

Also, Kraemer, Gibbs and Dedrick (2005) identified that one of the most significant problems for trading worldwide is access to new markets, owing to high costs, different countries' rules and regulations, workforce skills, investments, knowledge and adaption to the foreign business culture. However, they pointed out that organisations can reduce production costs by the global sourcing of raw materials and gain a competitive advantage over their competitors. In addition, Savrul, Incekara and Sener (2014) pointed out that adopting B2B e-commerce helps organisations to participate in global production networks. However, in the SME context, firms are facing challenges in expanding their businesses in the world market, as they are less competent in B2B e-commerce (Ribadu, Abubakar and Suleiman, 2014). Thus, their development drive and scope are restricted (Galbreath, 2005). Besides, SMEs face other challenges in the domestic market because, as global SMEs enter into the local market, they need to compete with them to survive (Kraemer, Gibbs and Dedrick, 2005).

Many factors have identified by various researchers in the developed and developing country context which impacts upon SMEs in their efforts to expand their businesses in new markets (Ribadu, Abubakar and Suleiman, 2014; Savrul, Incekara and Sener, 2014). For example, in the developing country context of Nigeria, Agwu and Murray (2014) identified that financial capacity and technological absorption capacity influenced an organisation's intensity to adopt ICT. In a developing country's SME context, e-commerce adoption is difficult because of managers' and owners' limited knowledge (Ahmad, 2015).

As this study is mainly associated with identifying the factors related to B2B e-commerce adoption by RMG export SMEs in Bangladesh, I have, therefore, mainly focussed on the previous research related to RMG organisations in the context of e-commerce adoption. However, I have found it very difficult to identify research papers associated with e-commerce adoption by RMGs, apart from those written by Moodley and Morris (2004) and Hoque and Boateng (2017). Moodley and Morris (2004) conducted a study on the garments' industry in

South African context which identified that e-commerce is unsuitable in the context of RMG businesses because they are associated with a ‘touch and feel’ implication. On the other hand, Hoque and Boateng (2017) suggested that RMG organisations in Bangladesh need to adopt e-commerce to extend their businesses globally. Also, some strategies recommended by various researchers demonstrate how to improve the position of e-commerce adoption for combatting the challenges faced by SMEs in the global market (Gunasekaran, Rai and Griffin, 2011; Scupola, 2010). These strategies are developing the various forms of collaboration with SMEs, developing the resilience of the e-commerce adoption strategy, support from the government, offering development of e-commerce training and education to SMEs, and facilitating cluster and network formation with other stakeholders (Gunasekaran, Rai and Griffin, 2011; Scupola, 2010).

The below section, I discuss how B2B e-commerce influences on cross-border business activities.

2.3.2: Influential Perspectives of B2B e-commerce on Cross-border Business Activities

There is the number of researchers in their studies have identified that trust is the most crucial factor for the success of cross-border e-commerce (Alsaad, Mohamad and Ismail, 2017; Choudhury, 2008; Nowell *et al.* 2017; Susanto and Chang, 2014). Also, some other researchers have pointed out that business-culture is essential for the success of e-commerce. For example, e-commerce users in developed countries are more familiar with sophisticated e-commerce websites because they are accustomed to high-quality, sophisticated, e-commerce software (Apulu and Latham, 2009a; Azam, 2007; Mohtaramzadeh, Ramayah and Jun-Hwa, 2018; O'Reilly, 2007; Senarathna *et al.* 2014, Tarafdar and Vaidya, 2006). On the other hand, developing countries e-commerce users are not familiar with virtual business environments (Fleenor and Raven, 2011). According to Azam (2007), developing countries SMEs are less capable of handling e-commerce software due to numerous reasons, such as a lack of skilled human resources staff, lack of infrastructure related to ICT, reduced financial capabilities and support. Therefore, developing countries, users would not be comfortable with using a developed country’s sophisticated websites (Apulu, Latham and Moreton, 2011). In this context, the physical environment of business culture creates a problem for the success of cross border B2B e-commerce (Apulu and Latham, 2009c).

Furthermore, Kohli (2016) pointed out that the security of transactions through an e-commerce site is a huge concern for users. It is, therefore, necessary, that e-commerce website developers and owners assure their website users that transactions through the e-commerce platform are secure (ibid.). A study conducted by Alam *et al.* (2007) identified that users with more experience in e-commerce are more concerned about security than other issues because they have a better knowledge of the risks associated with e-commerce activities. On the other hand, users that have less experience of e-commerce activities are comparatively less concerned with the security of transactions than users with more knowledge of e-commerce (ibid.). Therefore, ensuring the security of the transactions is paramount to build trust among e-commerce users (Herzallah and Mukhtar, 2016; Yee-Loong et al. 2014). Also, Lin, Huang and Stockdale (2011) suggested that it is essential to share information with the e-commerce users who is behind the e-commerce web portal service that can increase the web portal credibility. Therefore, in the developing country context, a sense of institutional security, such as government or reliable authorities' affiliation can promote cross border e-commerce activities (Makame, 2014). That can facilitate the e-commerce portal to create an image of safety and security and, thus, can influence overseas e-commerce users to use and perform transactions through that online platform (Kohli, 2016).

Also, websites need to facilitate the translation from one language to another (Shemi, 2012). That would be useful as users from different countries, speaking other languages, could familiarise themselves with the products and services (Zhu and Kraemer, 2005). However, translating the website would not be an effective strategy for cross country e-commerce if users do not feel confident in completing transactions using the web portal (Kraemer, Gibbs and Dedrick, 2005). To draw cross border user's attention towards the e-commerce portal, Oliveira and Martins (2010), suggested that the feedback and trust shown by other users, need to exhibit, as this would convince others to make transactions on the web portal.

There are also some other cross border influential perspectives related to e-commerce activities, that are discussing below-

- **Branding Online:**

Online branding plays an essential role in letting other people know about an organisation's activities so that they can understand what that organisation can offer them (Rowley, 2009; Yan, Zhai and Zhao, 2009). Similarly, Bangladeshi RMG export SMEs could benefit, if they

are utilising the power of online branding. However, in the developing country context, SME managers face challenges when considering online marketing of their brand (El-Gohary, 2010; Quinton and Khan, 2009; Rowley, 2009). The main challenges for developing countries SMEs regarding branding online are the lack of ICT-skilled human resources, as well as lack of senior management's awareness about the benefits of online branding for their organisations (Iyanda and Ojo, 2008; Xing, 2018).

- **Search Engine Marketing:**

Quinton and Khan (2009) argued that in the present, competitive business context, an organisation's decision-makers need to realise that adopting a website is mandatory if they want to expand their business. However, the real challenges for them are driving traffic to that specific website (ibid.). Therefore, SMEs need to use search engine marketing (SEM) techniques to reach their potential clients through the web (Murphy and Kielgast, 2008). To increase the efficiency of SEM tools, Quinton and Khan (2009) pointed out that both directory submission and press release distribution accelerates website traffic generation. Also, they emphasised that the website itself sometimes is not enough to reach every corner of the world. Therefore, it would be useful if the whole of the Bangladeshi RMG export sector is in the same web platform so a potential buyer could find an anticipated organisation through that online platform.

Summary:

It is clear from the above discussion that B2B e-commerce could enable manufacturing SMEs to reach the far corners of the world. That will eventually help SMEs to grow their business by access new markets and customers, where previously this was beyond their capability. Hence, RMG export SMEs in Bangladesh may consider adopting B2B e-commerce, then they can benefit from this. That leads to conduct this study for a better understanding of the factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh.

Above discussion help us to gather knowledge, how e-commerce could play a vital role in organisations to flourish their business. Also, it is essential to understand the various challenges associated with the adoption of e-commerce by organisations. Therefore, in the following sections explain the different challenges for e-commerce implementation. That helps to understand the associated tasks involved in the adoption and implementation of B2B e-commerce in the organisation.

2.4: Challenges for e-commerce Implementation

According to Shemi and Procter (2013), the practical implementation of e-commerce has many complex challenges, the majority of which are organisational and technological. A well-structured business strategy can play a useful role here, regardless of the business model (Chaffey, 2011). For example, if an organisation has an integrated, e-commerce business orientation, they are more likely to implement e-commerce effectively (Rivard, Raymond, and Verreault, 2006). Therefore, an organisation needs to have supported information, infrastructure and systems for implementing e-commerce (Azam, 2007). Moreover, the infrastructure of the organisation needs to be designed with the flexibility to allow change (Gunasekaran *et al.* 2009).

This research mainly focuses on B2B e-commerce context, hence the following section, I discuss the challenges for B2B e-commerce implementation in the context of developing countries.

2.4.1: Challenges for B2B e-commerce Implementation in Developing Countries

According to Boateng, Molla and Heeks (2007), developing countries are more open to implementing and adopting information technology. However, there is a wide range of reasons why e-commerce adoption is lower in developing countries (Fleenor and Raven, 2011). The most commonly related reasons are infrastructure, availability of the network, skilled ICT personnel, the cost of ICT equipment and web, the lack of ‘touch-and-feel’ associated with an online purchase, security and trust, and the problems with exchange and return (OECD, 2004). Although, in recent years, the applications of e-commerce and the new mechanisms in place promise a radical shift for buyers and sellers to trade with each other (Tibbs *et al.* 2015; Wang, Pauleen and Zhang, 2016). However, in the developing country context, it has been widely identified by researchers that organisations, especially manufacturing companies, are not adopting B2B e-commerce, as they believe it would reveal their business secrets to the world (Choudhury, 2008; Susanto and Chang, 2014). For example, a study conducted by Moodley and Morris (2004) in the South African garments’ industry context indicates that, for this sector, the specific information requirement (i.e., design, fabric) seems to need more personalised services. That makes the use of technical infrastructures profoundly complicated for this kind of sector. Therefore, this type of organisation (RMG export SMEs in Bangladesh)

will continue to be disinterested in adopting B2B e-commerce unless these problematic areas addressed to meet their needs.

Moreover, the socio-cultural barrier is another hindrance affecting the consideration of e-commerce adoption by developing countries' organisations (Thatcher, Foster and Zhu, 2006). For example, a country's socio-cultural background (ways of doing business, using language/content, ICT literacy) plays a vital role in their cultures (ibid.). The level of trust in online institutions is also hindering e-commerce adoption in developing countries (ibid.). For example, most senior management staff in business organisations in developing economies are not ICT literate (Apulu, Latham and Moreton, 2011). Also, they are unaware of how e-commerce (figure 1, 2 and 4) may assist them with improving their ways of doing business (Yee-Loong *et al.* 2014) compared to just using offline business techniques (figure 3).

Language is another important factor for organisations when considering conducting e-commerce globally. For example, the majority of people around the globe use English as a foremost communicating language while using an e-commerce platform (Asare, Gopolang and Mogothlwane, 2012). In Bangladesh, RMG export SMEs' context, language is particularly important because most of the people are not competent enough in the English language to communicate using an online medium.

Furthermore, in the following section, I discuss how an organisation can successfully implement e-commerce in their organisations by overcoming the challenges discussed above.

2.5: Development of e-commerce in Organisations

An organisation needs to have the necessary ICT infrastructure to adopt B2B e-commerce, i.e., a laptop, personal computer, smartphone or any other similar devices that can connect to the internet or any other communication network (Mpofu and Watkins-Mathys, 2011). It is necessary, therefore, to identify the present condition of the RMG export SMEs ICT infrastructure. That could facilitate to gather knowledge of RMG export SMEs readiness for the adoption of B2B e-commerce. To understand the present condition, 'question number 4' is used to capture vital data of the ICT infrastructure of Bangladeshi RMG export SMEs.

Following sections discuss the different factors identified by various researchers that plays a crucial role in the adoption of B2B e-commerce by the organisation-

According to Agwu and Murray (2014), it is essential to have an available power supply to run this electronic equipment associated with the e-commerce development in organisations. However, the availability of a power supply in developing countries is not always consistent in comparison with developed countries (Miah, 2006). Therefore, for the smooth operation of B2B e-commerce equipment's, it is one of the most significant hindrances for the adoption of e-commerce (Oreku, Kimeli and Mtenzi, 2009). Nevertheless, if an organisation can use its energy supply to keep their ICT equipment running, they sometimes find difficulties with the speed of the internet (Apulu, 2012). For example, when the electricity supply cuts out for a few hours, the overall rate of internet speed goes down because the insufficient power supply disrupts the server station and the mobile power station (Agwu and Murray, 2014).

Furthermore, many researchers have argued that is its crucial organisations have an active website for conducted B2B e-commerce transactions (Bai, Law and Wen, 2008, Eriksson and Naldi, 2008; Uzoka, Seleka and Shemi, 2007; Molla and Licker, 2005b). One the other hand, in the Bangladesh context, most organisations do not have a business website and, even if they do, they do not actively use them. In the Bangladeshi RMG export SME context, there is little evidence to demonstrate that websites are actively using for B2B e-commerce, neither refresh content information regularly. Many RMG export SMEs do not have a website at all and, therefore, customers based around the globe are unable to locate them (Abor and Quartey, 2010). That is another major hindrance which hampers the adoption of B2B e-commerce.

For the development of an e-commerce framework, it is crucial to have a clear view of the present condition of RMG export SMEs and their readiness to adopt B2B e-commerce. Therefore, in the following section, I discuss the readiness of B2B e-commerce adoption in the context of RMG export SMEs.

2.6: Readiness of RMG Export SMEs in Bangladesh to Adopt B2B e-commerce

It is crucial to understand the current e-readiness level of the RMG export SMEs, as well as Bangladesh position in the global e-readiness index. According to Awajan *et al.* (2013), in the developing country context, e-readiness is a new concept. They also pointed out that the present internet age, level of e-readiness of a country is mainly associated with gaining competitive advantage by using the ICT in business organisations (*ibid.*). Therefore, it is essential to measure a country's e-business environment (e-readiness) and its ability to perform different business activity through the use of ICT (Tan and Ludwig, 2016). Several tools and metrics were proposed in various studies to measure the level of e-readiness in a country (Awajan *et al.* 2013; Mutula and Van Brakel, 2006). These are as follows, the available information and ICT infrastructure, organisations management ability to deal with the new technologies, available human resources and skills, economical situations, business environmental factors, legal and social factors (*ibid.*).

In the context of Bangladesh RMG export SMEs adopting of B2B e-commerce is not easy (Azam and Quaddus, 2009a) because most of them are not competent to do business using a virtual platform (Bhowmik, 2012). Therefore, RMG export SMEs need to improve their ICT related infrastructure, so that they are competent to do business online. Currently, the majority of RMG organisations are not capable enough to do business using an online platform (Hoque and Boateng, 2017). However, they believe that the proper development of an ICT infrastructure within the RMG export organisation would motivate them to consider performing their business activities using an online platform.

In general, several steps need to consider for the adoption of e-commerce, so organisations need to go through each of the segmented procedures using a reviewed process (Yan, Zhai and Zhao, 2009). An organisation's e-commerce consideration is always associated with a large number of possible "states of adoption" (Chong *et al.* 2009). This "state of adoption" varies according to the availability of information systems in the organisation (*ibid.*). For a better understanding of those steps that organisations need to consider for the adoption of e-commerce, in the following section, I discuss the different stages of the e-commerce adoption process.

2.7: Different Stages of e-commerce Adoption

The transition processes for the adoption of an e-commerce system are complicated for many businesses because it is directly associated with organisational capabilities (Chibelushi and Costello, 2009; Saffu, Walker and Hinson, 2008). These adoption plans include company culture and the ability to handle the different challenges associated with the use of ICT technologies (Shemi and Procter, 2013). According to Martin and Matlay (2001) pointed out that there is a set of procedural steps that organisations need to follow to adopt e-commerce. They showed the adoption of information systems in the different stages through an adoption ladder. The steps of the ladders are as follows, a subscription to the internet, use of electronic email, creation of a home page for information on the network, creation of a website, an operating electronic store and full-loop of e-commerce (ibid.). In the following section, I discuss the different steps of the information system adoption process.

- **Stage-1; Subscribe to Internet Services:**

Making a subscription and the use of the internet by an organisation are parts of the very first stage of registering their presence in the virtual world (ibid.). They also help organisations to become open to the world and correspond efficiently, keeping up to date with information through the use of emails.

- **Stage-2; Use of Electronic Mail:**

An organisation starts to enter the e-commerce world through the use of an email address and communicating with clients (ibid.).

- **Stage-3; Creating a Home Page for the Information on the Network:**

Creating a homepage is also part of the initial stage for a company to have a physical presence on the virtual stage (ibid.). In this stage, an organisation develops a simple webpage where they can provide essential information about their company, as well as the service they provide. A homepage will help an organisation to advertise itself to the rest of the world so that potential customers can see what the company has to offer (ibid.).

- **Stage-4; Website:**

After the initial stage of e-commerce activity, an organisation might consider that their business is shifting to a virtual phase, where they can catalogue their products and price them by quantity (ibid.). A website will help organisations to make direct links with the rest of the world market (Bai, Law and Wen, 2008). To establish a website, it is necessary several vital components which include: a server, a leased line, routers and modems, specialised software and applications, and a knowledge human resources team to deal with and update the website regularly (Choudhury and Choudhury, 2010).

- **Stage-5; Electronic Store:**

A financial method of payment is essential for launching an electronic store and, therefore, it is necessary to have a connection with the banks to facilitate payments online (Martin and Matlay, 2001). When making e-commerce transactions via the internet, an organisation needs to provide a degree of protection and insurance to make users feel safe (Kohli, 2016). A higher level of security is required to make safer transactions online that could help to create a successful electronic store (ibid.).

- **Stage-6; Full Loop of e-commerce:**

The full loop of e-commerce can achieve by linking a website with activities that organisations perform (Thong, 1999). For example, an organisation can connect to their regular activities on the same platform, including receiving orders for the production process, as well as various tasks with their partner organisations (Rivard, Raymond and Verreault, 2006). Therefore, the company website must offer the highest level of information security, as this will attract more users to use the company website for exchanging information and conducting transactions (Kohli, 2016).

Previous research does not reveal salient evidence of the actual stages Bangladesh RMG export SMEs belongs to for the adoption of B2B e-commerce. Therefore, the 'question number 5' is included to identify the Bangladeshi RMG export SMEs position in the adoption of e-commerce stages. Comparing the above steps of the e-commerce adoption process with the data gathered from the interview of this research, the majority of the Bangladeshi RMG export

SMEs belong between stages 2 and 4. However, this study identified participating organisations in phase 4. They are one stage behind the adoption of e-commerce.

The following section discusses the different levels of e-commerce usage. It helps to get some ideas about the various activities involved in the use of e-commerce by organisations.

2.8: Different Level of e-commerce Usage

In recent years, NA Rahman *et al.* (2013) suggested a model, the ‘Level of E-commerce Usage’, which divides e-commerce usage stages into pre-publish, publish, interact, transactions and integrations. The following table states and discusses these stages:

Stages	Descriptions
Pre-publish	At this stage, organisations commit to entering the digital environment, using email as a medium of communication with clients (ibid.). The company’s computer connects with the internet to use email for day-to-day information sharing purposes.
Publish	This stage consists of one-way communication achieved by having a company website where they display their products and services, as well as showing the profile of the organisation (ibid.).
Interactive	At this stage, an organisation involved in two-way communication that includes email and website usage to connect with customers and suppliers (ibid.).
Transactive	At this stage, financial transactions take place and, therefore, the organisation needs high technical capabilities and enough information technology infrastructure to complete the process (ibid.).
Integrative	Integration refers to the complete business process, which involves high cooperation between users and suppliers (ibid.).

Table 2: Different Stages of e-commerce Usage (Source: ibid.).

In the following section, I discuss the different stages of the e-commerce growth model. The stages facilitate the organisation to identify its position in the growth model. That also guides them to understand what they need to consider and move to the next higher stage of the growth model for the adoption of e-commerce.

2.9: Different Stages of Website Growth Models for E-commerce Adoption

In the developing country context, Molla and Liker (2005a) identified six stages of e-commerce development. These six stages discussed below:

Stage 0:	The organisation does not connect to the internet and has no email.
Stage 1:	The organisation connects to the internet with email but does not have a website.
Stage 2:	The organisation does have a simple website, which contains the necessary company information.
Stage 3:	The organisation has an interactive website to accept queries, e-mail and form entry from users.
Stage 4:	The organisation has a transactive web presence to sell and purchase, as well as customer services.
Stage 5:	The organisation has integrated web presence that facilitating integration with their customers, suppliers and other back-office systems, allowing them to make more transactions electronically.

Table 3: Stages of Website Growth Models (Source: *ibid.*).

The above steps of the website growth model showed that a website plays an enormous role in the adoption process of B2B e-commerce. That stages are classified in a simplistic way for the adoption of e-commerce. However, they do not show the complexity of ICT integration in an organisation (Parker and Castleman, 2009). They also pointed out that there are unique facilitators and barriers at each stage of e-commerce development in an organisation. To ensure the flawless operations of the website, an organisation needs to have a strong internet connection (Riyadh, Rahman and Tanha, 2012). In this research ‘question number 6 and 7’ are designed to understand the level of the internet connection used by Bangladesh RMG export SMEs and the purpose of their use of the existing internet connections.

In the following sections, I discuss the functionality of websites associated with the adoption of B2B e-commerce.

2.10: Adoption of the Website and its Functionality

In the global e-commerce environment, a common characteristic of B2B e-commerce interactions is that organisations must have a website (Scupola, 2009). That is in contrast to the traditional electronic data interchange where organisations used the same type of application to exchange business information (Chau, 2001). Also, a website plays an essential role in an organisation's marketing activities (Uzoka, Seleka and Shemi, 2007). On the other hand, EDI (electronic data interchange) performed between only two parties and the information between them is strictly confidential. EDI could only execute where two parties have the same facilities, as well as both, agreeing to exchange their data through the EDI platform (Premkumar, Ramamurthy and Nilakanta, 1994). There are other media that organisations use to exchange information, such as email and a variety of mobile applications (Mark *et al.* 2016). Again, these used when two parties have common ground and are interested in communicating with each other (Apulu, Latham and Moreton, 2011). In the Bangladesh context, little research has been conducted to determine the current method of communication used by the RMG export SMEs with their stakeholder. Hence this research 'question number 8' evolved to capture data about it.

Furthermore, a study conducted by Green and Pearson (2011) identified that the usability of a website dramatically contributes to organisations being able to keep up to date with their customers, as well as attracting them and retaining them for future business. They also pointed out that there are enormous benefits that organisations can gain by actively using a website. In the developing country's context, it is evident in many research studies that SMEs face challenges regarding website design; these challenges include organisations not being well-prepared, a lack of funds, shortage of ICT-skilled human resources and limited planning (Abdel, 2012; Achimugu *et al.* 2009). Similarly, in the Bangladeshi RMG export SME's context, many organisations have a website but very few who have gained added value from it. Moreover, an organisation with a website that displays too little or much information, or irrelevant business information, does not achieve added value (Green and Pearson, 2011). Therefore, Choudhury and Choudhury (2010) pointed out that business organisations need to include some essential characteristics when building an e-commerce website. These are security, appearance, history and profile of the company, downloading speed, adequate information about products and services, search engine/search option, being navigation friendly and hyperlinks to other information regarding member facilities (*ibid.*). Furthermore,

the ability to gather information from a limited number of pages rather than browsing several pages, options for customers to provide feedback, statistics of visitors and facilities of online interactive activities (ibid.).

In the Bangladeshi RMG export business, context organisations do appear to have a website. However, they are not actively using it for communication purposes. Therefore, it is essential to understand why they have a website and how they are intended to do business using a virtual platform. To identify that we need to gather information about their knowledge for plan maintenance of the website, further upgrading of the website and linking with e-commerce platforms. Also, it is essential to know whether the RMG export organisations are planning to adopt an e-commerce platform to do their business communication with their clients. Hence, the 'question number 9 and 10' was developed to understand the demand for B2B e-commerce both in stakeholders and the RMG export SMEs perspective.

Furthermore, to get a clear idea of the adoption of B2B e-commerce by using Web 2.0, I discuss this in the following section.

2.10.1: Adoption of B2B e-commerce using Web 2.0

Web 2.0 is a collective form of technological, social and economic trends for the current generation of the internet era and is widely known as an open and distinctive medium (Bell and Loane, 2010). They highlight the following features:

- a) The Web work as a platform.
- b) The content and data work as a driving force of applications
- c) An architecture of participation thus influencing users to contribute
- d) Software which is easy to use and build.

Also, their study, explained how Irish SMEs used Web 2.0 techniques to influence their capabilities both internally and externally. According to Constantinides (2010), the development of ICT keeps forming new types of e-commerce and, thus, can be incorporated into the firm to make it more competitive in both local and international markets. In the following subsections, the classification of web 2.0 is discussed.

- **Classification of Web 2.0 Networked Companies:**

In 2011, Bughin and Chui classified networked companies that categorising Web 2.0 into three main distinct clusters, as follows:

1. Internally networked organisations: organisations using the Web effectively for interactions with their employees.
2. Externally networked organisations: organisations using Web links with their customers and suppliers.
3. Thoroughly networked organisations: combinations of internal and external linkages for a higher level of effectiveness.

The application of Web 2.0 in global business facilitates an organisation's higher customer satisfaction and better marketing efficiency (Bughin and Chui, 2011). The adoption of Web 2.0 in worldwide trade mostly confined to developed economies and large corporations (Apulu, Latham and Moreton, 2011). However, the adoption of ICT is just emerging in developing countries' SMEs because of the flexibility and cheaper ways of adopting modern Web 2.0 (Abdulhakeem, Edwards and McDonald, 2017; Bell and Loane, 2010). Also, modern technologies enable organisations to use a third party, a cloud-based platform without implementing a fully capable ICT infrastructure inhouse (Bolloju and Murugesan, 2012). In the following section, I discuss the relationship between cloud computing and e-commerce adoption. This discussion allowed me to understand whether RMG export SMEs can reduce inhouse implementation costs by instead using a third-party, cloud-based platform.

2.10.2: Adoption of e-commerce using Cloud Computing

A study conducted by Poelker (2012) identified that SMEs could apply their e-commerce platform by using a third-party service through cloud-based computing without buying the hardware and software components. Also, Bell and Loane (2010) pointed out that it would be ideal for SMEs to use the cloud computing facility to maintain their e-commerce platform so that they could focus entirely on their businesses.

Lee, Pak and Lee (2003) classified two different types of B2B e-commerce adoption: one is simple, and the other is collaborative. Basic B2B e-commerce enables organisations to share day-to-day information with their counterparts. As such, firms may be or not achieve

significant benefits from that (ibid.). On the other hand, collaborative B2B e-commerce helps organisations to build inter-firm operations activities with their partners (ibid.; Ahmad, 2015). According to Moreover, Donner and Escobari (2010) collaborative, B2B e-commerce is suitable for the developing countries' context, where SMEs can use social grouping for their business activities.

For the successful adoption of B2B e-commerce, it is vital to identify the main factors related to it. Therefore, in the following section, I look further at those factors and their relationship to e-commerce adoption by organisations.

2.10.3: The Interaction Factors and the Extent of e-commerce Adoption

In the context of developing countries, numerous researchers have been identified various factors that affect the adoption of B2B e-commerce by SMEs (Al-Bakri and Katsiolouides, 2015; Golding *et al.* 2008; Lim and Trakulmaykee, 2018; Maryeni *et al.* 2012; Mohamed and El-Fitouri, 2015; Oluyinka *et al.* 2013; Rahayu and Day, 2015; Thatcher, Foster and Zhu, 2006). For example, Thatcher, Foster and Zhu (2006) identified that the adoption of e-commerce flourishes when the organisation has a clear and pragmatic business strategy. However, it depends on the owners' and managers' perception of e-commerce, and their intention plays a vital role in its adoption by SMEs (Kapurubandara and Lawson, 2006). Also, some other studies identified that SMEs face different barriers regarding the adoption of e-commerce, such as a lack of skills and understanding of how to use it and cost associated with the adoption of e-business (Abor and Quartey, 2010; Al-Bakri and Katsiolouides, 2015; Ongori, 2009; Vajjhala and Thandekkattu, 2017). Furthermore, Laosethakul and Bouton (2007) researched about the "identified critical factors for the adoption of e-commerce by SMEs in Thailand", the result stated that national culture and social behaviour have a significant influence on the success of e-commerce adoption.

In the Bangladesh context, a study conducted by Azam and Quaddus (2009b), "The Adoption of e-commerce by SMEs in Bangladesh" shows that perceived relative advantage, perceived compatibility, perceived complexity, perceived uncertainty, perceived observability, internet experience and the number of computer literate officers in the organisation, correlated with the adoption of e-commerce by SMEs in Bangladesh. Amongst these factors are perceived

observability, perceived compatibility, some computer literate officers and internet experience, which positively correlated with internet adoption (ibid.). On the other hand, uncertainty and perceived complexity negatively related to the adoption of e-commerce by SMEs in Bangladesh (ibid.).

As this study deals with the adoption of e-commerce in Bangladesh in the RMG export SMEs' context, following section discuss e-commerce adoption and ICT-related literature in the Bangladesh context.

2.11: Discussion of the Literature Related to ICT and E-commerce Adoption by SMEs in Bangladesh

Azam and Quaddus (2009a) conducted a study by using DOI theory to evaluate the attitude of Bangladeshi SMEs towards the adoption of B2B e-commerce. The result of that study showed that Perceived Observability, Perceived Compatibility, Internet user experience and the number of computer literate officers in the company have a positive influence on the adoption of B2B e-commerce by the SMEs in Bangladesh. Their findings, however, perceived complexity and perceived uncertainty have a negative motivate on the adoption of B2B e-commerce by SMEs. A further illustration of perceived complexity Azam and Quaddus (2009a) pointed out that it mainly affects a firm's e-commerce adoption decisions due to employees lacks familiarity with e-commerce activities and resources. Similarly, uncertainty inversely affects a company's e-commerce adoption decisions, as decision-makers in Bangladeshi businesses do not know the benefits and uses associated with e-commerce; this may restrict them in adopting e-commerce (ibid.). Besides, they conducted a regression analysis to examine which innovation factor could best forecast the intention to adopt e-commerce by a firm. Their regression analysis results showed that perceived uncertainty, perceived complexity, perceived compatibility and experience of internet usage show equal importance in understanding the intention of e-commerce adoption by a company (ibid.). In another study related to the adoption of e-commerce by SMEs conducted by the same researchers, supported the findings of that research result associated with B2B e-commerce adoption by SMEs in Bangladesh (Azam and Quaddus, 2009b).

Furthermore, in another study, Azam and Quaddus (2013) examining the cultural influence on ICT adoption by SMEs in Bangladesh. The result of that study showed perceived usefulness and perceived ease of use, ethical culture, Bengali value and uncertainty avoidance determinants effect of intention on the use of ICT by Bangladeshi SMEs. However, in-group collectivism and power distance did not produce significant impacts. Also, Hoque *et al.* (2015) investigate the adoption of ICT by SMEs in Bangladesh. Their study revealed that government support, top management support, awareness of benefits and financial assistance are crucial factors of the adoption of ICTs in Bangladesh rural SMEs.

Recently, Hoque and Boateng (2017) reported a study “To explore the factors affecting B2B e-commerce adoption by the RMG sector in Bangladesh”. Their study found that awareness, resources, institutionalisation, e-readiness related to government, market forces and supporting industries were significant factors for the adoption of B2B e-commerce by the RMG sector in Bangladesh. Their findings are associated with the adoption of B2B e-commerce by the overall RMG sector in Bangladesh. However, this study is different than Hoque and Boateng (2017) study. This research mainly designs in the context of Bangladeshi “RMG export SMEs”, to identify the factors affecting the adoption of B2B e-commerce. In this research, SMEs remain the main focus area and to identify the factors affecting them for the adoption of B2B e-commerce.

From the above discussion, it is evident that there are a number of factors that affect and influence the adoption of e-commerce by the organisation. However, there is no clear indication of the factors that would influence RMG export SMEs for the adoption of B2B e-commerce. Neither previous research shows what kind of B2B e-commerce platform would be ideal for RMG export SMEs in Bangladesh context. Hence, ‘question number 11 and 12’ are developed respectively to inform these concerns.

The adoption of e-commerce offers tremendous opportunities for organisations. Regardless of the possibilities, there are still many companies that do not consider adopting it. Therefore, in the following section, I discuss the non-adoption of e-commerce by SMEs to understand the reasons why they are not considering the adoption of e-commerce.

2.12: Non-adoption of e-commerce by SMEs

The non-adoption of e-commerce by SMEs may occur because of an organisation's lack of resources (Chibelushi and Costello, 2009). Sometimes those circumstances are beyond managerial control because a lack of resources constrains an organisation's ability to make use of e-commerce (Scupola, 2009; Turban *et al.* 2008). That statement supported by Hultman and Eriksson (2008) research findings, where they pointed out that SMEs may be unable to adopt e-commerce owing to a lack of resources.

In earlier research about e-commerce adoption by SMEs, Ramsey and McCole (2005) and Scupola (2009) pointed out that the non-adoption of e-commerce seems to clear. However, Ramsey and McCole (2005) suggested that if SMEs wish to enter into the global market, then they have to adopt e-commerce. Therefore, it is essential to identify the general challenges facing the RMG export SMEs that may lead them to take the non-adoption path of B2B e-commerce. To facilitate the identification of those factors 'question number 13' was designed for this study.

Above literature review help me to gain existing knowledge (different e-commerce and ICT related factors identified through various research) concerning this study. However, it is essential to identify the key variables that influence the phenomena of interest (Shields and Rangarajan, 2013). Therefore, in the following section, I would like to review different ICT-related theories developed in earlier research. That will help me to find out the best theoretical framework to examine how those key variables might be impacted on attitude towards the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

2.13: Theoretical Background to E-commerce Adoption Research

In this section, I briefly discuss the different theories commonly used for the adoption of technology, especially e-commerce adoption by SMEs. This discussion will enable me to determine which concept would be appropriate to use in the context of this research. The theories I discuss are as follows:

- Theory of Planned Behaviour (TPB)
- Technology Acceptance Model (TAM)
- Perceived e-readiness Model (PERM)
- Diffusion of Innovation Theory (DOI)
- Resource-Based Theory (RBT).
- Technology-Organisation-Environmental (TOE) framework

The theory of planned behaviour (TPB) proposed by Ajzen in 1991 is based on a socio-psychological background and, thus, posits that there are three constructs: attitude, subjective norms and perceived behavioural control. In a study conducted by Taylor and Todd (1995b), the authors elevated the theory of planned behaviour, argued that TPB assists IT managers and researchers in their understanding of system implementation within organisations. They also pointed out that an easy perception of the adoption for e-commerce may motivate management to adopt B2B e-commerce. This theory is often used to understand individual behaviour about ICT adoption. However, it does not apply for wider organisational context.

In 1986, Davis developed the Technology Acceptance Model (TAM), which has been widely used in ICT adoption literature because it explains the adoption of technology by organisations. Although TAM is a popular model for identifying the factors affecting IT adoption, it ignores some personal behavioural factors: social and cultural influences on the adoption of e-commerce within the context of SMEs in developing countries (Azam and Quaddus, 2009b). In addition to that, Zheng *et al.* (2005) have pointed out that perceived usefulness is inadequately associated with its actual use. The replication of TAM in the developing countries' context known as problematic in identifying the perceived benefits of technology adoption by the SMEs (Venkatesh and Davis, 2000). It is not same, however, in the developed countries' context (Avgerou, 1998). Similarly, like TPB, TAM does not assess organisational ICT adoption.

In the developing countries' context, Molla and Licker (2005a, 2005b) developed the perceived e-readiness model (PERM). PERM consists of an organisation's external environmental factors, which help to assess and evaluate the vital external traits, such as government e-readiness, market forces and support industries (ibid). They also pointed out that, in the developing countries' context, organisations can locate, measure and manage risk in different activities involved in the adoption of e-commerce. Furthermore, they suggested that PERM is more relevant than the previous model for the developing countries' business context because it designed to take into account circumstances and contextual variables of developing countries. However, there are some drawbacks to PERM: it does not describe sector and firm-size, which is vital for the adoption of e-commerce (Ramdani, Kawalek and Lorenzo, 2009; Thatcher, Foster and Zhu, 2006). PERM also, does not recognise the educational background of an employee and the influence of individual factors, which play an enormous role in the adoption of e-commerce (Tan, Tyler and Manica, 2007). Moreover, Li and Xie (2012) argued that PERM is unable to capture the characteristics of a small firm. Therefore, it is not clear that PERM would be useful to decide on e-commerce adoption by the Bangladeshi RMG export SMEs.

Rogers (1995) diffusion of innovation (DOI) theory has been prevalent and replicated in many studies (Hultman, 2007; Looi, 2005, Iacovou, Benbasat and Dexter, 1995) to understand the diffusion of innovation within a social system or an individual. Parker and Castleman (2009) pointed out that DOI has better explanatory power when it is used in the SME context because it adds a component of the social dimension of SMEs. The applicability of DOI in a complex and network-based environment is problematic (Lyytinen and Damsgaard, 2001). Further, Hultman (2007) argued that Rogers' DOI theory describes the adoption and use of technology in a simplistic manner; however, it is too far from the reality of ICT adoption. The process of e-commerce adoption by SMEs is far more complex and dynamic than it appears.

Barney (1991) developed a resource-based theory (RBT) to understand how organisations can use their resources to improve their competitive advantage. RBT defines that organisations can gain a competitive advantage by careful use and development of resources, including external environmental resources (Barney, 1991; Galbreath, 2005; Parker and Castleman, 2009; Ray and Ray, 2006). A study conducted by Caldeira and Ward (2003), about the adoption and use of information technology systems in the manufacturing SMEs of Portugal, draws on the strength of RBT to understand the e-commerce environment of the SMEs. Also, Parker and Castleman (2009) pointed out that RBT highlights the resources that organisations have,

including tangible and intangible resources. However, they argue that RBT on its own is not sufficient for the study of e-commerce adoption by SMEs because RBT assumes that they will use the full capacity of their resources. In reality, it is not possible, as SMEs have other commitments to fulfil (ibid.). This study is not aimed at developing a strategy or creating a resources model to improve competitive advantage as these themes are not relevant to this study, and RBT is therefore deemed a non-essential theory underpinning the study.

Tornatzky and Fleischer (1990) suggested the technological, organisational and environmental (TOE) framework understand the ICT innovations adoption in organisations. They argue that the decision-making process for the adoption of technological innovation within organisations mainly involves these three areas. In 1999, Thong researched the context of SMEs to understand IT adoption within an organisation. He extends the CEO role with the TOE framework because, in many circumstances, the CEO or owner is the primary decision-maker for the implementation of decisions within an organisation (ibid.). Also, Robertson (2010) pointed out that TOE may be useful in the SME context if added the whole spectrum of stakeholders.

The above discussion of the theories frequently used in various IT adoption research (Azam and Quaddus, 2009b; Baker, 2011; Hultman, 2007; Li and Xie, 2012; Parker and Castleman, 2009; Taylor and Todd, 1995b). However, it is clear that the TOE framework is mostly associated with this research subject matter. The TOE framework could facilitate to identify the factors using the main three dimensions namely, Technological, Organisational and Environmental. In Bangladesh RMG export SMEs context, lack of research and data availability, restrict to identify and deepen the understanding of the factors affecting B2B e-commerce adoption. Therefore, using the main three dimensions of the TOE framework would play a crucial role in the initial identification of the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. Also, Shemi (2012) discussed individual circumstances in her research paper; where she argued that particular factor plays a significant role in the adoption of e-commerce by SMEs in developing countries. Therefore, I want to discuss beneath mainly using three main dimensions of the TOE framework, includes all the factors that appeared in previous research which influence and restrict an organisation's uptake of B2B e-commerce.

2.14: Reviewing the TOE Framework

The TOE framework contains the technological, organisational and environmental contexts. These dimensions are discussed below concerning the e-commerce adoption by the organisations.

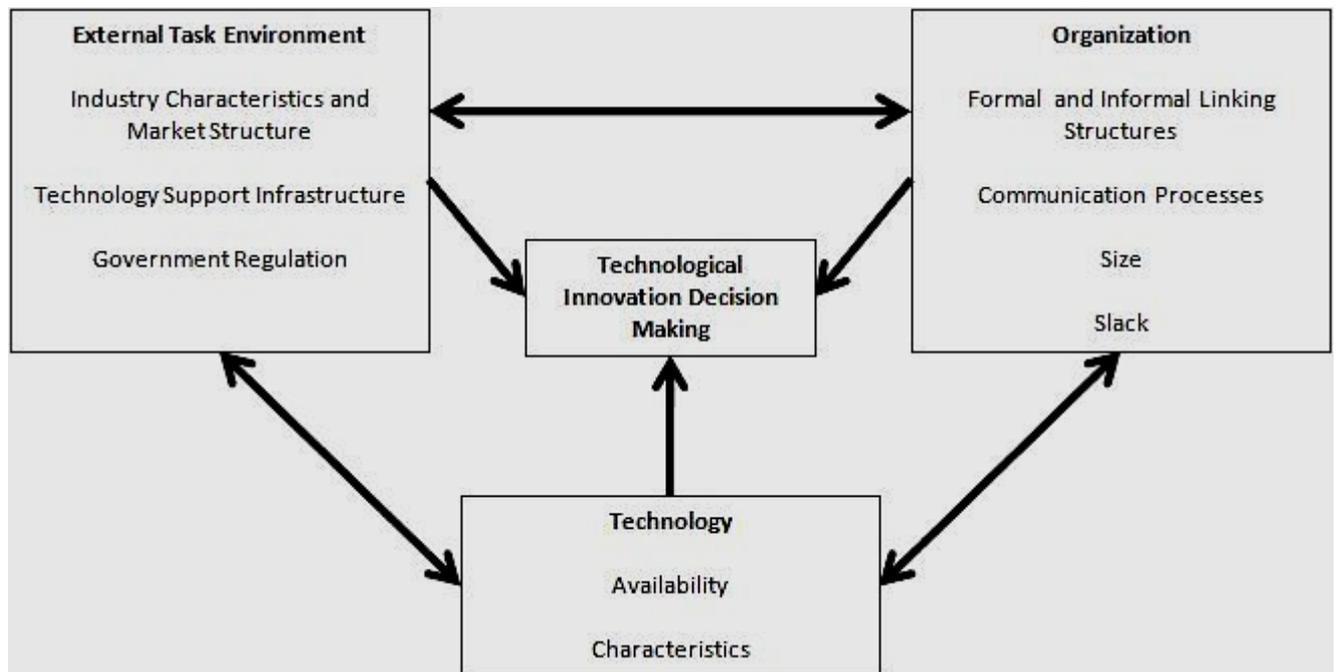


Figure 5: TOE Framework (Source: Tornatzky and Fleischer, 1990)

2.14.1: Technological Context

According to Baker (2011), the TOE framework facilitates a better understanding of the diffusion of various technological innovations (including technical tasks and support administration) within an organisation. Also, Scupola (2009), pointed out that technological factors are those obtained from the characteristics and nature of ICT that SMEs intend to use for adopting e-commerce. The successful adoption of e-commerce is significantly associated with an organisation's internal technological resources, such as the ICT infrastructure and skilled human resources (Costello and Moreton, 2009). For this study, technical factors – those that influence and those that restrict - are discussed below.

- **Availability and Speed of the Internet:**

Network reliability is associated with the availability and speed of the internet that facilitates an organisation's successful online transactions with its partners (Bughin and Chui, 2011). It is risky to send essential, confidential data over the internet via an old web server and application (Burgess, Sellitto and Karanasios, 2009). In many studies, researchers have identified that the availability of the internet in developing countries' SMEs delays the adoption of e-commerce (Molla and Licker, 2005a; Shalhoub and Al Qasimi, 2006). Moreover, the slow speed of the internet does not encourage SMEs to adopt e-commerce (Oreku *et al.* 2009). Similarly, in a developing country such as Bangladesh, the lack of availability of a reliable internet service plays a vital role in SMEs delaying adopting e-commerce (Bhowmik). Even though the internet is available in most of Bangladesh (Hoque and Boateng, 2017) however, the lack of uninterrupted electricity supply (Miah, 2006) has hampered the continued use of the internet by SMEs.

- **The Complexity of Technology:**

One of the critical factors affecting SMEs in their adoption of e-commerce is the complexity of technology (Shah Alam, Ali and Mohammed. Jani, 2011). The complexity of technology is the degree to which an organisation is perceived to be trying to understand and use innovation (Rogers, 1995). A study conducted by Lin, Huang and Stockdale (2011) pointed out that B2B e-commerce is a complex innovation because organisations need to have both an existing IT infrastructure and administrative flexibility regarding their supply chain. Moreover, some organisations are afraid of adopting B2B e-commerce because of concerns about data management which includes the transfer of old data to new ICT applications (Hamad *et al.* 2015). However, the implementation of B2B e-commerce adoption is less complicated compared to the implementation of electronic data interchange (EDI) (Shemi, 2012).

Some managers' fears of the complexity of technology hinder the adoption of e-commerce development at their firms. According to Herzallah and Mukhtar (2016), managers lack knowledge could affect the implications of e-commerce adoption. However, the managers in the organisations, who have some technical expertise and awareness about e-commerce, do persuade their companies to adopt e-commerce (Vahovar and Lesjak, 2007). Therefore, Chaffey (2011) suggested that organisations need to develop a strategy to improve ICT skilled human resources within their firm to overcome fears about the complexity of the technology.

- **Data Security and Availability of Payment Facility:**

A study conducted by Herzallah and Mukhtar (2015) identified that a lack of trust is one of the most compelling and direct reasons for the low adoption of e-commerce by organisations. According to Kapurubandara (2009), in the majority of the developing countries, the telecommunication infrastructure is unreliable and not sufficient to support adopting e-commerce, thus delaying its adoption by SMEs. In addition to a lack of trust, a lack of internet security is another significant barrier inhibiting the implementation of e-commerce (Kohli, 2016) as to complete transactions online the user needs to maintain the highest possible protection to keep those transactions secure. In B2B e-commerce, data security is mainly associated with the safety of business information exchange over the internet, that are more vulnerable to security breaches (ibid.). Therefore, some organisations find it too risky to adopt B2B e-commerce (Kurnia and Ali, 2012). Also, the slow ‘Speed of the Internet’ is another critical issue which prevents organisations from implementing a real-time payment system that is vital to making quick and secure transactions (Mercer, 2005). Furthermore, Kohli (2016) pointed out that ‘Trust’ is an essential element in establishing an electronic business, that is directly associated with the security of transactions. Therefore, it is necessary to develop data security and the availability of a secure payment facility for successful e-commerce adoption by RMG export organisations in Bangladesh (Tella and Abdulmumin, 2015).

- **Lack of Consistent Power Supply:**

An unreliable power or electricity supply is another critical factor affecting e-commerce adoption because ICT equipment relies entirely on that power to operate smoothly (Shemi, 2012). In the Bangladesh context, the lack of consistent electricity supply is one of the most significant hindrances to making a continuous B2B e-commerce transaction (Miah, 2006; Bhowmik, 2012). It is difficult for the RMG export SMEs in Bangladesh to operate “Generator Services” to ensure uninterrupted operations of ICT because they are costly. Also, internet service is often unavailable or works very slowly if the power supply is interrupted.

- **Language Barriers:**

According to Fleenor and Raven (2011), many people in developing countries face a language barrier when participating in e-commerce. Shemi (2012) reported that most of the content of the world wide web is in English, which thus creates barriers for many potential users around

the globe, especially users in developing countries whose first language is not English. Similarly, many people in Bangladesh are not able to speak English, as Bangla is the primary communication language for them. Although English is their second language, people in Bangladesh are not comfortable in using it (Azam and Quaddus, 2009a). There is a great deal of free software available for converting one language to another, such as Google translator (Wu *et al.* 2016). However, the meaning of a word may vary and sometimes does not correctly express the exact intended sense from one person to another (*ibid.*).

Summary:

From the above discussion, it is clear that technological factors are crucial and play an essential role in an organisation's successful adoption of B2B e-commerce. The main technological factors identified from the above discussion are stating below:

- Availability and high speed of internet connection.
- Easing the complexity of ICT adoption.
- Accessibility and availability of online transactions.
- Facilitating user data security to build user confidence.
- Uninterrupted power supply for the smooth working of ICT equipment.
- Improvement of senior management's multi-lingual capabilities.

However, given the nature of B2B activity it is likely there are additional factors that need to be addressed. Therefore, 'question number 14 and 17', were specially designed for a better understanding of the technological factors in association with RMG export SMEs in Bangladesh.

2.14.2: Organisational Factors

According to Shemi (2012), organisational factors are those that are associated with the nature and characteristics of the organisation itself. These are directly related to the adoption of B2B e-commerce by organisations. A study conducted by Chuang *et al.* (2007) shows that various critical organisational factors, such as organisational readiness, the culture of enterprise, marketing strategy and the facility of intra-organisational information technology influence whether or not SMEs adopt B2B e-commerce. Another study conducted by Lin, Huang and Stockdale (2011) has identified other organisational factors which constrain the adoption and implementation of B2B e-commerce, such as IT infrastructure, IT evaluation, management support, stakeholder involvement and an organisation's goals. The successful implementation of e-commerce has a significant impact on an organisation's overall performance regarding upstream markets (customers), internal operations (cooperation within the organisation) and downstream markets (supplier) (Zhu, 2009). In the TOE framework, organisational factors consist of formal and informal linking structures, communication processes, and size and slack. They do not, however, include inter-organisational factors, such as trust (Gibbs, Kraemer and Dedrick, 2003). For this study, I combine these above-pointed factors in association with the TOE framework and discuss them by considering the B2B e-commerce context of RMG export SMEs in Bangladesh. These factors are discussing below-

- **Support from Senior Management:**

Kurnia and Ali (2012) identified that the e-commerce adoption decision depends on the decision-makers' emotional and functional feelings, reflecting their attitude, psychographics, perceptions and motivations. Many researchers have pointed out that SMEs' e-commerce adoption depends on an organisation's specialist or advisory service knowledge about company goals and the capabilities for achieving those goals (Apulu and Latham, 2009a; Kapurubandara and Lawson, 2006; Martin and Matlay, 2001; Yee-Loong, 2014). Therefore, many researches studies state that senior management is part of the advisory service of an organisation that has a positive or negative influence on the adoption of B2B e-commerce. To understand the factors that influence senior management in terms of e-business adoption, Jeon, Han and Lee (2006) used the characteristics of two sub-factors: CEO's knowledge of IT and CEO's attitudes towards IT. Their research results show that a CEO's IT characteristics do indeed influence e-commerce adoption by an organisation (*ibid.*).

For the successful adoption of B2B e-commerce, a positive attitude is essential for senior management because this will facilitate coordination across organisational units and reduce conflicts between inter-organisational systems (Kannabiran and Dharmalibgam, 2012). They suggested that owners and CEOs are significant regarding the setting of a suitable ICT goal, finding critical information, sourcing resources and managing executions for adopting e-commerce (ibid.). Furthermore, Iacovou, Benbasat and Dexter (1995) pointed out that the support of senior management is particularly crucial during the implementation stage when creating changes in the organisation's environment. Many research studies conducted on the adoption of e-commerce show that it is essential that management are aware of the market needs (Beige and Abdi, 2015; Ueasangkomsate, 2015). Management of an organisation needs to be particularly aware of collecting information from all available sources for creating innovative products and services for potential customers and fulfilling their demands (Shemi, 2012). In the Bangladesh RMG export SMEs' context, participants mostly identify that senior managers' knowledge and skill regarding B2B e-commerce adoption are the main inhibiting factors. Therefore, these factors need to address for the successful adoption of B2B e-commerce by Bangladeshi RMG export SMEs.

- **Concerns about Privacy, Security and Trust:**

Many researchers have suggested that security, trust and privacy are the most critical determinants for the successful adoption of B2B e-commerce by organisations (Bharat and Abhijit, 2010; Oreku *et al.* 2009). The vast expansion of information sharing over electronic channels has made online customers very sceptical about their data privacy (Bhakoo and Chan, 2011). Therefore, in many developing countries, the adoption of e-commerce by SMEs is still a complex phenomenon because they are unaware of how to handle user confidentiality (Tan, Tyler and Manica, 2007).

Furthermore, Choudhury (2008) divided security issues into two different categories: protection of transactions and security of personal data related to respondents. Those are playing a vital role in users' confidence in the e-commerce mode of transactions. Many other researchers have identified trust as a critical attribute of security that ought to be associated with e-commerce adoption issues (Kim and Benbasat, 2009; Tan, Tyler and Manica, 2007). However, assurance of trust can be an offer made by an internet store, customers or by any other third-party organisation. Kim and Benbasat (2009) suggest that supply chain partners

must create and maintain mutual trust for the use of internet transactions. In the Bangladesh context, RMG owners and managers are afraid of online business because they fear losing their company's confidential information.

- **Cost Implication and Financial Ability:**

These are the most crucial factors that are directly associated with the adoption of B2B e-commerce by SMEs because adoption of ICT (i.e., e-commerce) requires investment (Ocloo *et al.* 2018). For example, organisations need funds for setting up e-commerce, acquiring the necessary ICT instruments, consultancy fees, training and education of personnel within the organisation and maintenance of infrastructures related to B2B e-commerce (ibid.). Also, Hsu and Fang (2009) pointed out that the intellectual capital of an organisation is directly associated with the adoption of e-business. An organisation's intellectual capital includes organisation capabilities, technology and processes. They suggested that a combination of organisation capabilities with e-commerce can create a competitive advantage, though, the constant challenging market environment, e-businesses need to be more innovative and functional to gain a competitive advantage (ibid.). Therefore, e-commerce implementation has to be supported by qualified ICT experts (Hamad *et al.* 2015). Ocloo *et al.* (2018) stated that most of the developing countries' SMEs do not have enough financial resources for adopting an ICT infrastructure to initiate B2B e-commerce.

- **Size of the Organisation:**

Bharati and Choudhury (2006) researched the scope and nature of ICT adoption by SMEs in Boston, USA, found that the size of an organisation can significantly influence the decision of whether to adopt e-commerce or not. Densmore (1998) stated that firm size has a significant impact on the implementation of B2B e-commerce. They argued that large businesses usually have plenty of resources at their disposal so that they can acquire ICT instruments. Therefore, advanced technology targets large firms because they are financially sound and technically capable of adopting alternative technologies to do their day-to-day operations (Kannabiran and Dharmalingam, 2012). Large firms also have higher risk tolerance capabilities and more control over their suppliers, which enables them to adopt B2B e-commerce (Bharati and Choudhury, 2006; Saprikis and Vlachopoulou, 2012).

On the other hand, small organisations are finding it very challenging to acquire ICT systems because they are costly to set up (ibid.; Densmore, 1998). The European Commission report (2008), however, shows that in the UK, 1.9 million SMEs connected to the internet for conducting their daily business activities, including exchanging emails, files and gathering knowledge about the market and their competitors. In recent years, they have started investing in establishing an ICT platform to improve their services and business automation (i.e., internal and external processes) (Iyanda and Ojo, 2008). Also, a study conducted by Scoupola (2009) pointed out that circa 15% of small businesses and 30% of medium-sized companies are employing ICT specialists or have ICT departments. In terms of RMG export SMEs in Bangladesh, it has identified by the participants of this study that SMEs have lower capabilities for the adoption of B2B e-commerce than larger organisations due to short of resources.

- **Type of Firm:**

The type of firm is another essential factor which influences whether an organisation adopts e-commerce (Sila, 2013). According to Ocloo *et al.* (2018) manufacturing firms use less B2B e-commerce for conducting a transaction with their trading partners than non-manufacturing firms. Other researchers, however, have reported that there are no differences between manufacturing and non-manufacturing firms concerning B2B e-commerce adoption (Poon and Swatman, 2005; Feng and Yuan, 2006).

- **Skilled Human Resources:**

A variety of technologically skilled and robust human resources are crucial for the adoption of technology by a firm (Molla and Licker, 2005a). Similarly, those managers who have excellent e-commerce skills are more likely to implement B2B e-commerce at their firms (Demirbas, Hussain and Matlay, 2011). Technical expertise within the business is significant at the technological adoption stage because it increases the capabilities of an organisation that is influenced by specialist employees (Lin and Lin, 2008). In the developing country context, however, a lack of skilled ICT personnel is a common problem that prevents SMEs from adopting e-commerce (Azam and Quaddus, 2009a). In addition to this, in the international business context, organisations in developing countries are lagging behind than developed countries because of the low availability of skilled human resources (ibid., Kapurubandara, 2009).

Wu *et al.* (2016) stated ‘on the adoption of ICT that organisations need to provide training facilities for their employees regarding the development of their knowledge of ICT, to enhance the overall processes of the business. In various research studies pointed out that, at every level, organisations should provide training programmes that are easily accessible and well-structured, so that all employees have access to them and can learn about B2B e-commerce (Harris, 2008; Hertwig, 2012, Lai, Kan and Ulhas, 2012; Lin and Lin, 2008). The training (e.g., seminars, workshops, meetings and so on) should be provided centrally by the human resources department and aim to enhance employee knowledge, as well as familiarity with B2B e-commerce (Lai and Ong, 2010).

- **Perceived Benefits of ICT:**

E-commerce has many benefits over conventional trade (Shemi, 2012). For example, the use of the internet enables organisations to quickly reach cross border customers from their premises however traditional trading methods take much longer to gain some benefit (Abou-Shouk, Phil and Wai, 2013). Therefore, all sizes of organisations can benefit by communicating customers at a distance, that previously was beyond their capability (Alrubaiee, Alshaibi and Al-bayati, 2012). Also, earlier researchers identified that the willingness of owners and senior management, as well as relative advantage, plays a significant role in e-commerce adoption (Poorangi *et al.* 2013). Owing to a lack of knowledge, education, negative mindset and ignorance by the owners and senior managers, most SMEs in developing countries are unaware of the benefits of ICT, which in turn leads to those organisations not adopting B2B e-commerce systems (Abou-Shouk, Phil and Wai, 2013).

- **Organisational Culture:**

There is no well-established definition of organisational culture. Kilman and Saxton (1985) explain the organisation culture that was accepted by other researchers. They stated that an organisation’s culture - a shared philosophy, assumptions, values, ideology, hope, norms and behaviour - binds organisations together to achieve a common goal. In another study conducted by Senarathna *et al.* (2014), an organisation’s culture defined as an informal design of norms and values that control the way people within the organisation interact with each other and with organisations, people and parties outside. It has already identified in previous works of literature that organisational culture is one of the most critical issues affecting the adoption of e-commerce by SMEs (Martinsons, 2008; Tan, Tyler and Manica, 2007). Shemi (2012)

identified that existent of culture in the small firm “openness to innovation” influence organisations to adopt ICT. However, Kanungo’s (1998) work argues that no satisfactory results are demonstrating that business culture has an impact on the adoption and use of IT.

Overall, the behaviour of most RMG export SMEs in Bangladesh is still determined from past cultural practice where they conduct business in more traditionally, mainly using ‘word of mouth’ and telephone and more recently, the use of application of mobile phone.

Summary:

Organisational factors are associated with an organisation’s readiness to adopt B2B e-commerce. From the above discussion, it is clear that organisational factors are crucial for the successful adoption of B2B e-commerce. Some of the critical points about organisational factors on e-commerce adoption identified in the above discussion are listed below:

- A positive attitude from senior management about the adoption of B2B e-commerce.
- Senior management’s clear understanding and knowledge of the benefits of ICT adoption.
- The financial ability of an organisation.
- Ensure an organisation's privacy and security while adopting ICT.
- Availability of training for the development of human resource skills to the adoption of B2B e-commerce.
- Changes in the organisation’s culture towards the adoption of B2B e-commerce.

Although, there are several factors identified by various researchers in their study for the adoption of e-commerce concerning organisational readiness. However, there is a little study conducted on the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh, which identifies factors related to organisational readiness. Therefore, to identify both affecting and influencing factors related to organisational readiness, ‘question number 15 and 18’, were designed.

2.14.3: Environmental Factors

Environmental factors are associated with the external factors of an organisation and, thus, have an impact on e-commerce adoption by a firm (Chiu, Chen and Chen, 2017). Environmental factors of an organisation also describe the territory of business engagement (Shemi, 2012). According to Scupola (2009), environmental factors include the role of government, affiliation and preferences of business partners, nature and characteristics of the value chain, infrastructure of logistics and telecommunications, political and economic instability, human-rights issues, business cultures, natural disasters, floods, earthquakes, as well as macroeconomic policies. For this study, however, I would like to discuss the following factors that are directly associated with B2B e-commerce adoption. These are reviewing below-

- **Role of Government:**

The government plays a crucial role in providing various forms of support that can work as a catalyst for the development of B2B e-commerce in SMEs (Thatcher, Foster and Zhu, 2006; Martinson, 2008). The government can offer help in the form of facilitating institutional support for financial and technological assistance, improving ICT infrastructure, policies for SMEs' operations in the country and endorsing favourable e-commerce laws (Scupola, 2010). On the one hand, organisations in a developed country can adopt and use advanced level e-commerce because of their governments' support, as well as significantly enhanced ICT infrastructure (Martinson, 2008). On the other hand, organisations in emerging countries do not get such support from their governments because, in developing countries, governments are busy addressing more basic humanitarian issues, such as combatting hunger and poverty (OECD, 2004). Most developing countries report a lack of telecommunication infrastructure: low quality, the slow speed with the higher cost, and concerns over online security; all of this needs to address before a developing country's enterprises can think of adopting e-commerce (Lawrence and Tar, 2010).

A cross country context, Zhu and Thatcher (2010) identified that government policies could provide some essential determinants for the adoption of ICT, especially in improving telecommunication structure, financial incentives, cost and service, national e-commerce strategy, fair tax policy for online transactions and a training facility for conducting e-commerce. In the developing country context, Lawrence and Tar (2010) argue that the

governments in developing countries need to ensure the price and quality of network services so that users can enjoy high-speed internet at a lower cost. They also suggest that governments eliminate import duties on telecommunication systems necessary for e-commerce adoption, as this will help organisations to get the best, updated technology and software and provide the highest performance regarding online activities.

- **Affiliation to Business Partners:**

The adoption of e-commerce in SMEs could influence by business partners, including suppliers or customers (Parker and Castleman, 2009; Saprikis and Vlachopoulou, 2012; Wilson, Daniel and Davies, 2008). To deepen long-lasting business relationships, SMEs should use e-commerce with all business partners (Parker and Castleman, 2009). This idea performs well if all business partners recognise the competitive advantages that this will bring for them (Sin *et al.* 2016). However, it could limit the participation of small businesses in e-commerce if their business partners do not value its strategic innovation (Shemi, 2012). Also, some SME owners and managers value their long-standing relationships; therefore, they want to keep the relationships with their trading partners ‘in person’, rather than using an e-commerce platform (Zheng *et al.* 2005).

According to Gunasekaran, Rai and Griffin (2011), in a highly competitive business environment, interactions and collaborations between partners and other companies play a crucial role in the adoption of e-commerce. For example, more accessible and quicker communication using e-commerce can help to fulfil the client’s needs (Al-Somali, Gholami and Clegg, 2011). That can influence organisations to consider adopting e-commerce (Harris, 2008). For example, if organisations can use B2B e-commerce to perform their day-to-day business activities and expand business globally may lead them to adopt e-commerce (Zhao, Wangb and Huang, 2008).

- **The Nature and Characteristics of the Value Chain:**

The adoption of B2B e-commerce by SMEs can help them to build a strong value chain (Abou-Shouk, Phil and Wai, 2013). For example, if SMEs and their business partners connected to the B2B e-commerce platform that could help them with sharing business information quickly and efficiently (Alrubaiee, Alshaibi and Al-bayati, 2012). That also opens up room for SMEs

go beyond their limitation and grow their businesses using B2B e-commerce platforms (Ahmad, 2012; Shemi, 2012). A study conducted by Moodley and Morris (2004), in the South African context, identified that specific industries, such as the horticulture and garment industries, are unable to adopt B2B e-commerce owing to the peculiar nature and characteristics of those businesses. The closed market system of these kinds of sectors does not require doing business on the internet because all of the stakeholders are within closed market environments (ibid.). Therefore, in organisations, especially SMEs, the decision to adopt B2B e-commerce depends on other stakeholder positions within the business environments.

- **Political and Economic Instability:**

Uncertainties are the biggest issue for any business, particularly political and economic instability that directly affect an SME's free trade activities (Azam and Quaddus, 2013; Shemi, 2012). For example, if a country has political instability, this can hamper customers travelling from abroad to do business (Boateng *et al.* 2010). It can cause issues with receiving direct foreign investment because of uncertainty. Also, economic instability reduces cash flow within the market making it difficult for SMEs to obtain certainty; this, in turn, restricts organisations in their consideration of B2B e-commerce adoption (ibid.). For example, poor economic conditions lead to higher interest rates and lower cash flow and, therefore, organisations will find it difficult to borrow money from financial institutions (Shemi, 2012). Boateng *et al.* (2010) identified that countries with unstable political situations and weak regulatory systems have reduced confidence in considering e-commerce.

- **Business Culture:**

Business culture is another crucial factor in the SME business environment that are playing a vital role in the adoption of B2B e-commerce (Martinson, 2008). It does, however, vary from country to country (Scupola, 2009). For example, if supporting business partners are unwilling to consider adopting B2B e-commerce, this ultimately affects the decision-making process of an individual organisation's e-commerce adaptation. Wang, Wang and Yang (2010) pointed out that before deciding on the implementation of modern technology for interactions, organisations assess market forces, as well as a stakeholder's performance and behaviour. Regarding the Bangladeshi context, owners and senior managers are unaware of the benefits of B2B e-commerce and, therefore, they neglect conducting business online.

- **Macroeconomic Policies:**

Macroeconomic policies have been a catalyst for the growth of e-commerce (Hashim, 2011; Martinson, 2008). In the developing country context, governments must encourage SMEs to adopt e-commerce. For example, the government can take initiatives of business-friendly policies as well as sourcing fund for the organisations to consider using technology to perform their business (Hashim, 2011).

- **Availability of Technology Vendors:**

The availability of technology vendors is another essential factor for an organisation's adoption decision of ICT (Parker and Castleman, 2009). If a technology vendor is easy to reach, this will positively influence them in considering adopting the technology (ibid.). For example, any problem arises technical support team can come physically to resolve the issues quickly and efficiently (Harris, 2008). In the Bangladeshi context, the majority of technology vendors mainly based in India; here the problem is that Bangladeshi organisations do not fully trust the Indian vendors' software, as they are concerned about the security and privacy of their businesses.

The above discussion in 2.14.3, facilitates to know the environmental factor that has been identified through various research in a different perspective for the adoption of B2B e-commerce by the different types of organisations. This research, however, specifically identify the environmental factors that play an important role in the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. Therefore, I introduced 'question number 16 and 19' to identify both affecting and influencing environmental factors for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

In section 2.14, the discussion mainly built on the TOE framework in the context of organisations ICT or e-commerce adoption. However, there are some other researchers (Demirbas, Hussain and Matlay, 2011; Molla and Heeks, 2007; Shemi, 2012) identified that individual factors play a significant role in the adoption of ICT in the organisation. Therefore, this research focuses upon how technological, organisational, environmental and individual factors might impacts on the decision making of ICT adoption by the RMG export SMEs in Bangladesh. Hence, the following section discusses the previous studies, how individual factor could affect and influence ICT adoption in any organisations.

2.15: Individual Factors

Individual decision-makers play an essential part in the adoption of ICT and e-commerce for any organisation (Demirbas, Hussain and Matlay, 2011). Especially in the SMEs' context, decision-makers are mainly the owners, who decide whether an organisation is going to adopt e-commerce or not (ibid.). To gather knowledge about the individual factors in the following sections, I discussed those factors and understand how it can affect e-commerce adoption by the organisations.

- **Characteristics of Owner and Managers:**

In the SMEs' context, owners and managers make executive decisions about e-commerce adoption (Ghobakhloo and Sai, 2013). Whether they adopt it or not depends on their financial commitment to the adoption of e-commerce and what they will gain in return by adopting it (Castleman, 2004). Regarding the adoption of ICT, the main challenges for SMEs are if managers or owners do not value ICT innovation and its effectiveness for the development of a business (Ghobakhloo and Sai, 2013). On the other hand, if the owners or managers of SMEs are proactive, they might want to transform their businesses by adopting e-commerce for further growth (Bharati and Chaudhury, 2006). Therefore, Wilson, Daniel and Davies (2008) pointed out that the attitude and perspective of owners and managers towards e-commerce adoption and its use plays a vital role in whether SMEs adopt e-commerce or not.

- **Level of Knowledge about ICT and e-commerce:**

Other vital individual factors are the knowledge of ICT and e-commerce of the owners, managers and other crucial decision-making personnel who understand the value of ICT and appropriate e-commerce activities and how it can help the business grow in the world market (Looi, 2005). A higher level of appreciation of e-commerce by the owners or principal managers would profoundly influence organisations to consider e-commerce adoption (Molla and Licker, 2005a). It is evident in most developing countries, owners and managers do not have enough knowledge of e-commerce adoption and how it can help businesses flourish, thus hindering the uptake of e-commerce by organisations (Ghobakhloo and Sai, 2013). In the Bangladesh RMG export SMEs context, it was profoundly throughout my research, that owners and managers have little knowledge of B2B e-commerce as well as, how it can help them to expand their businesses in the world market.

In the developing country context, Boateng, Molla and Heeks (2009) pointed out that some SME owners and managers lack the zeal to act beyond their favourable environment. In the cases of many developing countries, SME owners and managers keep up to date with minimum technology knowledge for daily activities because of a lack of passion for learning about technology in detail (El and Ghada, 2017). They also complain about the cost of adopting technology; they are not, however, trying to find free services for the global expansion of their businesses (ibid.). Similarly, like the previous discussion top-level management of RMG export SMEs in Bangladesh do not want to employ an ICT expert because of a fear of passing information to other organisations.

- **Level of Education of Individuals:**

Shemi (2012) pointed out that an SME's key personnel need an acceptable level of education for driving e-commerce activities at their firm. She also mentioned that most of the developing countries' owners and managers are unable to communicate in international languages that are important for access to the global markets. I do not entirely agree with this statement in the present technological era, however, as currently, people can use language translation software (i.e., Google translator) to communicate with each other (Wu *et al.* 2016). Although many people do not entirely rely on this, it can work for those who have problems with foreign languages. Also, the level of education is not always an essential factor for operating and understanding ICT equipment, as relevant training and development can provide the necessary skills. I think, however, that Shemi's (2012) suggestion is quite realistic, as senior personnel need an acceptable level of education so they can understand and value ICT and e-commerce.

Summary:

An organisation's environmental factors are associated with the territory of business engagement (Scoupla, 2009). This factor plays a crucial role in gaining the benefits and functions of adopting B2B e-commerce. To maximise the benefits from the adoption of B2B e-commerce, all the stakeholders must co-operate with each other. Among the stakeholders, the government is the vital player who can facilitate the easy adoption of B2B e-commerce for an organisation (Shemi, 2012). In this study, therefore, 'question number 20' was designed to better understand how RMG export organisations benefited from Bangladesh government ICT related initiatives.

The discussion above helps us to understand how the technological, organisational environmental and individual factors of an organisation, especially an SME, influence the adoption of B2B e-commerce. Therefore, I used the TOE framework to identify the factors affecting the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. Through the data collection, there are some data emerge related to individual and stakeholder perspective that could play a vital role in the adoption of B2B e-commerce adoption by the RMG export SMEs in Bangladesh. TOE, however, does not allow us to understand B2B e-commerce adoption from the perspective of the stakeholder. Also, it does not allow us to locate where the actual problem occurs and who owns that problem for the adoption of B2B e-commerce. That is, therefore, the reason for me to search for a different method to identify the problem owner for the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

On the other hand, Soft System Methodology (SSM) helps to identify the unstructured problems of a complex organisations models and business processes by using a holistic view of stakeholders (Checkland, 2000; Liu *et al.* 2012, Mehregan, Kazemi and Hosseinzadeh, 2012). By doing this, it facilitates a rich approach to changes, that is needed to consider ideal solutions to problems (Wilson and Van-Haperen, 2015). Also, SSM has been increasingly used as a learning and meaning development tool, although initially, it developed as a model development tool (Carlos *et al.* 2016; Chatzipanagiotou, 2014). Mingers and Taylor (1992) researched “The use of soft system methodology in practice” identified that SSM has been widely used for a variety of tasks and mostly uses being performance evaluation, organisation structuring and information system work (Liu *et al.* 2012; Wilson, 2001). Also, Mehregan, Kazemi and Hosseinzadeh (2012) applied the SSM to get a rich picture of university course timetabling problem and provides a solution of real problems by making a meaningful collaboration among concerned stakeholder. Furthermore, Al-Zhrani (2010) conduct a study to identify ICT issues and obstacles to a government organisation in Saudi Arabia and to get rich pictures of the problem through the use of SSM. Hence, it would be wise to use SSM for this study to get rich views of the problematic issues of the subject matter. This research, however, is not considered to use SSM in the full context, relatively uses the part of its CATWOE analysis.

Pham (2014) pointed out that, CATWOE analysis offers assistance in identifying the root problems by finding out exactly who owns them and where the problem situated. Another study conducted by Dobson, Jackson and Gengatharen (2013) where they assessed broadband

adoption in rural Australia reported the use of CATWOE analysis to define one of their target groups. Since the CATWOE analysis helps to get a rich picture by expressing the multiple views of the problem situation. Therefore, a combination of the TOE framework with the elements of the CATWOE analysis can improve the possibility of identifying the exact factors and problem persists for the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. For example, the TOE framework may help with identifying the problem. The CATWOE analysis can also help provide an in-depth understanding of the identified factors by defining it using the root definition. This research, therefore, used the CATWOE analysis tool to define the root problem of the factors identified through the TOE framework. In chapter 5; section 5.2, is a discussion related to the use of the CATWOE analysis to identify the root problem that helps to develop a rich picture in the context of this study. Outlining the root problem of the issues will facilitate to get a deeper understanding of the factors associated with B2B e-commerce adoption by RMG export SMEs in Bangladesh.

According to Parker and Castleman (2009), most of the e-commerce studies apply theory to develop a framework to collect data and, after that, test the results. However, this is a contemporary approach and, therefore, in this study, I used the TOE framework for my data collection. Also, I use the TOE framework with the assistance of the Soft System Methodology (CATWOE analysis) for a better understanding of the different stages of the adoption of B2B e-commerce using the various components of CATWOE. The combination of both frameworks will help to enrich the view of the B2B e-commerce adoption process.

In the following section, I discuss in detail about the SSM predominantly CATWOE analysis and its association with this study.

2.16: What is Soft System Methodology (SSM)?

Soft System Methodology was first developed in the 1970s by Peter Checkland, Professor of Management Science at Lancaster University, developed SSM to solve ‘management/business problems’ by applying a system engineering approach (Checkland, 1981). Initially, SSM offers seven stages for exploring ‘messy’, problematic situations arising from human activity and identifies the actions that need to consider for improving the situation (Baskerville, Pries-Heje and Venable, 2009; Wilson and van Haperen, 2015). It also helps to analyse people and their roles, as they are involved in the process, and if they understand the world surrounding them

correctly (Mshangi, Nfuka and Sanga, 2015). Wilson (2001) one of the originators of SSM asks us to imagine two people watching the same TV programme and heard the same sounds. However, they reach quite different conclusions about the quality of that TV programme. Both are right because both use their mental model that comprises concepts about the quality of the TV programme good or not (ibid.).

The use of SSM, helps to takes the messy arguments of the real world caused by the people (Burge, 2015). Different people have different perceptions and create defensible and rational models for comparison what is happening in the real world that helps to made recommendations as to the response of the problem (Mshangi, Nfuka and Sanga, 2015). SSM helps to develop a model which does not represent the 'real world'. Its rules and principles, however, help to structure thinking about the real world (Burge, 2015; Timurtas, 2011). SSM comprises the world as it is and some other models of the world as they might be (Razali, Noor and Adnan, 2010). By making the comparison, it helps to develop a better understanding of the world (research) and ideas for improvement (action) (Checkland and Scholes, 1990; Chatzipanagiotou, 2014). This rational model called conceptual models based on the use of defensible logic (Basden and Wood-Harper, 2006). Defensible logic inferred from a statement of purpose gathered in a root definition of the relevant system, whereas Conceptual models logically help to achieve the tenacity expresses in the root definition (ibid.).

Smyth's (1976) research outputs which was a part of Checkland's research department was used to enlighten the SSM methodology. Smyth argued that SSM would be more successful if the root definition of some elements is included (Smyth and Checkland, 1976). Therefore, they proposed defining the root of a problem by using the CATWOE analysis. The CATWOE elements stand as C-Clients or Customers, A-Actors, T- Transformation, W-Weltanschauung, O-Owners (Problem owners), E-Environmental constraints. The components of CATWOE help to explore a situation and issues related to the subject matter by considering the surrounding people, processes and environment (Baskerville, Pries-Heje and Venable, 2009;). These facilitate understanding what the business is trying to achieve and what impacts need to be thought about when considering any change within the business operation (Basden and Wood-Harper, 2006; Mulder, 2017). Therefore, in the Bangladeshi, RMG export SMEs', B2B e-commerce adoption context, the CATWOE analysis can assist with an in-depth understanding of people's views of factors already identified via the TOE framework. In the

following section, I discussed the importance of CATWOE analysis is an extension of the TOE framework.

2.16.1: Importance of CATWOE Analysis for this Research

The TOE framework has helped me identify the drivers and barriers of B2B e-commerce adoption by RMG export SMEs in Bangladesh. All of the drivers and limitations framed under three principal headings of the TOE (Technological, Organisation and Environmental) framework. It has a limitation, however, in that it does not assist with defining the problem from the different perspectives of the individual stakeholders (Shemi, 2012). Neither did it enable the researcher of this study to locate where the actual problem persists and who owns it. Also, TOE does not provide a view on what kinds of transformation an organisation needs to consider, or even where to begin the change process to adopt technology for operating a business.

On the other hand, CATWOE allows structuring of the thoughts and views of the different parties involved in decision-making, and users and implementers, as well as taking into account general aspects of the environmental conditions (political, social and cultural) (Pham, 2014; Rahayu and Hanifah, 2015). CATWOE also helps to justify those factors, the different viewpoints of the stakeholders and business environments identified through the TOE framework. These fundamental concerns necessitate the use of TOE in combination with CATWOE to determine and confirm the factors that affecting, motivating and identifying ownership of the perceived problems for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. I believe that the CATWOE analysis tool is the best for achieving an in-depth understanding of the problems because it helps to bridge the gap between what organisations want to achieve and how they might achieve it.

◆ What is CATWOE?

CATWOE is a holistic approach to problem-solving that allows looking at an issue in a complex business environment by using its six unique elements (Basden and Wood-Harper, 2006; Bergvall-Kareborn, Mirijamdotter and Basden, 2004). This in-depth approach can help to get into the heart of the problem by unwrapping the layers of the problem using different constructs of CATWOE (Pham, 2014). It is considered to be holistic because it would be hard

to unravel the details of a complex business environment if we only consider one or two components at a time. Therefore, to capture the essence of a complete system; surrounding people, processes and environment and attempt to solve a problem at once, all six components of CATWOE can help with answering the following questions (Mulder, 2017). That includes, what the obstacles are, as well as who owns them?, what will be affected during the change processes?, how employees involved in the change processes might react?, whether the change processes are feasible for business operations and what environmental constraints an organisation might face when changing the processes (Basden and Wood-Harper, 2006; Mulder, 2017; Novani, Putro and Hermawan, 2014; Pham, 2014). There is a convergent boundary associated with TOE and CATWOE, as the CATWOE questions laid beneath the three dimensions in the TOE theory. This is an important root definition and boundary association that can aid a deeper understanding of adoption factors (What) and ownership (Who) in the business uptake of B2B e-commerce. To elaborate more fully, the six constructs of CATWOE brief analysis are as follows-

- Customers
- Actors
- Transformation process
- Weltanschauung / World view
- Owners
- Environmental Constraints

- **Customers:**

Customers come down to first in any business because they are the foremost source of revenue flow (Pham, 2014). Therefore, it is essential to consider solving their needs first when the problem that has arisen (Rahayu and Hanifah, 2015). Whether the difficulty is direct or indirect to customers, it needs to address first and foremost to avoid unpleasant consequences (Basden and Wood-Harper, 2006).

- **Actors:**

Actors are mainly those who involved in the situation in any given business problem and will likely be involved in its resolution (Novani, Putro and Hermawan, 2014). The actors include employees, suppliers, agencies and or government officials (Basden and Wood-Harper, 2006;

Saprikis and Vlachopoulou, 2012). Therefore, it is crucial to define and figure out every actor going to play their role to resolve the problem.

- **Transformation process:**

Every business has several processes that need to follow for smooth operation to get the end products and complete the transactions successfully (Mulder, 2017). In this stage couple of questions need to ask to resolve the problem facing by the business. Firstly, how does the problem face by business impact those processes? Secondly, what does adjustment need to make after implemented the solution of the obstacles? (Basden and Wood-Harper, 2006; Baskerville, Pries-Heje and Venable, 2009).

- **Weltanschauung / World view:**

This stage of the analysis need to take a look in the bigger picture and evaluate the problem whether it is going to have wide-reaching, long-lasting effects or is it relatively short-lived? (Smyth and Checkland, 1976). That will help to handle the difficulty effectively by a more rooted understanding of the problem for the success of the business (Novani, Putro and Hermawan, 2014).

- **Owners:**

This point refers to the owner of the problem rather than the owner of the company (Smyth and Checkland, 1976). It facilitates to identify where the problem begins as well as who owns the problem, that enables to assign right people to rectify the matter (Mulder, 2017).

- **Environmental Constraints:**

This last step of the analysis process is crucial because it helps to filter out all the possible solutions and brings a cleared remedy of the problem (ibid.). The resolution of the difficulty is a combination of the company available resources, budget, laws and regulations (Baskerville, Pries-Heje and Venable, 2009).

Summary:

From the above discussion, it is clear that CATWOE would enable me to consider all of the possible angles of the problem and helps pinpoint where different views may arise. The six-

pronged problem-solving approach helps to identify what kind of change processes an organisation needs to go through and where it needs to start the change from to successfully adopt the B2B e-commerce system (Chatzipanagiotou, 2014; Pham, 2014).

This research, however, is not intended to develop a B2B e-commerce system. Predominantly focuses on the development of a conceptual framework by compartmentalising all of the identified factors in this research. The development of a conceptual framework will help the different parties are involved in the development of B2B e-commerce system for RMG export SMEs in Bangladesh. For example, the RMG sector hires a consultancy firm to create a system for them to perform a B2B e-commerce. The first fact the consultants will need to understand is what kind of B2B e-commerce platform the RMG sector would prefer. They will also, need to know which factors are inhibiting and influencing on the decision making of RMG export SMEs when considering technology adoption for performing their business tasks using an online platform (Chee, Suhaimi and Quan, 2016, Shemi, 2012). Therefore, developing a conceptual framework is essential because it will facilitate the system developers to get a clear vision of the different components associated with the B2B e-commerce adoption, before commencing the development of the actual system.

Although the TOE and CATWOE frameworks enable the identification and definition of a problem, they do not, however, facilitate the emergence of a framework by considering all of the factors identified through the variety of perspectives covered in this research. Specifically, SSM does not provide a “timeline” or sequence of stages for following in the design and adoption of a system. For an RMG export e-commerce adopter, it would be crucial to be able to understand what the elements are they need to consider, to assess the migration towards e-commerce modes of working. Therefore, I would like to develop a conceptual framework to display all of the crucial factors identified in this research. Ultimately, it will facilitate RMG export e-commerce adopters to identify and understand the relationship between different components of B2B e-commerce adoption. For the development of a conceptual framework, I was searching for various e-commerce adoption model or framework developed by different researchers in a different context.

In the following section, I briefly state the different e-commerce adoption models and discuss in detail the chosen model and the justification for using it in this research.

2.17: E-commerce Adoption Models

In the digital era, the internet has created a universal model for doing business, such as buying and selling goods and services, as well as driving various business activities within organisations. E-commerce facilitates business activities between companies and customers via the internet (Stair and Reynolds, 2008). It is a paradigm of digital business that radically shifts, changing traditional ways of doing business (MacGregor and Vrazalic, 2006). The main aspects of e-commerce are sharing information internally and externally to improve business value (Stair and Reynolds, 2008). However, there are many applications of e-commerce that include internet-based order processing, electronic data interchange, supply chain management and e-procurement (NA Rahman *et al.* 2013). Laudon and Laudon (2013) suggested that organisations can use these business solutions to gather product information, making orders and quick contacts between buyer and seller, and available customer support. However, SMEs mainly use B2B e-commerce applications for informative purposes, and for interacting with suppliers and customers electronically (Lin, Huang and Stockdale, 2011; Saprikis and Vlachopoulou, 2012). There are many informational, interactive, communicative, value and transactional purposes the B2B e-commerce platform can help accomplish, however, Bangladeshi RMG export SMEs are not applying the power of B2B e-commerce platform (Hoque and Boateng, 2017). This study, therefore, focuses on identifying the factors associated with the adoption of B2B e-commerce platform and the development of a conceptual framework with the help of an appropriate e-commerce adoption model.

There are many models developed by various researchers and organisations for the adoption of e-commerce by SMEs. These models are as follows:

- E-business Adoption Ladder (DTI, 2001)
- British Library Staircase of Internet Engagement (Allcock, Webber and Yeates, 1999)
- OUBS stage Model of ICT Adoption and SMEs' Readiness Issues (Zappala and Gray, 2006)
- Electronic Commerce Network Model (Kettinger and Hackbarth, 1997).

From the above models, I have chosen to use the “e-commerce network model” developed by Kettinger and Hackbarth (1997). The reason for preferring the e-commerce network model, since their "Experimentation / Migration / Transformation" stages intended to compel adopters

to reflect on the perspectives identified in CATWOE. As I mentioned earlier Bangladesh RMG export SMEs are new in terms of adoption of B2B e-commerce, hence, using Kettinger and Hackbarth's "e-commerce network model" could facilitate to locate the sequence of steps including Supply Chain Management, operations, client relationships and so on, the company finds itself. Another study conducted by Lee and Hong (2009) used Kettinger and Hackbarth (1997) e-commerce network model as one of the tools to measure organisation readiness by the 5-point Likert scales on 13 questions including organisation capacity, CEO support and future market orientation. Likewise, to gather information about the level of e-readiness of RMG export SMEs as well as the level of ICT support offered by the Bangladesh government, 'question number 14, 17 and 20' specially designed to facilitates the data.

Furthermore, to decide on the above e-commerce adoption model, I also consider the framework developed by Iacovou *et al.* (1995) in the context of e-commerce adoption by SMEs in developing countries. Their framework indicates external and internal factors, needing to be considered for improving from their current state to the desired state for e-commerce adoption. Their framework, however, does not show how an organisation can benefit from adopting e-commerce or handle external pressure, and build trust and cooperation between firms. A more recent study undertaken by Rahayu and Day (2015) applied the model proposed by Iacovou *et al.* (1995) to address e-commerce adoption by SMEs in Indonesia. They modified the Iacovou model to include a fourth construct named individual contexts. The individual contexts such as owner experience, owner ability and owner innovativeness in terms of how they respond to e-commerce activity were also assessed in this study. However, the issues that are related to trust tend to cross over the internal and external areas of the firm's operation and relate to the value creation and value capture of the firm. That then becomes an important consideration across the supply chain, yet these were still not incorporated into recent studies such as Al-Bakri and Katsioloudes (2015); Rahayu and Day (2015) and Rahayu and Day (2017).

In this respect, trust and cooperation as referred to by Kettinger and Hackbarth (1997) in their adaption of Iacovou *et al.* (1995) model and this construct is deemed of importance as the features of trust and cooperation are embedded in the firms tactical, operational and strategic activity, and crucial in the Bangladesh SME context due to the culture and practices of the country. Whereas the individual contexts are more related to attributes that affect the strategic

decision making in the firm, and these individual contexts can be assessed and interpreted through sophisticated use of CATWOE as applied in this study.

There are some other reasons, I choose Kettinger and Hackbarth (1997) “e-commerce network model” over Iacovou *et al.* (1995) “small business EDI adoption model”. The e-commerce network model is directly associated with the study because it deals with e-commerce adoption by a small firm. Whereas Iacovou *et al.* (1995) developed a model that mainly deal with the adoption of EDI which not directly relevant to my study. Also, Kettinger and Hackbarth (1997) model includes an exceptional point namely, trust between the business partner for the adoption of e-commerce, though, Iacovou *et al.* (1995) model did not consider that point.

Furthermore, a recent study conducted by Al-Bakri and Katsioloudes (2015) pointed out that both internal (readiness, strategy and managers’ perceptions) and external (pressure from trading partners) factors influence organisations in the adoption of e-commerce and help them to gain maximum benefit from it. Their findings are very much related to the four constructs of e-commerce network model developed by Kettinger and Hackbarth’s (1997). Therefore, using that model I would be able to compartmentalise all of the factors identified through the TOE framework and CATWOE analysis. Also, it will show the connection between the factors and different steps need to follow for the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

Though, e-commerce network model facilitates by compartmentalising all of the factors identified in this research within its four constructs. However, the technological construct needs to be separated from organisational readiness constructs, due to its importance for this research. That will facilitate a better understanding of the technological factors associated with this research. The development of a novel conceptual framework with the help of Kettinger and Hackbarth (1997) e-commerce network model, will show the different elements associated with the adoption of B2B e-commerce. So that the decision-maker of RMG export SMEs able to understand where the problem is and what they need to consider for the adoption of B2B e-commerce. Ultimately it will enhance the decision-makers of Bangladeshi RMG export SMEs towards the adoption of B2B e-commerce. In the following section, details of this e-commerce adoption model are discussed-

2.17.1: The Application of Kettinger and Hackbarth’s (1997) Model in the Context of B2B e-commerce Adoption by RMG Export SMEs in Bangladesh

Kettinger and Hackbarth (1997) proposed their “Electronic commerce network model” as a result of their research, “Selling in the era of the ‘NET’: integration of electronic commerce in the small firm”. This model was developed based on four pillars of the small firm requirement to adopt and integrate e-commerce technology that can help a small firm in the process of becoming successful. This model illustrates that after the successful integration of e-commerce related technologies, firms will start to feel the benefits of participation in an electronic marketplace. Kettinger and Hackbarth (1997), however, suggest that the more firms that join the electronic network, the more significant the potential benefits become. The four components of the electronic commerce network model are perceived benefits, organisational readiness, external pressure, and trust and cooperation between firms. These are discussed below:

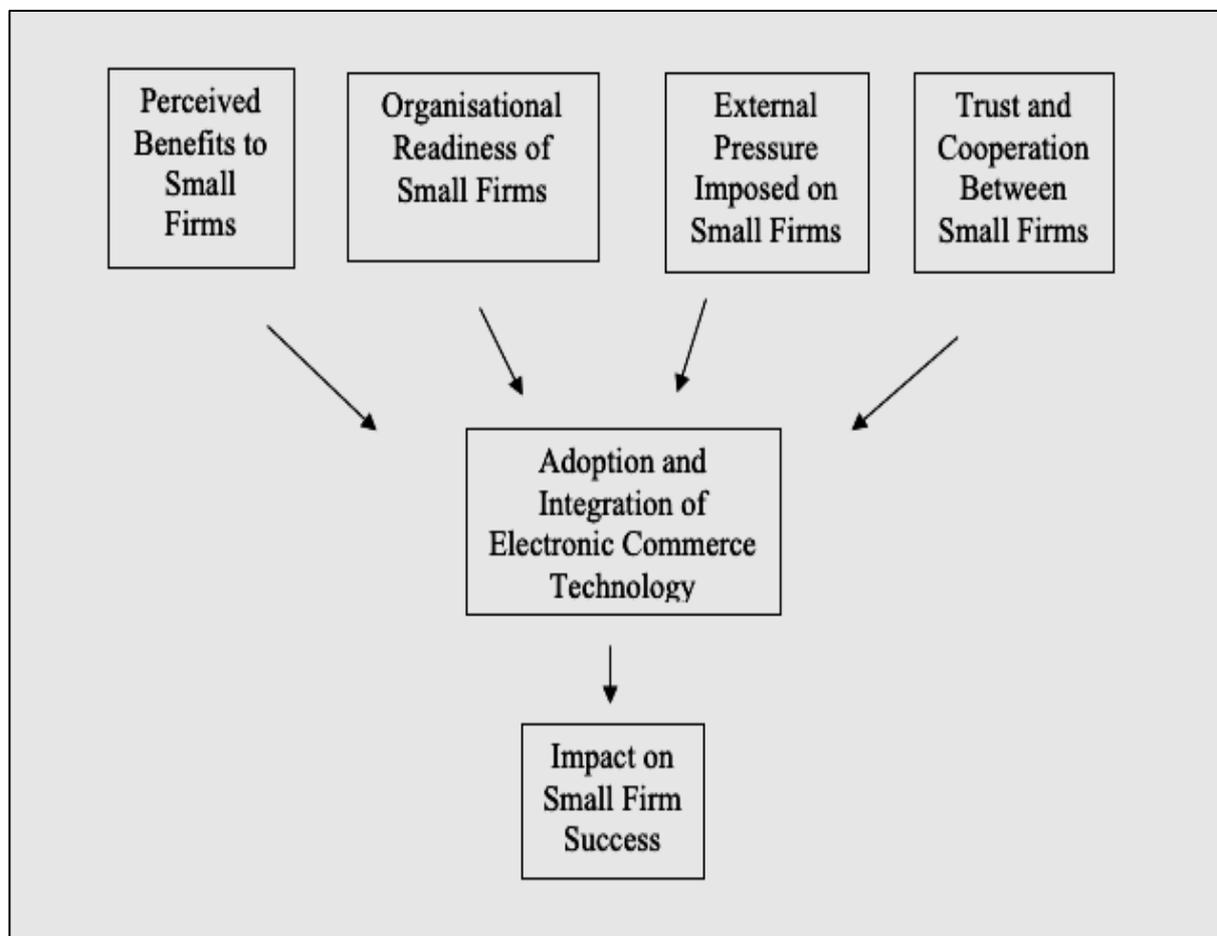


Figure 6: Electronic Commerce Network Model (Source: *ibid.*, p. 254)

- **Perceived Benefits:**

Perceived benefits associated with the advantage gained the firm, by participating in a virtual network (Bigne-Alcaniz *et al.* 2009). These benefits will help small firms to determine whether or not to consider participating in the electronic system and whether or not they should integrate their business processes into it (Abou-Shouk *et al.* 2013). E-commerce may include the ability to identify new customers, the ability to improve relationships with partners, improving cash flow, increasing operational efficiency, improving customer services, identifying partners for cooperative sourcing and reducing inventory costs. Also, a small firm can obtain external information, such as market information, from around the globe through an electronic network; this is a benefit that is likely to create business opportunities (Kettinger and Hackbarth, 1997). Most importantly, the perceived benefit construct will help Bangladeshi RMG export SME owners and managers to understand the benefits associated with the adoption of e-commerce.

- **Organisational Readiness:**

In general, organisational readiness associated with an organisation's level of financial and technological resources (Janom and Zakaria, 2012). Typically, a small firm does not have enough money to invest in adopting electronic networks (Lai and Ong, 2010). Therefore, it is difficult for them to consider electronic network adoption because it involves installation costs, communication charges, as well as usage fees and, thus, can be expensive, which may adversely affect the financial stability of the firm (Molla and Licker, 2005b). Moreover, a low level of computer sophistication results in limited automation of the business process and, as a result, small firms find it challenging to join the virtual network (Azam and Quaddus, 2009a). On the other hand, small firms with higher computer sophistication are better able to understand how to leverage information technology (Molla and Licker, 2005b). With proper assistance for SMEs regarding these technological and financial issues, however, the problems mentioned above can be overcome (Kettinger and Hackbarth, 1997). To address aspects of readiness in this research, the technological readiness constructs is separated from the organisational readiness construct to deal with different factors of adoption and aid in developing the conceptual framework later in this thesis.

- **External Pressure:**

External pressure refers to the influences on small firms from the organisational environment (Sin *et al.* 2016). This pressure on SMEs mainly comes from trading partners, i.e., competitors or importers (*ibid.*). For example, as more firms within the industry adopt e-commerce technologies, other firms need to consider adopting those technologies to remain competitive. Kettinger and Hackbarth (1997) argue that a powerful customer may impose on a small firm where they should buy their raw materials, who to sell to, how their business should perform and whether they should acquire technologies for communication purposes. Therefore, Eriksson, Hultman and Naldi, (2008) suggested that a small firm can improve its bargaining power by adopting e-commerce because the small firm will find more clients through an e-commerce network.

- **Trust and Cooperation Between Firms:**

Trust and cooperation between small firms would benefit them when in a network of a small business (Chiles and McMackin, 1996). That benefit might be on the interests of a joint industry's vivacity and survival (Kim and Benbasat, 2009). The trust and cooperation between firms build a sense of the relationship between network members that eventually stabilise the local value chain and protects particular product expertise and price (Herzallah and Mukhtar, 2016).

Summary:

From the above discussion, it is recognised that Kettinger and Hackbarth's (1997) model would be helpful to develop a framework for this study to visualise the sequence of stages used to identify the important factors associated with the adoption of B2B e-commerce adoption by RMG export SMEs in Bangladesh. That framework is developed and discussed in chapter 5; section 5.3. The framework in this study mainly uses the suggestions made by the participants to answer the 'question number 21'. The framework will help RMG export SMEs in Bangladesh to better handle and overcome complex, messy and problematic situations when dealing with the adoption of B2B e-commerce.

Summary of the Chapter:

In this chapter, I have discussed the previous literature related to e-commerce adoption by SMEs in both the developed and developing countries' context. In sections 2.1 to 2.12, I have discussed the history of e-commerce, the prospective benefits of adopting e-commerce and the readiness of SMEs to adopt e-commerce initiatives. I have also considered the challenges and opportunities of e-commerce adoption in the context of a developing country. The detail discussion of the previous literature related to the factors that affect e-commerce adoption by SMEs helped me to gather enough knowledge about it.

Also, this chapter looks at some relevant theories employed in earlier technology adoption studies such as TAM, TPB, PERM, DOI, RBT and TOE. Among the methods, I have discussed the TOE framework in detail for an in-depth understanding of the factors associated with the subject matter. In section 2.13.1, started with identifying the factors affecting the adoption of B2B e-commerce by using the TOE framework. Furthermore, I have discussed the different components of CATWOE and how they can facilitate to get a deeper understanding of the TOE identified factors by defining them. After that, the different e-commerce adoption models are stated and mainly discussed in detail the e-commerce network model developed by Kettinger and Hackbarth's (1997). Also, I discussed how I used Kettinger and Hackbarth's (1997) e-commerce network model to build a framework and their importance to the development of a conceptual framework considering Bangladesh RMG export SMEs.

Chapter-3

3.0: Research Methodology

The term ‘Research Methodology’ refers to how a researcher logically and systematically designs a study to ensure the research result is valid and reliable that address the aims and objectives of the research (Jansen and Warren, 2020). The detail description of the methodology of this research is provided to offer the reader an understanding, how the different methods are used to explore the factors affecting the B2B e-commerce adoption by RMG export SMEs in Bangladesh.

In the Bangladesh RMG organisation context, only one research had been conducted by Hoque and Boateng (2017) that linked to the B2B e-commerce adoption. There are, however, no research found that is directly associated with the chosen industries SMEs context of this study. Therefore, I have taken this opportunity to identify the factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh. To do this, I have chosen an exploratory study of the data (Kapurubandara and Lawson, 2006). According to Flick (2009), it is necessary to obtain in-depth data from the research field for a better understanding of the subject matter. To get an in-depth data, I have used appropriate methodology, models and procedure to explain and identify the factors affecting the adoption of B2B e-commerce.

In this chapter, I discuss the research design, as well as the collection and analysis of the data. The chapter begins with a description of the research paradigm and the philosophy used in various e-commerce adoption research. Afterwards, discusses the selection and justification of the philosophical position of this study. Followed by a brief introduction of the data collection method and choice of research site and sample. Also, I present a brief discussion of how to analyse the data and develop a conceptual framework.

In the following section, I discuss the philosophical assumption of this research.

3.1: Philosophical Assumptions in e-commerce Adoption Research

Philosophical assumptions are a specific set of beliefs, which are associated with any work or study (Carnaghan, 2013; Creswell, 2012; Wong, 2008). Researchers adopt a research philosophy containing significant ideas about the way they see and understand the world (Johnson and Clark, 2006). Creswell (2012) described these assumptions and framed them into an interpretive framework, to understand their relevance to the research. Furthermore, Creswell and Clark (2017) pointed out that the research philosophy which the researcher adopts contains essential ideas about the way they perceive the world. As stated previously, in this study, I am exploring the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. To acquire a clear understanding of the subject matter, I would like to discuss the context of this research by using four philosophical assumptions. These are discussed below-

3.1.1: Ontological Assumption (The Nature of Reality)

Ontology in business research deals with the nature of reality (Saunders, Lewis and Thornhill, 2009). It “helps researchers recognise how certain they can be about the nature and existence of objects they are researching” (Moon and Blackman, 2014; pp. 4-5). Therefore, researchers need to work with multiple ideas and facts to report on numerous perspectives by looking in-depth at a variety of forms of evidence from different individual angles (Bryman and Bell, 2007). For example, the researcher's experience of how participants respond individually to their research forms part of the interpretation written into their report (Wong, 2008).

For this research study, I interviewed people from different backgrounds, such as RMG senior management in both SMEs and large businesses, as well as bankers (mainly dealing with RMG foreign transactions), ICT experts and government officials. That helped me to understand the nature of the reality of the subject matter from the different perspectives of the participants (Shemi, 2012). The ontological position of this research has to deal with issues related to the objectivity and subjectivity of e-commerce adoption by Bangladeshi RMG export SMEs. The subjective viewpoint of the researcher proposes that B2B e-commerce adoption is affected by various factors related to both internal and external environments and the social interactions in the RMG export SMEs' context. The objective position of this study, however, is to represent the real view of the participants regarding the factors that affect the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

3.1.2: Epistemological Assumptions (How the Researcher Knows what they Know)

These are the theories that help with the issue of “what we can know and how we can know it” (Bryman and Bell, 2007; King and Kimble, 2004). To get the participant’s view, researchers try to become closely involved with those providing the data (Creswell, 2012). As a researcher, I interacted with organisations, formally and informally, to understand how the phenomena created. I, therefore, arranged interviews with participants allowing them to choose the location. The majority of them choose their business sites, which helped me to get an idea of the realities of the e-commerce adoption capabilities of their organisations.

The subjective evidence is collected based on individual views associated with the research field (Crossley and Vulliamy, 1997). The epistemological position of this research is to presume that B2B e-commerce can help RMG export SMEs to expand, grow and become successful in their businesses. The Bangladeshi government, however, and the Bangladesh garment manufacturers and exporters association (BGMEA) need to help these SMEs with finance, technology and training, regarding B2B e-commerce adoption-related matters (MS1, MMHF, SAM). Also, senior management needs to maintain a more educated stance regarding the benefits of adopting B2B e-commerce by their firms and the subsequent changes in their decision-making processes (MSA).

3.1.3: Axiological Assumptions (The Role of Value in the Research)

Axiology mainly refers to the ‘aims’ of the research (Lee and Lings, 2008). It “helps to clarify if the researchers are trying to explain or predict the world or mainly seeking to understand the aim of the research” (ibid.; p. 10). The result of this research is the combination of existing, comprehensive knowledge, as well as different participant's perceptions and the researcher's experience of the subject matter (Johnson and Christensen, 2010). To make the research reliable and valid, I, as a researcher, used my knowledge of the research area, my previous research experience and the research experiences of other researchers, to help me keep the research result as free as possible from bias.

3.1.4: Methodological Assumption (The Methods used in the Process of the Research)

I used my experience in collecting and analysing the data using an inductive approach, combined with emerging themes, which are then shaped by the theories reviewed in the existing literature (Kaplan and Duchon, 1988). As a practical approach to collect the data, I chose to follow the qualitative research method approach and the use of face-to-face interviews (Boodhoo and Purmessur, 2009; Saunders, Lewis and Thornhill, 2009). Furthermore, I used CATWOE analysis to gain an in-depth understanding of the factors identified through the TOE framework. In the following section, I discuss the research paradigms in detail.

3.2: E-commerce Adoption and Research Paradigms

The research paradigm plays a vital role, as part of the research methodology, in collecting data appropriately and effectively (John, 2009; Jones, 1997). The research paradigm is the combination of shared assumptions, concepts, values and practices regarding the development of knowledge (Johnson and Christensen, 2010). The research paradigm has been studied terms of interpretive, positivist and realism paradigms (Guba and Lincoln, 1994). Each of the research paradigms has their position regarding the ontological, epistemological and methodological questions (ibid.). In the next sections, I discuss these paradigms and follow the discussion with their application to B2B, e-commerce adoption.

3.2.1: The Positivist Paradigm in Relation to RMG Export SMEs and B2B e-commerce Adoption

Positivism is the most popular and oldest research paradigm and is also known as the scientific knowledge of assumption (Saunders, Lewis and Thornhill, 2009). A positivist paradigm discovers something by using scientific knowledge (Guba and Lincoln, 1994). It cannot, however, explain a participant's attitude towards a research matter scientifically (John, 2009). In a positivist approach, the adoption of an e-commerce ontological assumption assumes the real objective (SMEs) and the social world (interaction between RMG export SMEs and B2B e-commerce) as pro-observation (Orlikowski and Baroudi, 1991). A positivist paradigm determines the validity of knowledge from empirical evidence (Guba and Lincoln, 1994). The primary purpose of the positivist approach is to use scientific methods to obtain causal explanations of human behaviour (Saunders, Lewis and Thornhill, 2009). A positivist paradigm

is mainly associated with quantitative methods and aims to measure and identify social interaction (Jick, 1979, Sekaran, 2006). On the other hand, this research does not intend to identify social interaction about the adoption of B2B e-commerce by the Bangladeshi RMG export SMEs. Also, this study employs qualitative methods; I have, therefore, not remained entirely consistent with the positivist paradigm.

3.2.2: Realist Paradigm in Relation to RMG Export SMEs and B2B e-commerce Adoption

A realist paradigm is like positivism, which argues that sociology should follow the logic of natural science (Guba and Lincoln, 1994). It differs, however, from positivism in its interpretation of science (Hibberd, 2010). In realism, there is no straightforward definition for the collection of data and, therefore, realism philosophy allows either a qualitative or quantitative (ibid). Realist research designs are more likely to be comparative or experimental (ibid). My research, however, is not associated with an experimental or comparative study; therefore, this paradigm is not appropriate for this study. The following section discussed the interpretive paradigm.

3.2.3: The Interpretive Paradigm in Relation to RMG Export SMEs and B2B e-commerce Adoption

In qualitative research, interpretive data helps to achieve an in-depth understanding of the subject matter because of the high level of validity of the data (Guba and Lincoln, 1994). Also, when people are the subjects of research, then researchers need to explore how people act and think in everyday situations (Walsham, 2006). The data collected in qualitative research mainly follows two different methods, i.e., interviews and observations (John, 2009; Johnson and Christensen, 2010). In this study, I used a face-to-face interview method because it helped me obtain the answers from a pre-designed set of questions, while at the same time, understanding the body language of the participants when giving their answers (Shemi, 2012). Also, face-to-face interview enabled me to get to know what they think about B2B e-commerce adoption and to what extent they believe it will help them conduct their businesses, as well as which factors affect the adoption of B2B e-commerce. Therefore, to gather in-depth data, I use the interpretive paradigm as part of the data collection techniques.

3.2.4: Choosing and Justifying the Research Paradigm

In this study, I explore the factors that affect the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. To examine the subject matter, I used an interpretive philosophy because it helped me to understand the subject matter from the participants' points of view (Walsham, 1995a, 1995b, 2006). For example, interpretive philosophy allows us to gain in-depth knowledge about the reality behind the subject matter (Andrade, 2009). For a better understanding of the B2B e-commerce adoption phenomenon, in the context of RMG export SMEs, I play the role of an actor to analyse the language, appearance and awareness of the participants (Shemi, 2012).

One of the strengths of the interpretive paradigm is the close involvement between the researchers and the phenomena (Walsham, 2006). That allows researchers to obtain a specific answer related to the subject matter, which directly gathered from the respondents' responses (Guba and Lincoln, 1994). However, some studies argue that the interpretive paradigm allows some bias because of close investigation (Gale and Beefink, 2005). To minimise the bias, I interpreted interviewees' responses by keeping the actual meaning of those interviews (Bryman and Bell, 2007). Also, I was able to cross-examine the respondents and analyse their responses from a neutral position (Walsham, 2006). Myers (2009) has pointed out that interpretive research can help researchers to understand a participant's thoughts and actions in the context of social and organisational activities.

In the following section, I discuss the research strategy to understand the overall design of the research project.

3.3: Research Strategy

Researchers need to identify an appropriate research strategy to design a valid research project (Saunders, Lewis and Thornhill, 2009). A research strategy is concerned with how to match an adapted methodology for the research objectives. Approaches vary from "Action research", "Grounded theory", "Ethnography" and "Archival research" (ibid.). To achieve an in-depth understanding of the factors that affect the adoption of B2B e-commerce by RMG export SME's in Bangladesh, this study will employ an exploratory strategy using an interpretive philosophy (Andrade, 2009). In particular, this approach has been chosen to gain insight into the research area by answering questions on the subject matter (Kaplan and Duchon, 1988). Also, exploratory research offers the flexibility of choosing a research method (Poon and Swatman, 1999). To answer the research question, I used the qualitative method of data collection, as the results of qualitative research can provide some indications of "why", "when" and "how" something occurs (Boodhoo and Purmessur, 2009; Shields and Rangarjan, 2013).

Exploratory research takes place when the issue is relatively new and the problem in a given situation has not been studied more clearly (ibid.). Therefore, I chose this strategy to gain insight into understanding the research area, as almost no study has been conducted, particularly on the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Moreover, this approach was chosen because it facilitates the exploration of the physical and social environment of the research area (Robson, 2002) that relates to Bangladeshi RMG export SMEs. For example, the primary data collection techniques use a face-to-face, semi-structured, interview questions that allow researchers to be close to the participants, which facilitates experiencing the subject matter more closely (Sturges and Hanrahan, 2004).

As part of the exploratory study, I talked to the experts about the subject matter and reviewed the up-to-date literature, to discover new insights (Robson, 2002) about B2B e-commerce adoption by RMG export SME's in Bangladesh. Furthermore, the 'analysis unit' for this study will be the three most senior management personnel of an organisation because they are the main decision-makers (Tarafdar and Vaidya, 2006). Also, government and non-government officials, related to the ICT (e-commerce) and RMG export industry, were chosen as a sample. This strategy will help to identify the extent of the use of web technologies, internet and export facilities in the context of Bangladeshi RMG export SME's, that considered as pre-requisites for the adoption of B2B e-commerce.

3.4: Selection of Sample and Research Site

In order to understand the research issues participants were selected using a non-probability, purposive sampling technique (Saunders, Lewis and Thornhill, 2009). In a non-probability sampling technique, members of the sample group are selected non-randomly (Tongco, 2007). For that reason, only certain types of members of the population chosen for this study to achieve the desired answers related to the subject matter (Shemi, 2012). That method mainly used because I selected the participating RMG organisations and other data subjects using my judgement to fulfil the requirement of this research.

The respondents for this study were senior management personnel from both SMEs and large RMG firms, and experts from different industries associated with the RMG export and ICT industries. The term ‘senior management’ is associated with personnel who make decisions for the organisation. The term ‘expert’ in this study describes the people who are working in different industry as senior personnel but linked to the RMG export and ICT industry. I also approached the various ministry of Bangladesh government who are responsible for the policymaking of the RMG industry. Unfortunately, I did not get any response from government officials apart from only one director from ICT ministry due to their availability and business. The reason, I chose senior management personnel as appropriate data subjects for this study because they are the principal decision-makers regarding systems to be adopted by their organisations (Apulu, Latham and Moreton, 2011).

In this chapter, the whole section of 3.4; includes sub-sections (3.4.1 to 3.4.4) give an in-depth discussion of, and justification for, the choice of samples for this study.

In the following section, I have justified the choice of industry for this research.

3.4.1: Choice of Industry

I chose RMG export SMEs as a whole unit of analysis for this research because it would help to gather the overall condition of the industry about the adoption of B2B e-commerce. One of the main reasons to select RMG export SMEs for this research as they are extensively connected, with the national development goals of Bangladesh. For example, the RMG export sector in Bangladesh is the second-highest remittance earning sector (Hoque and Boateng, 2017). The government of Bangladesh’s proposed vision of 2021 (to become a middle-income

economy nation in the world (Abdin, 2014). Therefore, the RMG sector needs to perform exceptionally well to achieve that goal because the financial condition of Bangladesh is extremely correlated with the success of the RMG sector (Abdullah, 2012). Currently, this industry is struggling with various issues, such as the low price of products, increasing workers' salaries, the high cost of raw materials, attracting new clients and high lead-in times (ibid.). RMG export SMEs are suffering, in particular, as they do not have enough resources to make their businesses competitive in the current business environment (Hoque and Boateng, 2017).

As a business studies student, I feel a responsibility for doing something for the SMEs because of my family business history. Also, my knowledge in this area can contribute to aiding the country's economic developments in e-commerce and can provide knowledge to the owners of SMEs, so that they can become more open to new technical infrastructures and keep up with the pace of change in dynamic business environments. In the following section is discussed about the choice of the research site

3.4.2: Choice of Research Site

I chose the Dhaka District area for my study because the majority of the RMG export organisations are based there (2979 out of 4287) (BGMEA, 2017). An additional reason for choosing this district as an area of study is because the ICT infrastructure is much better here than at any other region in Bangladesh. Therefore, the participants can readily identify the factors related to the B2B e-commerce adoption process because they are familiar with ICT related matters, as most of the ICT-related initiatives start in and around Dhaka. For example, the Bangladesh government is currently developing the country's central ICT hub, named Kaliakoir High-Tech Park, which based near Dhaka city (Bangladesh High-Tech Park Authority, 2016).

3.4.3: Procedure Followed for Identifying the Sample

A general member list of RMG export SMEs was obtained, from the Bangladesh Garment Manufacturers and Exporters Association (BGMEA). I categorised the organisations from that list, based on the number of employees, their location (Dhaka) and the existence of a working website. Some organisations had a 'sister' website and, therefore, only one organisation from the combined organisational set considered, while others removed from the selection list because senior management was the same across combined organisations. I have chosen this

sampling technique because it seems that organisations, which have a working website, are usually more aware of e-commerce (OECD, 2004). This sampling technique helped me to select the right participants for obtaining reliable information to complete this research.

The list collected from the BGMEA was beneficial as it classified companies with the correct location, number of employees, business group that they belong to, as well as the contact details of the organisation. The total number of exports RMG organisations is 4287 (BGMEA, 2017) and 2979, based in the Dhaka district. From the 2979 RMG export SMEs, 2464 are within the definition provided by the Bangladesh Bank (The Daily Star, 2017). Only 570 RMG export SMEs, however, have an active website. Also, the majority of the RMG export organisations have sister concerns who produce different products. Among them, some of them classified as SMEs and some classified as large. However, they are part of the same group. Therefore, from the group of companies, I chose only one organisation which falls under the definition of RMG export SMEs as the owner also senior management are the same. The number of SMEs further reduced to 150 RMG export SMEs; I contacted all of them by telephone or email.

I managed to get a verbal commitment from one-third of the selected 150 RMG export SMEs who promised to take part. They also advised me to contact them on my arrival in Bangladesh. Some of the participants, however, were not able to take part as they had other commitments. During my data collection period in Bangladesh, I contacted all interested participants, however, managed to perform face-to-face interviews with 26 members of the senior management personnel of RMG export SMEs and 4 members of the senior management personnel of large export RMGs. Also, six experts were directly or indirectly associated with the ICT industry and RMG export sectors. Also, I have inserted a table (page number: xii) that reports the abbreviation of different categories of respondents who participated in this study. Furthermore, the reason for choosing two additional categories of respondents, such as large RMG organisations (senior management) and ICT experts (both government and non-government) is because they helped me to achieve a more comprehensive view of the subject matter. Also, they helped me to make a comparison between the responses of the RMG export SMEs with the large RMG export organisations, as well as those of the expert respondents. By making this comparison, it allowed me to understand the actual condition of RMG ICT adoption and which factors affect them in adopting B2B e-commerce for conducting transactions online. In the following section, I justified the right number of participants chosen for this study.

3.4.4: Choosing the Right Number of Participants for this Study

According to Creswell (2007), for a general qualitative study, the researcher is expected to undertake 25-30 interviews for their research. There are, however, several researchers who have used fewer than 30 participants for face-to-face meetings, in their qualitative data collection for their exploratory study, as shown in the table below (Poon and Swatman, 1999; Mehrtens, Cragg and Mills 2001; Scupola, 2003). I interviewed 36 participants from a variety of backgrounds: 26 of them were from RMG export SMEs, 4 of them were from large export RMGs and 6 of them were from different backgrounds but, directly or indirectly, associated with the RMG export business and ICT industry. Each interview took place over approximately two hours and, where possible interview questions were sent out to the respondents before the face-to-face interview. That helped participants to prepare themselves and raise their awareness of the intended study. The following table shows the number of participants chosen for previous e-commerce adoption research.

Authors	Emphasis	Sample size	Method used	Data gathering method
Poon and Swatman (2005)	An exploratory study of small business internet commerce (SBIC): development of SBIC model	23 Small businesses in Australia with fewer than 20 employees	Qualitative	Series of interviews with open-ended questions
Mehrtens, Cragg and Mills (2001)	An exploratory study to determine factors that influenced internet adoption	7 firms in Australia with less than 200 employees	Qualitative	Unstructured interviews
Jones, Beynon-Davies and Muir (2003)	An exploratory study on the adoption of Web-based commerce in small Tasmanian firms	5 Tasmanian small firms	Qualitative	Structured interview and open format questions
Scupola (2003)	Investigation of the drivers of e-commerce adoption in SMEs based on TOE frameworks	7 Small business in Italy with fewer than 250 employees	Qualitative	Semi-structured interview

Table 4: Sample Size Considered in Previous Studies for Qualitative Research

The above table 4, shows that the number of participants for a qualitative exploratory study is highest (23) in the context of small firms (Poon and Swatman, 2005). On the other hand, Creswell (2007) suggested that, for a broader view of the subject matter, an in-depth interview with a small number of participants is better. The ideal number would be around 25-30 participants (ibid.). There are, however, no hard and fast rules in exploratory research regarding a minimum or a maximum number of respondents (John, 2009). Also, the sample size is not a big issue for this exploratory research, as I never intended to make an enormous, cross-sectional enquiry of RMG export SMEs in Dhaka. Furthermore, this study follows the exploratory and qualitative research method; therefore, the quality of the chosen sample members and their appropriateness for the particular business sector justified, as they are knowledgeable about this particular business sector (Mack *et al.* 2005). I carefully chose these participants for this study, as they can provide evidence of the factors affecting the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

In the following section, I discuss the different data collection techniques used in this research.

3.5: Data Collection Techniques

To identify the relationship between the variables that influence the decision of whether or not RMG export SMEs in Bangladesh adopt B2B e-commerce, I used various techniques to collect enough reliable data to gain insight into the research area. As stated above, this study uses a qualitative approach. There is no one 'best' research approach for data collection and analysis (Yin, 2009). The selection process, however, depends on the research question, the research objective, the research problems and the type of data required to complete the research (Zikmund, 2003). Mainly, there are two data collection techniques: these are qualitative and quantitative (Johnson and Christensen, 2010; Ramli, Sulaiman and Mitchell, 2009). To achieve the desired data for this research, I followed a qualitative data collection procedure (Myers and Newman, 2007).

A qualitative approach enabled me to identify and gain an in-depth understanding of the factors (Myers, 2008) affecting the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. As part of the qualitative data collection, semi-structured interview questions were designed (Rosenthal, 2016; Rubin and Rubin, 2005) based on the three variables suggested by Tornazky and Fletcher (1990) that help to identify the factors affecting the

adoption of B2B e-commerce by RMG export SMEs. The three variables proposed by (ibid.) are technological, organisational and environmental attributes. That also referred to as the TOE framework that helps to design the questions for collecting data using a variety of angles (Boateng, Molla and Heeks, 2009).

Also, I followed the semi-structured approach to design the interview questions because this approach enables the interviewer to engage the respondents (Myers and Newman, 2007). A semi-structured approach allows participants to give their view instead of having to answer questions with limited options, such as taking part in a structured interview (Bryman and Bell, 2007). By using a semi-structured approach, it is easier to obtain accurate and up-to-date information about the subject matter (Myers and Newman, 2007). This interview process took me approximately nine months to complete, from September 2016 to April 2017. In the following section, I discuss the procedure that I followed when designing the questions.

3.5.1: Procedure Followed for Design of Questions

- **Designing the Questions:**

In this study number of questions was developed to identify the theme for answering the research question. To find the theme, I searched the existing literature (discussed in chapter 2) to structure the interview questions (Marshall and Rossman, 1990). The number of questions carefully designed to get the desired theme associated with the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. That will ultimately fulfil the demands of the objectives of this research and fill the gap in the existing literature.

Also, I used open-ended, semi-structured interview questions so the participants could give their views on the subject matter (Rubin and Rubin, 2005). Thus, eventually helped a new theme to emerge from the data (Atkinson, Coffey and Delamont, 2003), which I discuss in chapter 5. On the other hand, if I restrict participants choice by giving them only options, without allowing their view then tangible factors may never arise.

The questions were drafted (Appendix-1) in English to keep the meaning of the different, e-commerce related terminologies because some of the technical terms are difficult to convert into Bangla. During the interviews, however, when participants were unable to understand

English, I then explained the questions to them in Bangla, for their better understanding. The design of the questions followed semi-structured techniques because this helps to keep the participants focussed on the issues related to the research (Choak, 2012). At the same time, they are free to address the issues related to the research area (Saunders, Lewis and Thornhill, 2009).

- **Pilot Testing and Redesign of the Questions:**

The pilot study offered an excellent opportunity to improve the content of the interview questions before the actual interview took place (Myers, 2008). It helped with understanding what needed to be added or removed for an in-depth understanding of the subject matter (Myers and Klein, 2011). Also, this procedure helped to identify the problems related to the structure and clarity of the questions (Rosenthal, 2016).

The pilot interview was performed with the selected personnel, mainly RMG export SME owners or managers, or e-commerce experts because it helped to have a third party's opinion of the content of the questions. The wording of the questions amended following feedback received from the pilot survey; then aligned with the research objectives. The final version is provided in the Appendix-1 and consists of 21 questions which cover:

- Participants' general data (position in the firm)
- Firms' data (number of employees, the business percentage of exports, IT-related capabilities of the organisations)
- Firms' information communication technology
- E-commerce adoption view
- Government ICT initiatives
- Suggestions about the e-commerce adoption process

3.5.2: The Interview Process

After the pilot survey, I conducted actual face-to-face interviews with the selected participants (selection process and data collection are discussed in section 3.4 and 3.5) to discuss the questions related to factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh. The questions prepared beforehand; there was, however, room for improvisation

(Sturges and Hanrahan, 2004). When interviewing the participants, I did so individually at their preferred location.

- **Face-to-face, Semi-structured Interview:**

In the context of the social sciences, qualitative, semi-structured interviews are the most popular method of data collection (Bradford and Cullen, 2012). Semi-structured interviews were selected for this research because they offer respondents the facility of giving their opinion on a particular subject (Rosenthal, 2016). In the context of e-commerce adoption research, Hashim (2011) used the semi-structured interview procedure to get an in-depth understanding of the subject matter.

For face-to-face meetings, this study's participants needed to be interviewed personally by the researcher (Newman *et al.* 2002). This process allows researchers to explore the subjective viewpoint and to gather in-depth knowledge of the participants' experience, as well as their business environment (Flick, 2009). According to Malhotra (2004), the most common advantage of this kind of approach is the interaction created between the respondents and interviewer. Also, this process allows the interviewer more control over the interview process and discussion of the subject matter within the time frame (Newman *et al.* 2002). Therefore, this method seems to more efficient than a telephone interview or mail survey because it allows the researcher to understand and accurately reflect the respondent's responses (Sturges and Hanrahan, 2004; Newman *et al.* 2002).

Typically, in a semi-structured interview, a set of questions is used which enables researchers to address a defined topic to guide the conversation, but participants can use their terms to discuss the issues (Choak, 2012). It allows emerging, relevant themes to develop throughout the meeting (*ibid.*). This method, however, is timely and very expensive 'when the data is collected' from a vast geographical region (Malhotra 2004). For this study primary data mainly collected from Dhaka, Bangladesh.

One of the main reasons I choose face-to-face interview for this research as a pilot survey indicates that the majority of the participants are not familiar with the different terms of the questions. Face-to-face interview, therefore, facilitates me to explain those terms using preferred language either English or Bangla, so that participants can answer the questions

correctly. Also, conducting a semi-structured interview helped me to obtain rich feedback from the respondents, as suggested by Yin (2009). On the other hand, if I use the survey to collect the primary data then participants may answer the questions without knowing the actual meaning of the questions hence their answer misrepresents their view. In this research, face-to-face interviews took place at the participant's preferred location Dhaka, Bangladesh and the majority of the interviews were recorded with prior consent from them.

Although the questions designed in English, both the researcher and participants conversed in both English and Bengali to facilitate a better understanding of the subject matter and the questions.

- **Telephone Interview:**

Telephone interviews only took place if I needed to discuss some of the critical issues about the subject matter raised in face-to-face meetings with the participants (Sturges and Hanrahan, 2004). Therefore, all of the participants were requested to give their contact details so that I could reach them at a time convenient to them. All of the participants agreed to provide me with their contact details (which were data protected) and gave me verbal permission to contact them if I needed to for further assistance. No telephone calls were necessary, however, to clarify the interview data.

3.5.3: Data Collected from the Secondary Source

It is a systematic procedure to review or to evaluate documents from both printed and electronic sources (Bowen, 2009). Materials need to be interpreted in a meaningful way to gain enough knowledge about the particular research area (Saunders, Lewis and Thornhill, 2009). Therefore, various journal articles, research papers, government reports, books and internet content were analysed to gather in-depth knowledge about the subject matter (Rosenthal, 2016). Also, with the consent of the relevant organisations, their available internal data (e.g., reports) related to the use of the internet and B2B activities analysed.

The above data collection techniques helped in gaining in-depth information that eventually facilitated investigation and identification of the factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh. In the following section, I discuss the research approach used for data collection and analysis.

3.6: Research Approach

In general, there are two dominant theories of research approach that help to identify the desired data to successfully achieve a research objective (Bryman and Bell, 2007). These two theories are the deductive approach and the inductive approach (Saunders, Lewis and Thornhill, 2009). For a better understanding of these theories, I discussed the following sections (3.6.1 – 3.6.3), these two approaches and justification of how to use them in this research.

3.6.1: Inductive Approach

This approach mainly used for less structured interviews (Rubin and Rubin, 2005). The inductive approach firstly involves specific observation of the identified patterns with the view of making a broader generalisation and, eventually, a tentative theory (John, 2009). An inductive approach to interviewing means letting the ideas and themes emerge from the interview data (Robson, 2002). It deals with the development of a new method arising from the collected data; informally, therefore, it is called a bottom-up approach (Saunders, Lewis and Thornhill, 2009). An inductive approach mainly starts with the use of research questions to narrow the area of study (ibid.). It is commonly focused upon exploring new phenomena or previously studied aspects from a different perspective (Bryman and Bell, 2007; Saunders, Lewis and Thornhill, 2009) and is mainly associated with qualitative research (John, 2009).

3.6.2: Deductive Approach

A deductive approach aims at testing a theory; informally, therefore, it is called a top-down approach (Saunders, Lewis and Thornhill, 2009). This approach usually begins with a hypothesis and testing that hypothesis with the data that emerges from the study (Gelo, Braakmann and Benetka, 2008). A deductive approach is generally associated with quantitative research (Saunders, Lewis and Thornhill, 2009; Gelo, Braakmann and Benetka, 2008). There are, however, no set rules, as a deductive approach might use for a qualitative approach (Kaplan and Duchon, 1988).

3.6.3: Justification for using the Approach

The purpose of this exploratory research is to identify the theme related to the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Therefore, I deliberately chose open-ended interview questions followed by an inductive approach to obtain the participants' views of the subject matter (Koch, 2006). There is, however, established literature in this particular area of research, but in a different context and, therefore, using a deductive approach may make more sense for testing the theme (Myers, 2009).

As mentioned earlier, the research is exploratory almost no study has been conducted in the context of B2B e-commerce adoption by RMG export SMEs in Bangladesh. I believe, therefore, that it would be ideal to mix the two approaches and take what is useful from the top-down, deductive approach, as well as from the bottom-up, inductive approach (Atkinson, Coffey and Delamont, 2003). For example, if I were to use a straightforward deductive approach by itself, it would not work because of insufficient information in the literature on this particular subject matter in the context of a developing country (Nowell *et al.* 2017). On the other hand, the inductive approach by itself ignores the factors that many other researchers have already identified in the context of B2B e-commerce adoption (Saunders, Lewis and Thornhill, 2009). Therefore, for a better understanding, I chose to use both deductive and inductive approaches, to explore and analyse the subject matter and obtain specific answers to the research questions (Jones, 1997; Saunders, Lewis and Thornhill, 2009).

3.7: Procedure to follow for Analysing the Data

Qualitative research data allows new ideas and themes to emerge from the process of thematic analysis (Braun and Clarke, 2006; Nowell *et al.* 2017). The thematic analysis begins at the data collection stage and continues during the operation of transcribing, interpreting, reading, re-reading and analysing the data (Braun and Clarke, 2006). There are many different approaches to thematic analysis (Alhojailan, 2012; Javadi and Zarea, 2016). Braun and Clarke's (2006) six-step framework, however, is arguably the most robust thematic analysis approach because it provides a clear and usable framework for conducting thematic analysis (Maguire and Delahunt, 2017).

Braun and Clarke (2006) distinguish thematic analysis into two approaches. One is theoretical, thematic analysis (top-down) and the other is the inductive or bottom-up approach. The

theoretical thematic analysis is driven by data specific research questions and the analyst's focus (Alhojailan, 2012). On the other hand, a bottom-up or inductive approach inspired by the data by itself (Nowell *et al.* 2017). Therefore, it seems this research-driven by both bottom-up and top-down approaches (Boyatzis, 1998).

The main objective of the data analysis is to enable the theme to emerge from the collected data (Maguire and Delahunt, 2017) Therefore I looked for whether the existing theories told me which theme would work with the data, I gathered. Where it worked, I used it moreover where it did not work, I had to create a new type of data that is more relevant to the business context I have chosen. In the following sections, for a better understanding of the data and its thematic analysis, I discuss the different stages of the analysis process suggested by Braun and Clarke (2006).

3.7.1: Different Stages of Data Analysis and Theme Development

The data collected from the selected RMG export organisations, mainly SMEs, as well as the expert who is in some way associated with the RMG export business activities and the ICT industry (selection of samples are discussed in section 3.4). The data collected via face-to-face, semi-structured interviews (detail discussion are made in sub-section of 3.5.2). Following the interviews, the data analysed using Braun and Clarke's (2006) six-phased guide, which helps researchers analyse the data successfully and enables them to identify the theme by using their framework (table 5). There are, however, no fixed steps in this framework and, therefore, they can move up or down if researchers need to accommodate them (*ibid.*).

Step 1: Become familiar with the data	Step 4: Review themes
Step 2: Generate initial codes	Step 5: Define themes
Step 3: Search for themes	Step 6: Write-up

Table 5: Six-phase Framework for Performing a Thematic Analysis (Source: *ibid.*)

In the following section, I discussed how I analyse the data using that six-phased steps.

- **Step-1; Become Familiar with the Data:**

The first step of qualitative analysis is the reading and re-reading of the transcripts, with a line-by-line commentary which helps with becoming familiar with the data (Maguire and Delahunt,

2017). Also, I break up the transcribed data and transform it into useful information (Nowell *et al.* 2017). That helps with becoming familiar with all of the data or data corpus (Vaismoradi, Turunen and Bondas, 2013). At this stage, it is useful to make rough notes that facilitate obtaining early impressions about the outcomes (Clarke and Braun, 2013).

- **Stage-2; Generate Initial Code:**

At this stage, the data organised in a meaningful and systematic way (Boyatzis, 1998). It is possible to use coding that helps to reduce much of the data into small chunks of meaning (*ibid.*). The perspective and research questions determine the method of coding, though I was concerned with addressing specific research questions while analysing the data (Javadi and Zarea, 2016). Some of the themes, however, arose from the interview data itself (Bree and Gallagher, 2016). Therefore, the analysis of the data followed both a theoretical and an inductive thematic analysis (Braun and Clarke, 2006). Given this, I coded every piece of the text that captured during the data collection, which was relevant or partly relevant, to the subject matter.

No pre-set coding was used and, thus, I followed the open coding process. The code describes the meaning of the segment of the text; this is called open coding (Javadi and Zarea, 2016). The system was developed and modified as I worked through the coding process. During the process, I worked through each transcript and put them together into the NVivo software. That helps to generate the theme through coding every single piece of text relevant to the research subject (Dollah, Abduh and Rosmaladewi, 2017). Also, it facilitates quickly identifying different participants' views related to the issue (*ibid.*).

After completing all of the open coding's of the interviews, I then made a list of all of the codes, and I looked for similar codes or redundant codes using constant comparison (Bree and Gallagher, 2016). To make a continuous comparison, I went back to my original data to match to perform the earlier process to reduce the long list of codes to a smaller, more manageable number, maybe 20-25 (Braun and Clarke, 2006).

- **Stage-3; Search for Themes:**

A theme is a pattern that captures something interesting from the data that is related to the research questions. Its significance mainly characterises a theme (Javadi and Zarea, 2016). Braun and Clarke (2006) argued that there are no hard and fast rules regarding a theme. At this

stage, however, I aim to narrow the codes and identify 5-7 overarching themes, and then group the rest in open code. To do that, I examined the codes and some of them, when combined, fitted into a theme (ibid.).

At the end of this stage, I organised the codes to build a broader theme that seemed to be related to the research questions (Javadi and Zarea, 2016). Therefore, to create the final theme, the following steps considered (Braun and Clarke, 2006).

- They should reflect the purpose of the research
- They should be exhaustive
- They must place all of the data into a category
- They should be sensitive to what is in the data

All of the codes, however, may not fit into the identified, overarching theme. Therefore, there could be a range of issues that arise, such as:

- Ordinary themes
- Unexpected themes
- Hard-to-classify themes
- Major themes and sub-themes that represent the essential ideas and all of the minor themes represent secondary ideas.

- **Stage-4; Review Themes:**

During this stage, I collected all of the interview quotes within a theme that is relevant to each subject (Boyatzis, 1998). I used NVivo software to do this because it is both easier and quicker. Every participant's interview data associated with the theme is linked and colour coded (Dollah, Abduh and Rosmaladewi, 2017).

I read the data related to each theme and examined the ideas that make up the issues and sub-themes. Braun and Clarke (2006) pointed out that arguments should be coherent and different from each other. In particular, they need to identify how the subjects interact with each other. For example, is there a sequence or order in which the information belongs? Do the theme(s) make sense? Does the data support the arguments? Is too much data fitted into an issue while at the same time demonstrating evidence of a relationship between the overarching themes? (ibid.). Facilitating codes into several themes helped with identifying a relationship (Javadi and Zarea, 2016).

- **Stage-5; Define Theme:**

During this stage, the aim was to "identify the essence" of each theme (Braun and Clarke, 2006, p. 92). That helped with understanding the relationship between the theme and the research subject (Bree and Gallagher, 2016). If there are any sub-themes, how do they interrelate to the central theme also how do they relate to each other? (Nowell *et al.* 2017). Therefore, the following steps considered to get the saturation point of the emerging theme from the data (Alholjailan, 2012; Javadi and Zarea, 2016).

Repeat this process with the remainder of the transcript. It may have been possible to find emerging new themes as I progressed and, therefore, it was essential to return to the earlier interviews and compare the latest issues with the earlier ones, and then adjust the ideas. This constant comparison of ideas helps to reach the desired theme (Vaismoradi, Turunen and Bondas, 2013). Also, doing this accommodated me to reach the saturation point of the emerging themes (Javadi and Zarea, 2016; Nowell *et al.* 2017). When no more themes emerged from the interview data, I stopped conducting the interviews.

After completing this, I hoped to be able to produce a classification tree which ranged from the specific to the general. To identify the theme, I began the process by putting the interview data into quotes, subthemes and finally themes (Vaismoradi, Turunen and Bondas, 2013).

- **Final stage 6; Writing up:**

When I finished all of the interviews, I constructed a narrative from the themes, subthemes and codes (Maguire and Delahunt, 2017). That helped with the description of the identified themes and "quotes" from the interviews to support my ideas and find out the interrelationship between the main themes and subthemes (Boyatzis, 1998).

Generally, the endpoint of the research is to write a report, sometimes a journal article or research paper. In exploratory research, the development of the theme does not happen at once as this comes about over time and at different stages (Braun and Clarke, 2006). It was a stage-by-stage refinement, modifying the data (Maguire and Delahunt, 2017) as I went through the process of gathering and analysing it. Following all of these stages helped me to develop a research framework (Robertson, 2010). The next section discusses how the data can be managed by the use of different tools and techniques.

3.8: Managing the Data

Research data management is part of the research process that is concerned with the organisation of data from the beginning to the end of the research cycle. Managing the data, without losing any of it, is crucial for completing the study (Bryman and Bell, 2007). Research data management aims to make the research process as smooth and efficient as possible (Saunders, Lewis and Thornhill, 2009). Also, good data management of the survey helps with reliable verification of the research results and allows further research on existing information (Whyte and Tedds, 2011). Below, I explain how different tools and techniques were used to manage the research data of this study.

◆ A Mechanical System for Managing Data:

In this research, I used a mobile phone, a laptop computer, a USB memory stick and email, to record, analyse and discuss the data.

◆ By Hand Managing Data:

A printed transcript was used, with coloured markers to highlight the codes.

◆ Computer Programmes:

There is a great deal of computer software available for analysing qualitative data, for example, NVivo, MaxQDA (Saunders, Lewis and Thornhill, 2009). Finally, however, I chose to use NVivo 11 version to analyse the interview data for this research (Wong, 2008) as it allowed me to identify the theme quickly and establish a connection between themes from a large amount of data (Bazeley, 2007). Also, it reduced the time taken to perform the qualitative data analysis and lessened the number of manual tasks, as well as helping with identifying tendencies, identifying the theme and building a conclusion (Wong, 2008).

The researcher, however, needs to have enough knowledge about NVivo for the effective use of it (Bazeley, 2007). There are some disadvantages regarding using the NVivo software application, such as it is time-consuming to learn; it is costly for the individual furthermore it does not offer much help with interpreting the data (Dollah, Abduh and Rosmaladewi, 2017).

The following section discusses the validity and reliability of the data.

3.9: Validity and Reliability of the Data

The notes taken from the analysis of the interview documents compared with the information gathered for validating the interview data (Brinberg and McGrath, 1992; Miles and Huberman, 1994; Sykes, 1990). The participants and the organisation assured by the researcher about the confidentiality of data (Bryman and Bell, 2007). Therefore, a data protection form was signed by the researcher and the participants to ensure that the privacy policy regarding the data was clear (Pannucci and Wilkins, 2010). Incomplete and biased data deleted from the data bank (Saunders, Lewis and Thornhill, 2009).

In the early stages of the interview, I explained the objective of this study to the participants to make them aware of what we hoped to achieve from the meeting. At the end of the interview, notes taken during the process were shown to the interviewee to ensure it genuinely reflected the information provided by the interviewees that confirm the validity of the data.

A research bias may occur at certain stages of the research process, such as the design of the study, the data collection, the selection of samples and data analysis (Miles and Huberman, 1994; Pannucci and Wilkins, 2010). Bias mainly occurs when the interviewer influences the interviewee in their choice of answer (Gale and Beefink, 2005; Myers, 2009). Therefore, to reduce bias, the interviewer needs to be neutral (Mack *et al.* 2005). For this research, three more significant biases carefully managed to make the study valid (Pannucci and Wilkins, 2010). These three biases are a selection of the sample, interviewer bias and language bias. These are discussed below.

3.9.1: Selection Bias

Selection bias mainly occurs during the identification of a population of a study (Sturges and Hanrahan, 2004). The selection bias occurs when the ideal criteria not used to recruit the people for the research (Jeyaraj, Rottman and Lacity, 2006). The standard rules are defined clearly for the study population and must be reliable (Pannucci and Wilkins, 2010). For this study, however, the earlier section called ‘Selection of Sample and Research Site’ clearly defined and justified how I selected the respondents for this research. Also, I am familiar with the industry and the area of the research context and, therefore, the appropriate people are chosen for an interview, i.e., those who could provide more in-depth pictures of the subject matter. For

example, the participants of this study selected based on their organisation's involvement with ICT, as well as their relationship with RMG export activities.

3.9.2: Interviewer Bias

This bias is related to the information gathered from the interview (ibid.). Interviewer bias can minimise if the interviewer collects and analyses data gathered from a meeting without being influenced by possible outcomes (ibid.). Therefore, for this research, I tried to be as neutral as possible and very careful about making any comments which might lead to influencing the respondents when giving their responses. Moreover, at the beginning of the interviews, I explained the subject matter carefully, so that they might feel interested in it. That gave them a better understanding of the subject matter so that they could answer the questions more fully.

3.9.3: Language Bias

During the interview, I gave oral translations from English to Bengali for participants to provide them with a better understanding of the questions and subject matter. To explain the technical terms of the questions, however, was difficult and, therefore, in some cases, I left them as they were. I took the participants' understanding into account. In some other cases, I explained the technical terms in detail without using any biased terms and, thus, helped participants to understand the meaning of those terms. The following section discusses the various ethical measures followed for conducting this research.

3.10: Ethical Considerations

I wanted to discuss areas of concern regarding the ethical issues of confidentiality and anonymity. With regard to respecting privacy, I kept the names of the interviewees, the titles of the organisations and the positions they held in the organisations, confidential. Walsham (2006) suggests that, if the real name of the organisation disclosed in the research, then the readers might try to identify the participating organisation. Therefore, I did not reveal the details of the respondents nor their positions and only used the abbreviation of their name to discuss their comments in this research. Neither did I share the names of the organisations. Also, consent endeavoured at the beginning of the conversation regarding whether the interview could record for further analysis. That depended on the interviewees because they have the right to permit recording and answering any questions or not. The majority of the

interviews digitally recorded using a mobile phone, voice recording facility. At every stage of this research, I carefully followed UWTSD's ethical rules and regulations for collecting, utilising, analysing and displaying the received data. In the following section, I discuss the different methodological limitations.

3.11: Methodological Limitations

The lack of knowledge of B2B e-commerce by some of the participants prolonged the interview process. In some cases, I had to explain every single question to them, including my background, the reasons for doing the research and how they might benefit from it because of their unfamiliarity with the subject matter. Also, a lack of appreciation led to interviewees failing to keep their appointments. I found it challenging to rearrange these cancelled interviews as I had other interview commitments. However, some of the participants were unable to keep their appointments, due to unforeseen circumstances beyond their control.

In an investigation like this, it is challenging to eliminate bias because of language problems, translating questions from one language to another, the time limitations of the participants and a lack of familiarity with e-commerce related terms. Moreover, this study is associated with the qualitative data gathering process and, therefore, it is almost impossible to minimise bias (Gale and Beeftink, 2005). Also, I followed other researchers' suggestions, as well as using my own previous research experience and familiarity with the research industry and tried to minimise the research bias by collecting real facts about the subject matter.

Summary:

This chapter mainly reviewed the various research methodologies and mostly focused on qualitative research methods. The semi-structured, face-to-face, interview questions found to be a suitable research tool for achieving the desired research objectives. The justification of the selected research method addressed. There was a discussion of the development and design of the data collection instruments guided by previous literature. That discussion provides details of the collecting, analysing and storing of the data which was free from bias and met the ethical requirements of the research.

The next chapter discusses, describes and analyses the data gathered from the face-to-face interviews.

Chapter-4

4.0: Data Analysis

Data analysis is one of the most critical parts of any research because it facilitates achieving the aims and objectives of the study (Malhotra, 2004). Therefore, the data collected from the interview questions organised, categorised and coded to distinguish patterns and themes for understanding the issues (drivers and barriers) related to B2B e-commerce adoption by the RMG export SMEs in Bangladesh. That requires a form of the thematic analysis of the textual and verbal data for the creation of usable evidence for answering the initial research question. The thematic analysis helps to explore the collected data that allows generating a deeper understanding of the reasons which affect e-commerce adoption. Initially, the different tools used for data analysis are explained to justify its use and how I use these to analyse the data. After that, the collected data is presented in a table and explained in detail. Then the summary table 18 displayed the motivating and inhibiting factors explored through this research. Afterwards, in section 4.23, the NVivo mind mapping tools used to develop a model based on the summarised motivating and inhibiting factors. That helps to identify the main factors affecting the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Furthermore, detail discussions are made of these identified factors to distinguish its importance related to this research subject matter. The different tools used for data analysis are discussed below-

● NVivo Analysis:

NVivo is powerful research software that helps with analysis of both the qualitative and mixed-method data by unlocking insights to get rich information (Dollah, Abduh and Rosmaladewi, 2017). The data collection method used for this study was open-ended semi-structured interview questions (Bazeley and Richards, 2000; Bazeley, 2007). Hence, NVivo is an appropriate tool to use for this research to analyse diverse data. NVivo has been mainly used in this study to organise the qualitative data and for easy identification of the respondent's responses. Also, NVivo had been used to analyse the raw data, using the options, nodes and codes for the development of the themes. After developing the themes, I categorised the most frequently occurring nodes and grouped them based on their relevance with each theme. That helps to develop the coding density of each theme. The categorisation made from the nodes is frequently counted and displayed in the table later in this chapter for easy identification of the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. Also, a

sample of NVivo analysed data is presented in appendix three. Besides, I have used NVivo mind mapping tools to develop a model of the motivating and inhibiting factors. These are discussed later in section 4.23.

● **Microsoft Office Word Analysis:**

I used Microsoft Office (MS) word software to display and present the raw data in a structured format alongside a pie chart. MS Word is the most widely used tool in analysis for demonstrating raw data (Bree and Gallagher, 2016). That helps researchers to identify the significance of the data quickly, in terms of detecting the most frequently occurring and least frequently occurring themes (John, 2009). Also, I used a table for ‘question numbers 7, 8, 11-19 and 21’ to track the data quickly. All of the ranking tables (11-16) mainly indicate two phenomena: the first column represent the ‘frequently raked themes’ and the last column represents ‘accumulated NVivo themes. These two columns indicate that there is a slight mismatch because some of the themes expected to be highly ranked because they scored highly in the NVivo counted column, but this was not the case. Therefore, table 18 (summary of top-ranked themes and accumulated NVivo themes) was later analysed using the NVivo analysis to identify the motivating and inhibiting factors affecting the adoption of B2B e-commerce.

● **Ranking of the Data:**

Initially, participants of this study were requested to rank the data while they were answering the semi-structured interview questions. The ranking mainly based on the participants’ own belief of the importance of the factors regarding the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. There were no suggestions for ranking the data if the participants believed it was not relevant to their business context or if they felt it played a vital role in the adoption of B2B e-commerce. Participants solely used their own experience to rank the factors based on the relevance of the subject matter to their business context. Therefore, many questions answered by the participants with one, two, three or more answers based on their experience and what was appropriate for their business context.

To analyse the ranked data, I used a table where I put all of the evidence in the ranking column based on the participants’ ranking. After examining the ranked data, I summarised the top-ranked factors most relevant (approximately 3 or 4 factors) to the subject matter. The summary of the data ranked based on their hierarchy in the ranking table, which is mostly in column one.

Generally, participants rated the factor foremost, rather than other factors because they felt it was most important for the adoption of B2B e-commerce.

In the table 11 to 16 of the ranked data (sections 4.14 to 4.19), 'Black' represents the responses of RMG export SME respondents; 'Blue' represents the responses of large RMG export organisations' respondents, and 'Yellow' represents the responses of the experts. I display the data using colour coding because it helps with quickly identifying the different respondents' answers. Also, in the table ranking column one presents the most highly ranked themes stated by the participants, and the last column represents the accumulated NVivo theme. Those two-column highlights with the grey background because they are the vital columns for extracting the most frequently occurring theme. These viewed in ascending order of importance based on the number of times they counted.

● **Identification of the Factors Relevant to the Adoption of B2B e-commerce:**

To identify the factors associated with the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh, I summarised the most frequently ranked findings combined with the most coded NVivo nodes in a table in section 4.22. Also, I separated them based on the nature of responses towards the subject matter. After this, I used the NVivo analysis of that summarised data to identify the key themes directly associated with the research context. The reason for choosing to perform the NVivo analysis again was because some of the themes stated in the summarised table have similarities and inter-connectedness with the motivating and inhibiting columns of that table. Finally, those core findings are discussed in detail to gain an in-depth understanding and gauge their importance for this study. Following this, I summarised those themes concerning the technological, organisational and environmental aspects.

Also, the findings of the research results discussed with the context of previous ICT related research result. That assisted me in gaining a detailed understanding of the identified factors from a different perspective of the B2B e-commerce adoption process, which needs to be considered by the Bangladeshi RMG export SMEs.

In this research, ‘question numbers 1-21’ are answered by all the participating RMG export organisations respondents. However, ‘question numbers 1-10’ did not responses by the expert respondents of this research as these questions are not relevant to them.

In the following sections, I analyse, discuss and present the collected data, including organisational, business environmental, technological, infrastructural, all of which are related to B2B e-commerce adoption by RMG export SMEs in Bangladesh. ‘questions number 1 to 21’ are discussed and presented in the sections below.

4.1: Participants Position in the Organisation

There were twenty-six participants from RMG export SMEs. Nine of these are owners, seven of them are managers and directors, two of them are working as CEOs, and one of the participants holds a chairman’s post. On the other hand, four of the participants are from large organisations, where two of them are owners and directors. There are another six respondents who are not linked directly with the RMG business, but they are in some way associated with the RMG sector or the ICT industry; I have classified them as expert participants.

Summary of the Key Findings:

- The majority of the RMG respondents are owners of their organisations.

4.2: Number of Employees are Working for the Participants Organisation

This question asked the respondents to identify whether their organisation is a large RMG or categorised as an SME. Thirty RMG export organisations participated in this study; twenty-six of these companies are SMEs because they listed on the BGMEA website as an SME based on the RMG organisation’s definition provided by the Bangladesh Bank (chapter 2; section 2.1, table 1). Also, four of the thirty participating companies in this study classified as large organisations because they have more than one thousand employees.

Summary of the Key Findings:

- All twenty-six RMG SMEs employ fewer than one thousand employees moreover all of the four large participating organisations employ more than one thousand employees.

4.3: Percentage of the Contracts are for Export Versus the Internal Market

Participants among the twenty-six RMG export SMEs twenty-four of them mentioned that their organisations are directly producing a hundred percentage export products for their overseas clients. One of SME manufacturing fifty percentage (exports products for their overseas suppliers) and rest fifty percentage (sub-contracts export products for other organisations overseas clients). Another RMG export SME participants pointed out that their organisation is producing merchandises as a sub-contractor, for the different company's overseas buyer's order, on a full-time basis. On the other hand, all of the four, large organisations participants participated in this study stated that their organisations are producing products for a hundred percentage export purposes.

Summary of the Key Findings:

- All participating RMG organisations are producing products for overseas buyers and fully export-oriented.

4.4: Availability of a Separate IT Department

All four of the large organisations participating in this research have separate IT departments, whereas some of the RMG export SMEs do. Of the twenty-six RMG export SMEs' respondents, sixteen of them have IT departments furthermore ten of them do not. More than one-third of the participating RMG export SMEs do not have separate IT departments, which indicates that they are not aware of doing business by using the virtual platform. Although some of the RMG export SMEs' participants pointed out that they do have separate IT departments, the majority of the responses identified that there are only one or two IT knowledgeable employees to look after the whole organisation's IT activities. That also indicates that senior management is not fully aware of how they can perform their daily business activities by using online technology.

From the above discussion, it is clear that large RMG export organisations use ICT as part of their daily business activities.

Summary of the Key Findings:

- The majority of the RMG export organisations in Dhaka have separate IT departments.

4.5: Availability of Organisation Own Website

Most of the RMG export SMEs and large organisations have websites; however, one of the RMG export SME's participants is not sure about whether they have a website or not. Almost all of the participants' responses to question five is that they had a website and used it for various business purposes. For example, they use their websites for marketing purposes, for exchanging information with buyers, for building confidence and trust with their customers, for displaying their organisation profile and for sharing their different activities with others. Several of the respondents pointed out, however, that they have a website just for the sake of having it. They do not regularly update it with the current activities conducted by the company, as they do not have IT-skilled personnel or departments for this purpose.

Although the RMG respondents indicated that they have a website for exchanging information with their buyers, they do not actively use it. Also, participants pointed out that to find new clients, RMG export organisations are still using third-party (mainly, buying houses: organisations act between seller and buyer to complete transactions). Some organisations only conduct business with their existing buyers. In summary, all participants convinced that their companies could function effectively with the help of a website. For example, participants believe that in the hope it might help them to find new clients and that this will ultimately reduce their dependency on their existing customers, and consequently improve their bargaining power.

Summary of the Key Findings:

- Almost all of the participating RMG organisations have their websites.

4.6: Different Methods of Internet Connection use by the RMG Export Organisation in Bangladesh

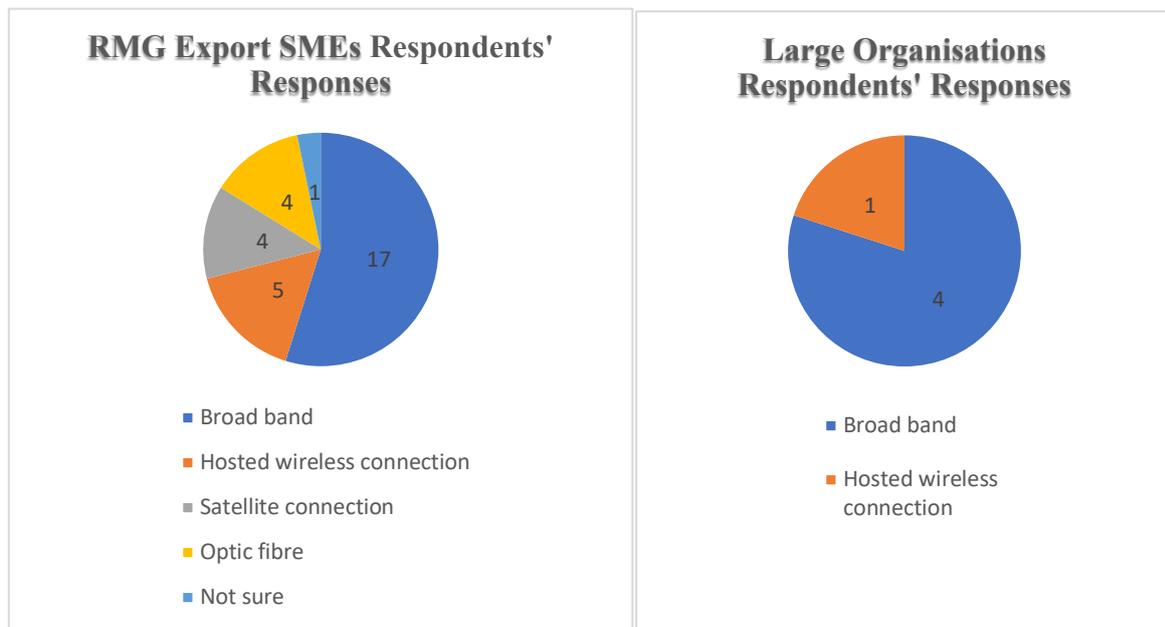


Figure 7: Different Method of Internet Connection used by the RMG Export Organisations.

The responses of the participants from both RMG export SMEs and large organisations given in figure seven and it is clear that RMG export SMEs (seventeen of twenty-six) and large organisations (all four of them) mostly use the internet through a copper wired broadband connection. One of the main reasons that organisations use a broadband connection for the internet is because it is cheaper, faster and available in most areas of Dhaka. Some of the participants indicate, however, that their organisations use multiple methods of internet connection to maintain communication with clients. For example, respondents MS1, MMHF, NA, SH and MFH mentioned the use of ‘broadband’ as the foremost internet connection and have set up a wireless connection themselves through a hosted wireless network. Furthermore, in recent years, some organisations have started using a satellite connection and an optic fibre broadband internet connection, as this service is available in Bangladesh and has started to become popular.

Summary of the Key Findings:

- The majority of the participating RMG export organisations are connected to the internet through a copper fibre broadband connection.

4.7: Primary Purposes for Internet Connection used by the RMG Export Organisations' in Bangladesh

Purpose for Internet Use	RMG export SMEs Respondents' Responses	Large RMG Export Organisations Respondents' Responses
Exchange information with the buyer	24	4
Shared with others about the different activities conducted by the company	17	0
Buy raw materials from abroad	21	4
Buy raw materials from local market	18	1
Subcontract to other organisations	11	0
Other	1	1

Table 6: Purpose of Internet Connection using by the Bangladeshi RMG Export Organisations.

RMG export SMEs primarily use their internet connection for the exchange of information with buyers (twenty-four out of twenty-six participants). Also, RMG export SMEs use the internet for buying raw materials both from abroad and local markets. On the other hand, large organisations use their internet connection mostly for exchanging information with buyers and purchasing raw materials from abroad; only one respondent out of four mentioned that they buy their raw materials online from their local markets. Furthermore, RMG export SMEs use their internet connection to share information with others about their company's different activities, as well as sub-contracting to other organisations. Large organisations, however, do not use the internet for any of these activities. They have enough resources, so they mostly manage their operations outside of the internet to keep their business operations confidential.

Summary of the Key Findings:

- Exchange information with buyers.
- Buy raw materials from abroad.

4.8: Methods of Communication used by the RMG Export Organisations’ for B2B Interaction with Stakeholders.

Communication Methods	RMG export SMEs Respondents’ Responses	Large RMG Export Organisations Respondents’ Responses
Email	26	4
Mobile	25	4
Telephone	8	1
Fax	1	0
Other	1	0

Table 7: Communication Method used by RMG Export Organisations.

All twenty-six RMG export SMEs’ respondents pointed out that they use email as their primary communication method to communicate with their stakeholders. Also, twenty-five of the RMG export SMEs’ participants mentioned that they also use mobile phones as a communication method for contacting their stakeholders. Majority of the participants from RMG export SMEs, however, pointed out that landline telephones and fax machines are not widely used for communication purposes anymore. Furthermore, a respondent (HAB), from one of the SMEs, mentioned that they visited their customers annually to maintain communication with them.

On the other hand, all large organisations’ participants identified that both email and mobile phones are used simultaneously by them for communication purposes with their stakeholders. They also pointed out that they rarely use the telephone for communication purposes but do not use fax.

Summary of the Key Findings:

- Email and mobile applications are the most frequently used communication methods by RMG export organisations for contacting their clients.

4.9: Have any of the Buyers ever asked your Organisation to use a B2B E-commerce Platform for B2B Interaction?

The majority of the respondents (twenty-two out of twenty-six) from RMG export SMEs and all four large export companies mentioned that their buyers not asked them about B2B e-commerce platforms for interaction. Only three respondents from SMEs pointed out that their buyers had asked them about B2B e-commerce platforms; one respondent was not sure about it. From the responses of the respondents, it is clear that organisations have never felt pressure from their buyers to adopt a B2B e-commerce platform for online interactions. Therefore, RMG export organisations have never realised that they need to adopt a B2B e-commerce platform.

Summary of the Key Findings:

- Buyers did not demand that RMG export organisations implement a B2B e-commerce platform for conducting their business online.

4.10: Is your Organisation Planning to Adopt an E-commerce Platform for B2B Interaction with the Buyers?

Among the participants, sixteen from RMG export SMEs and three from large RMG respondents pointed out that they are planning to adopt a B2B e-commerce platform for regular interaction with their buyers. On the other hand, ten RMG export SMEs and one large RMG organisation's respondents are not planning to adopt an e-commerce platform. The reason organisations do not want to adopt a B2B e-commerce platform is because they believe that if they start conducting their business online, they might lose their customers to potential competitors. One of the main reasons for this is that they think the use of an online platform to perform business activities would cause leaks in confidential information. A majority of the participants from both RMG export SMEs and large RMG export organisations, however, want to start conducting their business online because they believe it will help to create more opportunities for them to reach every potential customer.

Summary of the Key Findings:

- The majority of RMG participants pointed out that they would consider a B2B e-commerce platform for conducting their business if that platform were secure and effective.

4.11: What would Motivate you to Consider Changing from Your Current Business Activities to B2B E-commerce Solutions?

Motivational Factors Identified by the Respondents	RMG export SMEs Respondents' Responses	Large RMG Organisations Respondents' Responses	Expert Respondents' Responses
For better communication with the clients	16	3	1
Access to new markets	10	1	2
Getting more buyers	9	0	2
Easy marketing scope	5	1	0
Facilitate training	1	1	2
Government support	2	1	4
Sourcing raw materials	7	1	0
Easy online transactions	3	2	1
Availability of third-party website	2	0	2
Easy exportation facility	1	1	1
BGMEA support	0	0	4

Table 8: Motivational Factors Identified by the Participants for the Adoption of B2B e-commerce.

The above table 8, shows that the participants of both RMG export SMEs and large RMG export organisations identified that if a B2B e-commerce platform could offer better communication with clients, this would motivate them to consider adopting B2B e-commerce (Makame, 2014). On the other hand, the expert respondents pointed out that government and BGMEA support are essential for stimulating RMG export organisations to consider B2B e-commerce adoption.

Moreover, participants from all three categories indicated that organisations would be motivated to adopt B2B e-commerce if it helped them to access new markets, to achieve getting more buyers, as well as easy marketing scope and sourcing of raw materials.

Also, participants of this study believe that both the government and BGMEA could facilitate training for assisting ICT skilled personnel in completing online transactions quickly and efficiently. Furthermore, the availability of a third-party website and exportation facilities would encourage RMG export SMEs to adopt a B2B e-commerce solution.

Below I summarise the factors that would motivate the participants of this study, from the RMG export SMEs in Bangladesh, to adopt B2B e-commerce. These listed as the most coded nodes in the NVivo analysis.

Summary of the Motivating Factors:

- Better communication with clients
- Access to new markets
- Attracting more buyers
- Easy marketing scope
- Government support
- Sourcing raw materials
- Easy online transactions
- BGMEA support
- Facilitate training and development of RMG senior management
- Easy exportation facility
- Third-party website

4.12: What kind of B2B e-commerce Platform would you Consider for your Organisation?

Different Types of B2B e-commerce Platform	RMG export SMEs Respondents' Responses	Large RMG Organisations Respondents' Responses	Expert Respondents' Responses
An in-house e-commerce platform customised for your own business	18	3	2
Use of an existing global portal (like e-Bay, Amazon, Alibaba AliExpress, Alipay) to manage B2B interactions	2	2	1
Third-party B2B E-commerce platform managed through 'cloud computing'	2	1	3
Service provider	2	0	1
Other	2	0	3

Table 9: Types of B2B e-commerce Platform Considered by the Participants for their Organisations.

The option of an in-house e-commerce platform customised for a business was the most frequently chosen by both RMG export SMEs (eighteen) and large RMG (three) export organisations. A third-party B2B E-commerce platform managed through 'Cloud Computing' and use of an existing global portal (such as e-Bay, Amazon, Alibaba AliExpress, Alipay) for managing B2B interactions, were also considered by some respondents from both SMEs and large organisations. The expert participants (IHQ, MKH, MMR), however, suggested that a third-party, B2B e-commerce platform managed through cloud computing is ideal for RMG organisations in conducting B2B e-commerce because it would be much easier for them to use. On the other hand, most of the RMG export organisations wanted their B2B e-commerce platform because they are not willing to share their confidential business on an open e-commerce platform, where everyone has access to other thoughts and ideas. For that reason, they wanted to adopt an in-house B2B e-commerce platform customised for their own business.

Summary of the key findings:

- The above discussion and table 9, clearly show that the majority of the respondents would consider “An in-house E-commerce platform customised for their own business”.

4.13: What are the Challenges for Bangladeshi RMG Export SMEs in Order to Improve Competitive Advantage in Global Export Markets?

Challenging Factors Identified by the Respondents.	RMG export SMEs Respondents' Responses	Large RMG Organisations Respondents' Responses	Expert Respondents' Responses
High production costs and low product prices	20	3	4
Lack of government support	16	2	4
Lack of financial support	11	3	4
Lack of ICT knowledge of senior management	0	0	2
Lack of availability of raw materials	0	0	3
Lack of B2B e-commerce platforms	0	0	1
Political instability	1	1	0
Language and communication problems when using the internet	8	1	0
Lack of ICT experts in RMG sector	6	1	0

Table 10: Challenges for Bangladeshi RMG Export SMEs in gaining a Competitive Advantage in the Global Market

Twenty-seven participants from all of the categories identified that production costs are high while the price of the products is comparatively low. That is the biggest challenge for RMG export organisations in Bangladesh concerning gaining a competitive advantage in the global export markets. Also, they pointed out that there is a lack of government support, a lack of support from financial institutions, as well as too few ICT experts to help with RMG export sector restrictions, all of which prevent gaining a competitive advantage in the world markets.

Moreover, eight of the SMEs and one large organisation's respondents indicated that language and communication problems, regarding the internet, restrict them to gain a competitive

advantage in world markets. The expert respondents, however, did not identify language and communication problems, as a restricting factor for RMG export SMEs.

On the other hand, expert respondents identified that a lack of availability of raw materials and a third-party website inhibited RMG export SMEs in gaining a competitive advantage in the world market. Also, one of each of the respondents from SMEs and large RMG export organisations pointed out that political instability is another challenge for RMG export SMEs in gaining a competitive advantage in the global export market.

Below I summarise the factors that restrict RMG export organisations in Bangladesh in gaining a competitive advantage in the world markets. These listed as the most coded nodes in the NVivo analysis.

Summary of the Challenging Factors:

- High production costs low product prices
- Lack of government support
- Lack of financial support/liquid money
- Lack of ICT experts in the RMG sector
- Language and communication problems when using the internet
- Political instability
- Lack of available raw materials
- Lack of ICT knowledge of senior management
- Lack of B2B e-commerce platforms

4.14: Which Technological Issues are Important for the Successful Adoption of B2B e-commerce Platforms by RMG Export SMEs?

Eighteen of the twenty-six respondents of the RMG export SMEs replied that the availability of good quality B2B e-commerce software is the most crucial factor regarding the successful adoption of a B2B e-commerce platform. However, the majority of the large RMG organisations' respondents replied that the availability of an online payment facility and the readiness of their technology to adopt B2B e-commerce were the most significant factors. The expert respondents, however, pointed out that the readiness of the technology to support the B2B e-commerce adoption is the most critical technological issue for the RMG export organisations.

Below I summarise the technological factors that are important for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. These listed as the most frequently coded nodes in the NVivo analysis.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- Availability of external B2B e-commerce expert services (24)
- Availability of quality B2B e-commerce software (23)
- Availability of online payment facility (23)
- The readiness of modern technology for use of B2B e-commerce (22)
- Benefits of modern technology for conducting B2B transactions online (22).

The table below presents data based on the ranking provided by the participants of this study. The data indicates two things, priority ranking in column-1 and total NVivo counted themes in the last column.

Three different colours in the below table number represent three distinct participants' groups: 'Black' represents the RMG export SMEs respondents' responses; 'Blue' expresses the large RMG export organisations' respondents' replies; 'Yellow' represents the expert respondents' responses.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	NVivo Total Counts
i) Availability of internet	9+0+2	1	2	0+1		0+0+1	2	14+1+3 = 18
ii) Availability of quality B2B e-commerce software	0+1+1	8	4+1+2	3	2	1		18+2+3 = 23
iii) Availability of external B2B e-commerce expert services	5+1+1	3+0+2	5	1+1+1	1+0+1	1	1	17+2+5 = 24
iv) Availability of online payment facility	4+1+2	3+2	1	2+0+1	3+0+1	2+0+1		15+3+5 = 23
v) Speed of the internet	3	5+1+1	2	1	2	2	2	17+1+1 = 19
vi) Readiness of the technology for use of B2B e-commerce	1+1	2+1+3	3+1+2	2		3	2+0+1	13+3+6 = 22
vii) Benefits of modern technology for conducting B2B transactions online	4	2	4+1+1	3+0+1	1+1+1	0+0+1	2	16+2+4 = 22
viii) Other. Please specify		2						2

Table 11: Ranked Technological Issues for the Adoption of B2B e-commerce.

The summary below shows the three most highly ranked technological themes that play an influential role in the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- Availability of the internet (11)
- Availability of external B2B e-commerce expert services (7)
- Availability of online payment facility (7)

4.15: What Organisational Issues do you Believe are Important for the Successful Adoption of B2B E-commerce by RMG Export SMEs?

Twenty of the RMG export SMEs' respondents pointed out that the financial ability of an organisation is the most crucial factor in the adoption of B2B e-commerce. Also, the IT knowledge of senior management and IT skilled personnel are the second and third most important factors for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. On the other hand, all the large organisations' participants ranked the IT knowledge of senior management as the most crucial factor for the successful adoption of B2B e-commerce. The expert respondents pointed out that IT skilled human resources play a vital role as an organisational factor in the adoption of B2B e-commerce by RMG export organisations.

The combination of the respondents' answers in all three categories identified that the IT knowledge of senior management is essential for the successful adoption of B2B e-commerce. Therefore, senior management must understand the benefits of using ICT technology for their business purposes, as this will help encourage them to consider adopting B2B e-commerce for their organisations.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- IT knowledge of senior management (27)
- The financial ability of the organisation (26)
- IT skilled human resources (26)

In the table below, I present the data based on the ranking provided by the participants of this study. In that table, 'Black' represents the answers from respondents at RMG export SMEs, 'Blue' represents the answers from respondents at large RMG export organisations and 'Yellow' represents the experts' responses. Also, the table below indicates two items: the priority ranking in column-1 and the last column presents more frequently occurring NVivo counted themes are the grey background to stand out from other columns.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	NVivo Total Counts
i) Support from senior management	4+ 2+1	5+0 +2	1+1+ 1		1		1+0+ 1	1	13+3+5 = 21
ii) IT knowledge of the senior management	6+ 1+2	3+3 +1	5+0+ 1		1	2	1+0+ 1		18+4+5 = 27
iii) The financial ability of the organisation	7+0 +1	5+1 +1	2+1+ 1	2+0+ 1	1	2	1		20+2+4 = 26
iv) Organisational readiness to adopt technology	3	3+0 +2	3+1+ 1	3+1+ 1	1	1			14+2+4 = 20
v) Size of the organisation	1	1	1	1+1	1+1	2	0+0+ 1	3+0+ 2	10+2+3 = 15
vi) IT skilled human resources	1+0 +1	4+0 +1	7+0+ 2	2+0+ 1	3+1+ 1	1+1			18+2+6 = 26
vii) Benefits of B2B e-commerce for organisation	3+1 +1	1	3	3	2+0+ 1	0+1+ 2	1+1	3	16+3+4 = 23
viii) Demand from business partners for B2B e-commerce	1	1	2+1	3+0+ 1	1+0+ 1	1+0+ 1	5	2+1+ 1	16+2+4 = 22
ix) Others, please specify									

Table 12: Organisational Issues for the Adoption of B2B e-commerce.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- IT knowledge of senior management (9)
- The financial ability of the organisation (8)
- Support from senior management (7)

4.16: Which Business Issues in Bangladesh do you Believe are Important for the Successful Adoption of B2B E-commerce by RMG Export SMEs?

In the environmental context, twenty of the RMG export SMEs' respondents mostly indicated government support is significant for the successful adoption of B2B e-commerce. Similarly, large organisations' respondents stated that government support is most important. They also believe, however, that political stability is equally as important. At the same time, other factors such as economic stability, availability of technology vendors, business partner's support and business culture are significant for B2B e-commerce adoption. Expert respondents, however, identified that government support, a competitive business environment and availability of technology vendors are equally important business environmental factors for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. In general, all of the participants identified government support as crucial for the successful implementation of e-commerce. The government could also facilitate financial arrangements, as well as introducing the necessary rules and regulations for making online transactions smoothly and securely.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- Government support (28)
- Availability of technology vendor (21)
- Political and economic stability (20)
- Business partner support (18)
- Competitive business environment (18)
- Improved business culture (18).

In the table below, I present the data based on the ranking provided by the participants of this study. The data demonstrate two things: the priority ranking column-1 and the final column shows the most identified NVivo themes. In that table 'Black' represents the responses of RMG export SMEs' respondents, 'Blue' represents the responses of large RMG export organisations' respondents and 'Yellow' represents the expert respondents' responses.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	NVivo Total Counts
i) Government support	10+1+4	6	2+2	0+0+1	1			1	20+3+5 = 28
ii) Competitive pressure from competitors	1+1+1	2	2+0+1	1	3+0+1		1+0+1		10+1+4 = 15
iii) Support from business partners	3	3	2+1	4	1+0+1		1+0+1	1	14+1+3 = 18
iv) Political stability	4+2	4+0+1	1+1	1	1	3		1+0+1	15+3+2 = 20
v) Competitive business environment	2	3+0+2	2+0+1	4+1+1	1+0+1				12+1+5 = 18
vi) Availability of technology vendors	2	2+2+2	3+0+1	2	1	1+0+2	2	1	14+2+5 = 21
vii) Economic stability	0+0+1	5+1	4+0+1	1	1	3	1+0+1	1	16+1+3 = 20
viii) The business culture	2	1+1	3+0+1	1+0+1	2+1	0+0+1	2	2	13+2+3 = 18
ix) Other: Please specify	2		2						4

Table 13: Business Environmental Issues for the Adoption of B2B e-commerce.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- Government support (15)
- Political stability (6)
- Competitive pressure from competitors (3)
- Support from business partners (3)

4.17: Which Technological Issues do you Believe Restrict the Adoption of B2B E-commerce by RMG Export SMEs in Bangladesh?

The lack of quality B2B e-commerce software and the cost of external B2B e-commerce expert services are the factors most identified by participants of both RMG export SMEs and large RMG export organisations. Five out of six expert respondents, however, indicated that the cost of the external B2B e-commerce expert service is the most restricting technological factor regarding the adoption of B2B e-commerce. Overall, most participants identified the expense of external, B2B e-commerce expert services as restricting RMG export SMEs in the adoption of B2B e-commerce. Also, there is neither a dedicated RMG B2B e-commerce platform nor software in Bangladesh which can provide a service at a reasonable price. Most of the software companies target the clients of the large organisations and, therefore, they do not consider a lower cost for their services for SMEs.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- Cost of the external B2B e-commerce expert services (24)
- Lack of quality B2B e-commerce software (23)
- The complexity of technology (19)
- The complexity of the online payment facility (19)
- Speed of internet (19)
- Lack of consistent power supply (19)

Below table:

‘Black’ represents RMG export SMEs

‘Blue’ represents large RMG export organisations

‘Yellow’ represents expert respondents

In the table below I present the data based on the ranking provided by the participants of this study.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	NVivo Total Counts
i) Availability of internet	2+0+1	2		0+1		1	1+0+2		2	8+1+3 = 12
ii) The complexity of technology	5+1+1	2+0+3	3	1+0+1		1	1			13+1+5 = 19
iii) Lack of quality B2B e-commerce software	4+0+1	6+1	1+0+1	3+1	2+1+2					16+3+4 = 23
iv) Complexity of online payment facility	2+1+1	2+1	4+0+1	1	3	1+0+2				13+2+4 = 19
v) Cost of the external B2B e-commerce expert services	5+0+1	6+1	1+2+1	2+0+2		1		1+0+1		16+3+5 = 24
vi) Speed of internet	4+1	3+0+1	2+1	1	1	1	1	1+0+1	0+0+1	14+2+3 = 19
vii) Language barrier	1+1+1	1	3+0+1	1	2	1		1+0+1	2	12+1+3 = 16
viii) Cost of internet		0+1	2	1+0+1	0+0+1		2+0+1	2		7+1+3 = 11
ix) Lack of consistent power supply	3	3+0+1	2+1	2	1+1	1	2	1	0+0+1	15+2+2 = 19
x) Other: please specify		0+0+1							0+0+1	0+0+2 = 2

Table 14: Technological Factors Restricting the Adoption of B2B e-commerce.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- The complexity of technology (7)
- Cost of the external B2B e-commerce expert services (6)
- Lack of quality B2B e-commerce software (5)
- Speed of internet (5)

4.18: Which Organisational Factors do you believe Restrict RMG Export SMEs from Adopting of B2B e-commerce?

In the organisational context, the lack of senior management's knowledge about the scope and benefits of B2B e-commerce for an organisation are the factors considered most restricting by the majority of the SME participants. On the other hand, large organisations' participants identified both IT skilled human resources and senior management's lack of B2B e-commerce knowledge as similarly significant regarding restricting the adoption of B2B e-commerce. Similar to the RMG export SMEs' findings, expert respondents identified that the same factors restrain RMG SMEs from adopting B2B e-commerce and their interactions with stakeholders'.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- Lack of senior management's knowledge about global scope and benefit of B2B e-commerce for organisations (29).
- The financial ability of the organisation to acquire technology (23)
- Lack of IT skilled human resources (21).
- Organisational readiness to adopt the technology (19)
- Support from senior management (18)

In the table below, I present the data based on the ranking provided by the participants of this study. The table presents the priority ranking in column-1 and the total number of NVivo counted themes in the final column.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	NVivo Total Counts
i) Support from senior management	4+1+1	2	1	3	2		1+0+2	1		14+1+3 =18
ii) The financial ability of the organisation for the adoption of technology.	6+0+1	4+1+1	1+0+1		2	3+1+1			1	17+2+4 = 23
iii) Availability of IT Skilled human resources	1+1+1	6+1+2	2+2	2		1+0+1			1	13+4+4 = 21
iv) Organizational readiness to adopt technology	3+0+1	1+1	3+0+2	2+1+1	3		1			13+2+4 = 19
v) Lack of senior management's knowledge about global scope and benefits of B2B e-commerce.	10+0+2	5+1+1	1+1+2	3+0+1	0+1			1		20+3+6 = 29
vi) Implementation cost of ICT	1	2+0+1	3+0+2	1+1+1	1	0+1	3			11+2+4 = 17

vii) Size of the organisation	1	2	3		1+1		1+1	1+0+1	1+0+1	10+2+2 = 14
viii) Organisational culture		2	3	3	1		1	1+1+1	1+0+1	12+1+2 = 15
ix) Concern about security, privacy and trust	0+1	1	1	1+0+1	0+0+2	3		4	0+1	10+2+3 = 15
x) Others: please specify					1	1				2

Table 15: Organisational Factors that Restrict the Adoption of B2B e-commerce.

In the table above, ‘Black’ represents the responses from the RMG export SMEs’ respondents, ‘Blue’ symbolises the replies from the large RMG export organisations’ respondents and ‘Yellow’ represents the expert respondents’ responses.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- Lack of senior management’s knowledge about global scope and benefits of B2B e-commerce for the organisation (12)
- The financial ability of the organisation (7)
- Support from senior management (6)
- Organisational readiness to adopt the technology (4)

4.19: Which Business Issues within Bangladesh Restrict the Adoption of B2B e-commerce by RMG Export SMEs?

The lack of support from the government is one of the most critical restrictions identified by the nineteen respondents from the RMG export SMEs. They also pointed out that the unfriendly loan policy is another significant restriction which creates a barrier to the adoption of B2B e-commerce. Respondents from large organisations also indicated that a lack of support from the government is one of the most restricting factors. They also identified that legal issues related to online transactions (Zhu, 2009), as well as political instability, are creating barriers regarding the adoption of B2B e-commerce by RMG organisations. The expert respondents, however, identify both the unfriendly loan policy and a fear of uncertainty as the most crucial factors restricting RMG export SMEs from adopting B2B e-commerce.

Summary of the Most Frequently Occurring NVivo Data based on the Number of times Themes are Identified by the Respondents:

- Lack of government support (25).
- Unfriendly loan policies (24)
- Legal issues related to doing transactions online (19)
- Fear of uncertainty (19)
- Political instability (18)
- Lack of trading partners' readiness to do B2B e-commerce (17).

In the table below, I present data based on the ranking provided by the participants of this study. The table demonstrates two things: the priority ranking in column 1 and the total NVivo counted themes in the final column. In the table 'Black' represents the responses of the RMG export SMEs respondents, 'Blue' represents the responses of the large RMG export organisations' respondents and 'Yellow' represents expert respondents' responses.

Ranking Factors	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	NVivo Total counts
i) Lack of support from government	12+2+1	4+0+1	1+1+1	1					1	19+3+3 = 25
ii) Lack of support from Business partners	3	1+1	2+0+1	0+0+1		1		2		9+1+2 = 12
iii) Unfriendly loan policy	3+1+1	7+0+1	0+1+1	4	1+0+1	1	1	0+0+1		17+2+5 = 24
iv) Lack of technology vendors	1+0+1	3+0+1	6	0+1+1	1		1			12+1+3 = 16
v) Legal issues related to doing transactions online	1+0+1	3+2+1	3	1	2	0+1	0+0+1	2+0+1		12+3+4 = 19
vi) Fear of uncertainty	0+0+1	1+0+1	3+1+2	2	1	1	2+1+1	1	1	12+2+5 = 19
vii) Political instability	1	3+1+1		2+1	4	0+0+1	1	0+1	1+0+1	12+3+3 = 18
viii) Economic instability	2+0+1	1		1	0+0+1	5		2	0+1	11+1+2 = 14
ix) Lack of trading partner readiness to do B2B e-commerce	3+1	2	1+0+1	2	0+1	1+0+1	2		1+0+1	12+2+3 = 17
x) Other: please specify	1			0+0+1						1+0+1 = 2

Table 16: Business Environmental Factors Restricting the Adoption of B2B e-commerce

Similarly, like NVivo data, the lack of government support is one of the most highly ranked themes identified by the respondents that restricts RMG export SMEs from adopting B2B e-commerce.

Summary of Highly Ranked Data based on the Number of Times Themes are Identified by the Respondents:

- Lack of government support (15).
- Unfriendly loan policies (4)
- Lack of trading partners' readiness to adopt B2B e-commerce (4)

4.20: Does your Organisation Benefit from Government ICT Related Initiatives? If so, how does it Benefit from them?

From the twenty-six respondents at the RMG export SMEs, twenty-one mentioned that they do not directly benefit from government ICT-related initiatives, in addition to all four respondents from the large organisations stated same. On the other hand, five respondents from the RMG export SMEs believe that they benefit from government ICT-related initiatives. Also, from the six expert respondents, three believe that RMG export organisations do not benefit from government ICT-related initiatives. However, two believe that RMG export organisations do benefit from government ICT-related initiatives moreover one of them is unsure about the issue. From the above discussion, it is clear that RMG export organisations (the second-highest revenue earning source for Bangladesh) do not benefit from the government of Bangladesh's ICT-related initiatives. Therefore, the government of Bangladesh must be helping RMG export organisations via their digital Bangladesh initiatives to expand the RMG export business worldwide.

Summary of the Key Findings:

- The majority of the respondents (twenty-eight out of thirty-six) indicated that the RMG industry, as a significant export-oriented sector, does not benefit from the government of Bangladesh's ICT-related initiatives. One of the reasons that RMG export organisations do not benefit from government ICT-related initiatives is because there is no dedicated ICT service design for the RMG export business. Some participants (MS1, MZR, NC, IHQ, BA, NMAR) of this study, however, mentioned that they enjoy general ICT-related initiatives available in Bangladesh.

4.21: To the Best of your Knowledge, how can RMG Export SMEs in Bangladesh Overcome the Challenges Preventing them from Adopting B2B e-commerce?

In the final question, I asked the respondents to use their knowledge and make suggestions as to how RMG export SMEs might overcome the challenges of adopting B2B e-commerce. Most of the respondents from all categories suggested that various kinds of government support could influence the RMG export organisations concerning adopting B2B e-commerce. They also pointed out that the government and the BGMEA facilitating training for both owners and managers would help them to understand the benefits of B2B e-commerce adoption. Furthermore, they mentioned that improvements to ICT structures might influence organisations in the adoption of B2B e-commerce. Also, respondents from both RMG export SMEs and large RMG export organisations suggested that support from the BGMEA for the development of human resources related to RMG ICT would help organisations to decide on the adoption of B2B e-commerce.

Furthermore, respondents from the RMG export SMEs and expert respondents pointed out that financial support is also essential for the adoption of B2B e-commerce; the respondents from the large organisations, however, did not mention that economic factor at all. Also, eight out of the thirty-six respondents identified that support from buyers is essential for the adoption of B2B e-commerce, as they play a crucial role in the adoption process.

Number	Ideas to Overcome Challenges to Adopt B2B e-commerce	Total Number of Respondents Responses
1	Government support	$21+3+6 = 30$
2	Facilitate training	$17+3+3 = 23$
3	Improve ICT structure	$13+3+4 = 20$
4	BGMEA support	$10+2+5 = 17$
5	Develop HR related to RMG ICT	$7+2+1=10$
6	Financial support	$7+0+2 = 9$
7	Support from buyers	$5+1+2 = 8$

Table 17: Recommendation to Overcome the Challenges in Order to adopt B2B e-commerce.

Summary of the Key Findings:

- Different kinds of government support to facilitate easy adoption of B2B e-commerce
- Facilitate training to gain knowledge about B2B e-commerce
- Improve ICT structure related to RMG ICT
- BGMEA support for easy adoption of B2B e-commerce
- Develop human resources associated with RMG exports
- Financial support
- Support from buyers

At the end of the thesis, in Appendix-2, I use a table to display all of the significant responses to the ‘questions number 1-21’ (combined NVivo and ranked data). That helps for easy access to the findings of this research.

In the following section, I state the summary of the essential findings of ‘question numbers 11 to 19’ in the table 18 and separate them based on their relevance to motivating and inhibiting factors. There is also a summary of ‘question number 21’ at the bottom of the table 18. That includes the recommendation made by participants regarding overcoming the challenges for the easy adoption of B2B e-commerce by RMG export SMEs in Bangladesh. The factors in the table 18, below have a key associated with the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. These factors selected from both the most frequently occurring NVivo data and highly ranked data based on the number of times the respondents identified the themes.

4.22: Summary of Motivating and Inhibiting Factors

A summary of ‘question numbers 11, 13, 14, 15, 16, 17, 18, 19 and 21’ have put into the table 18. These are the questions only chosen in the summary table because they are directly associated with the subject matter and cover the core area of this research. Also, these questions helped in gaining an overall understanding of the factors that motivate and inhibit the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Also, ‘question number 21’ offers suggestions which need to consider easing the adoption process. For example, these questions cover the technological, organisational, environmental and motivational factors, as well as those, challenge the adoption process; they also offer suggestions for overcoming those challenges.

Motivational Factors	Inhibiting Factors
<p>Question 11: What would motivate RMG SMEs to adopt B2B e-commerce solutions?</p> <p><u>Summary of the motivating factors based on the NVivo analysed data:</u></p> <ul style="list-style-type: none"> ◆ Better communication with clients (31) ◆ Access to new markets (14) ◆ Getting more buyers (14) ◆ Easy marketing scope (9) ◆ Government support (9) ◆ Sourcing raw materials (7) ◆ Easy online transactions (6) ◆ BGMEA support (5) ◆ Facilitating training and development for RMG senior management (4) ◆ Easy exportation facility (3) ◆ Third-party website (3) <p>Question 14: Technological factors thus influence B2B e-commerce adoption.</p> <p><u>Summary of highly counted NVivo data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ Availability of external B2B e-commerce expert services (24) ◆ Availability of quality B2B e-commerce software (23) ◆ Availability of online payment facility (23) 	<p>Question 13: Challenges for Bangladeshi RMG export SMEs regarding improving competitive advantage in the world markets</p> <p><u>Summary of the challenging factors based on the NVivo analysed data:</u></p> <ul style="list-style-type: none"> ◆ High production costs and low product price (35) ◆ Lack of government support (27) ◆ Lack of financial support/liquid money (24) ◆ Lack of ICT experts to deal with the RMG sector (9) ◆ Language and communication problems when using the internet (9) ◆ Political instability (3) ◆ Lack of available raw materials (3) ◆ Lack of ICT knowledge of senior management (2) ◆ Lack of B2B e-commerce platform (1) <p>Question 17: Technological factors thus restrict B2B e-commerce adoption.</p> <p><u>Summary of frequently occurring NVivo data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ Cost of external B2B e-commerce expert services (24) ◆ Lack of quality B2B e-commerce software (23) ◆ The complexity of technology (19) ◆ The complexity of the online payment facility (19)

<ul style="list-style-type: none"> ◆ The readiness of modern technology to do B2B e-commerce (22) ◆ Benefits of modern technology for conducting B2B transactions online (22). <p><u>Summary of highly ranked data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ Availability of internet (11) ◆ Availability of external B2B e-commerce expert services (7) ◆ Availability of online payment facility (7) 	<ul style="list-style-type: none"> ◆ Speed of internet (19) ◆ Lack of consistent power supply (19) <p><u>Summary of highly ranked data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ The complexity of technology (7) ◆ Cost of external B2B e-commerce expert services (6) ◆ Lack of quality B2B e-commerce software (5) ◆ Speed of internet (5)
<p>Question 15: Organisational factors thus influence B2B e-commerce adoption.</p> <p><u>Summary of frequently occurring NVivo data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ IT knowledge of senior management (27) ◆ The financial ability of the organisation (26) ◆ IT skilled human resources (26) 	<p>Question 18: Organisational factors thus restrict B2B e-commerce adoption.</p> <p><u>Summary of frequently occurring NVivo data based on the number of times themes are identified by the respondents:</u></p> <ul style="list-style-type: none"> ◆ Lack of senior management's knowledge about global scope and benefit of B2B e-commerce for organisations (29). ◆ The financial ability of the organisation to acquire technology (23) ◆ Lack of IT skilled human resources (21). ◆ Organisational readiness to adopt the technology (19) ◆ Support from senior management (18)

Summary of highly ranked data based on the number of times themes are identified by the respondents:

- ◆ IT knowledge of senior management (9)
- ◆ The financial ability of the organisation (8)
- ◆ Support from senior management (7)

Question 16: Environmental factors thus influence B2B e-commerce adoption.

Summary of frequently occurring NVivo data based on the number of times themes are identified by the respondents:

- ◆ Government support (28)
- ◆ Availability of technology vendors (21)
- ◆ Political and economic stability (20)
- ◆ Business partner support (18)
- ◆ Competitive business environment (18)
- ◆ Improve business culture (18).

Summary of highly ranked data based on the number of times themes are identified by the respondents:

- ◆ Government support (15)
- ◆ Political stability (6)
- ◆ Pressure from competitors (3)
- ◆ Support from business partners (3)

Summary of highly ranked data based on the number of times themes are identified by the respondents:

- ◆ Lack of senior management's knowledge about global scope and benefits of B2B e-commerce for the organisation (12)
- ◆ Financial ability of the organisation (7)
- ◆ Support from senior management (6)
- ◆ Organisational readiness to adopt the technology (4)

Question 19: Environmental factors thus restrict B2B e-commerce adoption.

Summary of frequently occurring NVivo data based on the number of times themes are identified by the respondents:

- ◆ Lack of government support (25).
- ◆ Unfriendly loan policies (24)
- ◆ Legal issues related to doing transactions online (19)
- ◆ Fear of uncertainty (19)
- ◆ Political instability (18)
- ◆ Lack of trading partners' readiness to do B2B e-commerce (17).

Summary of highly ranked data based on the number of times themes are identified by the respondents:

- ◆ Lack of government support (15)
- ◆ Unfriendly loan policies (4)
- ◆ Lack of trading partners' readiness to adopt B2B e-commerce (4)

Question 21: Recommendations made by the respondents for overcoming challenges to adopt B2B e-commerce by the RMG export SMEs in Bangladesh.

Summary of the recommendations based on the NVivo analysis:

- ◆ Different kinds of government support for facilitating the easy adoption of B2B e-commerce (45).
- ◆ Facilitate training in order to gain knowledge about B2B e-commerce (28).
- ◆ Improve ICT structure related to RMG ICT (27)
- ◆ BGMEA support for easy adoption of B2B e-commerce (18)
- ◆ Develop human resources related to RMG exports (10)
- ◆ Financial support (10)
- ◆ Support from buyers (8)

Table 18: Summary of the Highly Ranked Findings and Highly Coded Nodes in NVivo

The above table 18, differentiates between the identified motivating and inhibiting factors using different data analysis techniques, such as NVivo analysis and data ranking. The number displayed in front of each factor to represents the number of times the respondents answered that specific question.

Some of the factors, however, overlap and there are similarities between those which motivate and those which inhibit. Therefore, I have analysed the above table 18 of ‘question numbers 11, 13 to 19 and 21’ using NVivo option codes and nodes. The result of the NVivo analysis helps to identify the motivating and inhibiting factors that are directly related to the adoption of B2B e-commerce in the context of Bangladeshi RMG export SMEs. Afterwards, I used NVivo mind mapping techniques to develop a model (4.23), where factors are framed based on the hierarchy of their NVivo analysis results. Also, participants of this study suggested that hindering factors can turn into motivating factors if proper action takes place. Therefore, below I discuss those driving and inhibiting factors in detail to understand how they have associated with the findings of previous studies as well as the adoption process of B2B e-commerce by the RMG export SMEs in Bangladesh.

4.23: Explain the Motivating and Inhibiting Factors Identified in this Research

In this section starts with discussing the motivators and inhibitors using the different perspective of B2B e-commerce adoption by RMG export SMEs in Bangladesh. The details took from the summarised interview results based on the combination of NVivo and ranking analysis of the collected data. In the model below, I use ‘NVivo mind mapping’ techniques that assist in distinguishing the motivating and inhibiting factors for the adoption of B2B e-commerce. The model below developed based on the NVivo analysis of the table number: 18; in section 4.22. That model represents motivating and inhibiting factors according to the number of times stated by the participants.

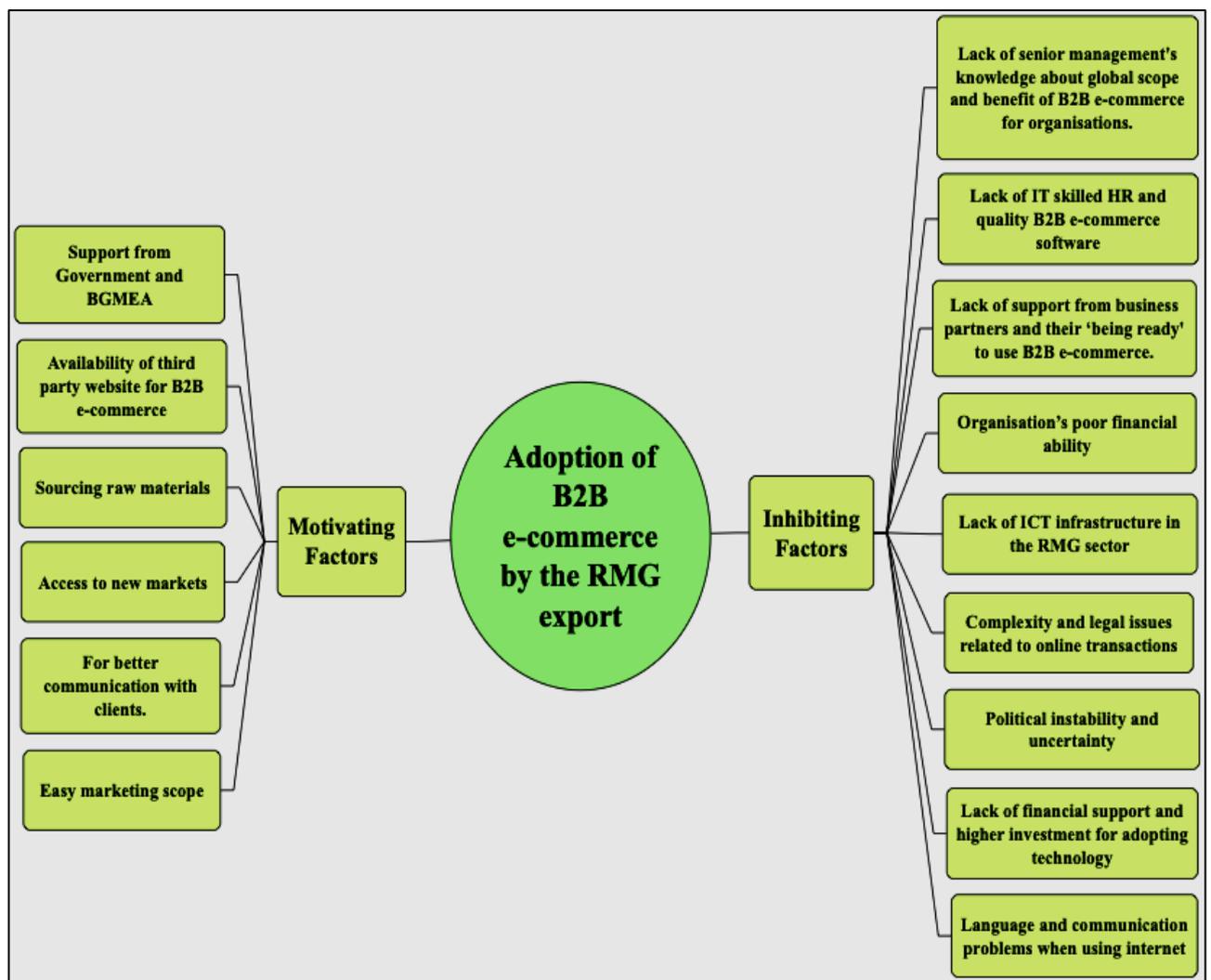


Figure 8: Model of Motivating and Inhibiting Factors that Affect B2B e-commerce Adoption by RMG Export SMEs in Bangladesh.

4.23.1: Motivating Factors

In ‘question number 11’, participants were asked what would motivate them to adopt B2B e-commerce solutions and in ‘question numbers 14,15, and 16’, they were asked which technological, organisational and environmental factors would influence them to consider the adoption of B2B e-commerce. The participants’ responses help with understanding which factors motivate businesses to adopt B2B e-commerce, specifically the RMG export SMEs’ sector. The majority of the respondents believe that the impact of globalisation has forced export-oriented SMEs to utilise ICT, especially e-commerce adoption, to survive in the current competitive business environment. Several researchers (Rastrick and Corner, 2010; Lin and Lin, 2008) have suggested that there is a positive relationship between the advantages of ICT and growing organisational value. Apulu and Latham (2009b) pointed out that, in recent times, the use of ICT by organisations has caused a type of revolution in the overall business activities. For a better understanding of the individual factors, that are motivating RMG export SMEs in Bangladesh to adopt B2B e-commerce, I discuss them in detail in the following sections.

● Support from Government and BGMEA:

Every participant believes that support from the BGMEA and the government would motivate them to consider adopting B2B e-commerce (MW, MN, MS1, NA, SS and so on). They stated that the government and the BGMEA could assist with financial, technological and legislative considerations, as well as helping with training on the benefits of B2B e-commerce and how RMG export SMEs might use it. Also, a combination of support from the BGMEA and the government could help by assuring buyers about their orders and, thus, help instil confidence in foreign buyers purchasing over the internet (MH, MISJ, NC, BS, SS, MKH, BA).

Furthermore, both the government and the BGMEA need to take the initiative to develop a common platform by considering the influencing and inhibiting factors and encourage every organisation involved to use a website for communication purposes and producing orders (MMR, IHQ, MS2, KIH). That would help both the BGMEA and the government to know which actual transactions are happening and identify any money laundering activities that are taking place. During the interviews, one of the participants (did not want to be named) pointed out that some RMG organisations produce goods at a lower price for the buyer, if they paid part of the payment overseas. I was, however, unable to verify this statement, although I cross-checked with some other participants and they refused to make comments on this matter.

● **Availability of a Third-party Website for B2B e-commerce:**

In this research, participants stated that third-party websites could help RMG export SMEs by facilitating all of the necessary support they need for adopting and using B2B e-commerce (HAB, SA1, MKH). That would accommodate them to implement B2B e-commerce without the organisation implementing ICT-related equipment. Instead, they could use a third-party web portal to complete transactions. Many of the participants mentioned, however, that they do not trust foreign websites, as they believe that they might leak business information to competitors in nearby countries (MW, MN, HAJ, SAM, MSA, MS2, MRH).

Also, when using a third-party, particularly a foreign online platform, organisations need to pay fees or a commission based on the orders they receive. Furthermore, in Bangladesh RMG B2B export business context, the government and BGMEA would not have enough power to monitor the activities that organisations carry out on that platform. On the other hand, if the Bangladesh government and the BGMEA develop a B2B e-commerce platform and allow RMG export organisations to use that platform free of charge, or make it mandatory, then RMG organisations might consider adopting a B2B e-commerce platform (MKH). That would give more user confidence whilst using that platform furthermore the RMG export SMEs could offer a better price to their clients if they did not need to pay fees to third parties (MZA, HAB, ZH, MSA, SSA, MMR). Moreover, concerning all activities related to exports, both the Bangladeshi government and the BGMEA could link to each other on that platform, which would make it easy for everyone participating in exporting RMG products (MW, MMHF, MH, SAM, MAR, KIH, MAAK, NMAR). That would eventually speed up the export process, with buyers receiving their products on time, without any delay, and the government and BGMEA could easily monitor the activities that the organisations performed.

● **Sourcing Raw Materials:**

Another critical issue facing Bangladeshi RMG export SMEs is the sourcing of raw materials from abroad, as it takes more time to make orders and payments (NA, NC, MDH, FE), which slows down the import process of raw materials and ultimately takes longer to complete the orders (Lowry *et al.* 2006). Therefore, participants suggest that if the government of Bangladesh allows them a quick and secure online payment facility, they could then access their raw materials more quickly (MH, MAR, MIH, SA2, MRH). By doing this, it would ultimately help them reduce the time it takes to complete the orders, which are essential for

successful e-commerce activities (SSA, SA2, MRH). Sourcing raw materials would aid organisations to deliver the products quickly and is, thus, associated with customer satisfaction, as well as generating more revenue (KIH, MDH). For example, if the organisation can discover its desired raw materials suppliers through an e-commerce platform, that may help them to source the raw materials more quickly, leading to completing the order swiftly (Saprikis and Vlachopoulou, 2012). The swift completion of orders benefits organisations to focus on more orders, which is one way they might generate more revenue for themselves and, at the same time, satisfy their customers (SA2, IHQ).

A study conducted by Narayanasamy *et al.* (2008) argued that higher customer satisfaction helps SMEs to achieve their business objectives because customers rate their experiences with specific organisations and this impacts upon the decision making of other customers to buy the products or services from that organisation. Furthermore, Harindranath, Dyerson, and Barnes (2008) conducted research on SMEs in South-East England and the research results show that investing more in ICT adoption helps to increase operational efficiency, enhance customer service, improve communication with suppliers and gain a competitive advantage over competitors.

● **Access to New Markets:**

Lawrence (2009) stated that the internet enables businesses to reach out to new markets that could not previously be accessed while providing a company with a 24-hours a day, 7 days a week outlet for attracting potential clients. In the present global business climate, world e-commerce plays an enormous part in developing business by reaching millions of targeted customers, which would be impossible without access to the internet. Currently, many RMG export SMEs in Bangladesh solely depend on a third-party organisation, which obtains orders from buyers and places them with SMEs at a lower cost (MSA, Dr MAMT, MAAK, SSA). By doing so, these third-party organisations mostly benefit rather than buyers or sellers (ZH, MDH). Therefore, it is vital for RMG export SMEs in Bangladesh to adopt a B2B e-commerce platform so that they can directly meet potential buyers and obtain orders from them (MSA, ZH, Dr MAMT).

Also, potential buyers can use online platforms to discover which kind of products organisations have expertise in and access this information online, as it is difficult to communicate during business hours because of the different time zones (MS1, MSA, SH, MIH, MS2, MRH). For example, if an organisation based in the UK, then the time difference would

be either 5 hours (BST) or 6 hours (GMT). Furthermore, Bangladeshi official business days are from Sunday to Thursday, whereas UK official business days are mainly from Monday to Friday. It is evident that 'out of hours' business plays a vital role in establishing the growth of the RMG business because potential overseas buyers can make enquiries during their business hours or even discover the expertise that an RMG export SME has (MN, Dr MAMT). In the literature review, section 2.10, I discussed in detail the findings of the previous research results and comparing that with this research result.

A considerable number of previous research results identified that B2B e-commerce adoption helps organisations to enter into new markets efficiently (Al-Bakri, Cater-Steel and Soar, 2010; Beige and Abdi, 2015; Cullen and Taylor, 2009; Kurnia and Ali, 2012; Ocloo *et al.* 2018). Similarly, participants of this study strongly believe that they can reach out and enter new markets with the use of the internet and without the help of a third party. Also, the buyers can communicate the factories directly, so that they could source their desired products at a lower cost. Furthermore, participants of this study pointed out that if they were able to get new clients, this would help their bargaining power, so that they could pursue obtaining the correct price from their buyers (MSA, SS, BS, IHQ, MRH). Once organisations enter into a new market, this slowly spreads to other organisations, which will create significant marketing opportunities (KIH, MDH, SA2). In the following section, I describe, how an e-commerce platform can provide better communication scope for RMG export SMEs in Bangladesh.

● **Better Communication with Clients:**

The majority of the respondents focused on effective communication through the use of e-commerce as a factor which would motivate them to consider adopting a B2B e-commerce platform (MZA, MZR, MMHF, SAM, ZH, SSA, BA). Apulu (2012) stated that the use of ICT enables organisations to increase communication capabilities with their staff, customers and suppliers. Also, Apulu (2012) pointed out that communication via traditional posting methods caused delays and sometimes was lost. Some people may argue that organisations already using email for communication purposes do not need to adopt B2B e-commerce. In reality, if you do not know the organisations with whom you are communicating, then the organisation may feel insecure to deal with other organisations (MW, NA, HAB).

Nevertheless, the chances of finding new clients by using email are notably low because sectors like RMG, require more discussion about products quality and design (Moodley and Morris,

2004). Therefore, potential buyers, especially big clients, would not respond to every email they receive from around the globe because they would not be able to identify a potential supplier who can serve the purpose. According to Burkus (2016) using just email sometimes causes delays, as often the recipient never receives the message (i.e., it can drop in the Junk folder). Mostly recipient does not check their junk folders due to there is a security risk (Mark *et al.* 2016).

On the other hand, by using ICT, organisations can communicate with their stakeholders quickly and efficiently (Lancioni Smith and Olivia, 2000). Therefore, by adopting a B2B e-commerce platform, both buyers and sellers can communicate with each other in real-time (Lin, Huang and Stockdale, 2011). That also helps those communicating with each other to correct any misunderstandings quickly and effectively (Hoque and Boateng, 2017). Furthermore, Klas *et al.* (2008) argued that effective communication offers a vital link between the core functions of an organisation and helps build an active collaboration between the different parties. In this research, participant 'ZH' mentioned that they would like to consider a B2B e-commerce platform for "easy communication, immediate action plan and frequently update information with clients". This statement supports the findings of Golding *et al.* (2008), which state that ICT helps to improve communication systems, at a faster pace, both internally and with an established network of firms involved in collaborative commercial activities.

Also, organisations communicating with each other can get to know each other more through the information they provide on the e-platform. Therefore, it is crucial that organisations provided, enough reliable information on the platform. That will ultimately help to build trust in the platform (Alsaad, Mohamad and Ismail, 2017). The level of belief, however, also depends on the platform itself and its reputation (Susanto and Chang, 2014).

In the literature review, I mention that many research studies discuss concerns about privacy, security and trust concerning the success of B2B e-commerce (Choudhury, 2008; Herzallah and Mukhtar, 2016; Nowell *et al.* 2017). According to Kim and Benbasat (2009), assurance and security can offer by a reputable organisation. That may help to overcome the problems related to trust and safety. Therefore, I suggest that in the Bangladesh RMG context, the BGMEA and government can play a more commanding role in terms of showing greater authority and act accordingly as the main authorised body. That would help to maintain good customer services offered by the RMG export SMEs in Bangladesh and fulfil buyer's product requirements. For example, all of the RMG organisations are bound to follow the BGMEA and

government commands and guidance; without that authority, the RMG organisations would be unable to engage in exporting their products. Ultimately, it would help the buyer to gain confidence in the platform, as well as in the Bangladeshi RMG export SMEs. If organisations manage to build a secure communication medium, this will also help them to enter into new markets (MMHF, SS, MAAK). In the following section, I discuss in detail how organisations can enter into new markets using a B2B e-commerce platform and digital marketing techniques.

● **Easy Marketing Scope:**

Participants pointed out that they would be motivated to adopt a B2B e-commerce platform if it enabled them to reach out further to customers (M, MS1, MZA, MZR, MISJ, Dr MAMT, NC, SH, KIH, SSA, SA2). In the literature review, paragraph 2.3.2, I discuss the previous research studies which have identified that search engine marketing and the adoption of e-commerce could play a vital role in reaching potential clients. The RMG export SMEs' participants believe that they can display their products and services to the billions of customers around the globe through the use of a B2B e-commerce platform (HAJ, SAM, ZH, MSA, SA2). Similarly, potential customers could communicate directly with sellers or factories about their specific needs (MS1, MSA, SH, MIH, BS, MS2, MRH).

Apulu and Latham (2011c) stated that having a website enables SMEs to become visible and easy to reach. If a company sets up its website and encourages its targeted clients to visit that website, this will help to increase its market recognition. That ultimately also help to build confidence between clients to conduct business using the virtual platform. It is not easy, however, for an individual company with its website to reach clients around the globe. Therefore, all RMG export SMEs must be on an online platform, where every export RMG SME has equal opportunities for exhibiting their products and expertise (MMHF). That will influence buyers to use that platform and lead them to consider business transactions. Over time, that e-commerce platform will gain world recognition, consequently, organisations will be able to reach more customers. Also, if the RMG raw material suppliers join that platform, it will help RMG export SMEs to identify and source the raw materials they need from the best suppliers at a better price (NC, SAM, KIH, MDH, FE). In the following sections, I discuss the inhibiting factors affecting the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

4.23.2: Inhibiting Factors

● Lack of Senior Management's Knowledge about the Global Scope and the Benefit of B2B e-commerce Adoption for Organisations:

A lack of awareness of both owners and managers is leading to the non-adoption of ICT (i.e., e-commerce). Surprisingly, a majority of the number of respondents pointed out that this factor is a vital reason for the non-adoption of e-commerce (MN, HAB, Dr MAMT, MKH, BA, HAJ, BS, MFH, MS2 and so on). This result is supported by Awa *et al's.* (2011) research results, as they pointed out that the decision to adopt e-commerce depends on the perceptions and motivation of owners and senior management.

Similarly, Apulu and Latham (2009c) identified that Nigerian SME owners and managers are not familiar with the potential benefits of adopting ICT. Therefore, they are not keen to consider it for performing business activities. Furthermore, Chibelushi and Costello (2009) mentioned in their research results that SME owners and managers based in the UK are unaware of the importance and benefits of adopting sophisticated technologies which could increase productivity and efficiency.

The findings of this research agree with Tarafdar and Vaidya's (2006) results that awareness has a positive influence on organisations' ICT adoption. Furthermore, Costello *et al.* (2007) findings mentioned that owners' and managers' characteristics are significant for the adoption of technology. Hence owners' enthusiasm for technology is essential for the adoption of ICT (MW, MH, NA, HAJ).

● Lack of IT Skilled Human Resources and Quality B2B e-commerce Software:

The results from the research indicated that a lack of requisite RMG ICT skills hinders the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. Similarly, a study conducted by Alam and Noor (2009), on the Malaysian SMEs' context, demonstrates that a lack of suitable managerial and technical staff with enough expertise in the specific business field is a significant barrier to ICT adoption. In addition, Reynolds, Savage and Williams (1994) argued that the owner or managers of SMEs are unlikely to adopt ICT if the requisite skills are not available. The lack of ICT knowledge plays a vital role in the non-adoption of B2B e-commerce because owners and managers are unable to use sophisticated technologies

effectively (ZH, MSA, FE, MKH, MAAK, MS2, SSA). There are many other researchers who confirm, in their research results, that an ICT skills shortage and unfamiliarity with the potential of technology are some of the many reasons for the non-adoption of ICT by SMEs (Darch and Lucas, 2002; Apulu, Latham and Moreton, 2011).

In addition, a lack of quality B2B e-commerce software is another important inhibiting factor that plays a vital role in choosing not to consider B2B e-commerce (MSA, BS, MS2, MKH). For example, ICT expert respondent, 'BA' stated that the majority of the software mainly comes from India because of the unavailability of software in Bangladesh. On the other hand, many participants identified that they do not trust foreign software because of a fear of losing confidential information (HAB, MKH, BA). Therefore, it is important that the Bangladesh government and the BGMEA take the initiative to develop B2B e-commerce software for RMG export SMEs so that organisations can adopt that software without hesitation (MKH).

● **Lack of Support from Business Partners and they are 'being ready' to use B2B e-commerce:**

Some of the participants mentioned that a lack of support from business partners is one of the inhibiting factors which hampers the adoption of B2B e-commerce by RMG export SMEs in Bangladesh (MS1, MSA, SH, BS, MS2, MRH, MMR). Almost all of the participants (except SA1 and FE) mentioned that buyers never made requests for RMG export SMEs to adopt B2B e-commerce for interaction between them for completion of their transactions. Therefore, the owners and managers of RMG export SMEs do not feel a need to have the technology because they do not understand its value (MN, MS1, MZR, MH, NA, BS, MDH, SSA, IHQ). Also, there is not a culture within the Bangladesh RMG sector to expand their businesses globally using the power of the internet (MW, MN, MISJ, SSA, BA). Moreover, a lack of competitive pressure and a lack of business partners' preparedness for ICT adoption demotivates organisations regarding the adoption of B2B e-commerce (HAB, SAM, ZH, MS2, IHQ, MMR, BA). However, participants (ZH, BS, MMR) stated that if the governments and the BGMEA make it essential for RMG export organisations to use a B2B e-commerce platform to complete their export activities; that will persuade the RMG export organisations to connect with e-commerce platforms. Notably, the majority of the participants mentioned that they have not benefited from government ICT related initiatives that restrict them from B2B e-commerce adaptation (MW, MH, HAJ, MDH, SSA, NMAR). Participants Dr MAMT argued that

government need to listen to the ICT related problem facing by RMG sector and think about how to improve ICT capabilities in the RMG sector.

● **Organisation's Poor Financial Ability:**

This is another important factor for an organisation in the adoption of technology. For example, if an organisation does not have enough money to operate its business, it cannot consider adopting an ICT infrastructure for that purpose; instead, it is more likely to think about how the business might survive (Riyadh, Rahman and Tanha, 2012).

Many of the participants pointed out that the majority of the RMG export SMEs suffer from a shortage of liquid assets which prevents them from adopting B2B e-commerce for their businesses (MZA, MMHF, MH, NA, ZH, SH, MIH, SA1, BS, MAAK, NMAR). The participants of this study, however, suggested that this problem can be overcome if the government and financial institutions offer loans with low-interest rates (i.e., below 5%).

● **Lack of ICT Infrastructure in the RMG Sector:**

In recent years, technological advancement has compelled some owners and managers of SMEs to adopt different ICT tools to enhance their business processes (Demirbas, Hussain and Matlay, 2011). Ongori and Migiro (2010) pointed out that the impact of globalisation has put pressure on SMEs to adopt ICT in order to compete with large companies and survive in the swiftly changing business world. They also suggest that the evolution of modern technology is changing the industry's pattern of business operations and requires the adoption of a new way of doing business by altering current activities in order to survive the level of competition (ibid.). Insights from the collected data, however, show that the lack of an ICT infrastructure in RMG export SMEs is crucial when considering B2B e-commerce adoption (MS1, MMHF, NA, NC, ZH, MSA, MIH, MDH, BS, FE, MS2, SA2, MKH, MRH, BA).

In addition, some respondents pointed out that B2B e-commerce would not work for the RMG sector, as this is a highly 'touch-n-feel' industry (HAB, Dr MAMT, NC, HAJ, SAM, MAR, MSA, MFH, MS2). For example, MFH, mentioned in their answer to interview 'question number 12' that their organisation is not considering any online platforms for conducting B2B e-commerce because they believe B2B e-commerce would not work as purchasing decisions for RMG products are highly associated with the 'touch-n-feel' of the products. Many

participants, however, identified that they would feel motivated to adopt a B2B e-commerce platform if it would help them to complete their business transactions with their clients easily, as well as finding new clients (MW, MN, MS, MZA, MZR, MMHF, MISJ, ZH, SH, SA1, MAAK, SA2). The majority of the participants pointed out that they would consider an in-house, e-commerce platform customised for their own businesses so that they could conduct their business in confidence (MW, MN, MS, MZA, MMHF, MISJ, MAAK, SA2).

● **Complexity and Legal Issues Related to Online Transactions:**

The lack of government rules and regulations for online transactions is one of the main inhibitors to adopting B2B e-commerce by Bangladeshi RMG export SMEs (MS1, MZA, NA, HAB, SAM, MSA, SH, MIH, BS, FE, MS2, SSA, MRH). Also, the Bangladeshi government does not facilitate training for RMG export SMEs, in particular training which would help them to understand the benefits of B2B e-commerce (MW, MH, MISJ, NC, ZH, SS, SH, MIH, BS, SSA, IHQ, MMR, BA).

The Bangladesh government lacks the necessary ICT expertise to formulate and implement export SME ICT policy with national ICT policies (MS1, NA, HAB, NC, SAM, MSA, SH, KIH, MAAK, IHQ). In earlier research studies, researchers have identified that the role of government policies has strong, positive links with the adoption of ICT (Alam and Noor, 2009; Mensah and Benedict, 2010; Apulu and Latham, 2009b). Also, Alam and Noor (2009) researched the context of ICT adoption by Malaysian SMEs; the research results show that government support has a definite, positive and significant link to ICT adoption. Moreover, Mensah and Benedict (2010) stated that the macroeconomic environment of a country sustains or hinders the growth of SMEs. The growth of SMEs is highly associated with government policies that are also related to the adoption of ICT (Martinson, 2008).

In the Bangladesh context, many participants stated that the government provides general ICT development support; however, they do not help with the specific development related to the RMG export SMEs (MZR, SH, SA1, KIH, MAAK). Therefore, participants of this study believe that the Bangladesh government could facilitate the training and development of RMG export organisations' owners and managers for using a B2B e-commerce platform to perform online transactions (MW, MN, MMHF, BS, SSA, NMAR). That would enable RMG export SMEs to complete transactions quickly and efficiently. Also, it would assist in keeping a track record of all the export-related activities on a virtual platform. Therefore, an organisation could

promptly access that information and use it for efficient communication between organisations in the process of completing orders (SH, SA2, IHQ). This would ultimately help governments to generate more revenue by reducing money laundering. In this chapter, under the heading "Impact of ICT on business growth", I discuss in detail the present condition of RMG ICT adoption and how the Bangladesh government could take the initiative to expand RMG business across the globe.

● **Political Instability and Uncertainty:**

Political instability is another factor which prevents organisations from investing in technology-enabled businesses because of the uncertain future of their business (Boateng *et al.* 2010; Scupola, 2009; Shemi, 2012). Many participants pointed out that they are worried about the political situation in Bangladesh, as every time the government changes, new business policies are introduced, as well as many other unforeseen circumstances (MW, MN, MS1, MZA, SSA, SA2, BA). For example, if the current government lost their position of running the country, then others would come to power, and they would not follow all of the initiatives taken by the current government (SSA). This is one kind of cultural practice of the political parties in Bangladesh. To overcome this situation, respect between the political parties is essential; this would help to keep the consistency of those policies which are beneficial for business (MW, MMR, BA). Sadly, this is entirely unrealistic at the moment and is unlikely to get better given the day-to-day relationship between the political parties (Dr MAMT). Therefore, political parties need to realise that, whoever comes to power, should leave any business-related initiatives unchanged so that people feel free to invest more in companies (MW, MAR).

● **Lack of Financial Support and Higher Investment for Adopting Technology:**

A lack of support from financial institutions, such as banks, inhibits Bangladeshi RMG export SMEs from adopting B2B e-commerce (MN, MZR, Dr MAMT, SAM, MAR, MSA, SH, KIH, MS2, MKH). The issue of finance is one of the key problems for RMG export SMEs in Bangladesh, as most banks do not offer loan facilities without a guarantor (MN, MS1, MH, NA, SS, SH, MIH, MS2, MKH, NMAR). Some banks, however, offer finance solely based on the LC (Letter of Credit) without the need for a guarantor; the lending rates are extremely high (double digits) (MRH). In addition, the repayment of a loan is another burden for the RMG export SMEs, as completing the whole order process takes time; on the other hand, RMG export

SMEs need to make monthly payments in order to repay any loans (BS, MFH). In order to pay the monthly repayments, they sometimes have to borrow money with extremely high-interest rates; this ultimately places RMG export SMEs in a problematic situation (BS). Therefore, they are in a constant struggle, trying to maintain the development of their businesses; this includes ICT adoption. To solve the problem, participants suggested that Bangladesh banks need to provide low-interest rates on loans with a low monthly repayment facility (MZR, HAB, SA1, MFH, MKH, BA).

The cost of investment is another inhibiting factor identified by the participants, as the necessary cost for implementing ICT is very high (NC, SH, MIH, MAAK, MMR). For example, respondents MIH and a few others identified that the lack of technology vendors in Bangladesh has led to the import of software from abroad at a huge cost. In addition, the maintenance cost of software is high as, most of the time, organisations need to recruit an expert to maintain it (IHQ, BA). Moreover, organisations need to invest in employees' training and development so that they can use the sophisticated technology, as currently there is a skill shortage (MW, MN, MH, NC, SAM, MIH). Furthermore, organisations need to develop their internal infrastructures to make them compatible with the ICT to be adopted, and this will involve investments (MMHF, MH, HAJ, SAM, MAR, MSA, SS, SH, MIH, BA, NMAR). When considering all of these matters, it is clear that RMG export SMEs in Bangladesh are struggling to adopt B2B e-commerce without the help of the government or financial institutions with long-term finances (MN, MS1, MZA, HAB, SA1, MFH, MKH, BA).

● **Language and Communication Problems when using the Internet:**

Language and communication problem while using the internet is another inhibiting factor identified by the respondents in this research (MW, MMHF, MISJ, HAB, Dr MAMT, NC, ZH, MFH, SA2). The government of Bangladesh does have a training facility for general ICT-related activities (MZR, MH, NMAR). They do not, however, offer any specific RMG sector, B2B e-commerce related training (MH, BS, MRH). For example, there are different kinds of free ICT training organised by the government but, unfortunately, the government does not offer any specific training for RMG export SMEs regarding the adoption of B2B e-commerce (MH, NMAR). There is neither training for the owners nor for senior management to improve their knowledge of B2B e-commerce. Therefore, owners and managers do not know how their

businesses might benefit from B2B e-commerce adoption and this reduces the opportunity to expand their businesses worldwide (MKH, BA).

In addition, the lack of a training facility creates a shortage of skilled human resources, who could improve communication between business partners through the internet (MW, HAB, Dr MAMT, NC, ZH, KIH, SA2). Therefore, participants pointed out that if the government facilitates training, especially on "how to expand and operate RMG business use of e-commerce platforms", it will help to develop experts within organisations (MW, MZA, MZR, NA, MAR, SS, SA1, MAAK, SA2, BA). This would help senior management to consider the use of an e-commerce platform for their business activities. Ultimately it would help to reduce the cost of the maintenance of the RMG-ICT infrastructure. Moreover, the cost of training is a key issue, as SME owners and managers believe that, after the completion of training, they might lose their employees to larger organisations (ZH, KIH, SA2).

Furthermore, many participants stated that RMG export SMEs are struggling to run their businesses because of inadequate finance (MN, MZA, MISJ, HAB, NC, ZH, SA1, MDH, MAAK, IHQ). Therefore, it is difficult for them to finance, training to their staff to improve ICT-related knowledge (MS1, NC, MSA, FE, SA2). That is similar to Apulu, Latham and Moreton (2011) research, which claimed that the high cost associated with ICT training and maintenance is difficult for SMEs to bear. Moreover, Al-Bakri, Cater-Steel and Soar (2010) argued that organisations, especially SMEs, avoid adopting ICT for their businesses if it is considered complicated to adopt and maintain. In the following section, I summarise the above discussion.

Summary of the Discussion:

The discussion explores and provides an explanation for understanding both the influential and inhibiting factors affecting the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Below, I summarise the above discussion based on the technological, organisational and environmental aspects.

◆ Technological Aspects:

From the above discussion, it is clear that the availability of good quality B2B e-commerce software, online payment facilities and being prepared for the adoption of the technology are essential factors which influence the decision of RMG export SMEs on the adoption of B2B e-commerce. Although there are some software firms in Bangladesh who are the main suppliers of imported software, it is too expensive for RMG export SMEs to consider (BA). In addition, an online payment facility is not currently available for making international transactions. The Bangladesh banks, however, have started working with the globally renowned, online money transfer organisation, “PayPal”, for creating an international, online payment facility (Bangladesh Ministry of ICT 2008). This facility is not yet available for organisations to perform international, online money transfers and complete B2B transactions using a virtual platform. Being prepared for taking on the technology applies to RMG export SMEs because senior managements are wholly unaware of the benefits of B2B e-commerce (MKH, BA). Therefore, the owner and managers never give their full attention to transforming their businesses from the current analogue platforms to digital ones (MH, MKH).

◆ Organisational Aspects:

In the organisational context, all of the participants pointed out that the IT knowledge of senior management and IT skilled human resources are essential factors for encouraging RMG organisations to consider B2B e-commerce adoption (MW, NC, SS, FE, MKH). It is evident from this research result, however, that there is a lack of ICT experts in relation to RMG export ICT (SAM, MAAK, SA2). To improve this, participants suggested that the Bangladesh government and the BGMEA could facilitate training to make more knowledge available within the RMG sector (SAM, MSA). Also, the respondents from RMG export SMEs mostly pointed out that the financial ability of an organisation can influence the adoption of B2B e-commerce (BS, SA2). Furthermore, respondents indicated that, if the Bangladesh government and financial institutions offer low-interest rate loans, this would help SMEs to strengthen their financial ability to ultimately develop opportunities for the consideration of B2B e-commerce adoption (MN, SAM, MAR, MSA, SA1, MAAK).

◆ Environmental Aspects:

From the above discussion, it is clear that government support is vital for the adoption of B2B e-commerce by RMG export SMEs (MZA, MZR, NA, Dr MAMT, MAR, KIH, MAAK, MS2, SSA, IHQ, MKH, MRH). Participants of this study believe that different kinds of government support are essential, for example, maintaining political stability, easy export processing policies, secure loan facilities, subsidies for adopting technology-based business, and facilitating training and development specifically for the RMG sector to improve its awareness of the benefits and effectiveness of B2B e-commerce (MN, MZA, NA, ZH, MAR, KIH). The problems identified by the respondents in the environmental context can be overcome by the government and the BGMEA initiating delivery of the various activities mentioned in the earlier paragraph. Thus, mainly needs to focus on training for senior management to widen their knowledge portfolio about the global aspects of B2B e-commerce (MIH, MAAK, BA).

Summary:

The above discussion facilitates understanding the factors for using the different context of the TOE framework. Some of the identified factors, however, need careful debate with regard to the different relevant agents of the e-commerce adoption process for an organisation. For example, compare these identified factors to stakeholder perspective towards the change process for the adoption of technology.

Therefore, in the following section, for a more extensive understanding, I use the elements of CATWOE framework to expand the factors identified above, by using their root definition. Previously, there was no research on using the TOE framework in association with CATWOE analysis. Therefore, this is a unique approach for gaining an in-depth understanding of the factors which cause issues for the adoption of ICT technology for conducting business on a virtual platform. In the literature review, section 2.15 and sub-section 2.15.2, I explain the justification for using the CATWOE analysis and how it facilitates defining the root definition of the factors to get an in-depth understanding of the research topic.

Chapter-5

5.0: Discussion and Development of Conceptual Framework

This chapter provides insights recorded in the interviews, offering a clear view of issues related to the topic under consideration. This chapter comprises a narrative of the entire thesis incorporating ideas emerging from the research and, where appropriate, the results will compare to previous research findings. The chapter ends with elaborated on the novel conceptual model and reported in two new figures. That conceptual framework will show a path to the decision-maker of RMG export SMEs in Bangladesh for the adoption of B2B e-commerce.

The previous chapter reports the interpretation of the factors identified by the interview questions. It facilitates understanding of those factors that are related to the TOE (technological, organisational and environmental) context. That helped to identify and understand the motivating and inhibiting factors for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. The factors identified were intended to be incorporated into a new design of a conceptual framework for the easy adoption of B2B e-commerce. However, the extant list of identified factors could not be easily compartmentalised into the categories of TOE framework. Where, some of the factors could assign to the TOE categories, those that did not fit needed to consider using a more critical thinking method. The TOE narrows down the overall view of the actual problems. For example, some of the motivating factors, such as sourcing raw materials, access to new markets, better communication with clients and more prosperous marketing scope identified by the participants, do not fit within the TOE framework.

Therefore, I intend using the Soft System methodology (CATWOE analysis in particular) (Checkland, 1981) to obtain a more comprehensive view of all the factors identified by the participants of this study. The CATWOE analysis provides a means of separating and comparing the differing perspectives of interview respondents for identifying the root of the problem. One of the main reasons for choosing the CATWOE analysis as a complementary method to the TOE classification is that it allows us to focus upon different obstacles to isolate a (so-called) “root definition” of the systems-related, underlying requirements (Midgley and Reynolds, 2001). To illustrate the problem from the different perspectives of stakeholders

(related to the RMG industry), I discuss the factors derived from a CATWOE analysis to gain an in-depth understanding of the problems and requirements for their solution.

Also, CATWOE facilitates the development of a map of rich-picture that assists to be indicative of the variety of participants views of the critical factors. It also enables understanding of the readiness of RMG export SME business owners and managers, and their plans for adoption of B2B e-commerce. Furthermore, CATWOE analysis showing a path, what needs to consider in adopting the relevant technologies and how those technologies can work within the current business operational contexts. That can help owners and managers of RMG export SMEs to understand e-commerce adoption before having to make the financial commitment to adopting it.

At present, the RMG export SMEs in Bangladesh has not yet identified the appropriate B2B e-commerce solutions to help them with B2B interactions with their clients, including online payment systems, secure communications and transfer of documents. It is, therefore, essential to develop a conceptual framework by considering all of the motivating and inhibiting factors identified in this research. Building a conceptual framework can facilitate software or web developers to understand the existing issues and opportunities linked to the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. That will help them to build a B2B e-commerce platform which can work well with the current RMG export business operations. Although this research not intended to develop a B2B e-commerce platform as an end product, it will, however, help to provide web-developers with a more comprehensive angle view of the factors affecting the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. Therefore, later in this chapter, I develop a conceptual framework using Kettinger and Hackbarth (1997) e-commerce network model and provides an explanation for the justification that it offers for the development of the comprehensive conceptual framework.

In the following section, I discuss the factors identified in this research. That will help to explore the relationship between different types of participants responses to the various questions and establish their importance for Bangladesh RMG export SMEs B2B e-commerce adoption.

5.1: Discussion of Findings Based on Various Aspect of B2B e-commerce Adoption

In this section of the chapter, the discussion mainly consists of different viewpoints of the respondent's responses in several questions about B2B e-commerce adoption as well as various elements of the e-commerce adoption process by the RMG export SMEs in Bangladesh. Also, where possible, respondents' responses will validate against existing literature to gather more extensive understanding and their importance for the adoption of B2B e-commerce adoption by RMG export SMEs in Bangladesh.

5.1.1: Availability of ICT Infrastructure and e-commerce Adoption

The availability of a modern ICT infrastructure plays an essential role in the adoption of B2B e-commerce (Ribadu, Abubakar and Suleiman, 2014). For example, Abualrob and Kang (2016) identified that if an organisation has a rich ICT infrastructure and their day-to-day activities require them to the use of ICT that will influence to consider adopting e-commerce. On the other hand, if an organisation does not use ICT facilities for its business operations, this might discourage them from adopting e-commerce (ibid.). In this research, the answer of 'question number 4', the majority of respondents from RMG export SMEs pointed out that they have separate IT departments (MN, MMHF, MH, HAB, Dr MAMT, SAM, ZH, MIH, SA1, BS, MAAK, SA2), while some do not have an IT department at all (MW, MS1, MZA, MZR, HAJ, MAR, KIH, MDH, FE). All RMG participants in this study indicated, however, that they do have a website which they use for sharing information, as well as for marketing and communication with potential buyers (chapter 4, 'question number 5 and 7').

This study identified that the majority of these RMG websites are not updated regularly. For example, "MZR" mentioned that they have a website just because they needed it; however, no enquiries come to them via the website. Neither, they have separate IT departments to monitor the website. Also, most of the firms have 1 or 2 employees who manage all of their IT solutions (MN, MMHF, MH, MISJ, HAB, Dr MAMT, NC, SAM, MSA). The IT expert tasks mostly involve day-to-day jobs, including the exchange of emails, typing, fixing computer related problems, as well as data entry, but nothing related to B2B e-commerce activity (MW, MS1, MZA, NA, MISJ, HAB, BS). That indicates that IT departments are not fully utilised for business operations and, overall, that the ICT infrastructure of RMG export SMEs do not look

capable for the adoption of B2B e-commerce. Besides, respondents from the large organisations pointed out that they do have separate IT departments and the majority of them mentioned that two or more people manage their IT solutions (MAAK, MS2, SSA). Therefore, large organisations respondents show more interest than those of SMEs in the adoption of B2B e-commerce because large organisations already have some ICT infrastructure (MAAK, MS2). A study conducted by Shemi (2012) stated that organisations have adequate ICT infrastructure are more likely to adopt e-commerce.

Furthermore, Bangladeshi manufacturing organisations (i.e., RMG) are lagging in terms of expanding business globally compared to the developed countries (Hoque and Boateng, 2017). For example, participants in this research stated that most of the RMG organisations still depend solely on third-party organisations for getting new clients (MN, MDH). Some other RMG export organisations work continuously for the same suppliers at a lower price, as they do not have alternatives for searching for new customers (MW). On the other hand, they could efficiently identify thousands of buyers around the globe with the help of a B2B e-commerce platform (ibid.). Many ICT adoption-related studies (Chaffey, 2011; Sila, 2013; Oliveira and Martins, 2011) identified that world manufacturing business is expanding daily by using B2B e-commerce, mainly in the USA, Canada, China and India, because of the availability and reliable use of technology. For example, a GITR (2012) report showed that global B2B e-commerce reached 12.4 trillion USD compared with 3.4 trillion USD in 2005. On the other hand, Bangladeshi RMG export manufacturing organisations are still doing business using traditional ways (figure 3).

It is essential, however, to improve the capabilities of RMG export SMEs for adopting B2B e-commerce (NA Rahman *et al.* 2013). To improve the e-commerce adoption capabilities of the RMG export SMEs, the majority of the participants of this study believe that the BGMEA and the Bangladesh government need to focus on the development of ICT infrastructure, specifically for the RMG sector (MS1, MH, MISJ, SAM, ZH, BS, MS2, IHQ, MKH, MMR). In this regard, the government could facilitate tax relief or arrange other financial facilities, so that organisations could invest to gain ICT equipment that will help RMG export SMEs adopt B2B e-commerce and do their business online (MS1).

Currently, in Bangladesh, the overall development of ICT infrastructure and internet connections have good ICT network provisions (Abdullah-Al-Mamun, 2012). Also, some of

the respondents pointed out that most areas of Dhaka city currently connected to broadband internet (MW, MN, MZA, SAM, KIH, BS, FE, SSA, SA2). Also, they mentioned, in response to ‘question number 6’, that their organisations connected to broadband, which is a good indication that they enjoy high speed (currently available) internet. Recent data shows that Bangladesh is ranked 98th and 133 out of 198 countries worldwide in terms speed of broadband and mobile internet respectively (Speed Test Global Index, 2020). The speed of the internet, however, is not always consistent moreover this causes problems with effective communication (MW, MN, MZA, NA, NC, ZH, MSA, SH, SSA, MKH). In most circumstances, the participants use the internet primarily for communication and exchange of business information with buyers and suppliers (MW, MZA, MAR, SA1). They mostly use email and mobile applications as their main communication tools; this communication is, however, mostly with existing clients (chapter 4, ‘question number 8’). To reach new clients, they always depend on either a third party or events organised by the BGMEA or the government (NA, MISJ, HAB, Dr MAMT).

In the modern business environment, it is risky to use the only email for communication purposes and finding new clients depending on others (Mark *et al.* 2016). Also, email is a dated communication method (*ibid.*). One of the many reasons that email is not an effective business communication method is that, sometimes, recipients do not receive them and its time-wasting (*ibid.*). Neither it helps organisations to find new clients, as the chances of getting a reply from potential customers are low (*ibid.*). Therefore, it would be ideal if RMG export SMEs joined a shared online platform where they could advertise their activities to the rest of the world (HAJ, MAR, MS2, SA2). Unfortunately, no internationally renowned online platform exists in Bangladesh where RMG export SMEs might promote themselves and attract potential buyers (Hoque and Boateng, 2017). There is a BGMEA website where all of the company information is listed. It does not, however, represent the current information and activities of the company. Also, it is not informative enough for potential buyers to identify appropriate companies to produce their goods. Moreover, this website does not offer any B2B e-commerce activities, such as placing orders and money-back guarantees; this does not help the client’s attitude towards this website.

From the above discussion, it is clear that Bangladesh RMG export SMEs are not well equipped to do B2B e-commerce. Though they do use the internet for business purposes; however, neither are they using it as a day-to-day business solution. Therefore, RMG export SMEs need

to focus on their existing internet connections and websites and maximise the use of them. In addition, RMG export SMEs need to improve their ICT infrastructure so they are able of performing their business through an e-commerce platform. In the next section, I discuss the impact of ICT on the growth of the firm.

5.1.2: Impact of ICT on Business Growth

According to Brynjolfsson (2010), ICT has changed the nature of the business, as it affects how organisations produce, communicate and gather information from their customers, competitors and suppliers. Also, they suggested that organisations could use ICT for eliminating competition efficiently and gain greater profitability through efficient production, better knowledge of market developments and greater flexibility in reacting to customers, competitors and suppliers (ibid.). Similarly, Bangladeshi RMG export SMEs could improve their business performance and achieve greater competitiveness over its competitors.

Considering the Bangladeshi RMG export SMEs' context, however, participants of this study pointed out that finding new clients is most difficult (MS1, MH, HAJ, SA2). Participant (MS1) argued that it is crucial to overcome this problem to survive in the present competitive business environment, so, he suggests that RMG export SMEs need to utilise the ICT facilities available to them. For example, if RMG export SMEs were to adopt a B2B e-commerce platform, it would help them to find more buyers and suppliers, resulting in more production and, thus, leading to higher profitability (IHQ, MRH). This statement also supported by Lin, Huang and Stockdale (2011) study, where they argued that adoption of B2B website would help SMEs to increase their bargaining power with both the buyers and suppliers, as they can reach more buyers and suppliers by using ICT.

Although, in the Bangladesh perspective, it is not easy to adopt ICT; a majority of the participants stated that one of the most significant problems is the lack of ICT knowledge of senior management (discussed in chapter 4, 'question number 18'). That is a notable finding that emerges through this research. Also, a study conducted by Alshamaila, Papagiannidis and Li (2013) identified that senior management usually plays a significant role in any adoption decisions made by their organisations.

Furthermore, answering ‘question number 9’ (chapter 4), however, almost all of the participants pointed out that RMG export organisations do not feel that they need to adopt a B2B e-commerce platform to continue doing business, as there is no demand from foreign buyers (MN, HAB, MAR, MIH, KIH, BS, MDH, MFH, MAAK, MS2, SA2). Three participants, (MW, SA1, FE), however, pointed out that their buyers had asked them to adopt a B2B e-commerce platform for exchanging information quickly and efficiently. Distinctly, Elbeitagi *et al.* (2016) pointed out that SMEs are more likely to consider adopting B2B e-commerce if they get pressure from trading partners. Likewise, most of the participants of this study stated that they would consider adopting a B2B e-commerce platform if it would enable them to find new buyers, facilitate smooth communication between them and help in reaching the far corners of the RMG world market (MW, MN, MS1, MZA, MMHF, HAB, KIH, BS, FE, MAAK, SA2). Hamad *et al.* (2015) pointed out that B2B e-commerce help organisations to find new clients and improve communication channel. Also, Hamad (2014) suggested that adoption of B2B e-commerce by the SMEs equipping them to gain a sustainable competitive advantage in the current dynamic business environment.

Nevertheless, some respondents pointed out that they would not consider adopting a B2B e-commerce platform because they are not sure about its benefits (HAB, NC, HAJ, SS, MIH, MFH). Moreover, participants Dr MAMT, NC and MAR, pointed out that, as foreign buyers had never asked for it, the culture had, therefore, not developed within their organisations to do business using a B2B e-commerce platform. Furthermore, MS2 pointed out that they were not fully capable of conducting business on a B2B e-commerce platform, as well as stating that it was not feasible in their current trade as it would need massive investment. Finally, SAM and HAJ identified that, currently, B2B e-commerce facilities are not available in Bangladesh, that restricts B2B e-commerce adoption by Bangladeshi RMG export SMEs. The responses of the participants indicate a lack of senior management’s knowledge about the benefits of B2B e-commerce.

In response to ‘question number 11’, respondent MS pointed out that the government of Bangladesh could facilitate training programmes for senior management to improve their knowledge of the benefits of B2B e-commerce. According to Edwin and Peter (2014), the government and stakeholders need to support and provide all necessary aspects to perform e-commerce activities. Similarly, participants in this study suggested that the government and BGMEA could offer free training and help RMG export SMEs with financial and other

necessary matters (HAB, MSA, MS, IHQ, MKH, MRH, MMR). That would encourage senior management to consider adopting and using a B2B e-commerce platform for conducting their future business. On the other hand, Hashim (2011) claimed that SME managers are reluctant to use government training hence it is not an essential differentiator between adoption and non-adoption of e-commerce. Some participants argued, however, that if necessary, training gives to senior management, it will increase their knowledge of B2B e-commerce adoption and the benefits they could achieve from that (FE, SSA, BA, NMAR).

In the context of a B2B e-commerce platform, the majority of the participants, when responding to 'question number 12', identified that they would like an in-house e-commerce platform customised for their businesses (MW, MN, MS, MZA, NA, HAB, MSA, MIH, MDH, FE, MAAK, SSA, IHQ). For example, they would like a system that could easily merge with their existing business model, as well as maintaining the security of the company. On the other hand, some participants (HAJ, MAR, MS2 and SA2) indicated that they would like to use an existing global portal because it is well-known to the rest of the world. Also, they pointed out that organisations would not need to invest too much in-house, thus reducing the risk of failure. Also, the number of participants (MZR, SH, SA1, SA2 and KIH) pointed out that they would like to use a third-party, B2B e-commerce platform, managed through cloud computing. For example, a dedicated company who would provide all of the necessary equipment and create a platform (Alshamaila, Papagiannidis and Li, 2013; Kourik, 2011) that RMG export SMEs could employ for using cloud computing. Some respondents replied that they would like to use a service provider (Dr MAMT) so that the service provider could look after the B2B e-commerce activities for them.

In my opinion, considering the RMG export SMEs' situation, it would be ideal if the government and BGMEA together developed a B2B, e-commerce platform dedicated to the RMG sector so that all RMG export SMEs could use that platform. Furthermore, both the Bangladesh government and the BGMEA need to assure buyers that any orders produced through this platform delivered safely; otherwise, buyers would be eligible for a full refund. Similarly, RMG raw materials' suppliers could join this platform, so that RMG export SMEs could order the raw materials quickly and securely.

Also, participants MMHF and Dr MAMT, pointed out that currently, RMG export organisations need 16 endorsements before exporting their goods. Hence, every RMG export organisation have dedicated employees only to go physically in different offices (both

government and BGMEA) to complete the export-related paperwork, that is time-consuming. To speed up the approval process participants of this study suggested that Bangladesh government and BGMEA need to introduce digital approval process of export-related paperwork's thus could reduce the lead time to complete the order processing (MW, MZA, MMHF, Dr MAMT, HAJ, FE, NMAR). Also, they suggested that the government and BGMEA need to bring all of the export authorities together on that platform, so, that the RMG organisations could get quick approval of export documents.

It is evident, considering the discussion above, that the Bangladeshi RMG export organisations are unsure about the benefits of B2B e-commerce adoption. Hoti (2015) suggested that B2B e-commerce could help to increase efficiency in exports, that could give organisations competitive advantages. Adoption of technological advancements can help to reduce the lead time (Order date to delivery date) through real-time communication, which is one of the most significant problems for Bangladesh RMG export SMEs regarding the adoption of a B2B e-commerce platform. In the following section, I discuss the general challenges to RMG export SMEs in Bangladesh regarding the adoption of B2B e-commerce.

5.1.3: General Challenges for Bangladeshi RMG Export SMEs in Adopting B2B e-commerce

One of the significant challenges that have been identified by the participants of this study is the low price of Bangladeshi RMG products (MN, MS1, MZA, MH, NA, MISJ, HAB, HAJ, ZH, MAR, MSA, MIH, SA1, MAAK, MS2, SSA, MRH). They also stated that production cost increases rapidly due to various reason (i.e., higher labour cost, gas and electricity, transportation etc.). That is a direct result of unhealthy competition between the RMG export SMEs themselves. It causes severe problems regarding obtaining a better price for the products from buyers (IHQ, MMR, NMAR). To overcome this challenge, export organisations need to find new clients that will give them bargaining power with buyers (MZR, MH, Dr MAMT, HAJ, MAR, SS, SA1, BS, IHQ, MRH). However, finding new clients is always the most challenging task for RMG export SMEs (Dr MAMT, HAJ, MAR, MSA). A study conducted by Mohamed and El-Fitouri (2015) pointed out that new clients can identify through the use of e-commerce platform. Some expert respondents of this research do not agree with this statement as they believe it will increase competition (MKH, MMR, BA, NMAR). Hence,

SMEs will struggle to compete with larger organisations due to short of resources (Chang and Dasgupta, 2015). Also, a third party B2B e-commerce website, such as Alibaba, DHgate, (although they are not currently available in Bangladesh) demands a commission payment per order (Steven, 2014). Manufacturers can get even less price for the products they are selling using the third-party e-commerce platform. These challenges can overcome, if the Bangladesh government and the BGMEA jointly develop a B2B e-commerce platform, however, which the RMG export SMEs could use free of charge, they could offer a better price to their clients (Dr MAMT, HAJ, SH, KIH, MMR). The BGMEA could also set a minimum price for each products category listed for sell on that e-commerce platform; this could eventually eliminate unhealthy competition between the RMG export SMEs in Bangladesh (MDH, SSA, NMAR).

Another general challenge identified by the participants of this study is government bureaucracy which creates a massive problem regarding the import of raw materials and export of completed products (MZA, SAM, MFH). International Trade Centre (2013) argued that SMEs can utilise the full potential of internet benefits only when the government can realise.

Furthermore, the language and communication barrier when using the internet is another hindrance which discourages organisations from adopting e-commerce (Nejadirani, Behravesht and Rasouli, 2011). Likewise, in Bangladesh, the first language is Bengali also, when using the internet, the leading language for communication is English. Although this is the second language in Bangladesh, the majority of Bangladeshis are not comfortable with communicating using the English language. Also, participants of this study pointed out that there are very few ICT experts available in Bangladesh, who know about the RMG export business and have competent English language skills (MW, HAB, NC). To resolve this issue, the Bangladesh government and the BGMEA need to take the initiative and develop a training programme for ICT personnel on the operations of the RMG export business, as well as English communication skills (MKH, BA). Those combinations would help RMG export SMEs to quickly enter into the online business world, with the help of skilled, RMG, e-commerce experts (MW, MZA, MZR, NA, MAR, SS, SA1, MAAK, SA2, BA).

Moreover, Poorangi *et al.* (2013) identified that the existing culture of a company affects the resistance of employees, which in turn negatively affects the e-commerce adoption. In this study, the majority of the participants pointed out that the culture of the RMG export industry does not require B2B e-commerce, as there is no demand for it (MH, NA, MZA, ZH, KIH,

HAB, MDH, MFH, SSA, SA2). For example, RMG's business correlated with 'touch-n-feel' for choosing the products; therefore, some participants doubt how B2B e-commerce might fulfil that demand (NC, HAB, HAJ, MIH). I fully understand their concerns; I would like to argue, however, that B2B e-commerce can offer a platform from which organisations can communicate, exchange, identify and sometimes complete the full process of transactions. To fulfil the method of 'touch-n-feel', however, manufacturers need to send samples to foreign clients to gain their approval before commencement making up bulk quantities.

Finally, the availability of raw materials is another hindrance for B2B e-commerce because complete online transactions need quick delivery dates. That is not possible, however, in the Bangladesh RMG export SMEs' context, as the majority of the raw materials are imported, mainly from China, and this takes time (IHQ, MRH, MMR). To overcome this problem, however, many of the respondents suggested that if the suppliers of raw materials were including on a similar B2B e-commerce platform, can make more accessible and quicker to obtain raw materials and complete orders on time. Lal (2007) pointed out that firms of developing countries can use B2B e-commerce platform to buy raw materials from other countries at least possible time. In the following section, I discuss the technological challenges related to the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

5.1.4: Technological Challenges for Bangladeshi RMG Export SMEs Regarding the Adoption of B2B e-commerce

In the Bangladesh context, the lack of quality B2B e-commerce software and cost of external expert services are primary technological factors that challenge and discourage RMG export SMEs from adopting B2B e-commerce (MW, MAR, MSA, KIH, MAAK, BA). In earlier research studies, researchers (Lowry *et al.* 2006; Shemi, 2012) identified that a lack of online payment facilities and the company's technical preparations are the most prominent, discouraging, technological factors. Although this study also identified those factors.

Currently, the majority of software companies situated in Bangladesh are mainly from India; it is, therefore, more expensive to consider ICT (i.e., B2B e-commerce) adoption and use their expert services (BA). Some of the participants pointed out that the owners and managers of Bangladeshi RMG export SMEs do not trust the software produced in India because of a fear

of the company's valuable information, such as a client's details, being leaked (MZA, SAM, ZH, SSA, MMR). For example, Indian RMGs companies are one of their biggest competitors, that creates issues regarding trust (Dr MAMT). To overcome this situation, participants suggest that the Bangladesh government (i.e., ICT ministry) and BGMEA need to take the initiative to develop software in Bangladesh for conducting B2B e-commerce (HAJ, SAM, SH, MAAK, MKH, MMR, NMAR). A study accompanied by Tran *et al.* (2014) claimed that the role played by the government significantly influence organisations on a decision making of the initial adoption of ICT.

Also, some respondents pointed out that the lack of availability of high-speed internet is an issue causing them not to consider adopting B2B e-commerce (NC, SH, FE, MAAK, MKH). The overall condition in Dhaka is that they have the facility of a broadband internet network still the internet speed is slower than in developed countries. Although the internet service provided advertises its high speed, when it comes to using it, this is not the case, participants pointed (NA). It is slower than actual advised by the providers and, therefore, it causes issues regarding replying to communications, uploading pictures and sending them to clients. Furthermore, the lack of a consistent power supply in Bangladesh (Miah, 2006) is a big issue for keeping the internet service running with the required speed and consistency because the smooth operation of internet service requires uninterrupted electricity. Similarly, Asare, Gopolang and Mogotlhwane (2012) identified that frequent power disruption is a deterrent in terms of adoption of ICT by the SMEs. However, in recent years Bangladesh government investing in building new power supply station hence improvement seen on this particular issue.

To overcome the above problems identified by the participants, the Bangladesh government and the BGMEA need to provide essential training and development programmes for senior management (MN, NA, MISJ). That will help senior management acquire the necessary skills for working with B2B e-commerce. Though it is fundamental to ensure consistent power supply, developing dedicated software for RMG exports, providing financial support for improving organisations internal infrastructure for adopting ICT and development of the overall technological infrastructure. The next section discusses the organisational challenges of adopting B2B e-commerce by the RMG export SMEs in Bangladesh.

5.1.5: Organisational Challenges of the Adoption of B2B e-commerce for RMG Export SMEs in Bangladesh

In the past, research on e-commerce adoption by SMEs has identified that, in the organisational context, support from senior management and their concerns about privacy, security and trust, as well as the cost of implementing B2B e-commerce, are significant factors that discourage SMEs from adopting B2B e-commerce (Ajmal and Yasin, 2012; Bhowmik, 2012; Sharma and Gupta, 2009; Wang, 2016). Additionally, researchers also stated that an organisation's culture, IT-skilled human resources, types of firm and perceived benefits of ICT discouraged organisations in developing countries from adopting B2B e-commerce (Maryeni *et al.* 2012). In this study, respondents have also identified these factors.

The most notable unique organisational factors identified by the respondents of this study is the lack of senior management's knowledge about the global scope and the benefits of B2B e-commerce (MN, MS1, MZR, MH, NA, HAB, ZH, MIH, KIH, MS2, MKH). Also, senior management's negative attitude towards the adoption of technology hindrance for the adoption of B2B e-commerce, identified by the participants of this study (MW, MH, NA, HAJ, MIH, SA2, BA). For example, if senior management does not have enough knowledge about ICT and e-commerce, they would not be able to identify the importance of B2B e-commerce and how it could help them to expand their businesses in the global context (Wang, 2016).

Also, participants (MKH and MMR) pointed that the majority of RMG senior managers (the generation X - 1961-1981) are unwilling to learn about new technology and how it can help them to achieve their desired business goals. The generation gap is creating many problems when it comes to adopting modern ICT technology for business operations. In my opinion, the Millennial generation is far more willing than generation X to adopt ICT for conducting their business activities.

During the face-to-face interview, I realised that the members of generation X are more comfortable without ICT involvement in conducting their daily business activities. They still want to keep the old ways of communicating with clients and carry on working with the same buyers. That is why the Bangladesh RMG sector, especially SMEs, finds itself in difficulty with trying to continue with their businesses. For example, if an organisation produces garments for the same clients over the years, this helps to build a relationship with them;

however, it reduces their bargaining power because they do not want to lose those clients by increasing the price of the products (MW). From a client's point of view, they always desire more reasonable prices, sometimes for the same products, even though the cost of raw materials and employees' salaries is increasing, as well as the cost of overall production (MMHF, NA). This problem, however, might be overcome by facilitating training programmes among the senior management of RMG export SMEs, operated by the government and BGMEA (BA).

Regarding ICT adoption, in much of the previous research (Adebambo and Toyin, 2011; Mpfu and Watkins-Mathys, 2011; Vahovar and Lesjak, 2007), researchers have identified that an organisation's IT capacity can also influence them in the adoption of e-commerce. In 'question number 4', however, the majority (16 of 26) of the RMG export SMEs' respondents mentioned that they do not have separate IT departments, which indicates that their organisations do not have a robust, IT infrastructure. Yet, in answering the following 'question number 5', almost every respondent replied that they have a website. That made me curious as, if an organisation does not have a separate IT department, how can they operate their website effectively? Therefore, I browsed through their websites and found that the organisations are not actively using them for conducting any business transactions; they are not even updating the websites regularly. That indicates that RMG export SMEs are not fully ready to adopt B2B e-commerce and, therefore, they need support from the government of Bangladesh and the BGMEA to improve their ICT infrastructure (MW, MMHF, MH, HAJ, SAM, BS, FE, MS2, SA2, MKH).

Size of an organisation is another critical factor identified by this study participants, that can play an essential role in the adoption of B2B e-commerce (MH, NA, NC, ZH, MSA, MIH, FE). For example, large organisations are busy with multiple tasking; therefore, focusing on e-business is difficult for them because it will increase their overall tasking load (MAAK, MS2, MKH). On the other hand, a small organisation does not have much to deal with, so they can focus more on online trading (MKH, MMR). Other studies, such as Chang and Dasgupta (2015); Bharati and Chaudhury (2010) stated in their investigation that a large organisation has more resources than a small organisation and, therefore, could quickly expand their business on an online platform.

However, respondents said that they would feel motivated to adopt B2B e-commerce if it would facilitate better communication and help them to access new markets (MW, MH, MISJ,

HAB, Dr MAMT, SA2). More importantly, participants stated that they would consider adopting B2B e-commerce if the financial ability of their organisations and the demand from their trading partners were strong (HAJ, SS, SH, MDH, SSA). For example, Chang and Dasgupta (2015) argued that if trading partners' is ready for e-business and request to do communication through an e-commerce platform, then the organisation would be more likely to consider adopting B2B e-commerce. That, however, would be difficult for every RMG export SME, as the majority of them are not financially capable and implementing ICT bears an associated cost (MN, MZA, MMHF, NC, MSA, MIH, SA1, FE, MAAK, MS2, IHQ, MMR). Therefore, both the government and the financial institutions could help them with low-interest loans, provision of training for the development of ICT knowledge and monitoring organisational preparations for the adoption of ICT and B2B e-commerce (MS1, MH, MISJ, SAM, ZH, SS, KIH, BS, MS2, IHQ, MKH). Furthermore, the expert respondents pointed out that the availability of a third-party website would influence RMG organisations to adopt B2B e-commerce (MS2, SSA, IHQ). The section below discusses the environmental challenges regarding the Bangladeshi RMG export SMEs' adoption of B2B e-commerce.

5.1.6: Environmental Challenges for Bangladeshi RMG Export SMEs Regarding Adoption of B2B e-commerce

In the literature review, Martinson (2008) and Thatcher, Foster and Zhu (2006) argued that government support would encourage SMEs to adopt B2B e-commerce. In this research context, respondents pointed out that a lack of direct government support for adopting technology (i.e., B2B e-commerce) is one of the biggest challenges for RMG export SMEs in Bangladesh (MW, MN, MS1, MMHF, Dr MAMT, HAJ, MAR, MIH, MS2, MKH). For example, the government of Bangladesh focuses on the development of the country's overall ICT sectors; they are not, however, prioritising a main foreign currency earning industry such as the RMG export sector (MH, BS, MRH). Therefore, the government of Bangladesh needs to focus specifically on this sector's ICT development and subsidise them so that they can adopt B2B e-commerce, which could ultimately help them to expand their business worldwide and generate more revenue. Tran *et al.* (2014) found that in the developing country context, government plays an extremely significant role in ICT adoption (i.e., e-procurement) in the firms. In addition to that, MMHF pointed out that the Bangladesh government needs to improve the country's infrastructure, i.e., roads, electricity and gas. As a result, goods can produce and

export quickly and efficiently, and that they are delivered on time, leading to customer satisfaction.

Furthermore, respondent FE suggested that the government of Bangladesh needs to provide one central, virtual operation for exportation to speed up the service. There are some dedicated organisations' responsible for the development of Bangladesh export sectors, such as the Bangladesh export promotion bureau, the BGMEA, BKMEA and so on. For example, the BGMEA for the RMG sector could take the initiative for the development of a B2B e-commerce platform for RMG export SMEs, so that they could reach customers beyond their current capability.

On the other hand, financial support from both the government and financial institutions is not available that discourages RMG export SMEs from adopting a B2B e-commerce platform (MZA, MZR, SA1, MFH, MKH). Furthermore, the Bangladesh government's rules and regulations about online foreign transactions restrict online business transactions with business partners around the globe. That creates an enormous obstacle for the RMG export SMEs in adopting B2B e-commerce. Therefore, Dr MAMT suggested that the right government policy could influence RMG export SMEs in considering B2B e-commerce adoption for cross-border transactions. Also, Parker and Castleman (2009) stated that support from business partners, such as suppliers and customers, encouraged organisations to adopt B2B e-commerce. Similarly, SAM pointed out that demand from foreign buyers would reassure and encourage RMG export SMEs in Bangladesh to adopt B2B e-commerce.

In 'question number 9', respondents explicitly asked whether their clients ever asked their organisations to use a B2B e-commerce platform for B2B interactions. The majority of the respondents pointed out that buyers have not required them to have a B2B e-commerce platform; neither are their competitors adopting it (MMHF, SS, MDH, MFH, MAAK, SSA, SA2 and so on). Therefore, perhaps these are the main reasons why organisations, especially RMG export SMEs, do not adopt a B2B e-commerce platform. A couple of respondents, however, (SA1 and FE) mentioned that they been requested, by their foreign buyers, to adopt a B2B e-commerce platform for sharing information, including documentation for quick and efficient communication.

Another significant factor identified by the participants of this research is political instability, which discourages RMG export SMEs from adopting B2B e-commerce (MW, NA, SAM, SH, BS, SSA, MKH, BA). For example, the political culture in Bangladesh is very unpredictable, as almost every term a new government form; therefore, the previous government's initiatives are ignored by the new government and sometimes whole projects cancelled (Dr MAMT). That creates too much uncertainty for businesses (Shemi, 2012). Therefore, organisations are afraid to invest in the adoption and expansion of new technology (Bolloju and Murugesan, 2012). Hence, it is essential to encourage whichever political party is elected to maintain the consistency of the previous government's rules and regulations for export businesses. However, if they need to be changed the rules and regulation, they must benefit the export business. Below I discuss the Bangladesh government's initiatives in the context of RMG export SMEs' B2B e-commerce adoption.

5.1.7: RMG ICT Adoption and Digital Bangladesh

The current Bangladesh government came to power in 2008 with the leading election pledge was to develop ICT operational planning; named "Digital Bangladesh". Through the "Digital Bangladesh" project, the Bangladesh government aimed at Bangladesh becoming fully digital by 2021 (Abdin, 2014). They also want to achieve economic growth through the "Digital Bangladesh" project and aims for the nation becoming a medium-sized economy (ibid).

According to the World Bank report (2016), Bangladesh is gradually improving in the index of the number of secure internet servers (1.67 per million), fixed broadband subscriptions (4.046%) and mobile cellular subscriptions (83.449%); that indicates that people in Bangladesh are starting to become familiar with modern technology. The majority of people, however, are using mobile phones and this shows that they are mainly using the mobile internet rather than fixed broadband because it is easy to access. As we know, RMG is the leading, foreign currency generating sector in Bangladesh (Hoque and Boateng, 2017). Therefore, the government needs to prioritise the RMG sector and its ICT-related initiatives, so that RMG export SMEs can expand their businesses around the globe; this will help to generate more foreign revenue. By doing this, it will add a significant contribution to the Bangladesh economy, which will ultimately help Bangladesh to become a medium-sized economic country.

Although RMG business is the leading foreign currency earning sector in Bangladesh, the majority of respondents pointed out that they do not receive the essential support from the government; therefore, the RMG sector is lagging in adopting modern ICT technology (MW, MN, MZA, MMHF, MISJ, MIH, MDH, MAAK, SA2). For example, many respondents pointed out that overall, the development of ICT in Bangladesh is happening; there is, however, no specific development of ICT that is related to the RMG sector (MH, KIH, MAAK). Furthermore, respondent, FE mentioned that there is a "double barrier" regarding ICT adoption, both from government and RMG export organisations. For example, currently, almost all of the RMG export SMEs in Bangladesh operate their businesses manually and, therefore, they are not interested in transfer their businesses digitally. Neither government of Bangladesh have a policy that can influence the RMG export SMEs to motivate adopting B2B e-commerce. However, participants of this study believe that both government and RMG export organisations need to take initiatives for making the RMG export businesses compatible with the adoption of B2B e-commerce (MN, MS1, MZR, NA, Dr MAMT, HAJ, MIH, MDH, MFH).

Furthermore, in the context of RMG export SMEs, the responses of this research demonstrate that the majority of RMG export SMEs have their own, separate IT departments (MN, HAB, SS, SH, MIH, BS, MFH). There are still many RMG export SMEs which do not have a separate IT department (MW, MZA, NA, MAR, KIH, MDH), and this indicates that they are lagging in the use of ICT for operating their businesses. Participants suggested that the RMG export SME business itself, the government of Bangladesh, the BGMEA and other organisations associated with the RMG sector need to take the initiative (MS1, MH, MISJ, NC, SAM, SS, KIH). That includes ensuring training and low-interest loans made available to the interested RMG export SMEs to encourage the adoption of B2B e-commerce (MZA, MZR, HAB, SA1). By doing that, it will boost organisations the confidence to transfer their business into a digital platform. This digital platform will help governments and other RMG-related associations (i.e., BGMEA) stay up to date with the number of orders, the total amounts of foreign currency generated by the company, the expenditure for raw materials and so on. That will rationalise government digital Bangladesh commitment towards the people of Bangladesh. In the next section, I discuss the various suggestions offered by the respondents for the adaption of B2B e-commerce by the Bangladeshi RMG export SMEs.

5.1.8: Opportunities for RMG Export SMEs in Bangladesh for B2B e-commerce

In general, ICT has changed the nature of competition; this affects an organisation's production, information and communication with suppliers, customers and competitors (Brynjolfsson and Saunders, 2010). Therefore, if an organisation wants to cope with the current competitive business environment, they need to think outside of their comfort zone (i.e., conducting business by using ICT) (Alrubaiee, Alshaibi and Al-bayati, 2012). There are plenty of opportunities that RMG export SMEs can create by adopting B2B e-commerce. For example, participants from the study identified that a B2B e-commerce platform could help with better communication and access to new markets, as well as recognising the global demands for their products and services (MW, MH, MISJ, Dr MAMT, HAJ, ZH, KIH, SA2). Many previous studies identified that B2B e-commerce creates a massive opportunity for business organisations (Alrubaiee, Alshaibi and Al-bayati, 2012; Hamad *et al.* 2015; Hoque and Boateng, 2017; Mohtaramzadeh, Ramayah and Jun-Hwa, 2018). Through the use of B2B e-commerce platform, organisations would be able to find new markets (Ocloo *et al.* 2018). Also, organisations would be able to engage in effective communication through a B2B e-commerce platform, that can facilitate them to reduce errors and lead to building long-term relationships with clients (Ahmad, 2015; Bigne-Alcaniz *et al.* 2009; Kabanda and Brown, 2017; Poorangi *et al.* 2013; Sin *et al.* 2016).

Currently, the majority of the participants pointed out that RMG export SMEs mainly use an e-mail and different mobile applications to communicate with their customers (MW, MN, MZR, MMHF, MISJ, HAJ, MIH, MDH, MFH, MAAK, MS2, SA2). Burkus (2016) argued that email made you less productive because it is time-consuming. Also, finding new clients through email is unlikely going to work because email often uses for the fraudulent purpose (ibid). There is, however, no method of identifying new clients (apart from obtaining third party help or attending different business fairs) and connecting with them. They believe, however, that if there is any platform that can facilitate buyers, sellers and suppliers communicating with each other, this would help them to build long-term relationships with each other. For example, when a seller requests information about a product, then the manufacturer (i.e., an RMG export organisation) could provide detailed information to the buyer by quickly gathering information from the raw material supplier as well as accumulated their costing for making the products. If everyone involved in the process connected through an online platform, they all would be able to share information quickly. Furthermore,

participants of this study pointed out that RMG export SMEs could easily find suppliers by using a B2B e-commerce platform (MW, NA, NC, SAM, KIH, MDH, FE). That would ultimately help them quickly source raw materials and reduce their production lead time.

All most all of the participants in this study stated that a high lead-time (time between receiving and completion of orders) as one of the most significant problems. Therefore, sometimes RMG organisations are unable to fulfil customers' demands which leads to the cancellation of orders and RMG organisations losing enormous amounts of money, as well as clients. Consequently, it is essential for RMG organisations to source raw materials efficiently, that could be done through a B2B e-commerce platform, it would solve problems by reducing the production lead time (order date – order delivery date). The respondents taking part in this study, however, believe that in creating this opportunity, they would need support from the government of Bangladesh and other RMG related associations (i.e., the BGMEA and financial organisations) to help with a secured loan facility for the acquisition of ICT equipment (MN, MS1, MZR, HAB, SA1, MFH). They also suggest that the government of Bangladesh and the BGMEA need to facilitate training for senior management. Besides, create RMG ICT human resources and create one-stop export solutions; all of these would help to encourage RMG export SMEs to adopt B2B e-commerce (MMHF, MAR, MIH, KIH, SA1, MAAK, SA2).

Furthermore, it is essential to get the necessary support from the supply chain (i.e., buyer), as this could encourage RMG export SMEs to consider adopting B2B e-commerce solutions. Therefore, in the following section, I discuss the adoption of e-commerce from the supply chain perspective.

5.1.9: Adoption of e-commerce from the Supply Chain Perspective

In the present competitive world market, SMEs must participate in the network of global supply chain management (to perform a real-time production process, procurement and logistics management) (Zailani, Dahlan and Jallaludin, 2009). In the last couple of decades, a combination of economic forces and technological advances have increased the importance of supply chain management for achieving profitability and long-term business success (ibid.).

In the Bangladesh RMG export SMEs' context, participants pointed out that there is a lack of supply chain management (MS1, NC, MSA, BS, FE, IHQ, MRH). Therefore, they encounter

difficulties with order processing time, as the majority of the raw materials need to import from foreign countries (mainly China) (IHQ, MRH, MMR). They also pointed out that importing the raw materials, they need to go through a high number of manual procedural steps that waste a great deal of time. Also, in many cases, an organisation loses an order because they are unable to deliver it at the due time. Sometimes, if a buyer wants an order urgently, they are unable to support them because of the lengthy procedure for importing the raw materials (Dr MAMT). A study conducted by Cadden, Marshall and Cao (2013) identified that organisational culture plays an enormous role in supply chain performance. They also pointed out that lack of trust, responsiveness, flexibility, poor communication and conflict lead organisations underperforming supply chain (ibid.). Hence, improving organisation culture is essential to increase the performance of the supply chain.

Another, biggest problems here is with the lack of an online payment facility which slows down the whole order process (SS). Therefore, it is essential that the Bangladesh government focuses on this issue and helps RMG export SMEs to identify a beneficial solution. To solve that problem, however, a B2B e-commerce platform would be ideal for the RMG export SMEs, as they could place an order for raw materials, using the online platform, and the supplier could process it as quickly as possible. That would ultimately help to improve the delivery time and increase the efficiency of order processing. More importantly, the Bangladesh government needs to modify the rules and regulations of online foreign transactions so that organisations can pay each other easily and securely (NA, MISJ, HAB, HAJ, SSA, MKH). That would also help the Bangladesh government to monitor the activities performed by the RMG export organisations. If the RMG export SMEs could effectively use the system, it would benefit them to build a reliable business portfolio with both suppliers and buyers.

Summary:

The above discussion helps in gaining an understanding of the various factors that play an essential role in the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. The discussion provides a broader view of the subject matter by examining the findings identified through the NVivo analysis. In chapter 3; sections 3.7.1 and 3.8, I explained in detail how NVivo software helps with developing a theme from the raw interview data. Also, in appendix-3, a screenshot of NVivo analysis and themes are presented. These themes facilitate gaining a detailed understanding of the different participants' points of view regarding B2B e-

commerce adoption by the RMG export SMEs in Bangladesh. Below I point out the notable factors identified in the discussion above.

- The lack of senior-level management's knowledge about the benefits of B2B e-commerce adoption hinders RMG export SMEs. That is because most of the senior management of RMG export SMEs are refers to generation X. The generation gap plays an essential role in not considering transforming their business use to the online platform. Therefore, Bangladesh RMG export SMEs' lagging behind the use of ICT to conduct business online.
- The majority of the RMG export SMEs in Bangladesh suffer from a lack of modern ICT infrastructure (e-readiness). Therefore, most of the participants suggested that organisations need to improve their ICT infrastructure before considering adopting B2B e-commerce. Also, the lack of quality software organisations in Bangladesh, hence it is costly to get reliable software from abroad. Participants suggested that those problems can be solved with proper guidance, training and financial support by the government of Bangladesh and BGMEA to RMG export SMEs to ease the adoption of B2B e-commerce.
- The language barrier and delays in government bureaucracy restrict the RMG export SMEs in their adoption of B2B e-commerce due to non-existence of online foreign transaction policy.
- Organisational culture is one of the most significant problems restricting RMG export SMEs in their adoption of B2B e-commerce. Participants of this study pointed out that no business culture exists in the RMG sector that requires B2B commerce for completing transactions. However, they also suggested that this could be the reason due to the lack of availability of B2B e-commerce platform.
- Digital Bangladesh initiatives by the government of Bangladesh influence the overall development of ICT. Those initiatives did not, however, happened in the overall business development of RMG export SMEs. Bangladesh government did not specially design any infrastructure that might facilitate and secure the adoption of B2B e-commerce. For example, the lack of available, online, international money transfers hinders RMG export SMEs in completing B2B transactions online.

The above discussion facilitates understanding the factors for using the different components of the TOE framework. Some of the identified factors, however, need careful debate concerning the numerous relevant agents of the e-commerce adoption process for an organisation. For example, compare these identified factors to stakeholder acceptance towards the change process for the adoption of technology. That has influenced me searching for different tools so that the identified factors can be further explored using the stakeholder viewpoint.

It is evident based on the earlier research of Smyth and Checkland (1976), CATWOE analysis tools can be used to identify and solve problems, mostly in the messy environments of real-world businesses, by considering all of the perspectives and standpoints. Also, it provides insights into the issues by analysing the different views and attitudes of different audiences or participants on a common platform (Bergvall-Kareborn, Mirijamdotter and Basden, 2004). That allows getting an in-depth understanding of a problem for the integration of two or more viewpoints. Therefore, it is convenient to use the CATWOE analysis tool for further exploration of the problems in the chaotic business environment (Mulder, 2017). The RMG export businesses itself is complicated in nature, as organisations need to follow so many steps from finding new clients or orders to completion of the orders (HAB, Dr MAMT, NC, KIH). Each of the steps is highly connected with different stakeholder (Dr MAMT). Hence, in the following section, I would like to use the different elements of CATWOE analysis tools for further discussion of the factors that have already been identified in this research using primary data collection method of a face-to-face interview. I am also believing that use of the CATWOE elements for further discussion of the identified factors will help to get a broader understanding of Bangladeshi RMG export SMEs B2B e-commerce adoption from different perspectives of stakeholder.

5.2: Discussion of Findings Using CATWOE Analysis

CATWOE originated as a combination of real-world experience and gathering information in formal systems thinking (Smyth and Checkland, 1976). That aimed at establishing a connection between the disconnected views of software engineering approaches to the introduction of IT systems and the ‘real world’ problems facing businesses in technology adoption (ibid.). Based on the early work of Checkland and Wilson (1980), SSM is used as a tool to facilitate high-level communication between systems developers and clients – assistance to systems specifiers and software engineers. However, in this research context, I would like to use this approach to emphasise that I am ‘turning around’ the normal direction (from client to systems developer) to use CATWOE (and SSM) to evaluate and clarify the needs of the business owners themselves. This direction is aimed at how to help them understand the drivers and barriers to e-commerce adoption, rather than merely specifying technology requirements to outside software developers. Also, CATWOE analysis can assist RMG export SME businesses to determine where the obstacles are in meeting firm, strategic and operational requirements.

Furthermore, Basden and Wood-Harper (2006) pointed out that a good root definition helps to explore the subject matter (which all of the six components of CATWOE represent) and test the result of the subject matter by examining similarities and differences within a range of different perspectives. The root definition intended to facilitate exploring what is happening within the business scenario to discover if any elements of CATWOE are missing (ibid). According to Checkland (1981) if one of the elements of CATWOE is absent, then the analysis suffers.

In the context of Bangladesh RMG export SMEs’ B2B e-commerce adoption, CATWOE analysis can help to identify who the primary problem owner(s) are and what the main barriers are to adopt an e-commerce solution. Compared with the TOE framework, it helps to identify the factors affecting B2B e-commerce adoption using elements of CATWOE which go beyond the TOE (Technological, Organisational and Environmental), moving more towards the human factors, which affect e-commerce adoption. CATWOE analysis helps in splitting those factors identified in the use of the TOE framework and explaining their value from the different viewpoints of Clients, Actors, Transformation, Weltanschauung, Owners and Environmental constraints.

Thus, in the following section, I will use the CATWOE tool to define the root problems for and against e-commerce adoption of the identified factors. At the end of the discussion, it is aiming to develop a rich picture by using the significant factors associated with the adaptation of B2B e-commerce in Bangladesh RMG export SMEs context.

5.2.1: Clients

In a CATWOE analysis, the first step is to identify the clients or customers' view of the business change processes because they are the stakeholders and are most associated with the benefits or issues when a business system changes (Pham, 2014). Clients or customers are the people/organisations at the receiving end of the change process (Chiu, Chen and Chen, 2017). In the context of adopting B2B e-commerce by RMG export SMEs in Bangladesh, clients are mainly foreign buyers and suppliers who may or may not already have B2B related, modern ICT technologies to integrate with the changes in business operations.

According to Bigne-Alcaniz *et al.* (2009), B2B e-commerce might help both the clients and SMEs for more comfortable and quicker transactions over the internet. On the other hand, if the clients are not ready for the change, this may create some obstacles (Chang and Dasgupta, 2015). For example, integration of buyers', suppliers' and customers' ICT systems with the same e-commerce platform is an intricate and time-consuming process because every organisation has a unique way of doing business.

The data gathered from the responses to 'question number 19' has identified that a lack of support from business partners (MMHF, NA, NC and so on) and their lack of readiness to engage with B2B e-commerce (MH, NA, MISJ and so on) are the most significant inhibiting factors. That hinders Bangladeshi RMG export SMEs' adoption of B2B e-commerce. Most of the respondents' responses to 'question number 9', state that clients have never requested that they adopt B2B e-commerce for conducting online transactions. A few respondents mentioned that their clients want them to use only their ICT systems and to convey communications using their own (client) platforms (MW, SA1, FE). That indicates that if RMG export SMEs are considering adopting a B2B e-commerce platform to complete transactions online, they still need to persuade their clients to merge/integrate their system with the RMG export SMEs' systems. Also, some respondents answering, 'question number 15', believed that if the clients compel RMG export SMEs to adopt B2B e-commerce, then they are likely to adopt whatever

system proposed because the client always gets top priority in any process of the business (MW, MN, MISJ, HAJ, MS2, IHQ). This system may not, however, be primarily to the advantage of the export RMG SMEs; it may only be for the benefit of the client (in terms of cost and access to markets).

On the other hand, participant MW pointed out that business partners' ICT readiness is a crucial influencing factor for the adoption of B2B e-commerce by Bangladeshi RMG export SMEs. Majority of the participants identified that lack of business partners ICT readiness and their supportive nature are the main deterrents for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. For example, many Bangladeshi businesses, as well as government organisations, are not yet ready to complete business processes using the available ICT infrastructures (Dr MAMT, MAAK). Neither foreign clients have shown interest to do a transaction using an online platform. In that sense, presently, a mixture of e-commerce, paper-based and telephonic systems is best for handling B2B transactions for RMG export SMEs. This situation, however, needs to develop and RMG business partners need to cooperate for maximum use of available ICT facilities in Bangladesh.

5.2.2: Actors/Agents

Usually, employees play the role of actors/agents who are responsible for the implementation of business changes (Mehregan, Hosseinzadeh and Kazemi, 2012). Therefore, employees must understand which change the organisation is going through and how that change can help them to improve their business performance. Besides, change agents must have enough knowledge to implement the change. For example, in the context of Bangladesh RMG export SMEs, B2B e-commerce adoption requires change agents of the system to understand how the RMG business operates traditionally. Therefore, the e-commerce providers must have enough knowledge about the procedure of RMG business otherwise there may be a gap between the providers' understanding of the changed systems and internal 'actors' knowledge of their implementation. Also, whilst required change for e-commerce adoption is occurring, how an RMG export SME can move its operations onto an online platform, with least impact on current business operations, becomes critical.

Thus, respondent 'FE' pointed out people must associate the change process with a need to train and improve their skills for the implementation of B2B e-commerce within their

organisations. Also, the findings of this research identified that the lack of RMG knowledge ICT skilled human resources is one of the inhibiting factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh (MW, MZA, MZR, NA, MAR, SS, SA1, MAAK, SA2). On the other hand, majority of the respondents taking part in this research pointed out that there is plenty of ICT expert in Bangladesh (MN, Dr MAMT, NC, SAM, MDH, MRH). They are not, however, skilled ICT experts who know how the RMG export business operates and in what ways RMG export businesses in Bangladesh may use online platforms to improve their businesses and engage in the world RMG market. These responses are precisely the kind of ‘gap’ between ICT Solutions providers and RMG export SME actors mentioned above. To overcome this problem, most of the respondents suggested, through their answers to ‘question number 21’, that the Bangladeshi government and BGMEA need to create initiatives to introduce special education and training program that can facilitate producing more RMG ICT experts. It is evident from the data that training is essential for the development of RMG ICT skilled human resources that will help easy adoption of ICT in an organisation. (MMHF, NA, MISJ, NC, SAM, MSA, MIH, KIH, MDH, MFH and so on).

5.2.3: Transformation

Transformation is the process of change that the system brings about. For example, if the organisation is moving its business operations from offline to online, this can help them to operate their business remotely and reach more customers (Panula, 2017). To transform business activities, organisations need to acquire modern ICT technologies; therefore, organisations need to invest (SAM, MSA, KIH, MKH, BA). Thus, the availability of financial support can influence organisations in deciding to purchase technology. In the Bangladesh RMG export SMEs’ context, respondents identified that higher interest rates (SAM, MAR, MSA, SA1, MDH, MS2, MRH) and uncertainty about the present business environment (MIH, SSA), lack of availability of trustworthy software (MZR), lack of third-party websites (MIH, MMR) and RMG export SMEs’ ICT infrastructure (ZH, MFH, MAAK, NMAR) are the main hinders for the transformation of current RMG export business to B2B e-commerce online platforms.

To adopt modern technology, organisations need to be competent to utilise it. The participants of this study, however, stated that Bangladeshi RMG export SMEs are not yet ready to adopt

B2B e-commerce (HAB, Dr MAMT, NC, KIH, SA2). Therefore, RMG export SMEs need to improve their ICT capabilities to adopt B2B e-commerce. To help RMG export SMEs become competent in the adoption of B2B e-commerce, they need to change their internal infrastructure, which requires investment. So, the organisations must have enough investment before considering transforming their businesses (SAM, MSA, KIH, MKH, BA).

On the other hand, RMG export SMEs do not get enough financial or technical support from either the government, the BGMEA or financial institutions for transforming their business operations from offline to online (MW, MZA, MSA, SH, MFH, FE, MRH). The participants of this research suggest that the Bangladesh government and BGMEA could facilitate a low-interest rate credit facility and create online platforms to assist organisations in the adoption of B2B e-commerce. Also, respondents suggest that if both the government and BGMEA take initiatives to develop a common platform, that would take away the need for organisations having to invest large amounts of money in software and platform development (MN, MFH, MH, ZH, BA, NMAR). It would also influence buyers' attitudes positively because of the authorities in the country and industry will endorse that B2B e-commerce platform simultaneously.

Most importantly, for the transformation of the business, it is evident in the answers to interview 'question number 21' that SMEs need to improve their infrastructure for adopting B2B e-commerce (MW, MMHF, MH and so on). Also, I believe that senior-level management of the RMG export SMEs needs to show a positive attitude towards the transformation process involved to transfer their business activities in a virtual platform.

5.2.4: Weltanschauung

Weltanschauung is also known as the "Worldview" of the transformative processes needed. These processes need to analyse in the broader context of different actors/agents' perspectives of the changes and their implications. For example, various people have diverse justifications for their view of the change in similar situations. Therefore, the primary differences in support of their worldviews need to make explicit the different worldviews of owners, actors and agents about e-commerce adoption. Participants of this study identified various motivating and

inhibiting views concerning B2B e-commerce adoption by RMG export SMEs in Bangladesh (discussed in chapter 4, section: 4.23).

Although, the participants of this study have different views about RMG export SMEs' B2B e-commerce adoption. Despite, they would be optimistic about adopting B2B e-commerce if the government and BGMEA take on this matter jointly and facilitates to fulfil all the requirements (IHQ, MMR, Dr MAMT). Hence, participants believe that in this way, B2B e-commerce platforms can be successful and may create an opportunity for RMG export SMEs to expand their businesses all over the world. It is not easy to see, however, which justificatory 'world view' appeals to most RMG export SME respondents. A few participants of this study, who did not want to disclose their names, pointed out that majority of the leaders of the BGMEA own large organisations and, thus, do not share the views of smaller RMG businesses. Also, large organisations have enough money, so their primary concern is how they can run their businesses instead of considering smaller RMG export SMEs. The differences in 'Weltanschauung', it would seem, therefore, reside in part, in access to resources – finance in particular – which may inhibit the uptake of e-commerce solutions by less well-resourced businesses.

Respondents (MMHF, MH, Dr MAMT) also mentioned that larger organisations do not want smaller SMEs to form online relationships with clients, so there is little information from the BGMEA (i.e., communication information) about actual and prospective buyers. Although BGMEA officials mentioned that they subsidise different business fairs and seminars to introduce buyers to sellers, there are real communication barriers which form one of the main issues here. For example, for face-to-face communication, buyers and sellers need to understand each other's languages, else there is little chance that their conversations can go further. People may argue that they can communicate with the use of an interpreter. In reality, language differences are a barrier to any business deal. It is not clear, of course, that e-commerce solutions could (on their own) overcome the language barriers to buyer-seller communications without the mediation of technologies which enable rapid and accurate online translation services. Such services (just as with interpreters) increase the cost of buyer-seller interactions.

B2B e-commerce can remove problems of language difference because, nowadays, there is software that can translate between languages. For example, Google Translate can facilitate

translation from one language to another (Wu *et al.* 2016). Even the negotiators can take more time to understand what target clients want and reply accordingly. Therefore, participants suggest that the Bangladeshi government needs to take the initiative and develop mediating services (including translation) for B2B e-commerce. That also helps smaller RMG export SMEs can enjoy the freedom to find new clients and enter into new markets without paying for the help of third parties.

On the other hand, expert respondent 'MMR' argues that the RMG sector is a 'touch and feel' industry (clothing) and, therefore, e-commerce cannot replace face-to-face interaction between buyers and sellers. If we look into the DHgate.com B2B e-commerce platform, however, we can see that many suppliers and buyers in the RMG business complete their transactions using an online platform. Most importantly, Bangladeshi RMG export SMEs can make initial contact with their clients and start their businesses using sample exchanges that can slowly build confidence and eventually lead to conducting online business transactions. That is, however, depends on both parties communicating via the same online platform; to make this successful (Shemi, 2012). Therefore, organisations need to cooperate and aim for integration of the most suitable identification, communication and information sharing opportunities (Ponis, Van der Eijk and Masselos, 2012).

From the above discussion, it is clear that the participants of this study have different views about the adoption of B2B e-commerce by RMG export SMEs in Bangladesh. For example, a lack of perceived relevance to the RMG sector, unfamiliarity with the B2B e-commerce business and insufficient support for overcoming language differences are all concerns frequently raised by the participants.

5.2.5: Owners

The problem owners in a CATWOE analysis is not necessarily the owner of the company (Pham, 2014). It is crucial to identify who owns the problem and whether the problem owner has the authority to progress the relevant decisions. Therefore, it is essential to determine who owns the problem within the change process so that appropriate decisions can be made to fix the issue. In the context of the Bangladeshi RMG export-oriented SMEs, most of the respondents (29 out of 36) identified through their answers to 'question number 18', that

business owners and senior-level management do not have enough knowledge about B2B e-commerce and its potential. They are, therefore, not aware of how it can facilitate expanding their businesses beyond their current capabilities. In that sense, enthusiasts for e-commerce solutions at lower levels of management, within an SME, 'own' the problem that their access to (and support from) higher levels of authority (or lack of support) inhibits their ability to promote e-commerce solutions.

In Bangladesh, RMG export-oriented SME business owners and senior-level managers are the principal problem owner for adopting B2B e-commerce, identified through the data of this study (answer to 'question number 18'). For example, when this investigation's face-to-face interviews took place, most of the RMG export SMEs respondents did not feel confident enough to talk about B2B e-commerce because of their lack of knowledge of how it works and what it may involve. The large RMG export organisations' respondents, however, were usually competent enough to answer the question about e-commerce systems. That indicates that they have more knowledge than the SMEs' respondents. It does not, however, show that senior managers in smaller organisations (typically) were resistant to e-commerce adoption because of lack of knowledge; nor does it indicate whether that familiarity and enthusiasm for e-commerce existed at lower levels of their organisations. Further investigation would be needed to identify whether this familiarity exists and whether resistance to changes required was an inhibitor to adoption by SMEs in the RMG sector.

Many participants (29 out of 36) of this study pointed out that the biggest problem in the RMG sector's ICT adoption is the lack of senior management's knowledge about its benefits (i.e., B2B e-commerce systems). The overall discussion and the findings of this research (answers to 'question number 18') clearly show that the lack of senior management's knowledge about B2B e-commerce adoption is the main barrier to entering into B2B e-commerce business systems. To overcome this problem, respondents (MW, MN, MZR and 20 more participants) suggested that training and development programmes are essential for owners and managers so that they can better understand the benefits of B2B e-commerce (answer to 'question number 21'). In reality, however, such development programmes may be extremely tough to introduce. Few SME business owners or senior managers are likely to take up opportunities to undertake such 'training'; few (it appears) would have an incentive to do so. Some respondents pointed out that the Bangladeshi government and BGMEA could facilitate this kind of training programme and make it mandatory so that owners and managers would participate (HAB,

SAM, MMR). It is unclear, however, whether ‘mandatory’ training/development programmes will be useful in improving their knowledge of how B2B e-commerce works and what benefits they can achieve from it.

5.2.6: Environment Constraints

Environmental constraints, which may also be called “external constraints,” can hamper or restrict the changes in operational systems that an organisation may consider (Mulder, 2017). For example, financial limitations, resource constraints, export business rules and regulations, limitations of the scope of the project, risks associated with making changes and so on (Al-Somali, 2011; Pham, 2014). From the Bangladesh perspective, many environmental constraints inhibit the consideration of B2B e-commerce adoption by RMG export SMEs, including lack of government support, lack of financial aid, political instability, lack of a consistent power supply, lack of infrastructure, as well as a lack of RMG ICT-skilled personnel (evident from the answer to ‘question number 19’).

Although some of the participants pointed out that they are benefitting from government ICT related initiatives, the reality is not the same about B2B e-commerce adoption. There is no specific ICT e-commerce system dedicated to RMG export businesses and a little history of the development of suitable systems that may be compatible with current business operations (MW, SAM, ZH, HAJ, MMR, BA and so on). Thus, RMG organisations have not benefitted in the way they should have from government initiatives. For example, I asked in ‘question number 20’ chapter 4, about whether they gain any benefit from ICT-related actions by the Bangladesh government. Participant ‘NC’ replied, “Yes they are benefitting from government ICT-related initiatives”. He defines the advantage received from the government, however, as just reducing the amount of paperwork, being made aware of developments in the digital sector and providing a general understanding of business ICT. These responses do not reflect the question I asked initially about e-commerce.

In chapter 2; sections 2.11, I discussed the literature related to e-commerce adoption by SMEs in Bangladesh and government initiatives related to B2B e-commerce adoption by RMG export SMEs. In previous research, Azam and Quaddus, (2009), Sharma and Gupta (2009) and Zhu (2009) identified that there is a lack of technological infrastructure and that legal issues in

developing countries deter organisations from adopting B2B e-commerce. In recent years, however, the Bangladesh government has undertaken some development in the ICT sector, but this does not particularly concern the RMG sector.

Currently, political parties in Bangladesh are suffering from poor public perception, partly owing to controversies arising from the recent general election, held in December 2017. If the main opposition party comes to power, they are more likely to change the current government's ICT plans. In this sense, political uncertainty acts as an environmental constraint, at least during this period in Bangladesh.

Moreover, inter-country online payment facilities and the lack of a standard for online payment systems across Bangladesh are other significant environmental factors which hinder completing transactions online. In part, this may be because of legal rules and regulations, unfamiliarity and security concerns about online payments which restrict the adoption of B2B e-commerce by individuals and businesses. Participants' (MW, MZA, MH, Dr MAMT and so on) responses to 'question number 13', indicated that RMG export-oriented SMEs, by themselves, are not capable of overcoming all of these legal, political and financial constraints. The government and the BGMEA, therefore, need to facilitate long-term planning, especially for RMG export SMEs, so that they can expand their businesses through the use of B2B e-commerce online platforms.

In Bangladesh, the overall development of infrastructure is currently occurring. There are, however, still big problems; for example, electrical power cuts persist (MIH, SA1, IHQ, NMAR). That happens frequently and leads to inconsistent internet provision because suppliers are unable to generate enough power (NMAR) for the smooth operation of the internet. Also, internet providers are not up to date with their infrastructure, so they are unable to use their power supplies to keep an uninterrupted internet service running. It is, therefore, essential that the Bangladesh government look into this matter, giving priority to overcoming these environmental challenges for the easy adaptation of B2B e-commerce and provide uninterrupted online service for the RMG export SMEs in Bangladesh.

From the above discussion, it is clear that the CATWOE analysis of the TOE related factors provides us with greater detail of the factors gleaned from the TOE analysis. Also, a concise viewpoint of the above discussion helps to establish a rich picture of the problems related to

this study. To visualise that rich picture, the following figure 9, was developed by using deferent elements of CATWOE. This rich picture helps us to quickly identify the main constraints associated with B2B e-commerce adoption in the context of RMG export SMEs in Bangladesh.

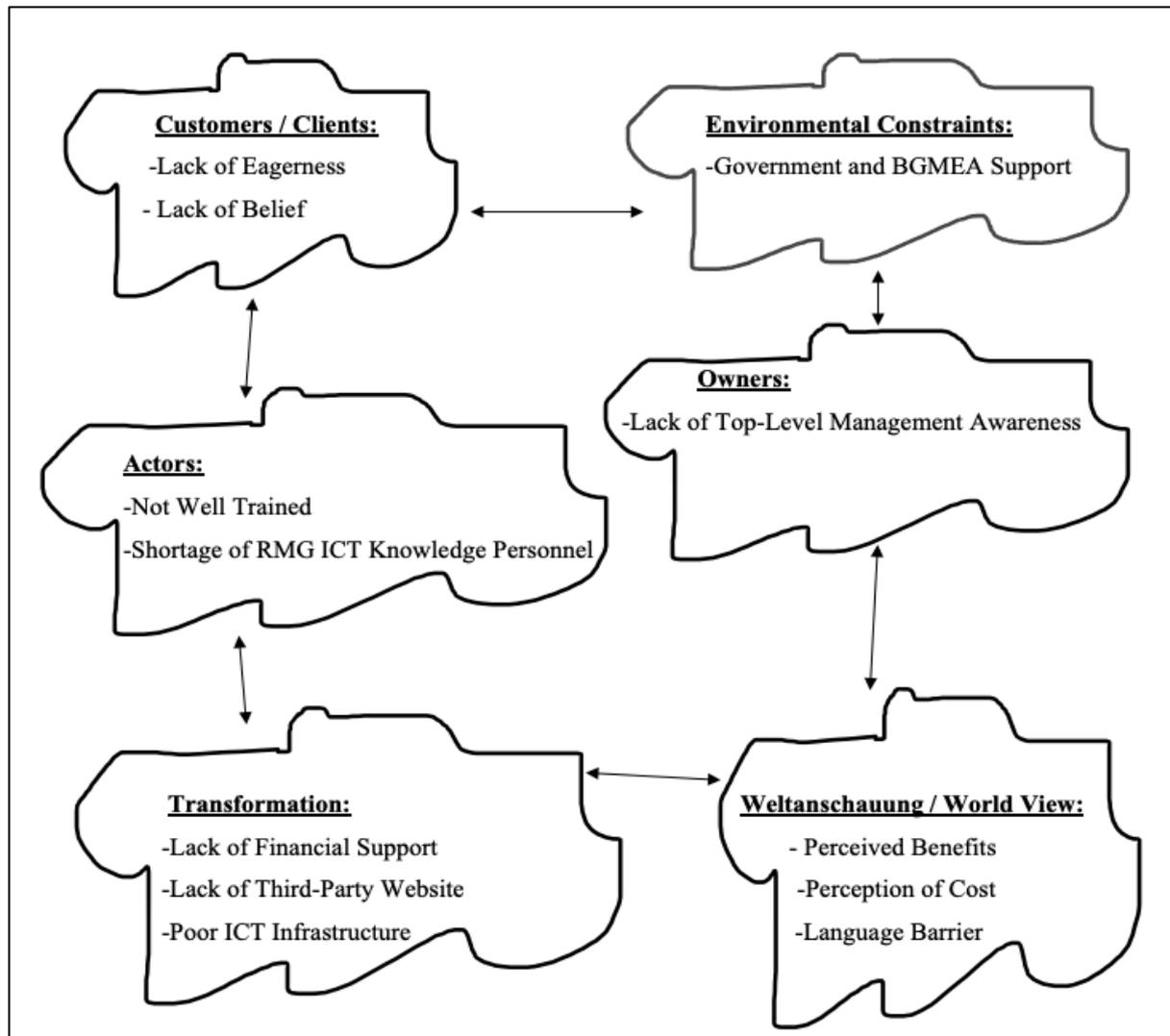


Figure 9: Rich Picture of the Main Factors of B2B e-commerce Adoption.

Throughout the discussion and analysis of the research data, it is clear that government of Bangladesh, BGMEA and RMG export SMEs will need to play a crucial role to overcome any problems related to B2B e-commerce adoption by RMG export SMEs in Bangladesh. Therefore, in the following section different elements of CATWOE are summarised to identify the range of problem owners and associated factors related to B2B e-commerce adoption and

understand clearly exactly who owns which parts of the elements of the CATWOE in relation to the government of Bangladesh, the BGMEA and RMG export SMEs.

Summary of CATWOE Analysis:

In this section, different elements of CATWOE are summarised to define the stakeholder, as well as to identify and illustrate the problem owners of the factors related to B2B e-commerce adoption.

Different elements of CATWOE and abbreviation	Emphasise the stakeholder in the perspective of this study by using CATWOE components	The problems identified from interview questions using the different elements of CATWOE definitions	Relevant problem owners associated with the adoption of B2B e-commerce by RMG export SMEs
C = Client	Foreign buyers and suppliers	Lack of eagerness and trust from business partners and their readiness to adopt B2B e-commerce (responses to 'question numbers 16 and 19')	External to Bangladesh Senior management of RMG export SMEs
A = Actors	Employees of the RMG export SMEs	Lack of RMG-ICT skilled human resources because of a lack of available training (responses to 'question numbers 11, 13, 15 and 18')	Senior management of RMG export SMEs, Bangladesh government and BGMEA
T = Transformation	Organisations ICT capabilities	Not well-established ICT infra-structure especially in the RMG export SMEs (responses to 'question number 21'). Lack of financial support (responses to 'question number 13'). Lack of third party mediating online sites (such as portals or payment processing facilities)	Senior management of RMG export SMEs, Bangladesh government and BGMEA Senior management of RMG export SMEs and the Bangladesh government Bangladesh government and BGMEA

		<p>(responses to ‘question number 14’).</p> <p>Lack of available training facilities (responses to ‘question number 11’).</p> <p>Lack of sector-specific B2B e-commerce software (responses of ‘question number 17’).</p>	<p>Senior management of RMG export SMEs, Bangladesh government and BGMEA Bangladesh government and BGMEA</p>
W = Weltanschauung (World View)	Senior management perceptions about expanding business around the globe by using B2B e-commerce platform	<p>Perception of cost (responses to ‘question number 18’).</p> <p>Lack of perceived relevance to the RMG sector (responses to ‘question number 16’).</p> <p>Resistance from larger organisations to enable buyer-seller communications (responses to ‘question number 16’).</p> <p>The unfamiliarity of RMG export SME business owners (responses to ‘question number 13’).</p> <p>Insufficient support for overcoming inter-country language differences (responses to ‘question number 17’)</p>	<p>Senior management of RMG export SMEs</p> <p>Senior management of RMG export SMEs</p> <p>BGMEA</p> <p>Senior management of RMG export SMEs</p> <p>Senior management of RMG export SMEs</p>
O = Owners	Senior management of the RMG export SMEs	<p>Lack of senior management knowledge about the benefits of B2B e-commerce adoption (responses to ‘question numbers 13 and 15’).</p> <p>Scepticism about the direct benefits to RMG businesses (responses to ‘question number 15’)</p>	<p>Senior management of RMG export SMEs</p> <p>Senior management of RMG export SMEs</p>

E Environmental Constraints	= Government negligence and lack of long- term planning	Lack of government and BGMEA support; political instability and uncertainty; as yet under-developed systems for managing online transactions; (responses to ‘question numbers 11, 16 and 21’). Overcoming fears about security and fraud (responses to ‘question numbers 17, 18 and 19’)	Bangladesh government and BGMEA Senior management of RMG export SMEs, Bangladesh government and BGMEA
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Table 19: Summary of CATWOE Analysis.

In table 19, the information in the second column from the left, emphasises the different stakeholder relationship in this study perspective. The details about the stakeholder perspective for the adoption of B2B e-commerce is then further considered in the novel conceptual framework. The third column from the left identifies the problems associated with each stakeholder. The final column shows the relevant problem owners associated with B2B e-commerce adoption by RMG export SMEs. From that column, it is evident that the majority of the CATWOE elements indicate that senior-level managers of the RMG export SMEs are the central problem owners regarding the adoption of B2B e-commerce (discussed at section 5.2, using the components of CATWOE). The CATWOE element, ‘Owner’, is mainly associated with identifying the problem owners and fully supports the statement that the senior management of the RMG export SMEs need to take the initiative and adopt B2B e-commerce for conducting business activities. The government of Bangladesh, the BGMEA and foreign clients, however, need to play their part in the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

The above discussion helps us to understand how the elements of CATWOE enable us to identify what needs to improve, as a whole, within the sector and, more broadly, for SMEs to consider adopting B2B e-commerce. The CATWOE elements do not, however, enable us to develop a framework to integrate all of the factors identified in this research in a form which could guide SME businesses. Also, in this research e-readiness was seen as a practical issue and was not further developed in the theoretical literature after Kettinger and Hackbarth (1997), as the e-commerce field moved to focus on value, value creation and value integration in B2B

practices. The organisations that continued to refer to e-readiness were largely consultancy based, who were reporting on comparisons between developing and developed countries (Awajan *et al.* 2013; Mutula and Van Brakel, 2006). There are no references to value integration in B2B in Bangladesh in the RMG sector and I speculate that the nature of e-commerce adoption is seen to be stagnant in this field, hence no recent study has attempted to resolve how the e-readiness position can determine value creation and competitiveness which are key features of the later stages of e-commerce.

This study, however, is not about only identifying the overall level of e-readiness to RMG export SMEs in Bangladesh but also, finding out the various factors related to the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. In the Bangladesh RMG export SMEs context performing business through B2B e-commerce platform is a new concept. Therefore, identifying and analysing the factors are not sufficient for decision-maker of RMG export SMEs in Bangladesh to understand different factors associated with the B2B e-commerce adoption. Therefore, it is vital to visualise the various problem owners and factors that are affiliated with the B2B e-commerce adoption. That encouraged me to develop a conceptual framework so that all of the identified factors and problem owners can be visualise by bringing together under a frame. Also, it has been an objective of this research to develop a conceptual framework. That conceptual framework is formed by considering all the pieces of the puzzle and includes all of the above-identified problem owners. Each of those problem owners could take advantage of what kinds of benefits are available to them if they intend to invest in adopting technology for the RMG sector. Different e-commerce adoption model considered for the development of the conceptual framework by compartmentalising the result of this research.

In chapter 2; section 2.17 various e-commerce adoption models were stated. From that, I intend to use Hackbarth and Kettinger's (1997) "e-commerce network model", that was used previously to develop a framework in a small business context to connect the disparate elements of the TOE and SSM (CATWOE) analyses. That model can guide RMG export-oriented SMEs in Bangladesh towards the adoption of B2B e-commerce. In extracting those features that are associated with the RMG export SMEs and fitting them to the e-commerce network model, it is now more clear which decisions they need to give their attention to. In advance of the findings, I would also like to use elements of the CATWOE root definition of the factors to identify the relevance of the components of the e-commerce network model

developed by Kettinger and Hackbarth (1997). In the literature review (chapter 2; section 2.17), I explain how e-commerce network model guides technical personnel when developing a system to ease the adoption process of B2B e-commerce by the RMG export SMEs in Bangladesh. In the following section, I discuss in detail the development of the conceptual framework.

5.3: Development of a Conceptual Framework

The final section of this chapter consists of the development of a conceptual framework to guide Bangladeshi RMG export-oriented SMEs in evaluating the processes and factors involved in B2B e-commerce adoption. For the development of this framework, I followed the reasoning discussed below.

In the earlier discussion of the TOE framework in chapter 2; section: 2.14, I discussed the TOE and its uses. Initially, the TOE framework used to design questions for gaining an understanding of the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. In figure 8 shows those motivating and inhibiting factors identified by the participants of this research. These factors play an essential role in inhibiting or enabling the adoption of B2B e-commerce by RMG export-oriented SMEs. Participants of this study argued that, if the inhibiting factors turned into motivating factors, this would ease the adoption process for B2B e-commerce (responses to ‘question number 21’).

Although the TOE framework itself helps to identify the factors related to the research area, it does not, however, provide an in-depth understanding of the issues identified in my primary data. For example, data gathered using TOE does not indicate who owns the problem and where the problem owners link to the adoption process of B2B e-commerce by the RMG export SMEs. In the previous section (5.2), I used CATWOE for a more detailed discussion to provide a deeper understanding of those factors. That ultimately facilitates understanding how those factors associated with the adoption process of B2B e-commerce solutions by RMG export SMEs in Bangladesh might relate to the SME businesses’ e-readiness, alongside external factors (for example, government support).

From the above discussion, it is clear to me which factors are motivating and inhibiting RMG export SMEs in Bangladesh from adopting B2B e-commerce technologies and operational

processes. The TOE framework and CATWOE analyses do not, however, by themselves, accommodate all of the factors identified in this study. Neither do they provide a framework to guide Bangladeshi RMG export SMEs in planning the adoption of B2B e-commerce solutions? I, therefore, undertook to develop a model that could illustrate a path for RMG export SMEs in Bangladesh to ease the adoption process. In developing that framework, as mentioned above, I sought to supplement the TOE and SSM (CATWOE) analyses with the use of Kettinger and Hackbarth's (1997) e-commerce network model.

Some may raise the question of why I used their e-commerce network model rather than the TOE framework by itself for the development of a conceptual framework. The reason is that it helps to fit together and integrate the factors identified by this study in a form which may provide a guide to how those factors can influence RMG export SME owners and managers when considering adopting B2B e-commerce solutions for their businesses. In my view, the TOE framework does provide a way of 'classifying' important considerations: technological, organisational and environmental. It does not, however, give a clear idea of how to evaluate the relative weight of each factor (in terms of benefit or risk), with the current state of the SME businesses concerned i.e., their readiness for the kinds of change e-commerce adoption entails. That is one of the crucial dimensions for considering B2B e-commerce adoption identified by the participants of this research (respondents' replies to 'question number 18').

To gather the knowledge, e-commerce network model assists the evaluation of e-commerce adoption (readiness, benefits and cost) in small firm contexts. Although this model usually used in smaller firm contexts, the themes of integration and the dimensions could apply to either small or medium-sized businesses. For example, this research appears to show that Bangladesh RMG export-oriented SMEs, both small and medium-sized, are facing similar problems and their evaluation of the potential of e-commerce adoption is related. Also, the e-commerce network model points out that the adoption and integration of e-commerce technology need to address four different dimensions: perceived benefits, organisational readiness, external pressures, as well as trust and cooperation between firms. In chapter 2; section 2.17.1, I discussed the e-commerce network model, which includes consideration of the benefits of e-commerce adoption and a guide to overcoming the problems identified in terms of 'e-readiness'. These dimensions fit quite well with the factors identified in this research, although, I removed the technological aspect from the organisational dimension. The reason for separating the technological perspective from the organisational perspective is that it has a

much higher level of importance for this research which facilitates to understand the overall advancement of digital infrastructure. The technological perspective, therefore, can no longer be a part of the organisational construct and it has to appear in a separate construct in its own right. In that case, the organisational readiness to the technological aspects and the relevant issues associated with that elaborated in a much more detailed way in the novel framework. Also, to establish the framework, I used both the motivating and inhibiting factors identified by the research introduced in figure 8. These motivating and inhibiting factors aligned with the e-commerce network model developed by Kettinger and Hackbarth (1997). That alignment carried out based on the root definitions obtained from the dimensions of the CATWOE analysis (Checkland, 1981) summarised earlier in this chapter (table 19).

To make connections between the factors identified earlier with the e-commerce network model, I undertook the following ‘mapping’ to present and link the problem owner with the adoption and integration of B2B e-commerce, as well as to identify the different constructs needed for consideration of the adoption process. Below I develop a novel conceptual framework influenced by the TOE framework, SSM’s CATWOE analysis and e-commerce network model, as well as an evaluation of the findings of this research. The combination of all of these contributes to the design of the novel conceptual framework.

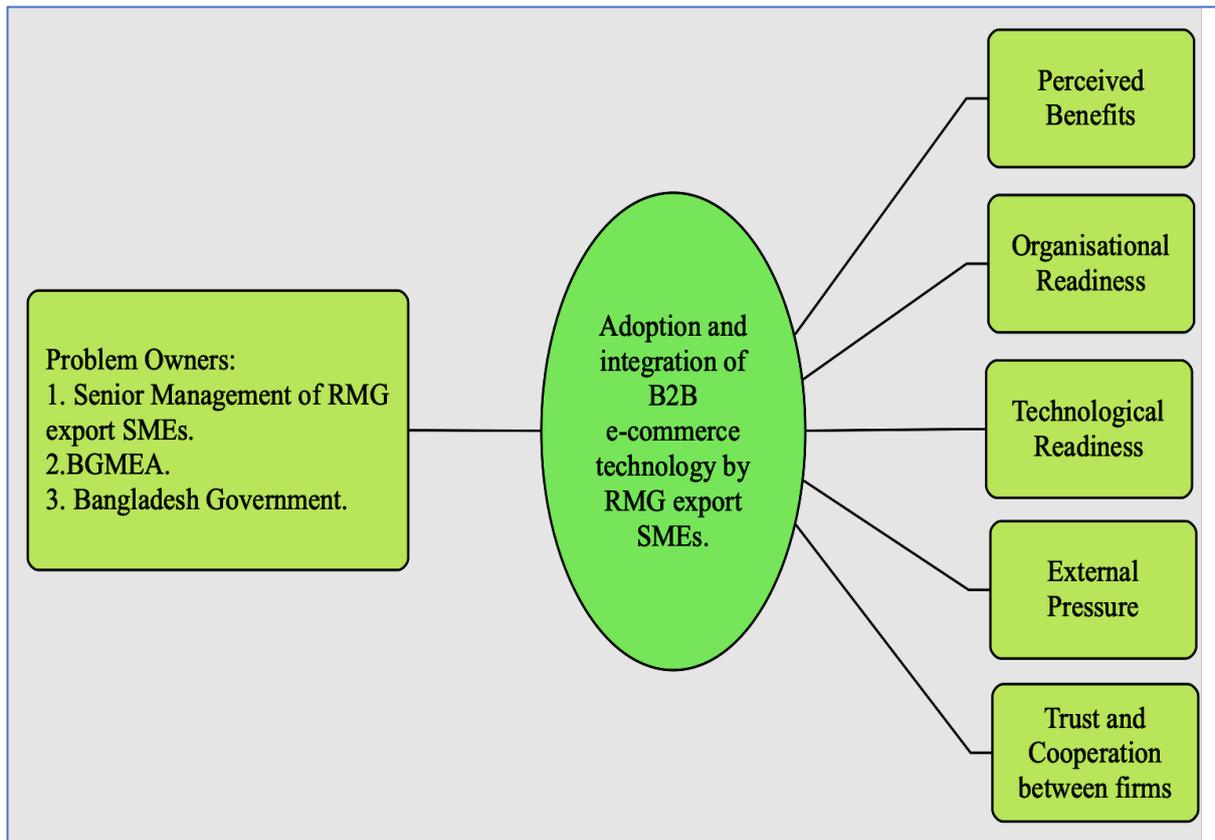


Figure 10: The Novel Conceptual Framework for the Adoption of B2B e-commerce by RMG Export SMEs in Bangladesh

The above diagram (figure 10) demonstrates the relevant problem owners (on the left-hand side), as well as five different constructs (on the right-hand side), needed for consideration of the adoption and integration of B2B e-commerce by the RMG export SMEs in Bangladesh. The problem owners and the constructs are positioned from the top downwards based on their significance in the adoption process of B2B e-commerce. The novel conceptual framework further illustrates the practical implication for B2B e-commerce adoption context. The next figure shows in detail what exactly the features are that using each of those five constructs.

In the following section, figure 11 the emphasis is placed on providing a more detailed version of the comprehensive framework by capturing all of the building blocks, that project their importance as meaningful factors for the adoption of B2B e-commerce by RMG export SMEs in Bangladesh.

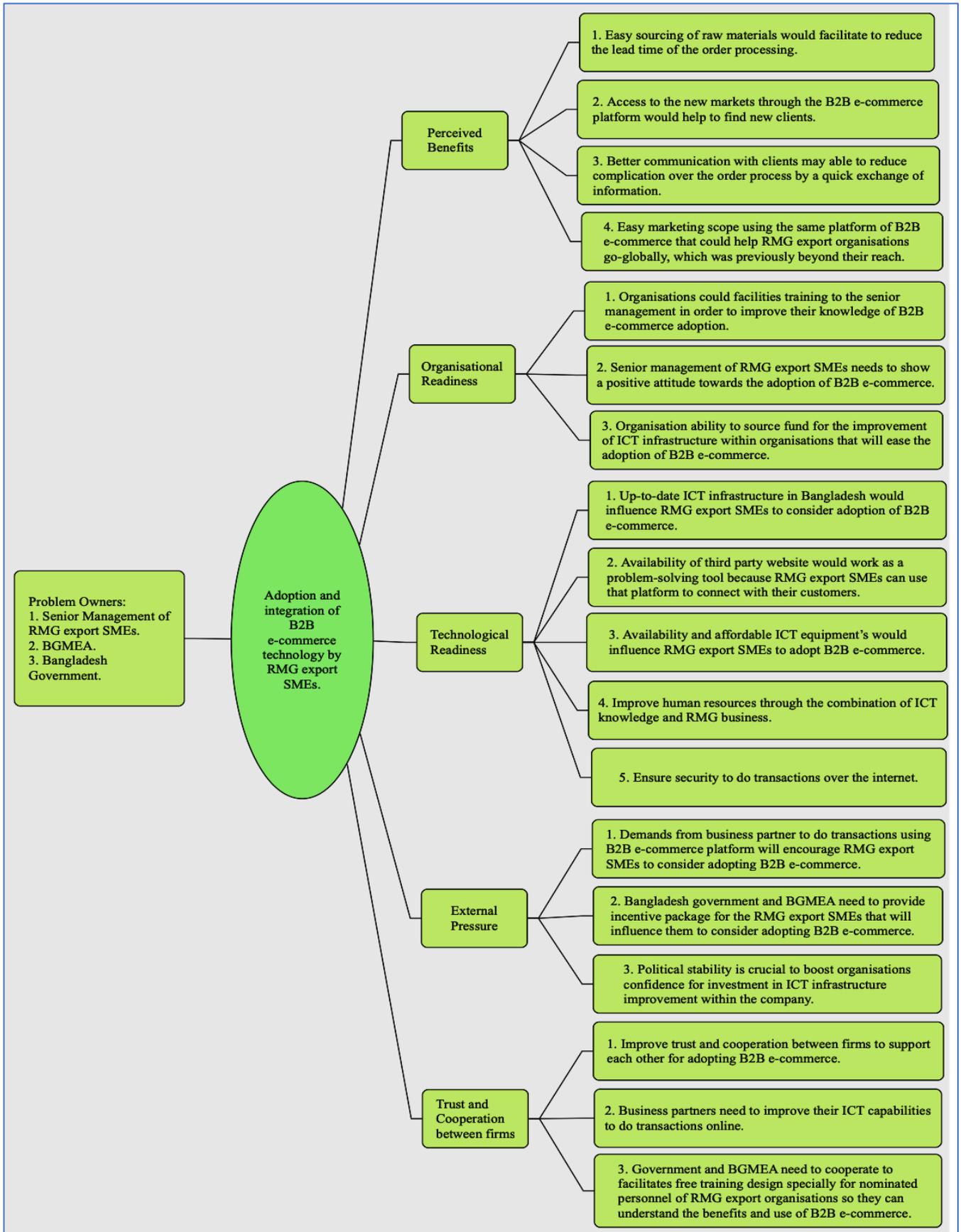


Figure 11: Comprehensive Conceptual Framework for the Adoption of B2B e-commerce by RMG Export SMEs in Bangladesh

Below, I discuss both the motivating and inhibiting factors chosen for the framework through the use of Kettinger and Hackbarth's (1997) "e-commerce network model". These factors emerged through my analyses of the participants' responses and are used to develop the framework.

5.3.1: Perceived Benefits

Kettinger and Hackbarth (1997) define the perceived benefits of e-commerce adoption to be identifying new customers, cooperative sourcing, increased operational efficiency, reduction of inventory costs, improved customer/client services and improved cash flow. The perceived benefits to RMG export-oriented SMEs in Bangladesh are the extent to which the business partners (especially buyers and suppliers) are willing to participate in an e-commerce network. The issues (barriers), here, are whether (a) these benefits are recognised by RMG export SME businesses and (b) whether these benefits outweigh the costs and risks of adoption. Through this research, the perceived benefits identified and aligned with the e-commerce network model. These include better communication with clients, improved accessibility to new markets, access to marketing opportunities world-wide and sourcing of raw materials from suppliers to obtain the best products and prices. These benefits should enable SMEs to reach and interact with actual and potential buyers and suppliers anywhere, without the associated costs of travel, physical communication with clients and suppliers, attendance at trade fairs, extensive traditional marketing, as well as employment costs of international sales representatives. All such benefits, however, rely upon the willingness of suppliers, customers, clients and business partners to adapt their business processes to the technologies introduced.

5.3.2: Organisational Readiness

Organisational readiness is an essential part of an SME's e-commerce evaluation because it is associated with the technological infrastructure within the firm, and the financial and skills-based resources of the firm (Kettinger and Hackbarth, 1997). Typically, SMEs do not have sufficient, liquid financial capital to undertake large-scale process re-engineering and staff re-training. They cannot, therefore, afford to invest in the installation and implementation of e-commerce technologies in their businesses, on a custom-made, one-by-one basis (ibid., 249). Also, the costs related to installation, subsequent enhancements to the implementation, usage

fees and available human resources to handle the technology are critical factors that businesses need to consider before joining virtual networks. “Off-the-shelf” solutions, however, in terms of portals and cloud-based services, may mitigate some of these initial costs, though, this research has not addressed the comparative costs of alternative e-commerce solutions for organisations.

For Bangladeshi RMG export-oriented SMEs, the organisational readiness for B2B e-commerce adoption is not yet in a position for them to consider adopting and running businesses using online platforms (responses of ‘question number 13’); for example, the lack of senior management’s knowledge about the benefits and scope for adoption (30 respondents’ answers to ‘question number 13’). The government of Bangladesh or BGMEA organisations could contribute to overcoming this lack of readiness by offering training and familiarisation facilities to the owners and managers of RMG export-oriented SMEs to help them understand the benefits of adopting the technology. It is not clear from my research data, although, what the uptake of such offers might be by senior managers and business owners.

There may be “e-commerce champions” – i.e., individual employees at the lower levels of management - within RMG export SMEs. Without external support, however, those “champions” may risk piecemeal adoption of technological solutions without having the power to commit sufficient resources to business-wide e-commerce solutions. Financial support needs to be offered to the RMG export SMEs so that they can improve their ICT infrastructure to avail themselves of B2B e-commerce solutions on a business-wide basis.

The overall implementation, installation and ongoing costs of B2B e-commerce systems need to be minimised by offering extra incentives for online communications, transactions and marketing, as global RMG markets are highly competitive (IHQ). The participants of this study suggested that the government of Bangladesh and the BGMEA need to promote the sourcing of financial support that would help to overcome these hurdles (HAB, MFH, SSA, MKH’s responses to the ‘question number 21’).

5.3.3: Technological Readiness

Technological readiness is another fundamental factor associated with the overall ICT infrastructure of a country or organisations that directly linked with the adoption of technology (Poorangi *et al.* 2013). In the Kettinger and Hackbarth (1997) e-commerce network model, the technological construct included within the organisational readiness construct. On the other hand, the data of this study were mainly collected based on the TOE framework, so, the technological construct has a high level of importance in this research, therefore, it needs to separate for its own merits. Therefore, technological related factors can be incorporated within the technological construct. That would provide clarity for the decision-makers of RMG export SMEs regarding technological readiness while considering the adoption of B2B e-commerce.

This research has identified five crucial factors that are related to technological readiness. These include the ICT infrastructure in Bangladesh, the availability of the third party B2B e-commerce websites, affordable ICT equipment, ICT experts who understand the operations of RMG businesses and security of online transactions.

The majority of the respondents (based on the answers to ‘question number 20’) pointed out that, currently, in Bangladesh, the overall ICT infrastructure is at an acceptable level. Using an online platform to perform business activities, however, has not yet been developed within RMG export SMEs. For example, the respondents in this research stated that their organisations would like to use online platforms, although they are worried about the cost associated with the implementation and adoption of B2B e-commerce. A third-party online platform, therefore, could help to remove the obstacles associated expense; for example, RMG export SMEs could use third party online platforms without implementing a full set-up to conduct B2B e-commerce.

Furthermore, respondents MW, MZA, MZR, NA, MAR, SS, SA1, MAAK, SA2 and BA pointed out in their responses to ‘question number 21’, that it is also essential to develop RMG ICT skilled human resources for the easy adoption of B2B e-commerce. They also indicated that, currently, ICT experienced human resources are available in Bangladesh though they lack the ICT skilled human resource with RMG business knowledge, which needs to improve.

Nevertheless, data security is crucial concerning the internet so that users of B2B e-commerce platforms may feel secure when using that facility. Security over the internet is only possible when the technological infrastructure is up-to-date and readily available for use by organisations. Users need reassurance from the business community about the security and handling of the data that will boost their confidence to use particular B2B e-commerce platform.

In the following section, I discuss the external pressure associated with the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

5.3.4: External Pressure

External pressures associated with an organisation's business environment come from trading partners, competitors, the legal (governmental) conditions and socio-cultural legacies Kettinger and Hackbarth (1997, p. 249). For example, if trading partners want to conduct a business transaction using an e-commerce platform, then the other organisations need to consider a 'buy-in' to it, otherwise, non-adopting organisations will be disadvantaged. Similarly, within any business environment, the more that competitors adopt e-commerce solutions for their business transactions, the greater the pressure on other organisations to adopt similar changes to their businesses. Otherwise, they will lose their competitive advantage.

Furthermore, they stated that large business customers, especially from overseas, may demand that a smaller organisation adopts their B2B e-commerce processes and systems to win a contract. They may also be obliged to complete their transactions or exchange information about orders through their e-commerce platform. That can be a constraint upon an SME's ability to 'phase-in' their e-commerce systems in line with their resources and strategies. In that case, small firms may need to adopt e-commerce platforms which align with client-requirements but may not integrate well with the SME's technologies, skill-levels or business processes. Equally, SME business managers and senior managers may resist the changes demanded by external clients as "not consistent with their traditional methods of 'doing business'" (responses to 'question numbers 15 and 16'). Therefore, they suggested that a small firm can reduce these risks by adopting generic e-commerce platforms so that they can mitigate these external pressures and improve their bargaining power with both suppliers and buyers

(ibid.). In the Bangladesh RMG export SME context, there is little external pressure on an organisation if neither their clients nor their (local) competitors use e-commerce platforms for the conduct of business transactions. Such a lack of competitive pressure inhibits local adoption but increases the risk of falling behind global RMG competitors in other regions of the world.

Similarly, in Bangladesh, there is no third-party website dedicated to the RMG export business, that can put pressure on organisations to enter into e-commerce arrangements (evident in the responses to ‘question number 14’). RMG export SMEs do not, therefore, feel an urgent need to adopt e-commerce to conduct their business. That may ultimately reduce their opportunities to find new clients and markets in the face of stronger competition from RMG businesses elsewhere in the developing world. Hence, the RMG export SMEs in Bangladesh who might not commit to B2B e-commerce adoption consequently not getting a competitive advantage.

Furthermore, participants of this study (MW, NA, HAB and so on, mentioned in the responses to ‘question number 19’) identified that political stability is crucial for the smooth operation of a business, especially an export business. For example, political instability reduces the confidence of the buyer to travel to countries such as Bangladesh and reduces confidence within Bangladeshi SMEs as to the future investment and availability of capital to support growth and new initiatives. In recent years (from 2014), political uncertainty, as well as Holey Artisan terrorist attacks (2016), have produced a negative impact on the RMG export SMEs’ business confidence. The result of these problems has led buyers to become fearful of travel to Bangladesh; so, RMG export SMEs have had to make alternative arrangements with their clients in different countries, which has increased their costs (respondents MIH, SSA replied to ‘question number 13’). Many participants suggested, however, that a firm can minimise these problems by communicating with the buyer using a virtual platform (respondents’ Dr MAMT, HAJ, MAR, SA1, IHQ replied to ‘question number 11’).

5.3.5: Trust and Cooperation between Firms

Trust and cooperation between organisations, i.e., the sharing of expertise and (potentially) collaborating on new technology initiatives for adopting e-commerce related technologies, benefit both sides (Chiles and McMackin, 1996). Also, trust and collaboration between firms may help the survival and vitality of the industry (Kettinger and Hackbarth, 1997).

Furthermore, it may help organisations to gather knowledge from others regarding sourcing raw materials, finding new clients, learning about finding new clients using e-commerce platforms and being aware of fraudulent customers or suppliers. Cooperation is also needed from government and from business associations that can ease the process of underwriting business transactions (ibid.). For Bangladesh RMG export-oriented SMEs, however, organisations rarely co-operate with each other, especially regarding knowledge sharing, for fear of losing business to competitors. At present, neither the Bangladesh government nor the BGMEA offer training and business guidance for e-commerce adoption and its potential benefits, specifically for RMG export businesses.

In addition, the current political division and instability cause uncertainty, as summarised above. SME businesses are, therefore, afraid to invest in technology-related solutions, as a change in government may introduce new rules and regulations relating to the conduct of export-oriented manufacturers using online platforms (responses to ‘question number 19’). These situations can be overcome, however, by reassuring the business community about technology adoption and additionally incentivising business owners and senior management using government and BGMEA promotions, events and training to encourage SMEs to adopt e-commerce solutions.

Summary:

The above discussion would help the interested parties while they consider adopting of B2B in the Bangladeshi RMG export SMEs context. It will also facilitate to understand a collection of processes, procedures and collaborations needed to carefully follow for RMG export SMEs to exploit the benefits of e-commerce adoption.

In the following chapter, a discussion of the conclusions and recommendations provides a summary of the contribution this research investigation has made.

Chapter-6

6.0: Recommendation and Conclusion

The final chapter of this thesis begins by providing a summary of research findings based on the objectives set out to achieve the aim of this study. The main aim and objectives of this study are to identify the factors affecting the B2B e-commerce adoption by RMG export SMEs in Bangladesh. Based on the literature reviews and a framework stated by Tornatzky and Fleischer (1990), I have provided a framework for identifying the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. From the reviewed literature, it emphasised that the adoption of B2B e-commerce could facilitate organisations to gain more comprehensive benefits. The research methodology facilitated the design of semi-structured interview questions that have enabled me to gain an in-depth understanding of the subject matter. Also, a novel conceptual framework is proposed from the categorisation of the main factors identified in this research.

In this chapter, I discuss in detail the factors identified throughout this research that will guide the decision-maker of RMG export SMEs to decide on the adoption of B2B e-commerce. That will eventually facilitate the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. I also summarise the contributions made through this research in both business and academic contexts. Finally, this chapter concludes with the limitations of the study, as well as possibilities for future research.

6.1: Summary of Research Findings and Contributions

In this section, I summarise the findings of this research and its contribution to the area under investigation.

The first objective of this study is to investigate the internal and external factors that are associated with the B2B e-commerce adoption by RMG export SMEs in Bangladesh. This study facilitated the identification of factors that have affected and influence organisations in their adoption of B2B e-commerce platform. Both motivating and inhibiting factors displayed in chapter 4; section 4.23. By recognising the factors, organisations can take the appropriate

action to turn those inhibiting factors into motivating factors. That will eventually play a vital role for the adoption of B2B e-commerce adoption by the RMG export SMEs in Bangladesh.

The second objective of this study is the categorisation of the main factors that RMG export SMEs, and their supporting industries, need to consider for the adoption of B2B e-commerce. This research categorised the factors based on their significances for the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh (figure 8). The most crucial factors identified through this research is the senior management knowledge about B2B e-commerce that significantly impacted on the technology adoption decision in Bangladesh RMG export SMEs. Also, most influencing factors identified in this research that government and BGMEA support will positively influence RMG export SMEs to consider adopting B2B e-commerce.

The third objective of this study is the design of a conceptual framework that RMG export SMEs could use to guide the successful adoption of B2B e-commerce. This study offered a novel conceptual framework in chapter 5; section 5.3, figure 10 (Novel Conceptual Framework) and figure 11 (Comprehensive Conceptual Framework) for the decision-maker of RMG export SMEs in Bangladesh. The novel conceptual framework will help senior management of RMG export SMEs and Web developer to understand both the problem owners as well as different constructs associated with the adoption of B2B e-commerce. Also, the comprehensive framework facilitates with details of each construct, hence the senior management of organisations can determine with ease of understanding what they need to consider and how they can benefit from adopting B2B e-commerce in their businesses.

In the following section, I discuss some of the benefits that organisations can achieve in their daily business activities by adopting B2B e-commerce.

6.1.1: Contribution to Business Practice

A primary contribution to theory and practice is the way in which the study attempted successfully, to combine two theories associated with systems development in the wider sense. In this study what I meant by ‘systems’ – is that it is not a technology, rather a collection of processes, procedures and collaborations to enable RMG export SMEs to exploit the benefits of e-commerce adoption. The novel conceptual framework adds to both the theory and practice in the field of B2B e-commerce adoption through the complementary use of TOE and SSM (CATWOE analysis), to improve our understanding of the nature of a problem and its relationship with business activities as a system.

A secondary contribution of the study is the development of a novel conceptual model that confirms the constructs and factors associated with adopting of B2B e-commerce. The conceptual framework is ‘theoretical’ – meaning that I aimed to understand and make sense of the potential benefits and limitations of e-commerce adoption by Bangladeshi export-oriented RMG SMEs. The constructs are listed in order of importance and the associated factors are also ranked in order of importance. It is this measured quantitative ranking that is informative for decision-makers to take account of the factors that need to be addressed early in the adoption process by SMEs. Further, the ranking is informative to all the owners of the problem identified, and these include the senior managers in the RMG Export SMEs, BGMEA, and Government advisors.

The following sections explain and elaborate on the study findings and conceptual framework that can guide Bangladeshi RMG export SMEs towards adopting B2B e-commerce.

● Importance of Senior Management Knowledge for the Adoption of B2B e-commerce:

This research demonstrates that senior management is the primary problem owner regarding the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh because they lack the appropriate knowledge for doing business using an online platform (MN, MS1, HAB, MSA, SA1, MDH, SSA, SA2, MMR). In chapter 4, I have discussed this in detail. To solve the problem education and development should be the principal focus to develop management knowledge for using a virtual platform for business purposes (MW, MN, MISJ, NC, SAM, MSA, FE, SA2, NMAR). I firmly believe that both the Bangladeshi government and the

BGMEA could offer free training to senior managers for enhancing their knowledge of B2B e-commerce activities. That will help senior management to understand how effective use of B2B e-commerce can flourish their business. Hence, it will influence senior management to consider adopting B2B e-commerce for their business.

Below I discuss some of the benefits that organisations can achieve by adopting B2B e-commerce.

● **Improved Business Efficiency:**

The lead time (i.e., the time difference between order placement and delivery of the products) is one of the most significant obstacles for Bangladeshi RMG export SMEs that is directly associated with generating revenue (MS2; MMR). For example, having a longer lead time means less productivity, which causes lower profit (SS, MMR). Therefore, if the buyer, supplier and seller can exchange information quickly and efficiently by using the same virtual platform, they can resolve any issues related to completing the production process (SH, BS). To complete an order efficiently, by producing more products on time with minimal error, will ultimately help generate more revenue (MIH). It is evident from previous research result that adopting B2B e-commerce can help organisations to improve their business activity by increasing their efficiency (Al-Bakri, Cater-Steel and Soar, 2010; Ribadu, Abubakar and Suleiman, 2014). By using a B2B e-commerce platform, organisations can improve their communication channels with their clients. That will facilitate speedier resolutions for any concerns that may arise during order processing. Ultimately it will help complete the transaction process smoothly by correcting the problems in the earlier stage of the production process. From the discussion, it is clear that adoption of B2B e-commerce by RMG export SMEs in Bangladesh ultimately, have an impact upon their order processing times and will reduce the lead times. So, it is also clear that fast, smooth communication between companies is the key to the success of a business. Therefore, in the following section, I explain how organisations can improve their communication channels by using a B2B e-commerce platform.

● **Perceived Benefits through Improving Communication Channels:**

Regarding the communication method, RMG export organisations mainly rely on face-to-face communication with their business partners, as this is part of their business culture (NA, MSA, SA2). They also rely on third parties, such as 'Buying houses' to find new clients and make

initial contact with potential buyers (Dr MAMT). There are some other activities conducted by the BGMEA, such as national and international trade fairs, for finding new clients (NMAR). Although this sounds very useful, it is, however, costly and many RMG export SMEs are, therefore, unable to benefit from these activities. Also, it is difficult to grasp every opportunity presented by trade fairs and reach out to the far-flung corners of the world. On the other hand, B2B e-commerce interaction can facilitate a company grasping every global opportunity because it is cost-effective and enables reaching potential clients (Elbeltagi *et al.* 2016).

RMG organisations also communicate with buyers via the telephone and fax (MW, ZH). There is a problem with telephone calls, however, (i.e., the language barrier) which hinders effective communication. Some may argue that the language barrier can hinder communication through B2B e-commerce. There is, however, some good number of software packages available, which facilitate translation from one language to another and sometimes it is easier to express oneself by writing rather than using verbal communication (Wu *et al.* 2016). In the modern business environment, relying on the telephone and fax for communication is a dated and inadequate way of interacting with buyers and suppliers, as organisations prefer a quick, efficient and accessible communication method (Burkus, 2016). Moreover, fixed telephone lines and faxes are very dated communication methods because they do not allow people to access information remotely (Shemi, 2012). Although buyers and suppliers can communicate by using the telephone and fax, however, they have to rely on others (i.e., Buying house, third-person help) to make the initial contact or to find new clients.

In recent years, RMG export organisations have started to use email for communicating with their potential buyers and finding new clients (NA, ZH, SS, SA1, MIH, BS, MMHF, SSA, IHQ). The main hindrance, however, to making extended contacts by using email is that it depends on luck because some organisations from first world countries do not accept emails from strangers (Burkus, 2016). Therefore, some potential clients may not receive emails sent by Bangladeshi RMG export SMEs. Also, the emails sometimes go into the junk folder and, thus, go missing (*ibid.*). Added to this, if the email messages delivered to the desired clients, busy executives can sometimes forget to open them if they do not consider it essential to do so (*ibid.*). Therefore, having email as the only communication method is risky and unsuited for making useful contacts with potential clients and suppliers. Also, the email does not allow users to keep updated records, and it is not convenient for busy businesspeople to export and file data (*ibid.*). Currently, many organisations around the globe, including SMEs, are starting to use

online platforms to communicate with potential clients as they offer security via the different safety measures that are in place (Burgess, Sellitto and Karanasios, 2009). For example, B2B e-commerce sites, such as Alibaba and the DHgate allow a money-back guarantee and data security for users, as well as maintaining the secrecy of their financial and business information (Gracie, 2014).

On the other hand, Bangladeshi RMG export SMEs are still using conventional communication methods because they do not want to think ‘outside of the box’. Therefore, a myth has developed within the RMG business culture that it is not possible to do business using a B2B e-commerce platform in Bangladesh. The reason includes lack of knowledge and understanding of how B2B e-commerce platforms can facilitate secure communication and the discovery of new clients, or even complete the whole order process smoothly. In chapter 4, the answers to ‘question number 15’ demonstrate that the lack of higher-level managements knowledge of B2B e-commerce hinders an organisations consideration of adopting it. The results of the research suggested that training needs to deliver to the senior management of RMG export organisations to ease the decision making for the adoption of a B2B e-commerce platform for their businesses (MW, NA, ZH, SS, SH, MIH, BS, SSA, IHQ). For example, training to the senior management may help them to understand how their businesses can benefit from using a B2B e-commerce platform; their understanding of the benefits will eventually help them to consider adopting it. Once the communication channels develop then businesses need to keep the communication process secured by using the best resources available. Following section, therefore, discussed the importance of using advanced and secured communication channel to build trust among business partners.

● **Facilitating Better Security for Communication:**

In the previous section, I discussed why email is an outdated and less useful communication tool. Although participants mentioned in response to ‘question number 8’ that they mostly use email, however, a good sign is that many respondents also indicated they are using various mobile applications to communicate quickly with clients (MS1, MMHF, HAJ, MFH, MS2). The downside of this, however, is that the applications are operated by foreign third parties so, confidential information is not always secure and may be disclosed to potential competitors. Also, once a message is deleted from an application, then the data may be lost.

On the other hand, e-commerce-based applications operated by the trusted authorities like BGMEA, that can enable users to access information from a website using a login and, thus, offer twice the reliability that third-party communication applications cannot provide. Therefore, RMG export SMEs must use reliable communication methods so that information can be retrieved at any-time from anywhere in the world, as well as maintaining higher security and privacy. That will ease the secure communication process and speed up order processing by solving any issues that may arise to complete the process. Also, senior management can answer any queries which may arise from potential clients, thus ultimately help to build trust among business partners

In addition to this, the government needs to change the rules and regulations governing online transactions and business operations through the use of an online platform (HAJ). Also, the Bangladesh government needs to improve online security by using the latest ICT infrastructure. In this way, the RMG users of B2B e-commerce will feel more secure.

In the section below, I discuss how the use of B2B e-commerce increases business opportunities for RMG export SMEs.

● **Increasing opportunities for Bangladeshi RMG Export SMEs:**

It is evident from previous research results that adopting B2B e-commerce organisation can gain enormous benefit in terms of expanding business and linked with new clients (Alrubaiee, Alshaibi and Al-bayati, 2012; Azam and Quaddus, 2009a; Hoque and Boateng, 2017). Currently, Chinese manufacturers are using B2B e-commerce platforms to sell their products all over the world (Steven, 2014). For example, Chinese manufacturers use Alibaba dedicated for B2B e-commerce, Aliexpress.com, for individual interaction, and DHgate.com (B2B and B2C) e-commerce platforms. These are currently some of the most popular and most famous e-commerce websites in existence (ibid.). By using these platforms, Chinese manufacturers generate billions of US dollars from around the globe without face-to-face interaction with their buyers (ibid.). They also help Chinese manufacturing organisations to find new clients, which enables them to obtain more orders and generate more revenue for their country (ibid.). On the other hand, Bangladeshi RMG export organisations left behind in terms of technology adoption (Hoque and Boateng, 2017). That is leading to various issues like finding new clients, expanding business globally, finding raw materials, delaying order processing. Therefore,

currently, they are struggling to survive in the current, competitive, business environment. The Bangladeshi government must act quickly to assess the situation to identify where the markets are and what needs to be considered for expanding this sector (Hossain, 2019). Also, the government of Bangladesh and BGMEA could introduce a B2B e-commerce platform dedicated to RMG export SMEs to overcome those issues. However, RMG organisations need to make investments to improve the ICT infrastructure compatibility for the adoption of B2B e-commerce. They also need to recruit personnel with ICT skills to overcome the lack of knowledge within the organisation. Yet, this will not work, however, if only the RMG export SMEs in Bangladesh improve their compatibility. Also, their counterpart organisations need to achieve compatibility and be willing to cooperate when making business transactions using an online platform.

To build an effective and trustable supply chain, organisations need available financial support and, therefore, I discuss this in the section below.

● **Availability of Financial Support:**

It is evident from the data that financial institutions need to offer long term single-digit interest loans for the purchase of technology equipment (SAM, MAR, MSA, SA1, MDH, MS2). Furthermore, 'MAAK' suggested that the USD exchange rates are needed to be fixed, otherwise, RMG export organisations sometimes lose money due to currency fluctuations. Also, participants 'MFH' suggested that facilitate cash incentives for ICT adaptation can help boosting organisations to consider the adoption of B2B e-commerce. Furthermore, the Bangladeshi government can amend the existing policy of export income tax to make it competitive while performing through B2B e-commerce (MIH).

Moreover, the government and financial institutions in Bangladesh are needed to make financial arrangements for the RMG export SMEs so that they can focus on improving their ICT infrastructure for adaptation of B2B e-commerce. Their adoption of an online platform would help to generate more revenue by enabling them to find new clients from across the globe. That would ultimately assist the Bangladeshi government reaching the goal of achieving medium earning economic nation status.

In the following section, I discuss the different B2B e-commerce platforms and choosing the right platform for RMG export SMEs to consider.

● **Availability of the Right Platform for B2B e-commerce:**

Concerning B2B e-commerce adoption, some of the respondents indicated that they would like to adopt and customise an online platform for their businesses because they believe if they use a common platform, this may hamper maintaining secrecy (MW, MSA, FE, SSA, SA2). Although some participants pointed out that they wanted to customise the platform for their businesses, it is very challenging to conduct marketing by using an individual website. Moreover, adopting a personalised, e-commerce platform would be very costly and may not be feasible for RMG export SMEs in Bangladesh.

In my opinion, it would be ideal for all RMG export SMEs to have a single platform and demonstrate their expertise by using that platform. The majority of the participants stated, however, that the platform needs to be operated by the BGMEA and Bangladesh government in a joint venture because this would give confidence to the users by maintaining communication security and privacy (MISJ, HAJ, SAM, ZH, SS, KIH, BS, MS2). Therefore, I suggest that the BGMEA and the Bangladesh government need to develop and monitor a platform which RMG export organisations would feel secure using when performing their business activities. Moreover, this would ultimately help both the government and the BGMEA to keep track of the RMG organisations' business activities, as well as ensuring buyers to feel more protected when making online transactions.

I now move onto the question of what type of platform would be ideal for the RMG export SMEs when interacting with clients and seeking new clients. It is crucial to identify how that platform might offer more collaboration with current RMG export business' activities. The platform needs to be customised and needs to pinpoint which products clients are looking for and how it can platform successfully fulfils the needs of modern businesses (MW, NA, MSA, MIH, SA2, IHQ). There are plenty of B2B e-commerce platforms available around the globe; however, my preference is DHgate, as it is a well-organised platform that helps pinpoint customers' needs by using their (DHgate platform) algorithm.

To develop a virtual platform, the developer of that platform needs to consider carefully how the existing RMG business works so that the system develop can develop a system, that will facilitate RMG export SMEs to transform their business easily into a virtual platform. Also, it is essential to gain an in-depth understanding of the present condition of ICT capabilities regarding RMG export SMEs and their views on B2B e-commerce adoption before developing

the platform. Furthermore, the software developer needs to know how the RMG export business operates unless it will be challenging to adjust B2B e-commerce systems to current business activities. In the previous chapter 5; section 5.3 discusses ‘what a system developer needs to consider before developing the platform’.

In the following section, I discuss using a B2B e-commerce platform for the creation of business opportunities.

● **Business Opportunities Created by Adopting B2B e-commerce:**

One of the main reasons that buyers from all over the world prefer to buy RMG products from Bangladesh is because of the low production costs (Hossain, 2019). In recent years, production costs have increased because of higher salaries paid to workers, the higher cost of electricity, the increase in the price of raw materials, as well as the higher costs of machinery maintenance. Therefore, it is difficult for Bangladeshi RMG export SMEs to survive in this higher cost and lower product price business environment (MS1, MZA, MH, MAR, MDH, BS, MAAK, SSA).

In recent years, Chinese investors have been investing in African countries because of cheap labour that imminent threat is worrying for the Bangladeshi, RMG export business (MAAK, NMAR). To overcome this situation, Bangladeshi RMG export organisations need to offer their clients a reasonable price with high-quality products, as well as a quick delivery service (MN, MS1). Moreover, they need to find new clients from across the world, as this will help them to maximise the use of their capacity, which will ultimately help them to generate extra money (MDH, MAAK, MMR). Also, participants ‘MH’ suggested that “it would be ideal to adopt B2B e-commerce to get connected and find new clients from across the globe”. He argued that it would remove the involvement of a third party and help RMG export SMEs to offer a better price to their clients, as they would not need to pay commission costs.

There is an initial cost involved in adopting B2B e-commerce, however, with appropriate assistance and guidance from the BGMEA and the Bangladeshi government, it would be easy for RMG export SMEs to enter into the digital business environment. Otherwise, it would be very costly for individual SMEs to implement a B2B e-commerce platform and make it efficient for their businesses. Besides, individual companies will struggle to cope with online and offline activities simultaneously if the organisation is unable to handle e-commerce platforms effectively. Therefore, the government’s export departments and the BGMEA must

be ready to cooperate on B2B e-commerce, contrarily, it may not work for all individual businesses.

Although some global B2B e-commerce platforms exist, if the government were to allow them to enter Bangladesh and operate their businesses there, it might not work from a Bangladeshi perspective. For example, many participants indicated, during their interviews, that they do not have trust in a platform and software that is not controlled and monitored by the BGMEA or the Bangladeshi government (HAJ, MAAK). Therefore, the Bangladeshi government and the BGMEA must take the initiative so that RMG export organisations can have trust in the security of their businesses. For example, if Alibaba were to start operating their B2B e-commerce platform and RMG export SMEs were to use this, then those RMG export organisations would need to pay commission, based on the sales made by the organisation, for using the platform. That would not help to reduce the price of their products and might even cause an increase in costs, as the fees for paying for the e-commerce platform would be needed to include.

I understand some might argue that removing third-party commission cannot happen, as organisations have to pay to use the B2B e-commerce platform. I want to balance this, however, against the increase in opportunities to meet more buyers and, thus, more opportunities to obtain more orders. Also, RMG export SMEs in Bangladesh pay membership fees to the BGMEA. Therefore, if the BGMEA and the Bangladeshi government were to provide a B2B e-commerce platform and offer to cover several years' charges, it would help the RMG export organisations to consider adopting B2B e-commerce positively.

Consequently, I firmly believe that introducing a B2B e-commerce platform, operated and monitored by both the government and the BGMEA, would solve the problems related to maintenance. Otherwise, if individual RMG export SMEs were to implement a B2B e-commerce platform by themselves, the maintenance cost would be higher. In the section below I discussed how B2B e-commerce adoption by RMG export SMEs could help to improve the economic condition of Bangladesh.

● **Improving the Economic Condition of Bangladesh:**

The economic condition of Bangladesh heavily depends on the RMG sectors success (Abdin, 2014; Bangladesh Bureau of Statistics, 2015). It is highly essential to generate more revenue from the country's vital foreign currency earnings sector to achieve the target set by the current

government to become medium earning economic country (Abdin, 2014). Therefore, the RMG sector needs to develop and grow to generate substantial revenue. To increase the production efficiency of the product and generate more revenue, organisations need to increase the number of orders, as well as the number of buyers. According to Hoque and Boateng (2017), B2B e-commerce platforms would help RMG export SMEs to become connected with more buyers across the globe. Therefore, the government must focus on the development of that sector, thus includes improve ICT infrastructure and development of a B2B e-commerce platform. For example, adopting B2B e-commerce platforms would help them to attract more buyers, which would eventually generate more orders and more income. In the following section discussed how B2B e-commerce could help to build trust among the supply chain.

● **Building Trust and Cooperation between Organisations:**

All organisations within the supply chain must cooperate to achieve their common goal of using an online platform (Alrubaiee, Alshaibi and Al-bayati, 2012). In Bangladesh RMG export SMEs context, participants ‘BS’ argued that “all stakeholder within supply chain need to cooperate to deliver the order due time”. This collaboration between organisations is essential to establish better communication that would help organisations overcome any problems that may create during the production process (MS1, NC, MSA, BS, FE, IHQ). For example, the majority of the respondents’ responses to ‘question number 8’ mentioned that they mainly use email and mobile phones (i.e., making phone calls or for using different applications) for communication purposes. On the other hand, using a B2B e-commerce platform organisation can communicate with their clients quickly and securely. Over time it will help them building trust that is essential for the retention of clients.

In the following section, I discuss how my research contributes to the academic field.

6.1.2: Contribution to Theory

I recognise an important convergent boundary that occurs through the associated linkage of TOE and CATWOE, which was not previously used prior to this study. The convergent boundary with TOE and CATWOE is formed as CATWOE questions, laid beneath the three dimensions in TOE. This is an important root definition and boundary association that has been used to aid a deeper understanding of adoption factors (What) and ownership (Who) in the business uptake of B2B e-commerce. I elaborate more fully on how this association of complementary theories arise in this study.

In this research, I used the TOE framework to identify the factors affecting B2B e-commerce adoption by the RMG export SMEs in Bangladesh. Although the TOE framework helps to identify the factors affecting B2B e-commerce adoption by the RMG export SMEs, it does not, however, help to identify who owns the problems or where they located.

Therefore, I used the CATWOE analysis of SSM for a better understanding of those factors identified through using the TOE framework. That enabled me to gain a deeper understanding of the problems and recognise where they are situated and who owns them, as well as assisting with consideration of the possible ways that they might solve. Also, CATWOE analysis allowed me to explore the participants' views and the factors identified in this research with the different aspects of stakeholders. For example, the factors identified through the three elements of the TOE framework divide into six various parts of CATWOE. That enabled me to identify the specific factors associated with B2B e-commerce adoption by the RMG export SMEs in Bangladesh. Also, it helped me to categorise the factors based on their importance and how that can influence in the adoption process.

In the specific context of the RMG export SMEs in Bangladesh, no previous research conducted using the combination of the TOE framework and the CATWOE analysis. As far as I am aware, there are no other types of research been conducting by using a combination of TOE framework and CATWOE analysis. However, the main reason to choose these models to analyse the factors was that TOE provided more information about identifying the drivers and barriers of ICT adoption (Chiu, Chen and Chen, 2017). Regarding the CATWOE analysis, this assisted more in decision making because it pointed out where the change process needs to start and wherein the structure of business the change process needs to take place to make it

successful (Mulder, 2017). CATWOE itself, however, does not help to design a framework that RMG export SMEs can use (ibid.). Therefore, by understanding all the means of the factors and their importance for the adoption of B2B e-commerce, I then use Kettinger and Hackbarth's (1997) e-commerce network model for the development of a novel conceptual framework. This conceptual framework will ultimately enable systems developers to understand the broader view of the RMG sector. Also, it will help them to design an appropriate B2B e-commerce platform for secure and efficient online transactions between business buyers and sellers. To develop a virtual platform in the context of the Bangladeshi RMG export SMEs, the developer must consider the factors and suggestions mentioned in this research. I firmly believe that if the developer ponders those factors for the development of B2B e-commerce platform, that will boost senior management of RMG export organisations to transfer their businesses onto virtual platforms. In the following section, I discuss the different implications of the findings of this research both in the business and academic contexts.

6.2: Implications and Conclusion

The findings of this study will have practical business implications for the development of the RMG export SMEs' business operations using a virtual platform and building real-time communication with clients. Many of the issues that emerged in this study, already been identified by various researchers in different contexts. There has, however, thus far, been no study conducted that is related to the Bangladeshi RMG export SMEs' context. Therefore, the findings of this study will enable policymakers and business development organisations to understand the key factors relating to B2B e-commerce adoption and offer a guide to development.

Kettinger and Hackbarth (1997) argued that a small firm could quickly and successfully adapt and integrate B2B e-commerce into their business processes because they have fewer elements to consider when adopting B2B e-commerce. The successful adoption of B2B e-commerce in an organisation, however, depends on the effort, planning and understanding of e-commerce by senior-level management. Therefore, proper training and support provided by the government of Bangladesh, as well as the BGMEA, can create opportunities for the RMG export SMEs when adopting B2B e-commerce. This virtual platform also enables export SMEs

to gather information about their clients, which will help them to understand customer demands in the pre-sales process.

Also, senior managers at SMEs need to gather knowledge about B2B e-commerce and how it can assist with their business processes. Therefore, RMG export SMEs' senior managerial staff need to keep themselves up to date with current B2B e-commerce platform trends and prepare their organisations for the adoption of B2B e-commerce. Also, the SMEs' websites need to continue up to date so that potential clients can access the latest information about the organisation. Most importantly, RMG export SMEs need to make a long-term commitment to the adoption and integration of B2B e-commerce because it may not have an immediate impact on their business operations.

Furthermore, the economic growth of Bangladesh depends on the development and adoption rates of B2B e-commerce because this facility could enable SMEs to expand their businesses across the globe using virtual platforms. Bangladesh classified as a lower-medium economic country; however, the government of Bangladesh is aiming for it to become a medium earning economic nation by 2021 (Abdin, 2014). In reality, this may only be possible if the RMG export organisations receive an increased number of orders from buyers. Otherwise, it will fail because RMG export is the most significant source of foreign currency that plays an enormous role in the Bangladeshi economy development. Policymakers need to take enabling the RMG export SMEs' adoption of B2B e-commerce thoughtfully so that they can reach potential customers around the globe who might never have thought about purchasing RMG products from Bangladesh before.

The limitations of this study are stated below-

6.3: Limitations of the Study

This study facilitates the identification of the factors that both influence and inhibit the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh. This study has, however, some limitations, which are stated below:

- ◆ The data collected for this study is cross-sectional and mainly focussed upon a single point in time. Therefore, changes that happen over a while may not reflect in the research results.
- ◆ In this study, I mostly interviewed senior-level managerial staff working in RMG export related organisations in Bangladesh. This research does not, however, reflect either the buyers' or suppliers' perceptions of B2B e-commerce adoption, as it would have taken much more time to collect and analyse this data. Also, it is challenging to make contact with buyers and suppliers because the RMG export SMEs did not share this information with me when I asked for it.
- ◆ The biggest drawback of this study is that the participants were not fully aware of the subject matter and, therefore, their answers do sometimes not directly reflect the theme of the questions.
- ◆ For this study, three types of participants were selected (i.e., SMEs, large organisations and experts). The participants are not, however, equally represented, as this study mainly focuses upon the RMG export SMEs' context and, therefore, the majority of the participants are related to businesses in this area. For that reason, the research results may not identify overall issues related to the whole of the Bangladesh RMG sector.

To consider these drawbacks mentioned above, further study would need to be conducted to overcome these problems.

6.4: Future Research Direction

Building on this research, there are opportunities for further study, mainly in the critical issues that discussed in this study:

- This research is concerned with B2B e-commerce adoption related to RMG export SMEs in Bangladesh but could serve as a guide for relevant industries around the world. For example, the Automobile industry around the world focuses on producing the electric vehicle to cut the carbon emission. Carbon emission is now, one of the biggest global problems. An electric vehicle could play a crucial role to solve the carbon emission problem. In the developed country context, it is feasible due to the availability of electricity. However, there is no clear direction about the electric vehicle for developing country context. Future research should focus on the factors affecting the electric car in the developing country. Also, in the Bangladesh context, the prospective researcher could further the study, to address the different business sectors (i.e., leather goods export industry) B2B e-commerce adoption.
- This study used the TOE framework to identify the factors and the CATWOE analysis to pinpoint the determinants using the stakeholder view. That is a unique approach furthermore future researchers might want to use it from a different perspective. That would help to identify whether or not this approach is appropriate for a broader context or only relevant for use in ICT adoption-related research.
- This research identifies ‘organisation e-readiness’ as one of the main factors that hinder organisations when considering e-commerce adoption. Therefore, extensive research could be conducted on this particular (organisation e-readiness) factor to help identify the significance of the problem within organisations for the adoption of B2B e-commerce. Furthermore, the implication of this research discussed in this chapter 6; section 6.2, could help future researchers to compare with different business perspectives.
- This research developed a novel conceptual framework that does need to be tested further. Although, it applies to the RMG sector, however, it can be practised those in developed or developing countries, other business sectors in technology adoption as emerging technology, platforms and technical supporting infrastructure changes frequently.

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Appendix-1



PRIFYSGOL CYMRU
Y Drindod Dewi Sant
UNIVERSITY OF WALES
Trinity Saint David

Participant Identification
Number:

Project Title:

“What are the factors affecting the adoption of Business-to-Business (B2B) Electronic Commerce (e-commerce) by Ready-Made Garments (RMG) export Small Medium Enterprises (SME’s) in Bangladesh?”

Dear Participant,

My name is MD. AL-AMIN, and I am studying at University of Wales Trinity Saint David, London, UK.

I would like to invite you to participate in my research project. This project will be “What are the factors affecting adoption of Business-to-Business (B2B) Electronic Commerce (e-commerce) by Ready-Made Garments (RMG) export SME’s in Bangladesh?” and aims to explore the issues relating to the adoption of B2B e-commerce by the RMG export SMEs in Bangladesh.

Attached to this letter is a list of questions developed by me, which will help to assess the factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh. I believe your opinions will be very essential to complete this research project.

Through your participation in the interviews, I hope to ascertain the factors affecting B2B e-commerce adoption by RMG export SMEs in Bangladesh.

All answer will be kept strictly confidential to the researcher database and at **NO** time will individual questions answered be released to the general public. This gives you a chance to express your views confidentially and anonymously and still be able to make a difference. Your participation in this study is entirely voluntary so you can withdraw from the interviews at any stage.

This interview should take approximately 20-30 minutes to complete, but there is no time constraint. There are also no right or wrong answers. Attached to this letter with the questionnaire is a consent form. I understand that your time is at a premium, but your opinions are very valuable to me.

After careful and precise analysis of the data obtained from the questions, I will be happy to provide you with a copy of the findings at your request. The results of this research will hopefully enhance my understanding of the factors affecting e-commerce adoption by RMG

export SMEs in Bangladesh and stored on researcher database. The anonymised results of the research provided to interested participants and organisations.

I thank you in advance for your time and participation. If any questions do arise, please feel free to contact me with the information provided below.

NAME & ADDRESS OF RESEARCHER

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PARTICIPATION CONSENT FORM

Dear Participant,

You may decline to participate in this study. You may end your participation in this study at any time. If you decide to remain anonymous, maintaining your anonymity will be a priority and every practical precaution will be taken to disguise your identity. If you prefer anonymity, there will not be any identifying information on audiotapes or transcripts of this or any interview. No-one (except researcher team) will hear any audiotapes or see any transcripts without your prior consent. All materials generated from this or any interview will remain confidential.

Please initial box using sign [✓]

1	I confirm that I have read and understood the information sheet dated for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	
3	I understand that any information given by me may be used in future reports, articles or presentations by the research team.	
4	I understand that my name will not appear in any reports, articles or presentations.	
5	I agree to take part in the above study.	
Name of Participant		Signature and Date
Researcher	MD. AL-AMIN	Signature and Date

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Definition of RMG SMEs:

Ministry of Industry, Bangladesh define RMG SME's separately than other sectors SME's.

Definition of RMG SME's mentioned below-

Types of Industry		Number of employed workers
Small Enterprise	Manufacturing	31 to 120
Medium Enterprise	Manufacturing	121 to 1000

Source: National Industry Policy report; Ministry of Industries (2016)

Definition of e-commerce:

E-commerce is the buying and selling, transferring and exchanging of documents, products and services over electronic channels without using paper documents. E-commerce is mainly divided into three main categories, such as Business-to-Business (B2B), Business-to-consumer (B2C) and Consumer-to-consumer (C2C).

Global competitive advantage:

Global competitive advantage is a context that puts an organisation in a superior business position from its competitor in the global market.

Definition of Cloud Computing:

Cloud computing is a network of remote hosted server thus allows others to store, manage and process data rather than a personal computer or local server.

Definition of B2B e-commerce software:

It is a computer operating information programs allows organisations to conduct Business to Business daily activities efficiently and accurately.

Abbreviation:

RMG = Ready Made Garments

SMEs = Small Medium Enterprises

IT = Information Technology

ICT = Information Communication Technology

B2B = Business to Business

For multiple-choice questions, please select options by marking [√] sign

1	Please choose from below options that best describe your position in this organisation. Please choose below option as appropriate...			
	i) Owner	ii) Chief executive officer	iii) Manager	
	iv) Other, please specify.....			
2	How many employees are working in your organisation for the RMG sector only?			
	Please specify.....			
3	What percentage of the contracts for RMG clients are for export versus internal market?			
			
4	Does your organisation have a separate IT department?			
	i) Yes	ii) No	iii) Not Sure	
	If Yes, please specify how many IT expert working there			
5	Does your organisation have their own website?			
	i) Yes	ii) No	iii) Not Sure	
	If yes, what is it primarily used for?.....			
			
6	How does your organisation connect to the Internet? Please choose one or more options from the followings-			
	i) Dial-up	ii) Satellite connection	iii) Optic fibre	
	iv) Broad Band	v) Hosted wireless connection	vi) Not Sure	
	vii) Other, please specify.....			
7	Amongst the following, what are the primary purposes for which the company's internet connection is used? Please choose one or more options from the followings			
	i) Buy raw material from the local market	iii) Exchange information with the buyer		
	ii) Buy raw material from abroad	iv) Subcontract to other organisations		

	v) Shared with others about the different activities conducted by the company	
	vi) Other, Please Specify.....	
8	Which method of communication does your organisation use for B2B interaction with the stakeholders? Please choose one or more options from the followings-	
	i) E-mail	ii) Fax
	iii) Telephone	iv) Mobile
	v) Other, please specify	
9	Have any of your buyers ever requested your organisation to use B2B E-commerce platform for B2B interaction?	
	i) Yes	ii) No
	iii) Not Sure	
	If yes, please specify what purpose they want to use it for?	
10	Is your organisation planning to adopt an E-commerce platform for B2B interaction with the buyers?	
	i) Yes	ii) No
	iii) Already been adopted B2B e-commerce	
	If yes, please specify the most important purposes for which an E-commerce solution for B2B interaction would be useful..... If not, what are your main reasons for not considering a B2B E-commerce solution.....	
11	What would motivate you to consider for changing from current business activities to B2B e-commerce solutions? Please explain briefly	

	<p>Questions (14-16) require you to rank the factors in order of importance by using the scale (1 is most important, 2 is next important and so one) as you believe that influences B2B e-commerce adoption by the RMG export SMEs in Bangladesh.</p>	
14	<p>Which technological issues are important for the successful adoption of B2B E-commerce platform by RMG export SMEs?</p>	
	i) Availability of internet	
	ii) Availability of quality B2B e-commerce software	
	iii) Availability of external B2B e-commerce expert services	
	iv) Availability of online payment facility	
	v) Speed of the internet	
	vi) Readiness of the technology to do B2B e-commerce	
	vii) Benefits of modern technology for conducting B2B transactions online	
	vii) Other, please specify	
15	<p>What organisational issues do you believe are important for the successful adoption of B2B E-commerce by RMG export SMEs?</p>	
	i) Support from top management	
	ii) IT knowledge of the top management	
	iii) The financial ability of the organisation	
	iv) Organisational readiness to adopt technology	
	v) Size of the organisation	
	vi) IT Skilled human resources	
	vii) Benefits of B2B e-commerce for organisation	
	viii) Demand from business partners for B2B e-commerce	
	ix) Others, please specify	
16	<p>What business issues within Bangladesh do you believe are important for the successful adoption of B2B E-commerce by RMG export SMEs?</p>	
	i) Government support	v) Competitive business environment
	ii) Competitive pressure from competitor	vi) Availability of technology vendor
	iii) Support from business partners	vii) Economic stability
	iv) Political stability	viii) The business culture
	ix) Other, please specify	

Questions (17-19) require you to rank the factors using the scale (1 for the most restricted factor, 2 is next restricted factor and so one) that you believe restricts from adopting B2B e-commerce by the RMG export SMEs in Bangladesh.			
17	What technological issues do you believe restricts the adoption of B2B e-commerce by RMG export SMEs in Bangladesh?		
	i) Availability of internet		vi) Speed of internet
	ii) The complexity of technology		vii) Language barrier
	iii) Lack of quality B2B e-commerce software		viii) Cost of internet
	iv) Complexity of online payment facility		ix) Lack of consistent power supply
	v) Cost of the external B2B e-commerce expert services		x) Other, please specify
18	What organisational factors do you believe restricts RMG export SMEs to adopt B2B E-commerce?		
	i) Support from top management		vi) Implementation cost of ICT
	ii) The financial ability of the organisation		vi) Size of the organisation
	iii) Availability of IT Skilled human resources		viii) Organisational culture
	iv) Organisational readiness to adopt technology		ix) Concern about security, privacy and trust
	v) Lack of top management knowledge about global scope and benefits of B2B e-commerce for organisation		x) Others, please specify
19	What business issues within Bangladesh may restrict RMG export SMEs to adopt B2B E-commerce?		
	i) Lack of support from the government		vi) Fear of uncertainty
	ii) Lack of support from Business partner		vii) Political instability
	iii) Unfriendly loan policy		viii) Economic instability
	iv) Lack of technology Vendor		ix) Lack of trading partner readiness to do B2B e-commerce

Appendix-2

Summary of the Findings:

Question No.	The topic of the questions	Summary of findings
1	Respondents position in the organisations	Majority of the RMG respondents are the owner of the organisations.
2	Size of the organisation	All 26 RMG SMEs employees below 1000 and all of the 4 large participating organisations employees are more than 1000
3	Participating organisations percentage of the contracts for RMG clients are for export versus the internal market.	All participating RMG organisations are export-oriented.
4	The organisation have a separate IT department	Majority of the participant's responses that, their organisations do have separate IT departments.
5	The organisation have their own website	Almost all participating RMG organisations have their own website.
6	Organisations connected to the internet through	Majority of the organisations connected with internet through copper fibre broadband connection
7	Primary purposes for which the company's internet connection is used	i) Exchange information with buyers ii) Buy raw materials from abroad.
8	Method of communication organisation use for B2B interaction with stakeholders.	Email and Mobile are the most frequent using communication method by RMG organisations with their clients.
9	Participating organisation buyer requested for B2B e-commerce platform for interaction.	Buyers did not demand RMG organisations to implement B2B e-commerce platform to conduct their business online.
10	The organisation planning to adopt an e-commerce platform	Majority of the RMG participants pointed out that, they would like to consider B2B e-commerce platform for conducting their business in the online platform if that platform is secure and effective.
11	Respondents believe the factors would motivate them	1) For better communications with the buyers. 2) Easy access to the new market and getting new buyers.

		<ul style="list-style-type: none"> 3) Easy marketing scope and exportation facility 4) Government and BGMEA support 5) Sourcing raw materials 6) Facilitate training and development to the RMG senior management 7) Third-party website
12	Kind of B2B e-commerce platform participants would consider	“An in house E-commerce platform customised for their own business”.
13	General challenges for Bangladeshi RMG export SMEs in order to improve competitive advantage in global export markets.	<ul style="list-style-type: none"> 1) Production cost is high, and the price of the product is low. 2) Lack of government and financial support 3) Lack of ICT experts and senior management knowledge to deal with RMG B2B e-commerce. 4) Language and communication problem over the internet. 5) Political instability and short of B2B e-commerce platform. 6) Short of raw materials and power supply.
14	Technological issues important in order to adopt B2B e-commerce platform	<ul style="list-style-type: none"> 1) Availability of external B2B e-commerce expert services 2) Availability of internet and quality B2B e-commerce software. 3) Availability of online payment facility and readiness of the technology to do B2B e-commerce. 4) Readiness of modern technology to do B2B e-commerce. 5) Benefits of modern technology for conducting B2B transactions online.
15	Organisational issues important in order to adopt B2B e-commerce platform	<ul style="list-style-type: none"> 1) The financial ability of the organisation. 2) IT knowledge of the top management. 3) IT skilled human resources. 4) Support from senior management.
16	Environmental issues important in order to adopt B2B e-commerce platform	<ul style="list-style-type: none"> 1) Government support. 2) Political and Economic stability. 3) Availability of technology vendor. 4) Business partner support. 5) Improve Business culture. 6) Competitive business environment.

17	Technological issues restricted in order to adopt B2B e-commerce platform	<ol style="list-style-type: none"> 1) Lack of quality B2B e-commerce software 2) Cost of external B2B e-commerce expert services 3) The complexity of technology and online payment facility. 4) Speed of internet.
18	Organisational issues restricted in order to adopt B2B e-commerce platform	<ol style="list-style-type: none"> 1) Lack of senior management knowledge about global scope and benefit of B2B e-commerce for organisations. 2) The financial ability of the organisation acquire technology 3) Lack of IT skilled human resources. 4) Organisational readiness to adopt the technology. 5) Support from senior management.
19	Environmental issues restricted in order to adopt B2B e-commerce platform	<ol style="list-style-type: none"> 1) Lack of government support. 2) Unfriendly loan policies 3) Legal issues related to doing transactions online 4) Political instability 5) Fear of uncertainty 6) Lack of trading partners readiness to do B2B e-commerce.
20	Responses related to government ICT related initiatives	Majority of the respondents (28 out of 36) pointed out that, RMG as a major export-oriented sector does not benefit by the government of Bangladesh ICT related initiatives. However, they enjoy general ICT related initiatives but do not enjoy specifically by RMG related ICT solution.
21	Suggestion for overcoming the challenges	<ol style="list-style-type: none"> 1) Different kind of government support such as financial support. 2) BGMEA and Government support to facilitate training in order to gain knowledge about B2B e-commerce. 3) Support from the buyer 4) Develop human resources and improve ICT structure related to RMG ICT.

Appendix-3

Sample of NVivo Data Analysis:

Name	Nodes	Referen...	Created On	Created By	Modified On	Modified By	Color
Question 16	9	162	3 Jul 2017 at 13:06	AMIN	12 Feb 2018 at 02:52	AMIN	
Question 15	8	180	3 Jul 2017 at 13:06	AMIN	12 Feb 2018 at 02:33	AMIN	
Question 14	8	154	3 Jul 2017 at 13:06	AMIN	15 Feb 2019 at 21:29	AMIN	
Question 13	9	113	3 Jul 2017 at 13:06	AMIN	5 Feb 2018 at 12:49	AMIN	
Question 12	5	25	3 Jul 2017 at 13:06	AMIN	12 Feb 2018 at 01:23	AMIN	
Question 11	11	103	3 Jul 2017 at 13:06	AMIN	5 Feb 2018 at 11:50	AMIN	
Question 10	2	11	3 Jul 2017 at 13:06	AMIN	15 Jul 2017 at 13:33	AMIN	
Question 1	8	44	3 Jul 2017 at 13:05	AMIN	3 Jul 2017 at 13:21	AMIN	

13. What are the challenges for Bangladeshi RMG export SMEs in order to improve competitive advantage in global export markets? Please explain briefly.....

1) MW:
 i) Political violation.
 ii) Not capable of using modern machineries by workers.
 iii) Lack of expert about IT.
 iv) Marketing is not good in world market capacity.
 v) Language barriers
 vi) No government initiative for RMG sectors for B2B e-commerce.
 vii) Not long terms plan for RMG sectors to create skilled worker (like IT, marketing).

2) MN:
 i) Price of the products is low but quality goes high.
 ii) Time of shipment is less.
 iii) Lack of support from banking.

3) MS1:
 i) Need more lead time.
 ii) Lack of raw materials in Bangladesh therefore need to import 90% of the raw materials (fabrics) from china as a result need more lead time.
 iii) Low product price (Buyer expecting same products price over time whether the raw materials price goes up).

4) MZA:
 i) Less cooperative with government organisation.
 ii) Transportation problem.
 iii) Worker chaos.
 iv) Port problem.

5) MZR:
 i) Cost of production is high.
 ii) Market price is fall.
 iii) Low exchange rate of euros.

Name	Nodes	Referen...	Created On	Created By	Modified On	Modified By	Color
Question 4	2	15	3 Jul 2017 at 13:05	AMIN	3 Jul 2017 at 13:05	AMIN	
question 3	3	5	3 Jul 2017 at 13:05	AMIN	3 Jul 2017 at 13:05	AMIN	
Question 21	7	146	3 Jul 2017 at 13:07	AMIN	5 Feb 2018 at 22:17	AMIN	
Question 20	3	50	3 Jul 2017 at 13:07	AMIN	11 Feb 2018 at 23:10	AMIN	
Question 19	10	166	3 Jul 2017 at 13:07	AMIN	16 Feb 2019 at 01:31	AMIN	
Question 18	10	173	3 Jul 2017 at 13:07	AMIN	13 Feb 2018 at 02:...	AMIN	
Question 17	10	162	3 Jul 2017 at 13:07	AMIN	16 Feb 2019 at 00:...	AMIN	
Question 16	9	162	3 Jul 2017 at 13:06	AMIN	12 Feb 2018 at 02:52	AMIN	

21. To the best of your knowledge, how could RMG export SMEs in Bangladesh overcome the challenges in order to adopt B2B E-commerce? Please list your ideas...

1) MW:
 i) Training to the factory owner about ICT.
 ii) Training language and marketing skill to improve.
 iii) Improve IT experts.
 iv) Political stability need to ensure.
 v) Need to export about world market.
 vi) Need to find new market through B2B e-commerce.

2) MN:
 i) Financial support from government.
 ii) Need to support from ICT ministry like training.

3) MS1:
 i) Need government support because without that it is not possible.
 ii) BGMEA support needed.
 iii) Loan facility.
 iv) Support from customers.

4) MZA:
 i) Financial availability
 ii) Developing ICT knowledge.
 iii) Legal issues need to make easy for export.
 iv) Financial assistance by the government of Bangladesh.

5) MZR:
 i) Need expertise about B2B e-commerce.
 ii) Government is positive but need more focus about B2B e-commerce.
 iii) Need more training to top management about B2B e-commerce.
 iv) Availability of loan facility for SMEs in order to adopt B2B e-commerce.

Thank You