E-Communication adoption and its impact on SMEs: A Case of Bangladesh.

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Abstract

To communicate with customers and suppliers, various types of online communication facilities and applications like e-payment systems are freely provided by almost all the banks in many countries. Yet, these facilities are not readily available to Small and Medium-sized Enterprises (SMEs) in Bangladesh. Although, various initiatives to promote e-communication facilities have been taken by the Bangladesh government, no comprehensive study has been carried out to influence the SMEs for e-communication adoption. Furthermore, the strategies of the service providers to motivate the SMEs for e-communication adoption have hardly been examined in the context of Bangladesh. Hence, there is a need for further research on the e-communication adoption and its impact on Bangladeshi SMEs.

This research emphasises the development of a framework for and authorisation of e-communication adoption by the Bangladeshi SMEs. The emergence of e-communication adoption strongly affects the limitations of traditional and existing communication. Likewise, e-communication adoption significantly supports a huge number of SMEs to provide high quality services at affordable prices. Therefore, this research considers the literature gap by aiming to evaluate the e-communication adoption and its impact on Bangladeshi SMEs with an organisational cultural perspective, including the commercialisation strategies of the service providers and the role of the government.

This study, which is made up of two phases, adopts pragmatism paradigm and both the qualitative and the quantitative approaches. In the first phase, the quantitative data have been collected from 470 Bangladeshi SMEs (E-communication adopted: 220 and not yet adopted: 250), from Dhaka division considering each type of SMEs listed by the Ministry of Industry of Bangladesh (2013), and the results revealed the strong dominance of clan culture on Bangladeshi SMEs which affects the e-communication adoption. In the second phase, to examine the government roles and the service providers' strategies; interviews have been conducted with 22 banking industry representatives of Bangladesh because they are directly related to provide e-communication facilities for SMEs and the findings showed a huge difference in the views relating to e-communication among the service providers, government and SMEs.

This research showed that, there are significant issues affecting the adoption of e-communication by SMEs in Bangladesh. The outcomes of this study further revealed that, the government provides support which includes making funds available for the adoption of e-communication in Bangladesh; yet, SMEs' awareness levels are persistently low about

government support. It could be suggested that, may be because the SMEs are individual businesses having individual needs and uniqueness, their awareness levels remain continuously low and therefore, they should not be targeted as a 'one size fits all' solution. The results of this study are expected to be beneficial in guiding SMEs' managers/owners, analysts and researchers, the service providers and government representatives to be able to use its positive outcomes to determine the impediments that are associated with the adoption of e-communication facilities.

The theoretical contribution is one of the most important inputs of this study, where three issues: organisational culture profile; the theory of disruptive innovation and institutional theory of interventions have been integrated rather than individually studying them for e-communication adoption by Bangladeshi SMEs. In addition, this study has confirmed that, besides the institutional theories and disruptive innovation, the OCAI framework has not been previously used to evaluate the impact of e-communication on Bangladeshi SMEs. This research has also revealed a number of factors such as position in the organisation, educated from abroad, nature of business and number of employees which are associated with e-communication adoption by Bangladeshi SMEs. Organisational cultural profile of Bangladeshi SMEs and the conceptual model which is theoretically derived from a number of theories and models associated with e-communication adoption and its impact are also a key contribution of this research.

Acknowledgement

I would like to first seize this opportunity to give my sincerest thanks to Almighty Allah (SWA) for graciously enabling me to successfully complete this research project. Secondly, I extend my appreciation to my loving father, Daraj Ali, may it please the Almighty Allah to eternally Rest his Soul in Blissful Peace.

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Glossary of Acronyms

Abbreviation	Meaning
ATM	Automated Teller Machine
BDT	Bangladeshi Take (Currency)
BTRC	Bangladesh Telecommunication Regulatory Commission
Crore	10000000
DF	Degree of Freedom
DTPB	Decomposed Theory of Planned Behaviour
ERP	Enterprise Resource Planning
EDM	Electronic Document Management
E-communication	Electronic Communication
EBIP	Electronic Commerce Business Impacts Project
GNI	Gross National Income
GDP	Gross Domestic Product
IT	Information Technology
ICT	Information Communication Technology
KMS	Knowledge Management System
Lakhs	100,000
NAD	Not Adopted
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
RPS	Rupees (Indian Currency)
SMEs	Small and Medium Enterprises
SBA	Small Business Administration
SSTs	Self Service Technologies
SPSS	Statistical Program for Social Science
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour

Dedication

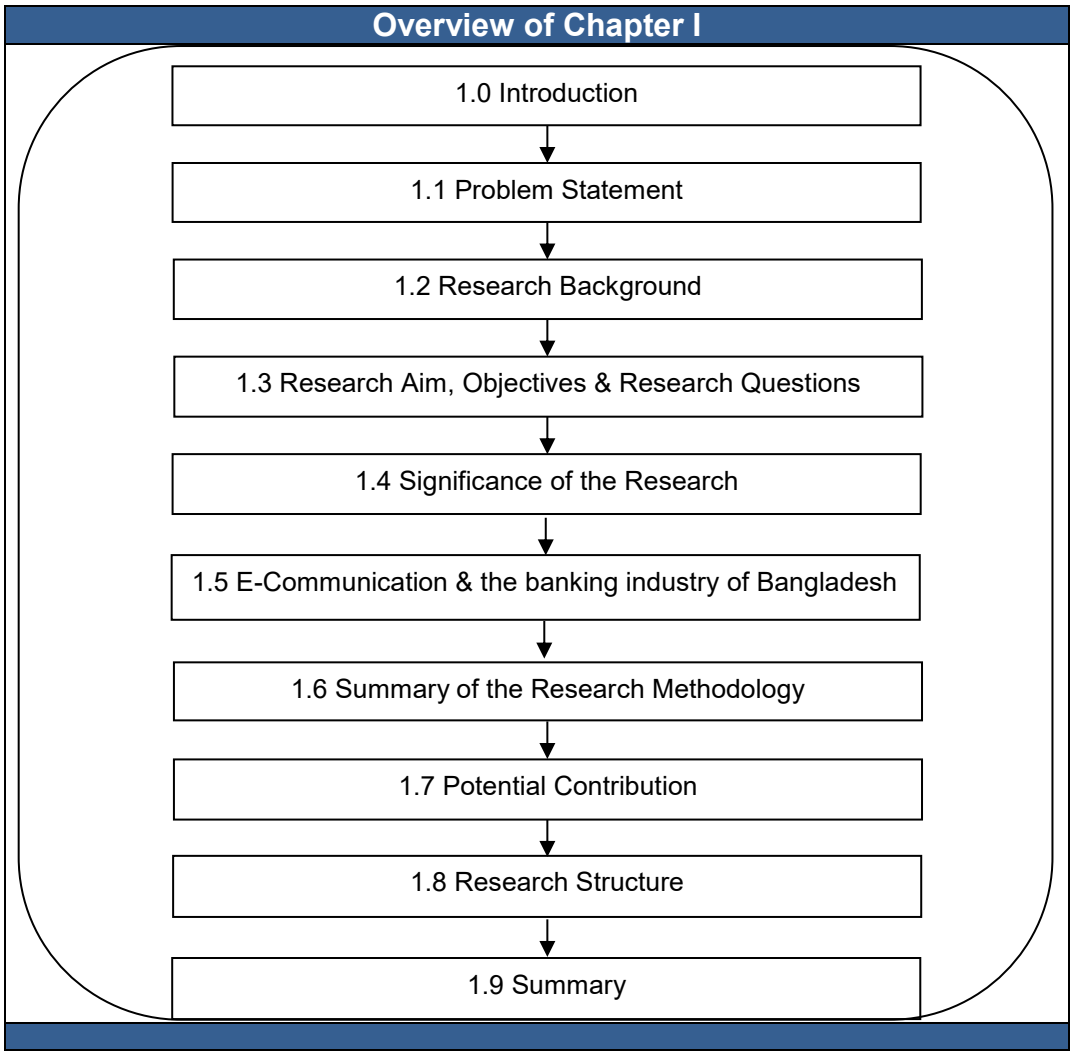
This research is dedicated to my beloved daughter: Nabihat T. Islam

& To the memory of my late father: Late Daraj Ali

CHAPTER I: INTRODUCTION

Table 1.1 presents an overview of the first chapter which includes introduction, problem statement, research background, research aim, objectives and research questions, significance of the research, research methodology, potential contribution, research structure and summary of the chapter.

Table 1.1: Overview of Chapter I



1.0 Introduction

According to Engsbo and Sandhu (2005), e-communication is a procedure that can be used to send and retrieve messages through electronic devices, internet facilities or computers. Bradley and Stewart (2002) observe that, e-communication facilities can reduce the cost of traditional communication and it has been found to be helpful to Small and Medium-sized Enterprises (SMEs) in getting competitive advantages, in minimising the maintenance cost; and most importantly, it has the added advantage of helping firms to maintain various resources effectively. In this research, e-communication has been considered as a communication tool which is employed to send and retrieve messages through computers, smartphones or other electronic devices, including internet facilities associated with some online banking applications; online and card payment systems to provide some additional facilities for SMEs only. Equally, the term banking industry has been acknowledged as one of the e-communication service providers for Bangladeshi SMEs. Furthermore, the term impact has been defined in the context of operational and financial performance of the Bangladeshi SMEs.

Dijk (2006) defined, the e-communication gap or the digital gap as the gap in the context of SMEs that already adopted and are using ICT facility, as well as those yet to adopt and access to those facilities. In this research, factors that hinder the adoption of e-communication and the factors which help to reduce the e-communication gaps have been investigated. Although, SMEs could be of benefit in different ways by adopting e-communication facilities; yet, there are still challenges for Bangladeshi SMEs which have been investigated in this research. Performance of the SMEs could be enhanced if these existing challenges can be overcome; a point of view supported by researchers like Baldwin and Sabourin (2002) who researched on a plethora of Canadian Manufacturing Organisations and found positive effects of ICT adoption on their performance.

The positive impact of e-communication facilities on performance is also evident from a research carried out by the OECD (2004) amongst the Turkish SMEs. Consequently, various factors such as, competitive advantages (Teo and Pian, 2003; Teo, 2007), implementation satisfaction (Chong, 2008) and financial gain (Raymond,

Bergeron and Blili, 2005; Beck, Wigand and Konig, 2005; Johnston, Wade and McClean, 2007) were underlined to analyse a link between the firm's performance and ICT/e-communication adoption. Contrary to these, the Special Report of e-Business Watch (2006) treated the relationship between the e-communication adoption and the firm's performance as a matter of debate in which the researcher claimed that, ICT payoffs and the way of measuring performance are dependent on many other factors: types of organisation and business operations (Koellinger, 2006).

Boocock and Shariff (2005) opined that, SMEs are regarded as the 'engine for growth' in the context of both developing and developed countries. Consequently, in Bangladesh, the SMEs have been contributing significantly since the 1980s (Rikta, 2007). The Ministry of Industry of Bangladesh (2013) avers that, the productive activities in certain industries such as software development; electronic and electrical products, manufacturing and services, leather goods, specialist farming/plantation, metal working and light engineering; readymade garments and knitwear; wear and consumer goods; plastics and other synthetics; toiletries/ pharmaceuticals; education services and health care and diagnostics are dominated by SMEs.

The researcher has an enthusiastic and a personal fascination on the e-communication facilities for SMEs in developing countries like Bangladesh. The cost of traditional communications for SMEs could be reduced (Stewart, Mohamed and Marosszeky, 2004) by adopting e-communication facilities. Consequently, the overall performance of SMEs in developing countries could be enhanced, believed by the researcher; he has likewise considered some of the perceptions theorised in the literature about gaining a better understanding of e-communication facilities used by SMEs. The above discussion on e-communication, SMEs, the service providers and the impact of e-communication adoption by Bangladeshi SMEs has led to select the following research topic:

'E-communication adoption and its impact on SMEs: A Case of Bangladesh.'

This research topic has two main parts; the first part relates to e-communication; this is also known as the cause factor of research. The second part is associated with the

impact of e-communication on Bangladeshi SMEs; it has been treated as the effect of this research.

In this research, organisational culture and other relevant factors which can influence the SMEs in adopting e-communication facilities have been investigated. Similarly, convenience, customisation and cost of use have also been explored with the support of the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) by aiming to reduce the existing e-communication gaps in Bangladeshi SMEs. Furthermore, employing the framework of the institutional theory (King *et al.*, 1994), the role of the Bangladesh government's encouragement of the e-communication adoption of SMEs has been analysed. In addition, a conceptual framework to increase the e-communication adoption by Bangladeshi SMEs has also been devised. Finally, the impact of e-communication on Bangladeshi SMEs has been evaluated.

1.1 Problem Statement

To minimise the existing e-communication gaps in the SMEs, there needs to be a new concept for developing countries like Bangladesh. Mytelka (2000) postulates that, because SMEs are huge contributors in the economic growth of both the regional and national economic spheres of influence, they are highly valued and also perceived as essential components in the global economy. Agreeing with the European Commission (2007), Becheikh, Landry and Amara (2006) observe that, due to employment and innovation, SMEs are crucially valued at the same time treated as a source of entrepreneurial skills. This notwithstanding, the SMEs of any country not immune; they stand the chance of being positively affected by the new communication facilities; which could be helpful for upgrading their operational activities. Consequently, technological innovation is one of the vital issues that has become unavoidable to get competitive advantages and to develop new markets (ibid, 2006). In like manner, Solow (1987) believed that, technological innovation is the heart of economic change; it could be used as the ultimate source of growth and productivity and can help the SMEs to consistently and exponentially get ahead.

It has also been revealed that, the features of e-communication can play an important role for different types of SMEs in resource management and business

operations (Abousaber, 2013). Eriksson and Hultman (2008) claimed that, contact with customers, suppliers, service providers and other financial supporters could be done very easily in developed countries and within a few seconds, money transactions, which are ensured by service providers, can be done effortlessly. In supporting this argument, Bhamra, Dani and Bhamra (2011) agreed that, in order to communicate with customers and suppliers, various types of online communication facilities and applications such as e-payment systems are freely provided by almost all of the banks in the United Kingdom. Despite the preponderance of these facilities in the developed countries, these are yet to be readily available for SMEs in Bangladesh.

Chakraborty (2009) claimed that, economic growth of developing countries could be positively affected by the growth impact of telecommunication infrastructure investment which acts as another barrier to Bangladesh's service providers to minimise the e-communication gaps. Even though various programmes designed to promote e-communication facilities have been initiated by the Bangladesh government, no comprehensive study has been carried out to influence the SMEs for e-communication adoption by highlighting their potential benefits. Moreover, the role of the service providers like the banking industry in influencing the SMEs to adopt e-communication facilities has hardly been examined in the context of Bangladesh. Hence, there is a need to identify the factors that influence the e-communication adoption and which have the potential also to affect the operational and financial performance of the Bangladeshi SMEs.

1.2 Research Background

According to Ghobakhloo, Arias-Aranda and Benitez-Amado (2011), and Al-Debei and Al-Lozi (2012), the growth rate of e-communication adoption had been significant in developed countries within both small and large businesses. However, Asare, Gopolang and Mogotlhwane (2012), and Mokaya (2012) provided the contrasting view that, the rate of e-communication adoption by SMEs in developing countries is quite low; they claimed that, the improvement in organisational performance has been attributed to the improved innovation in e-communication in both developing and developed countries. In addition, Ghobakhloo and Tang (2013)

advanced the need to stimulate the performance of the SMEs as a compelling factor that could be the main reason why they need to adopt e-communication facilities. Furthermore, researchers like Riyadh, Akter and Islam (2010); Apulu, Latham and Moreton (2011) and Abousaber (2013) had researched on the factors that influenced the adoption of new technology in developing countries by the SMEs.

Prior to conducting this study, the researcher reviewed a plethora of contemporary literature including some valuable research evidence were read and gathered; e.g. the adoption of ICT (Al-Hudhaif and Alkubeyyer, 2011); in going through this review, Saudi SMEs and factors associated with e-commerce adoption were identified. Additionally, Beck, Wigand and Konig (2005) researched and analysed the efficient use of e-commerce. In a research on ICT adoption and performance of SMEs, digital gaps were identified by Guasch and Ugas (2007); these researchers focused on Maracaibo a City in Venezuela. Commercialisation strategies of vendors from Denmark were investigated by Constantiou, Papazafeiropoulou and Dwivedi (2009); these researchers stressed on the diffusion of IP telephony. In another study, Choudrie and Papazafeiropoulou (2007) examined the government policies and how they affect the broadband adoption in the United Kingdom. Likewise, Riyadh, Akter and Islam (2010) in a study, investigated the effects of adopting e-banking and other relevant factors in the context of developing countries. Similarly, Abousaber (2013) analysed the impact of WiMax adoption considering the Saudi government's policies and commercialisation strategies of the mobile phone companies.

The divergent factors which affect SMEs in Botswana to adopt e-commerce in their business have been analysed by Shemi (2012). Chen and Holsapple (2013) examined the different attributes regarding the adoption of e-business. Further, Abdul, Narongsak and Seigyoung (2014) explored the outcome for implementing and utilising the features of the TAM model for online shopping. At the same time, Makame, Kang and Park (2014) also identified a number of factors that influence e-commerce adoption in Tanzania. In their study, Zhu and Chen (2016) considered the normative social influence on the use of e-commerce in the urbanising China. Simultaneously, Basarir-Ozel and Mardikyan (2017) identified the various factors which impact the adoption of e-commerce in Turkey. All these different pieces of research work have played a substantial role in setting a firm foundation for this study. Remarkably, no research has yet been carried out in the areas involving the

Bangladeshi SMEs, e-communication adoption, the service providers' commercialisation strategies and government roles together. It could be inferred, therefore, that despite the availability of these numerous studies, Bangladesh is still lacking behind in the e-communication research as identified above.

To explore the impact of the service providers' commercialisation strategies, a few issues: customisation, cost of use and convenience associated with the dimensions of the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) have been identified in this study for influencing e-communication adoption by Bangladeshi SMEs. In addition, the role of the Bangladesh government to influence SMEs for e-communication adoption has been explored by employing the framework of the institutional theory (King *et al.*, 1994) and its attributes: knowledge deployment, knowledge building, standard settings, mobilisation, subsidy and innovative directives. The impact of e-communication on SMEs has thus been revealed by collecting and comparing data from the Bangladeshi SMEs, which have already adopted e-communication facilities and which are yet to adopt.

The researcher is very passionate to relate the Bangladeshi SMEs, government roles and the service providers' commercialisation strategies employed in increasing the rate of e-communication adoption and at the same time, reducing the existing e-communication gaps. Equally, considering the research aim and objectives, a conceptual framework has been devised by combining the organisational culture of SMEs, the roles of government and the service providers' commercialisation strategies. As this model has not previously been devised by any researcher, it will help in minimising the existing e-communication gaps in SMEs of Bangladesh. It is hoped that, this research will ultimately reduce the existing literature gaps in the areas of the service providers' commercialisation strategies, organisational culture of Bangladeshi SMEs and government roles. Consequently, it will assist the service providers and the government of Bangladesh to influence the SMEs in adopting e-communication facilities to enhance their operational and financial performance.

1.3 Research Aim, Objectives and Research Questions

This research aims to evaluate the impact of e-communication on Bangladeshi SMEs.

The following objectives have been outlined to achieve the stated aim:

- To investigate the factors that affect Bangladeshi SMEs to adopt e-communication facilities.
- To explore the impact of commercialisation strategies of the service providers and government's roles to influence the Bangladeshi SMEs for adopting e-communication facilities.
- To evaluate the impact of e-communication adoption on Bangladeshi SMEs' financial and operational performance.
- To devise a conceptual model for increasing the e-communication adoption by Bangladeshi SMEs.

The first research objective is related to the factors that affect Bangladeshi SMEs to adopt e-communication facilities. In order to scrutinise these factors, organisational culture of the SMEs and other factors like characteristics of the owners/managers; knowledge on ICT; social and cultural issues; privacy concern; trust, security, financial ability; the size of organisations; technological factors; and the macro-economic policies have also been investigated by comparing the data collected from Bangladeshi SMEs and those of the existing literature.

The second research objective is related to the service providers' commercialisation strategies and government roles. To explore the impact of the service providers' commercialisation strategies in minimising the e-communication gap within SMEs, the features of the theory of disruptive innovation have been employed. In this case, few issues such as cost of use, customisation and convenience have been focused on for Bangladeshi SMEs. Data collected from the service providers (Bangladeshi banking industry representatives) have been compared with existing literature, findings have been analysed and a conclusion has been reached. To explore Bangladesh government's policies, the institutional theory of innovation has been emphasised in considering some attributes such as, knowledge building and knowledge deployment, etc. For government roles, various

sources: the website of the Ministry of ICT, Ministry of Industry, BTRC, BANBAIS and SME Foundation have been accessed to collect data; and the collected data have been compared with existing literature. Subsequently, the impact of government roles to influence the Bangladeshi SMEs in adopting e-communication facilities has been analysed.

The third research objective is related to the impact of e-communication adoption and its impact on the SMEs. To analyse the impact of e-communication adoption on SMEs, data collected from Bangladeshi SMEs have been compared with existing literature and a conclusion drawn.

The fourth research objective is related to developing a conceptual model. A conceptual model has been devised following the organisational culture of SMEs (the OCAI model), institutional theory (King *et al.*, 1994) and the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) with the target to minimise the existing e-communication gaps and increase the rate of e-communication adoption by Bangladeshi SMEs.

Research Questions

After considering the above research objectives, the following research questions have been answered in this research:

- What are the factors that affect Bangladeshi SMEs to adopt e-communication facilities?
- How can commercialisation strategies of the service providers and government roles influence Bangladeshi SMEs to adopt e-communication facilities?
- What is the impact of e-communication adoption on Bangladeshi SMEs?
- How can a conceptual model help to increase the e-communication adoption by Bangladeshi SMEs?

1.4 Significance of the Research

The types of business activities performed over the internet have been examined in a number of past studies like Ainin (2000), and Daniel, Wilson and Myers (2002). Also, the types of applications which have been adopted by firms were described by Rao, Angelov and Nov (2006), and Teo and Pian (2003) in considering the sequence of stages relevant to the adoption of e-commerce. E-commerce in terms of usage, has also been investigated in some studies (Walczuch, Bravan and Lundgren, 2000). Similarly, the usage of e-commerce in terms of dichotomous outcome has been considered in the studies of Fichman (2000) and Teo and Ranganathan (2004).

Teo and Ranganathan (2004) observe that, in the Asia-Pacific region, very limited studies on e-communication especially for SMEs have been conducted besides Hong Kong and Singapore. This observation has been given credence to Kuan and Chau, (2001); Chau and Hu (2001); Wong (2003), and Teo and Pian (2003), they all agreed that, very little research has been carried out in Bangladesh (Awal, 2004; Azam, 2007; Rikta, 2007) in the area of e-communication adoption by SMEs. It could be proffered therefore that, the outcome of this research will contribute to knowledge on the practices of e-communication adoption by SMEs in the Asia-Pacific region.

Firstly, to offer a wide-ranging idea of e-communication related factors, organisational culture of the Bangladeshi SMEs has been explored from different contexts. Secondly, support from the service providers has been analysed considering the convenience, customisation and cost of e-communication facilities available in Bangladesh. Thirdly, the government support and current policies for the exploration of e-communication facilities for SMEs have been analysed in the context of institutional theory of innovation and its features: knowledge building and knowledge deployment. Various facets of e-communication adoption have also been analysed in this research which can provide a clear understanding of the e-communication gaps; relevant factors behind these gaps and ways of reducing the existing gaps by getting support from the service providers and government agencies.

The service providers can get information from the outcomes of this study in relation to planning, developing and promoting the e-communication services for small and

medium firms. The policy makers of Bangladesh could also be interested in the research findings for future e-communication planning for SMEs. Finally, Bangladeshi SMEs could be persuaded to adopt e-communication facilities to enhance their operational and financial performance.

1.5 E-communication and the banking industry of Bangladesh

Today, e-communication is treated as the heart of the banking industry and in conducting financial transactions, electronic banking has become the key technology driven revolution. Extraordinary improvement in banking operations has been modernised throughout the world by the contribution of ICT. For instance, the cost of global funds transfer has been decreased due to the development of worldwide networks. High quality customer services with less effort could be ensured if banks use ICT related products: security investments, electronic payments and online banking (Alam, 2017). A number of innovative products such as; Web banking, Mobile/Tele banking, ATM/POST facility, 'Anytime' and 'Anywhere' banking, etc. have already been adopted by most of the banks in Bangladesh. In line with the global trends, they have been investing heavily in technology infrastructure, solutions and manpower. The main purpose of such high investments in information and communication technology is to achieve increased productivity, better access to clients and markets, profitability and competitive advantage through improved internal and external transaction flow and to enhance quality of products and services (Alam, 2017).

In the banks' digitisation journey, 'Supportive Policy and Regulatory Environment' in Bangladesh is considered as one of the key preconditions. Mainstreaming ICT for greater welfare of the society has been proposed by the Bangladesh government's Digital Bangladesh by 2021 Vision. Bangladesh central bank named Bangladesh Bank (BB) has been promoting and supporting other banks to adopt digitalisation measures by setting up related departments, introducing supportive guidelines and policies. Most of the banks in Bangladesh are now using core banking software and have also automated their numbers of operations which are backed by the initiative of the BB. To facilitate paperless payment, Bangladesh Bank has been contributing significantly (Habib, 2019). The goal of this initiative is to bring all the banks under a

single clearing umbrella to ensure cost-effective and secured banking transactions electronically. A number of benefits such as reducing processing time and reducing related documents have been reflected because of this process. Moreover, a number of banks have adopted automated process to drastically reduce paper-based work. Similarly, through automation, the account opening procedures have also been simplified. As a positive move, Bangladesh Bank has introduced e-KYC procedures to simplify the account opening form. As part of the validation process, currently, banks can verify the clients' identity through National Identify Card (NID) with the central database of election commission. Practically, it has saved a huge cost by reducing the use of paper forms (Habib, 2019).

Online banking services are the initial initiative for digital banking and financial services in Bangladesh. Data published by the central bank of Bangladesh show that, 87% of the bank branches are utilising online services in full form and 8% of them are offering partial services, means 95% of the branches are using online facilities. However, according to financial inclusion insights, only 35.3% of the Bangladeshi population has access to banks which clearly indicate that, the availability of online facility is certainly not enough for financial inclusion and digital financial services. Data published in 2018 by the Financial Inclusion Insights show that, although 44.4% of the Bangladeshi population has access to Mobile Financial Services (MFS), only 16.9% has a registered account (Financial Inclusion Insights, 2018).

In recent years, a number of service portfolios have been offered by several MFS operators like bKash, Rocket, Nagad, etc. These operators offer MFS for P2P fund transfer services only but the transfer fees are high on the customer end. In addition to this, almost 20 banks have been offering agent banking services where limited facilities such as cash deposit and transfer are available. In most cases, crucial services like insurance and credit for unbanked and rural users are included (Rashid, 2020).

Although a number of services have been included in the banking activities for different types of users but there are very limited services for SMEs and these are not even frequently used by them. A number of backdrops such as lack of IT literacy, costly internet connection, insufficient telephone connectivity, low investment, lack of

skilled IT personnel in backing sector, cost of PCs and lack of secure and reliable information infrastructure, lack of awareness have been identified by Bangladesh Bank which are associated to speed up the adoption of e-banking among SMEs.

1.6 Summary of the Research Methodology

A sequence has been followed in executing the research from planning to conclude the outcomes. In the beginning of the research methodology, research philosophies, especially the positivism, interpretivism and pragmatism of the research philosophies have earlier been emphasised. Firstly, some of the information was collected from SMEs of Bangladesh using survey questionnaires; so, positivism has been the best-suited philosophy for this phase of research. Secondly, in-depth information was gathered from the service providers (the banking industry representatives) of Bangladesh using semi-structured interview questions. In view of the collection of in-depth information from the bank representatives, interpretivism was the best-suited research philosophy. However, to overcome the complexities, the pragmatism paradigm has been employed finally to carry on this research.

After considering the research philosophy, the research approaches have been emphasised. As in one of the phases, data have been gathered from the Bangladeshi SMEs by survey questionnaires designed to identify factors relating to e-communication barriers; therefore, the deductive approach was the best suited for this part. In the second phase, in-depth information has been gathered from the Bangladesh banking industry representatives using semi-structured interview questions. Thus, the inductive research approach was appropriate for this phase. Therefore, the integration of both the qualitative and quantitative methods has led to some challenges because of different theoretical background and paradigms (Jones, 2000). Both deductive and inductive approaches (Pragmatic approach) have been employed in this study, to investigate the factors which affect SMEs to adopt e-communication and also to evaluate the impact of e-communication adoption on Bangladesh SMEs.

Both explanatory and exploratory (Creswell, 1998) research designs have been followed in this research to analyse a single truth (survey data) and also to gather in-depth information (interview) from the banking industry representatives. For the first

phase of this research and also for time and financial constraints, the researcher has chosen 470 samples (220 SMEs adopted e-communication services and 250 did not adopted the e-communication services) of Bangladeshi SMEs from only Dhaka Division. For the second phase of the research, interviews were conducted with 22 bank representatives (Appendix G) (Bangladesh Bank, 2013) because these banks are directly related to SMEs for providing e-communication facilities.

1.7 Potential Contribution

In reviewing the existing literature, it was revealed that, no research had been carried out on e-communication adoption emphasising on SMEs, the service providers (the banking industry) and the roles of government. Research on e-communication adoption and e-communication gaps have highlighted the challenges and evaluation, deployment, developments and benefits of use. Although, some studies have indicated the adoption of e-communication by education and health care industries, there is however very little emphasis on the Bangladeshi SMEs. The various factors which have impacted the e-communication technology adoption have also been investigated in this research, including the significant theories which are often used to analyse technology adoption by SMEs. Other key research issues such as SMEs, organisational culture of the SMEs; commercialisation strategies of the service providers; theory of disruptive innovation and government roles for e-communication adoption by Bangladeshi SMEs have been analysed.

The limitations of the existing research have helped to contribute in the areas of literature review. This study has made theoretical contributions by introducing and developing an organisational culture profile of Bangladeshi SMEs, commercialisation strategies of the service providers and government roles considering three research domains such as the organisational culture, institutional theories and the theory of disruptive innovation. Rather than studying SMEs' organisational culture, commercialisation strategies of the service providers and government roles individually, these have been explored together to evaluate the impact of e-communication on Bangladeshi SMEs' operational and financial performance. Therefore, to investigate these factors, few dimensions of the organisational cultural framework, institutional theories and disruptive innovation have been used as a

theoretical foundation. Compared with institutional theories and the theory of disruptive innovation, the organisational cultural framework was not previously utilised to identify the factors that affect SMEs for e-communication adoption.

Further research areas have been developed after exploring the existing trends in the areas of e-communication gaps, e-communication adoption, organisational culture of the SMEs; commercialisation strategies of the service providers and the government roles. The performance of the SMEs after adopting the e-communication facilities has also been analysed. The adoption of e-communication facilities by Bangladeshi SMEs have not been explicitly used in the literature review, but this research has provided the implicit use of the literature review in the context of organisational culture, e-communication adoption, and performance of the SMEs. In addition, the OCAI model according to Cameron and Quinn (1999), has been used to identify Bangladeshi SMEs' dominant organisational culture which might have consequences for adopting e-communication facilities. This research has also developed a comprehensive model by combining the theory of disruptive innovation, the organisational culture of SMEs and institutional theory to study e-communication adoption by Bangladeshi SMEs. To examine the government intervention, the institutional theory (King *et al.*, 1994) was used for e-communication adoption to SMEs. The role of government to adopt e-communication facilities by SMEs was used as a starting point for further research development.

To combine surveys and interviews, a multi-methodological approach has been adopted and applied in this study. More perspective on the studied phenomena could be revealed by using a combination of methods claimed by the following researchers: Zikmund (2003); Neuman (2003); Cooper and Schindler (2003); Straub, David and Marie-Claude (2005), and Qureshi, Vogel and De Vreede (2005). To validate the framework empirically, a survey technique has been used and subsequently, because of the requirements of in-depth interview, the protocols have been refined. The survey has been helpful when assessing the organisational culture of the SMEs and to gather information within a short timeframe, comparing it with an in-depth interview. Furthermore, to indicate the service providers' commercialisation strategies, in-depth interviews were helpful in achieving a practical balance between the research dimensions. A richer understanding was provided by the

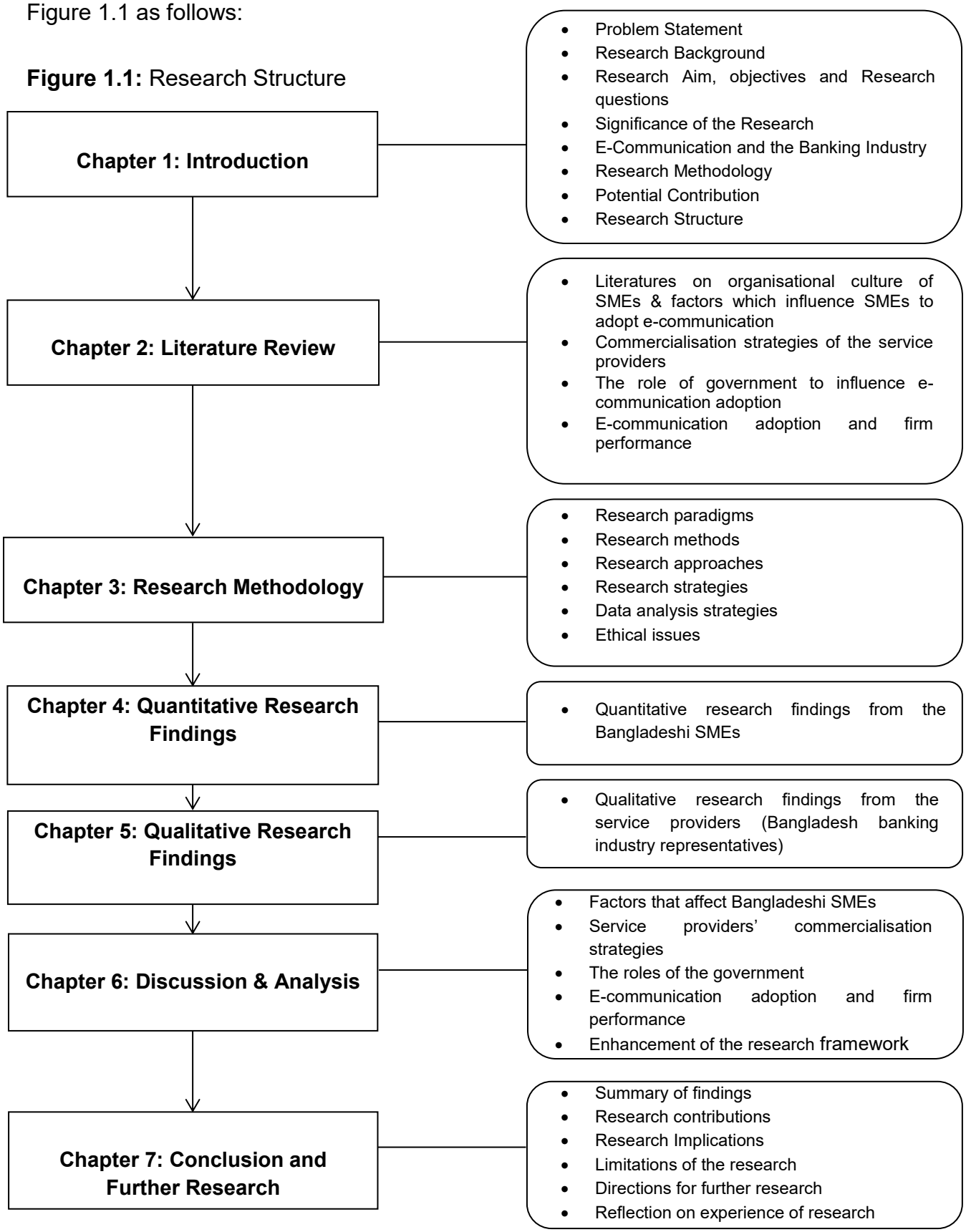
complementary strengths of each data collection method (Creswell, 1998 and Gable, 1994).

This research has offered a multi-dimensional innovation framework by conceptualising the adoption of e-communication by the Bangladeshi SMEs in relation to main dimensions like organisational culture, commercialisation strategies of the service providers and government roles. In fact, distinct dimensions of e-communication adoption were identified based on the organisational cultural framework; the theory of disruptive innovation and institutional theories in e-communication adoption literature. Moreover, the framework that has been devised in this research could be efficiently employed to influence the SMEs to adopt e-communication and also to enhance the performance of the SMEs.

1.8 Research Structure

This research has been divided into seven chapters which have been summarised in Figure 1.1 as follows:

Figure 1.1: Research Structure



1.9 Summary

This chapter has briefly represented the whole research which starts with introducing the research topic and indicating the problem statement. Afterwards, research background has been summarised based on existing and relevant theories, models and concepts. Specific models, theories and concepts which were followed in this study have been shown briefly in the research background alongside the reasons behind using these theories. Research aim, objectives and the research questions which are the main driving forces to carry on the research have also been presented in this section.

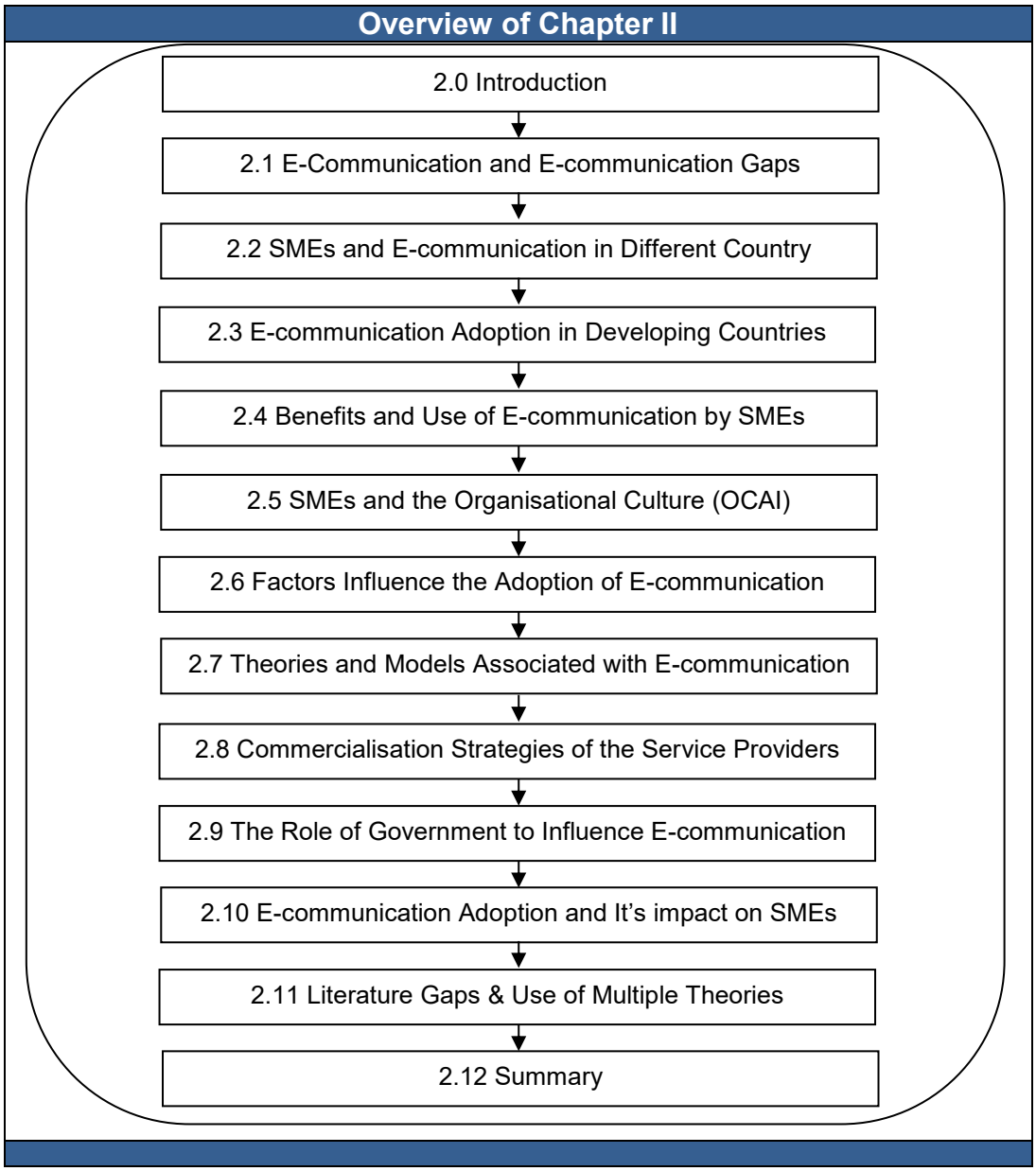
Significance of the research has been presented after discussing the research aim, objectives and research questions where the implications of the study have been indicated considering the Bangladeshi SMEs, the service providers and the government. Current situation of the e-communication and the banking industry of Bangladesh, summary of the research methodologies and research contributions have also been presented after showing the significance of the research.

The research structure clearly indicates that, after introducing the entire research, the theoretical background has been summarised under the literature review section which has been presented in the next chapter.

CHAPTER II: LITERATURE REVIEW

In Table 2.1, an overview of the second chapter has been presented including a number of topics such as introduction; e-communication and e-communication gaps; SMEs in different country perspectives; e-communication adoption in developing countries; benefits and use of e-communication by SMEs; organisational culture of SMEs and the OCAI; factors influence the adoption of e-communication; e-communication adoption theories and models; commercialisation strategies of the service providers; the role of government to influence e-communication; e-communication adoption and its impact on SMEs; literature gaps in e-communication adoption by SMEs and summary of the chapter.

Table 2.1: Overview of Chapter II



2.0 Introduction

Researchers like Mutula and van Brakel (2007) opined that, SMEs have been treated as a significant component of many developing economies of the world. The contributions of SMEs in the areas of innovation, facilitating regional development and creating employment are the main reasons that have an impact on the economy of many countries (Bharati and Chaudhury, 2006; Jones *et al.*, 2011). The research conducted by Chakraborty (2009), highlighted the impact of investment in telecommunications within developing countries, considering the per capita growth and has shown a significant relationship between economic growth and impact of telecommunications. Yaghoobi *et al.* (2010) revealed that, people of the third millennium are more interested in e-communication than the traditional approach of communication. Moreover, a high level of acceptance of information technology among different groups and institutes is also found in this research.

To gain substantial productivity at the firm level, the e-communication facility has the prospect of enriching the performance of SMEs, revealed by (OECD, 2000). Business processes and cost savings could be rationalised by the support of e-communication facilities when applied to business-to-business relations. Automation of common processes such as sales, inventory management, after-sales service and distribution could be followed by SMEs as an immediate impact of e-communication facilities. However, the cost can influence the e-communication adoption by SMEs even though they were well-thought-out as a major component by a number of researchers, remarked Mutula and van Brakel (2007).

The disruptive innovation and vendor's strategies are explored by Constantiou, Papazafeiropoulou and Dwivedi (2009) taking into account the IP telephony. It indicates that, the disruptive diffusion processes of innovation and commercialisation strategies are strongly related to this research. The research published by Choudrie and Papazafeiropoulou (2007) revealed the government policies that are related to technology adoption. It gives some ideas for identifying the roles of the Bangladeshi government regarding the e-communication facilities. McGrath and Maiye (2010) identified some initiatives related to technology expansion in developing countries and it has guided the researcher in identifying several initiatives taken by the

government. Furthermore, this study has been supported by the concept of the institutional theory.

In this chapter, e-communication and e-communication gaps have been analysed both in general and more in the context of Bangladeshi SMEs. The SMEs in different country perspectives, e-communication adoption in developing countries and the benefits of the usage of e-communication have also been briefly discussed. SMEs and their organisational culture have been presented from different theoretical perspectives. In addition to the factors which can influence the SMEs to adopt e-communication facilities; theories and models on e-communication adoption and commercialisation strategies of the service providers have also been highlighted. Finally, the role of government to influence e-communication adoption, e-communication adoption and firm performance and literature gaps in e-communication adoption by SMEs have been emphasised in this section.

2.1 E-communication and E-communication Gaps

The various ways that telephone calls, letters and graphics, paper-based drawings and face-to-face interactions are used in the traditional forms of communication. In e-communication, the same thing is done electronically. Engsbo and Sandhu (2005) have defined e-communication as a procedure to send and retrieve messages through computer or other electronic devices and internet facilities. Nowadays, a number of simple tools such as e-mail, and more complex tools including Electronic Document Management (EDM) and Enterprise Resource Planning (ERP) communications have also been used to ensure better electronic communication facilities. Engsbo and Sandhu (2005) also argued that, different forms of e-communication could be found based on multimedia and textual/verbal presentation regardless of whether it is asynchronous or synchronous (real-time).

E-communication facilities have helped to reduce the cost of traditional communication; for instance, distribution of paper copies has been substituted by the files attached to emails. Additionally, because of the e-communication facilities, the speed of communication has been exceedingly revolutionised and most of today's organisations are using electronic messages instead of using snail mail delivery. Although, there are some limitations with e-communication facilities in the context of

legal implications and the lack of interpersonal exchange, they are now playing important roles in the business organisations to communicate with different respondents (Stewart, Mohamed and Marosszeky, 2004).

The communication process could occur either externally or internally to any firm (Azam, 2007); generally, electronic mails and faxes are used in the intra-organisational communications. Sometimes different forms of communications such as, audio, visual or texts are used for streaming the local networks or intranet, avers Ratnasingam (2000). Across different networks, industries as well as the size of the organisation, the spread of e-communication could be varied (Rikta, 2007). Fichman (2000) highlighted how the frequency of adoption extent and the rate of e-communication could differ, based on the firms' economic-rationalistic approach. According to the e-technology utilisation model (Malo, 2011), electronic newsletters, chat, IP telephony, discussion boards, RSS, email blog system and instant messaging are also important components of the e-communication/e-technology for SMEs.

In the 1990's, the term 'digital divide' or 'e-communication gap' came to be popular, as it points out the gaps in information communication technology (ICT) knowledge and procurement between the developed and developing nations. The e-communication gap has been defined by Dijk (2006), as comparing the respondents who have already adopted and who are yet to adopt the services. Brooks, Donovan and Rumble (2005) provided almost the same definition for e-communication gaps, and stated that, the e-communication gaps divide respondents into two groups; whereas one group adopts and uses the facilities, the second group has yet to adopt and use the benefits of the services. The 'digital gap' was described by Standing, Sims and Stockdale (2004) as the gap between the adoption of e-business and IT in the context of the level of sophistication and usage in large organisations compared to SMEs, urban compared with rural areas.

Some additional ideas could be found from Guasch and Ugas (2007). These researchers have suggested that, the digital gap could be demonstrated between geographical areas, regions, organisations, families, people and countries in association with their opportunities of ICT adoption and the capability of using the internet in consideration with the huge functionalities at a wide extend. These

researchers also identified some factors related to the digital gaps including the insufficient approach, lack of infrastructure, higher costs, insufficient communication services, lower capability in getting social and economic advantages and the shortages in the local content.

To reduce the e-communication gaps among Bangladeshi SMEs, organisational culture, commercialisation strategies of the service providers and contribution of the government have been highlighted, while considering the Perceived Usefulness (PU) and Perceived Ease-Of-Use (PEOU) related features. E-communication facilities and the rapid diffusion of the internet can influence the e-commerce activities and in this situation, there will be easy access and the cost factors that have been highlighted by several researchers like Bell and Loane (2010); Standing, Sims and Stockdale (2004). Yet, the practice among SMEs has not been much evident in both developed and developing countries (Olatokun and Kebonye, 2010; Chibelushi and Costello, 2009; Wilson, Daniel and Davies, 2008). Even though, within the well-equipped e-readiness environment the better performance among SMEs, could be reflected in developed countries (Wielicki and Arendt, 2010).

A number of barriers with the e-communication adoption have been discovered by SMEs around 2005 and beyond. The research conducted by Kaynak and Harcar (2005) exposed that, the lack of qualified personnel and role of the manager/owner are the main barriers in the adoption of e-communication facilities by SMEs. However, Bolongkikit *et al.* (2006) identified human interaction as the main concern of e-communication facilities adoption by SMEs for specific markets. The three types of e-communication barriers like cognitive, socio-political and economic barriers, were identified by Kshetri (2007). Furthermore, Rakhmanov (2009) evaluated some factors related to e-communication gaps in Uzbekistan; and the factors were found to be strongly related to the e-government initiatives, such as deficient regulatory and legal framework, utility and infrastructure and supportive trade policy to provide opportunity for adopting technology (Bakht and Basher, 2015). Other factors like the e-communication technologies were identified as barriers by Olatokun and Kebonye (2010). Financial, management support, social, organisational and technical factors were identified by Alshehri and Drew (2010) in the case of the Saudi Arabia's e-communication facilities.

Most recently, a study conducted by Alamro and Tarawneh (2011) in Jordan identified three types of factors for e-communication gaps and these factors were associated with the external environmental, technological and organisational circumstances. As part of the technological context, these researchers have pointed out the technology cost, performance ratio, e-commerce barriers, new technologies and innovations. In the organisational context, rapid political changes, the social responsibility of organisations, ethical and legal issues were also emphasised by them. Moreover, in the external environmental context, they identified increased power of consumers, significant changes in markets, costs of the service, regional trade agreements, global economy and strong competition; all affects the e-communication adoption (Lim, Baharudin and Low, 2016; Rahayu and Day, 2017). Although, access is available, large numbers of the Bangladeshi SMEs are not adopting the e-communication facilities and reasons for their reluctance to adopt these are the focus of this research. Also, the rate of e-communication adoption could be differed based on the type of SMEs as well as the different country perspectives which will be focused on in the next section.

2.2 SMEs and E-communication in Different Country Perspectives

In Business and ICT studies, SMEs is a well-researched term (Abousaber, 2013); however, there is no single universal definition for SMEs which is one of the limitations of previous studies. To categorise SMEs, several types of criteria are considered; for instance, the conventional criteria suggested by Van Hoorn (1979), in an effort to define SMEs a number of issues have to be considered; e.g. issues such as balance sheet total, number of staff and total annual sales. Contrary to this, only numbers of employees are brought into consideration to define SMEs in many countries.

According to Damanpour (1992), to differentiate SMEs and large organisations, the size of the firm is generally used as an indicator. This researcher also stated that, firm size could also be measured based on financial resources, number of employees, as well as non-financial resources. Evolution, innovation and uncertainty related characteristics were considered by Storey (1994) for differentiating SMEs from large organisations. Many researchers characterised SMEs based on different

factors; such as lack of exchanging employees, less tolerances to inefficiencies, (Dandridge, 1979), limited resources (Welsh and White, 1981), limited capital sources, lack of managerial capacity, lack of human resources and less developed strategic planning (Garengo, Biazzo and Bititci, 2005). Similarly, strategic requirements were focused by Van Hoorn (1979) and Lim, Baharudin and Low (2017) including having limited resources, limited workforce, limited capabilities and inadequate strategic planning knowledge; besides this, most of the SMEs are managed by family members.

As mentioned above, the features of the SMEs are noticeable from different research findings. In addition, some external factors can affect the SMEs of the developing countries as they experience underdeveloped ICT infrastructure during their operations (Esmaeilpour, Hoseini and Jafarpour, 2016). Goldstein and O'Connor (2000) identified major challenges such as security concerns, high costs of internet connectivity and limited bandwidth which are faced by SMEs in developing countries. Likewise, Mbamba (2006) identified the limited access to internet and lack of ICT connectivity services.

Based on production volume, size and capital investment, enterprises may be segmented into different groups. Different definitions of SMEs are found in different regions considering the number of staff members in the organisations. For instance, organisations in Egypt with employees between 5 and 50 are known as SMEs, in Vietnam organisations with employees between 10 and 300 are known as SMEs. As indicated by the World Bank, SMEs are those firms which have annual revenue of $15 million with a maximum of 300 employees. In comparison, firms having a maximum of 100 employees with not more than $3 million in revenue are defined as SMEs by the Inter-American (Chowdhury, Azam and Islam, 2013).

In the European Union context, definitions of SMEs are associated with the number of employees (less than 250) involved in the organisations (European Commission, 2007). As stipulated by the Department of Trade and Industry (2004) categorisation of SMEs, if the number of employees is fewer than 10, then it is termed as a micro enterprises, and if between 10 and 49 employees are involved in the small enterprises where their annual turnover does not exceed 10 million Euros. On the

contrary, fewer than 250 employees are involved in the medium enterprises whose annual turnover is not more than 50 million Euros.

In the USA, the Small Business Administration (SBA) Size Standards Office is responsible for setting the category of small businesses. The SBA follows the “Size Standards” term to define small businesses. As identified by the SBA, small firms must be independently owned and operated. Also, the most common size standards for small firms have been classified based on different categories of business operations; e.g. for most manufacturing and mining industries, the number of employees is 500. For wholesale trade industries, employees would be within 100 and for most service and retail industries annual receipts should be within an annual turnover of $6 million. In addition, for heavy constructions and general industries, $28.5 million of annual receipts and for all special trade contractors, $12 million of receipts have been specified for small businesses; this has been defined for agricultural industries per year at $0.75 million for receipts (US Business Administration, 2013). In comparison, Industry Canada has defined a small firm which has fewer than 50 staff members if considering the service-based business; and 100 employees for goods producing business. Medium-sized businesses are those which have more than 100 but fewer than 500 employees (Industry Canada, 2012).

According to the Reserve Bank of India (2013), SMEs are mainly divided into two segments such as (a) enterprises engaged in preservation or processing of goods and manufacture or produce; and (b) enterprises engaged in rendering or providing services. Enterprises engaged in processing or preservations or productions are classified into three groups; these are: Medium, Small and Micro enterprises. Micro enterprises are those enterprises having investments in machinery and plant not exceeding Rs.25 lakhs. Enterprises with investments between Rs.25 Lakhs and Rs.5 Crore are classified as small, while investments between Rs.5 Crore Rs.10 Crore are known as medium. Enterprises engaged in rendering or providing services are also classified into three types, as well as enterprises engaged in preservation or processing goods. If investment in a service providing firm is within Rs.10 lakhs, then it is known as micro enterprise; but if investment is between Rs.10lakhs and Rs.2

Crores then, it is small enterprises and if investment is between Rs.2 Crores and 5 Crores then they are termed as medium enterprises.

As stated in the Bangladeshi Bank's regulations, small enterprises are those which have no more than 25 staff in the service and other businesses, and 50 staff members in the industrial sector with BTD. 50,000-50,00,000 investment in the service industry and other business and BDT. 50,000-1,50,00,000 investments in the industry respectively. Conversely, medium enterprises are those having 50 employees in service and other business, and 150 employees in the industrial sector with BDT.50,00,000-10,00,00,000 investments in the services and other businesses and BDT.1,50,00,000-20,00,00,000 in the industrial sector respectively (Bangladesh Bank, 2013). The criteria of small and medium enterprises in Bangladesh have been presented in Tables 2.2 and 2.3:

Table 2.2: Small Enterprises in Bangladesh

Serial No.	Sector	Fixed Asset other than land and Building (Tk.)	Employed Manpower (Not above)
01	Services	50,000-50,00,00	25
02	Business	50,000-50,00,000	25
03	Industrial	50,000-1,50,00,000	50

Source: Bangladesh Bank, 2013

Table 2.3: Medium Enterprises in Bangladesh

Serial No.	Sector	Fixed Asset other than land and Building (Tk.)	Employed Manpower (Not above)
01	Services	50,00,000-10,00,00,000	50
02	Business	50,00,000-10,00,00,000	50
03	Industrial	1,50,00,000-20,00,00,000	150

Source: Bangladesh Bank, 2013

As mentioned by the government of Bangladesh, SMEs are classified into manufacturing and non-manufacturing enterprises (Ministry of Industry of Bangladesh, 2013). In the manufacturing sector, small enterprises are those having

up to BDT. 15 million investments associated with technical services, support utility, machinery and other components; the replacement cost of plant and the current market prices excluding building and land. Alternatively, if the investment does not exceed BDT.100 million associated with technical services, support utility, machinery and other components excluding building and land, then these are known as Medium Enterprises. In the non-manufacturing sector, enterprises are also classified into small and medium sizes. If the number of full-time employees is fewer or equivalent to 25, it is termed as small enterprises, and employs between 25 and 100 are known as medium enterprises (SME Foundation Bangladesh, 2013).

There are less than or equal to 9 employees in the Micro enterprises; in the small enterprises there are 10-49 employees that are involved, in the medium enterprises there are 50-99 and in the large enterprises more than 99 employees are involved (Bangladesh Bureau of Statistics, 2009). As stated by the Ministry of Industry, Government of Bangladesh, SMEs are classified into 11 sectors considering the categories of services and the products they offer. These are related to software development, electronic and electrical products manufacturing and services, leather goods, specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; metal working and light engineering, readymade garments and knitwear, health care and diagnostics, plastics and other synthetics, toiletries/ cosmetics/ pharmaceuticals, education services, and wear and consumer goods (Ministry of Industry of Bangladesh, 2013).

A report published in The New Nation (2008), exposed the total number of estimated SMEs in Bangladesh was 79,757 with 93.6% small and 6.4% medium enterprises. It also pointed out that, 20-25% GDP of Bangladeshi was contributed by the SMEs (The New Nation, 2008, Sep-13, P.9). For this research, SMEs have been redefined by the Bangladesh Bureau of Statistics. Small enterprises have been considered as having between 5-25 employees and medium enterprises having between 26-99 employees.

Ratnasingam (2000) showed the increased growth of internet usage among SMEs can be compared to the costs between traditional value added network and e-commerce adoption. According to Drew (2003) and Mohtaramzadeh, Ramayah and Jun-Hwa (2018) SMEs are driven by e-commerce between B2B to adopt e-

communication facilities. As a result, the counterparts, including SMEs, are evolving as new e-communication users. Mainly for communication and information purposes, e-commerce was adopted by most of the SMEs, referred to in many past studies (Mehrtens, Cragg and Mills, 2001; Kula and Tatoglu, 2003). In addition to this, the combination of the requirement for improved communication and management enthusiasm were the main driving forces in the early usage of e-commerce, Drew (2003) argued. A research conducted by Poon and Swatman (1999) reported that, in the process of e-commerce adoption, SMEs follow a similar path to large organisations; and it was also evident that, like their larger counterparts, most of the SMEs also developed brochure-ware; but they are not utilising the full potential of the e-commerce, observed O'Connor and O'Keefe (1997) and Peet, Brindley and Ritchie (2002).

A survey conducted by Taylor *et al.* (2004) in the UK, including a number of other countries of the world exposed that, the rate of e-communication adoption by SMEs is still low. The main factors are the low level of communication and information dissemination which have been identified behind this slow adoption rate, especially the level of e-commerce awareness, could be hindered by a developing economy, highlighted Molla and Licker (2005) and Nantembelele and Gopal (2018). The opportunities for SMEs to adopt e-communication services are still unclear (Tagliavini, Ravarini and Antonelli, 2001) although, a number of research, which are associated with SMEs and e-commerce adoption were carried out. Knowledge of e-commerce remains scarce to adopt e-communication by SMEs (Gebaucer and Shaw, 2002; and Teo and Ranganathan, 2004). As very little information is tailored in accordance with the circumstances of the SMEs, many have failed to exploit e-commerce (Jeffcoate, Chappell and Feindt, 2002).

E-Commerce usages among SMEs could be widely varied as the acceptance rate of e-commerce facility is higher in large organisations compared to small and medium enterprises (Sadowski, Maitland and Dongen, 2002; Kula and Tatoglu, 2003). Many of the SMEs are reluctant to invest for the e-commerce services even though many of them are enjoying the benefits in both selling and buying products over the internet (Sadowski, Maitland and Dongen, 2002; Levy and Powell, 2003; Rahayu and Day, 2017). It was noted by Molla and Licker (2005) that, the main driving forces

to adopt e-communication services by SMEs are still unclear due to the absence of rigorous research. A number of studies were carried out which mainly addressed the developed nations like the United Kingdom (Greaves, Kipling and Wilson, 1999; Daniel and Myers, 2000; Daniel, Wilson and Myers, 2002; Daniel, 2003; Simpson and Docherty, 2004).

To explore the extension of e-communication adoption by SMEs in developing countries is one of the important issues which lack empirical evidence. The role of technology, the impact of e-communication on SMEs' performance, the factors which influence the adoption of e-communication and the way of increasing adoption of Internet among SMEs have not been sufficiently explained in the past studies but have been presented in the following section.

2.3 E-communication Adoption in Developing Countries

The World Bank has classified the world economies based on the Gross National Income (GNI). According to the World Bank (2010), countries are categorised into lower income, middle income or high income based on the range of GNI. Lower income countries are those having GNI per capita $1,005 or less and middle-income economies countries are those having GNI per capita between $1,005 and $12,276. Moreover, countries with GNI per capita between $12,276 and $3,975 are known as upper-middle income countries and GNI with more than $12,276 are high-income economies. Furthermore, developing economies are known as those countries with both low and middle income levels (World Bank, 2010). As the GNI per capita of Bangladesh is between $1,005 and $12,276, it has therefore been termed as a developing country.

Over the last decade, on the adoption of ICT, many researchers such as Temtime, Chinyoka & Shunda (2003); Sewanyana and Busler (2007); Kapurubandara and Lawson (2008); Wang (2016); Kabanda and Brown (2017); Rahayu and Day (2017); Nantembelele and Gopal (2018) carried out research by focusing on the developing countries. A thorough investigation on the adoption of ICT among Nigerian SMEs was evidenced by the study of Lal (2007). Good infrastructure was also found from this study which is one of the main influencing factors for the ICT adoption in developing countries. Along with weak infrastructural problems, some other issues

also involved in the ICT adoption in developing nations such as, legal and regulation challenge for the ICT adoption, lower development in the strategies and R&D of ICT, extreme dependence on foreign aid and support, and lack of skill in the implementation process of ICT (Duttaa *et al.*, 2003).

Due to the technological advancement and more dependence on the latest technologies, to provide excellent and fast services, service providers like the banks are relying greatly on the information technology facilities (Chowdhury, 2003). Due to this excessive reliance on the IT service, the banks in the US are spending about 8% of the total revenue on the maintenance of the IT equipment and software, commented Berger, Rosen and Udell (2003). It is predicted that, to provide smooth IT service to the customers, the banks must spend 1/3 of their total operating costs (Berensmann, 2005; Rebouillon and Muller, 2005). This expense for the IT service maintenance is both more and less the same in many countries of the world (Zhu, 2004). This type of excessive reliance on the IT service has become a double-edged sword for most of the banks as most people, especially the young generation are inspired to use IT enriched services. However, elderly people still prefer the traditional banking; due to this, the banks would need to maintain the double costs to retain all types of customers (Lee and Allaway, 2002).

Regarding the history of the technological development of the banking industry, the first revolution occurred in the form of providing services through Automated Teller Machine (ATM) (Marr and Prendergast, 1993). This trend has now become a permanent feature in providing services through self-service technologies (SSTs). It is also revealed that, the successful implementation of SST in the banking sector has included the quality of the service and reduced the service cost to a great extent (Lee and Allaway, 2002). Other advantages related to the SST implementations are: they help the organisation to recover from service failure instantly, offer more customised services and above all, the customers are convinced about the service quality of the banking industry (Ricard, Prefontaine and Sioufi, 2001).

It can be a problem for the service providers, if the service operators are not skilled and confident; therefore, this type of problem can create a negative impact on the credibility of the organisation, asserts Lee (2002). To get the best service, organisations need to make sure that, they are co-ordinating with both human

service and automated services (Kelly and Richardsont, 1988). E-banking was first introduced in 1980; this service was provided to reduce the extra pressure on traditional banking. To provide this service in the early phase, proprietary software was used by some banks (Bidgoli, 2004). With the emergence of www service, the development of e-banking remarkably exploded, and it is increasing at a rapid speed and in the modern era, some banks such as Netbank are operating only online banking facilities, claim Rothstein and Watson (2004).

In fact, e-banking is now considered as a total package of banking strategies, business process and offering service in the different areas (Brown, Remenyi and Bajomo, 2004). By distributing the online banking services in the proper channel and showing the right and convenient ways to use, the e-banking service has already gained huge popularity and this process is going in a very rapid pace (Hitt and Frei, 2002). If few more initiatives can be taken by the banking industry, then the maximum number of people will enjoy the services, assert Kaynak and Harcar (2005). The most mentionable benefit from implementing the e-banking services for the banking industry is to increase revenue. It can provide one stop services and for the customers, it is more convenient than traditional banking as they can enjoy the services from anywhere (Halperin, 2001). This service can help increase e-communication adoption rate by the SMEs and they can be benefited from different contexts which will be summarised in the next section.

2.4 Benefits and Use of E-communication Adoption by SMEs

Davis, McMaster and Nowak (2002) claimed that, SMEs could be benefited by the contribution of ICTs in the areas of efficient decision making, communication and transaction costs between firms and the integration of business processes. To do marketing activities in the global market, SMEs can utilise ICTs efficiently, observed Hitt, Keats and DeMarie (1998). Matthews (2007) stated that, growth and profitability of SMEs could be contributed by ICTS which can also help them to be transformed from a micro to medium level. Considering the importance of SMEs' contribution in the overall economy, Litan and Rivlin (2001) advised to encourage and propel SMEs for ICTs adoption.

Therefore, it could be submitted that, e-communication/ICT has a huge positive impact on the development of small businesses and the use of ICT has become very popular within advanced European countries (Giotopoulos, Kontolaimou and Korra, 2017). In these countries, most of the small enterprises have at least one computer terminal which is used for internet access. Various businesses software was found which were used effectively to manage information and knowledge. Also, by this effective management of information and knowledge, the efficiency of firms can be improved. In fact, transactional and communication costs can be reduced to a certain extent and speed can be enhanced if communication could be done electronically (OECD, 2008).

Han (2008) and Abdullah, Thomas and Murphy (2018) highlighted a number of benefits of the implementations of e-commerce and ICT. The first benefit at firm level is that, it increases the speed of intra-communication and helps the management of the organisation to manage various resources effectively. By the successful and effective implementation of different ICT software such as KMS and ERP, organisations can acquire knowledge in the best possible ways. Customer-centric organisations can provide better and effective services, if they know about the preference of the customers (Han, 2008).

Speed of data sharing could be increased and transactional cost could be reduced, if ICT is utilised in business operations. This is also helpful in reducing the inefficiencies that results from the value chain and the firms' co-ordination. Moreover, the B2B communication that is done through the internet can make the communication effective and instant (Mohtaramzadeh, Ramayah and Jun-Hwa, 2018) and it can help to bring trade partners closer (Moodley, 2002). Besides, e-communication can help SMEs in their e-commerce activities (Rahbi, 2017). A research published by the OECD (2004) highlighted that, researchers and governments were concerned about the benefits of e-commerce for SMEs due to their significance in the national economies.

Benefits, such as new features, productivity, geographical reach, lower costs, speed, competitive advantages and information sharing of the e-commerce for the SMEs are outlined by Senn (2004) and Soto-Acosta, Popa and Palacios-Marqués (2016). These researchers have also stated that, SMEs can reach any geographical location

through e-communication facilities. Also, interaction among different participants could be possible within a short period of time. Additionally, the productivity of the SMEs could be increased by sharing information and using animation, graphics, video, audio and texts. Furthermore, with affordable costs, new features could be included in the SMEs' products and services. Electronic communication can help to reduce costs more than the traditional method (Eze, Chinedu-Eze and Bello, 2019). Therefore, SMEs can get competitive advantages by offering their products to large markets by implementing the e-communication facilities (Rahbi, 2017).

As a result of these advantages, SMEs are likely to face intensive competition to harness their opportunities everywhere: globally, regional and local markets. In the era of globalisation, SMEs need to stay competitive and they should represent the top-most priority for ICTs adoption (Nguyen, 2009; Bharati and Chaudhury, 2015). SMEs have following limitations: limited capital (Haller and Siedschlag, 2011; Zhu, Wittmann and Peng, 2012) which can hinder their ability to compete with larger organisations with extensive resources (Stockdale and Standing, 2004). Subsequently, for a number of reasons such as, to keep in pace with business environmental changes (Stockdale and Standing, 2004; Barba-Sánchez, Martínez-Ruiz and Jiménez-Zarco, 2007); to be competitive in the contemporary market (Skoko *et al.*, 2006; Tan, Eze and Chong, 2012; Dahnil *et al.*, 2014); and to survive and sustain (Hashim, 2007; Nguyen, 2009; Sadat Safavi, Amini and Javadinia, 2014; Rahayu and Day, 2015) ICT facilities are adopted and utilised by SMEs.

Several empirical researches have revealed the significant relationship between ICT adoption and organisations' performance. For example, growth, expansion, performance of the SMEs and new products were explored (Consoli, 2012). Other benefits such as, increasing global collaboration (Ross and Blumenstein, 2015); performance enhancement (Manochehri, Al-Esmail and Ashrafi, 2012); forming effective relationships with consumers and partners (Stockdale and Standing, 2004; Grandona and Pearson, 2004); image enrichment (Levenburg, Schwarz and Motwani, 2015); increasing profitability (Dibrell, Davis and Craig, 2008; Luo and Bu, 2016) and enhancing survival (Oni and Papazafeiropoulou, 2014; Olise *et al.*, 2014) of ICTs adoption have also been revealed by many researchers.

A number of perceived benefits of ICTs adoption were also highlighted in several academic literatures (Chatzoglou and Chatzoudes, 2016; He and Li, 2018). Rather than strategic, most of these benefits are operational (Harindranath, Dyerson and Barnes, 2008). On the contrary, a number of researchers like, Shiels, McIvor and O'Reilly (2003); Ongori and Migiro (2010); and, Yeboah-Boateng and Essandoh (2014) considered ICT adoption as a strategic weapon to compete with large organisations alongside reaching in a wider market. The contribution of ICTs have also broadened market reach which helps firms to improve their overall performance in a number of ways (Taylor and Murphy, 2004; Haller and Siedschlag, 2011; Bayo-Moriones, Billón and Lera-López, 2013).

In the areas of competitiveness, profitability, organisational expansion and productivity (Raymond, Bergeron and Blili, 2005; Martins and Raposo, 2005; Consoli, 2012), the contribution of ICT and firm performance are evident from the above discussion. If SMEs adopt and effectively utilise the features of e-communication facilities, then only the effects could be increasingly realised (Martins and Oliveira, 2008). The rate of ICTs adoption is relatively low in SMEs in comparison with the large organisations; although they can feel the benefits of the facilities (MacGregor and Vrazalic, 2005; Assinform, 2010). In addition, the potential of ICTs are not fully exploited by SMEs, observed by Consoli (2012) and Chee, Suhaimi and Quan (2016). Technological innovations are about the ways in which organisations design their products and services, and then distribute these to target markets (Mytelka, 2000). It could also be termed as a new product or process for a particular region. OECD (1997) states that, in technological innovation, new products and processes are implemented technologically and technological improvements are significantly reflected in products and processes.

Levy, Powell and Yetton (2001) indicated that, SMEs are mainly operated based on customer demands. Simpson and Docherty (2004) assert that, most of the SMEs are owned by a single person and almost all decisions are made by the owner or manager of a particular small firm. On the contrary, Oni (2008) argued that, during new technology adoption in SMEs are largely considered to be cynical. However, based on management capabilities and inferior technology, SMEs have recently started to adopt Information and Communication Technologies (Caldeira and Ward, 2002). Beckinsale and Levy (2004) added that, relative advantages and perceived

benefits are important factors, which are considered when adopting new communication facilities such as e-communication by SMEs, although it is not easy to measure the benefits instantly. The rate of e-communication adoption could be increased, if the service providers such as the banking industry take care of the SMEs.

According to Aftab (2001), depending on the types and sizes, business strategies and policies could be affected by disruptive innovation. The revenue of small and medium firms could be positively affected by the adoption of a new communication system, if service providers facilitate suitable option especially for SMEs. Yaghoobi *et al.* (2010) have noted a high level of information technology acceptance where it is implemented in different parts of the society to develop service facilities. People are now becoming more interested in high speed information and communication facilities, so as to be abreast of modern approach and move away from traditional approach. Yaghoobi *et al.* (2010) also pointed out the digital divide and identified some issues which are related to the e-communication gap; this has helped to identify the factors that hinder the e-communication adoption by SMEs.

Choudrie and Papazafeiropoulou (2007) suggest that, public and business community communications have become rapid because of broadband technology, and most of the technology related government roles are also related to this top agenda worldwide. These researchers have investigated the impact of the UK government's policies upon broadband adoption. This research provided some ideas for identifying the government roles of Bangladesh regarding e-communication facilities and the way of implementing the policies for encouraging SMEs to adopt e-communication facility.

A few existing and potential benefits of e-communication are evident from different studies; yet, organisational culture of SMEs can affect the adoption rate which will be explored in the next section.

2.5 SMEs and the Organisational Culture Assessment Instrument (OCAI)

Hatch (1993) stated that, though culture changes, it stays the same. Organisational culture was defined by Hofstede (1980) as a set of behaviours, beliefs, values,

attitudes that signify the organisational objectives, vision and working environment of any specific organisation. However, some of the researchers have defined organisational culture in terms of the collective will, important understandings, shared sets of core values, basic assumptions, sets of beliefs and ideologies, argued Sackmann (1992). Some researchers such as, DeLong and Fahey (2000) suggest that, in the culture, more explicit and observable artefacts like practices and norms are included. Some other issues like symbols, ceremonies, myths, rituals, ideology and language are also importantly considered by a number of researchers (Pettigrew, 1979; Burchell *et al.*, 1980).

To define culture, socially build, traditionally decided and holistic features were emphasised by Twati and Gammack (2006), although, there are a number of definitions available in the areas of business and organisational behaviour. In the culture, various features such as behaviours, values, beliefs and manifests are also reported by Krumbholz and Maiden (2000). While making a decision to accept and adopt information system, associated organisational culture works as a moderating issue (Chai and Pavlou, 2004 and Ramdansyah and Taufik, 2017). Failures of planned organisational change were theorised by a number of studies where the role of organisational culture was not importantly treated (Twati and Gammack, 2006). A research conducted by Cameron and Quinn (1999) published that, 75% efforts of technology adoption and re-engineering have failed. Twati and Gammack (2006) stated that, within organisational success, organisational culture plays a key role, and effective leadership creates and manages organisational culture. As mentioned by Schneider (2000), for managers, comprehending organisational culture is one of the most vital activities which can affect learning at all management levels, productivity and strategic development of any organisation.

Schein (1990) views organisational culture as a conventional force to operate activities effectively. The relationship between strong culture and enhanced performance was revealed by Mallak *et al.* (2003), but it can affect the propensity of organisations in the case of adapting transformation. Introduction of e-communication facilities could be met by the employees of Bangladeshi SMEs, where strong Bengali culture is evident, and it can form some resistance to change the traditional approach. Therefore, prior to starting the e-communication facilities adoption process, to know the types of dominant organisational culture of

Bangladeshi SMEs is essential. Organisational culture has been treated as a broad, rationale, complex and unclear set of factors and it is not possible to measure and analyse each applicable factor, claimed Cameron and Quinn (1999).

Twati (2006) argues that, organisations could be either task-oriented or people-oriented. Wide decision-making structures are generally evident in the people-oriented organisation and it could lead to following the flat organisational structure and it is one of the important features related to the low power distance. However, a more centralised decision-making process is evident in the task-oriented organisations including other features such as high-power distance and a more hierarchical organisational structure (Ramdansyah and Taufik, 2017). The adoption and utilisation of innovation such as electronic communication will therefore depend on the type of organisation. The task-oriented organisation is more likely to receive the e-communication facilities quicker and, if accepted and implemented, the facilities will accomplish tasks quicker and more efficiently (Twati, 2006).

Conversely, in the people-oriented organisation, the adoption of innovation could be slower even it can hinder the adoption of the new technology because of their people; this new technology could be well-thought-out as a threat. Furthermore, a relationship between the adoption of innovation and organisational culture was presented by Alvesson (2002). Electronic communication could be more likely adopted by the technology-oriented culture organisations compared to the people-oriented and task-oriented traditionalist organisations.

After considering the various dimensions and measures of organisational culture, different researchers such as Schein (1990); Trompenaars and Hampden-Turner (1998) and Cameron and Quinn (1999), published several research articles having different postulates and measures. Likewise, the difference between societal and organisational culture was analysed by Hofstede (1991) by developing six dimensions of different types of cultures, like the parochial versus professional, normative versus pragmatic, open versus closed system, employee versus job-oriented, loose versus tight control and process versus results. Conceptualisation of societal culture was one of the most vital influencing issues for Hofstede's (1991) organisational culture. Thus, instead of analysing organisational culture, societal

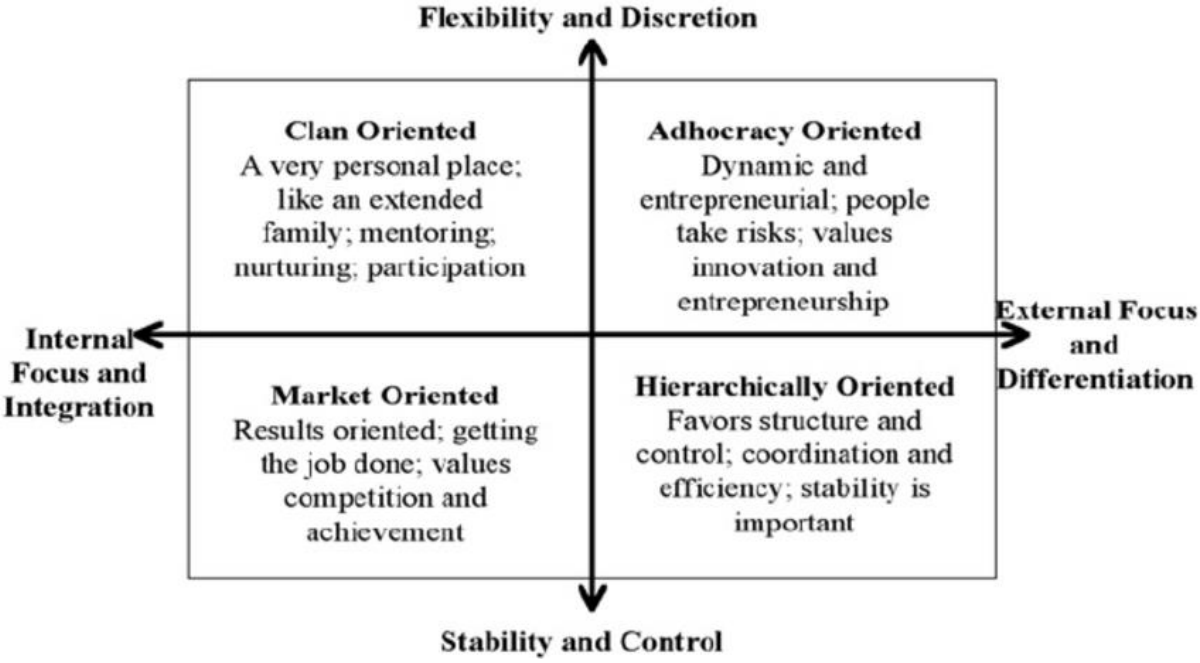
organisational culture could be more efficiently analysed by using Hofstede's work to analyse the impact of e-communication adoption by SMEs.

Different types of organisational activities such as whether an organisation favours individuality, flexibility, control or stability and whether the organisation has an external or internal focus, could be explored by using the OCAI framework. In this framework, mainly six organisational culture dimensions have been considered by Cameron and Quinn (1999) as basement to custom four dominant organisational culture types such as market, adhocracy, clan and hierarchy.

The Competing Values Framework

The Competing Values Framework (CVF) can help organisations to support, organise and recognise a number of organisational phenomena (Quinn and Rohrbaugh, 1981). However, a number of empirical evidence should support any model, if that needs to be utilised in a wide range and it should also have capability to summarise outcomes accurately (Cameron and Quinn, 1999). In addition, Cameron and Quinn (1999) suggested that, the considered framework should also be matched with a well-recognised classification system to analyse beliefs, values, and individual behaviour and ways of dealing with information on what makes a good organisation. Through a number of empirical evidence, Cameron and Quinn (1999) have shown that, almost all the above criteria are met by the CVF framework. To organise the paradoxical models of effectiveness, all the dimensions which include organisational structure, means-end range and organisational focus should be efficiently utilised, highlighted by Quinn and Rohrbaugh (1981). Figure 2.1 represents the CVF model as shown below.

Figure 2.1: Competing Values Framework



Source: Quinn and Rohrbaugh (1981, 1983)

Means-end range, organisational focus dimension and organisational structure dimensions are the value dimensions of the CVF framework where activities and values are distinguished by the organisational structure dimension by emphasising on the adaptability, flexibility, stability and control. Comparisons between differentiating and external issues and internal and integrating issues of organisations are highlighted in the organisational focus dimension. In this case, security, comfort and employee deployment have been focused in the internal and integrating dimensions, whereas; development and growth were highlighted in the differentiating and external dimension. Likewise, objectives such as human resource development or productivity of any organisation are emphasised in the means-end range dimension (Abousaber, 2013).

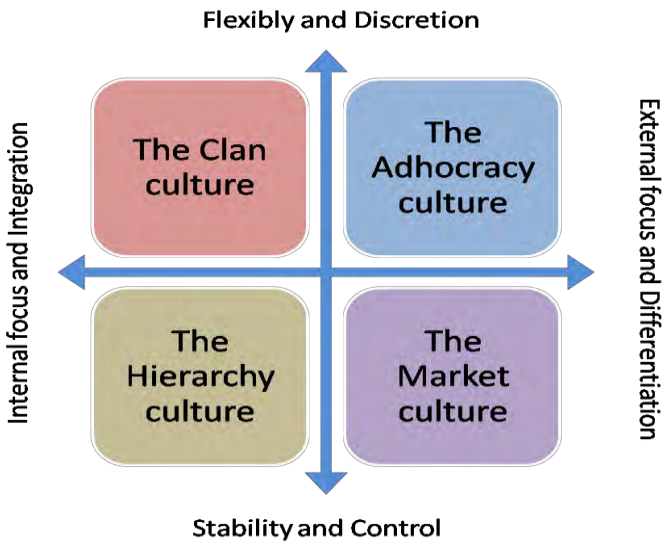
The value dimensions and the effectiveness of the four theoretical models such as human relation model, rationale, internal process and open system models were organised and utilised by Cameron and Quinn (1999). The main values were explained by these four main clusters based on which organisational decisions are made. The opposite or rival hypotheses were represented by Cameron and Quinn (1999) in consideration of the significance of these four values. Afterwards, the quadrants were created based on these dimensions which were opposing or

conflicting on the diagonal. To comprehend and organise the four organisational culture types, this framework is constructive. In consideration of the Organisational Culture Assessment Instrument (OCAI), these four types of cultures were seriously considered by Cameron and Quinn (1999). To quantify organisational culture in the normative literature, this model has been repeatedly used and highly cited (Abousaber and Papazafeiropoulou, 2011).

The Organisational Culture Assessment Instrument

On the base of the CVF theoretical framework, the OCAI model has been devised to categorise and describe organisational cultural profile. Mainly two dimensions have been identified by Cameron and Quinn (1999) and these have been divided into four main quadrants. The Organisational Cultural Profile has been summarised in Figure 2.2 as presented below.

Figure 2.2: The Organisational Culture Profile



Source: Cameron and Quinn (1999)

Each quadrant of the OCAI model represents a unique type of organisational culture. For instance, in the adhocracy culture, rather than focusing on control and stability, external issues, carefulness, flexibility and values are emphasised. Risk taking, creativity, originality and entrepreneurial are the main features of this organisational culture. Market culture focuses much on external environment instead of focusing on the internal environment and it values control and steadiness. External environment

is mainly seen as threatening in the market culture but it always look for opportunities, profit and competitive advantages (Cameron and Quinn, 1999).

Some issues such as teamwork, emphasising stability, agreement, values, traditions and official processes are the main features of the hierarchy culture. Mainly internal factors are highly focused in this type of culture and control over flexibility and values steadiness is also evident. Several factors such as participation, beliefs and goals, unity and values are seriously considered in the clan culture, where team members are considered as an extended family (Abousaber and Papazafeiropoulou, 2011). Internal issues are focused in this type of culture, rather than focusing on control and stability, it focuses on carefulness and values flexibility. The OCAI model has been selected in this research, especially to identify the dominant organisational culture of the Bangladeshi SMEs which can be helpful to identify the existing e-communication gaps in SMEs. In addition to organisation culture, other factors can influence or hinder SMEs to adopt e-communication facilities which have been identified in the next section from different research contexts.

2.6 Factors Which Influence SMEs to Adopt E-communication

Cragg and King (1993) and Awiagah, Kang and Lim (2016) described some factors as inhibiting or motivating to adopt e-commerce services which are associated with individual dimensions, technological, environmental and organisational factors as presented in this section.

Individual factors

A number of determinants such as owners/managers' roles (Cragg and King, 1993), education and ICT knowledge (Sarosa and Zowghi, 2003; Teo and Ranganathan, 2004; Looi, 2005), social and cultural issues (Avgerou, 2001; Vatanasakdakul, Tibben and Cooper, 2004) can influence SMEs to adopt e-communication and these factors have been briefly discussed below.

- **Owner/Manager Characteristics**

Business owners and managers are the main respondents who can make a decision to adopt any new technology like e-commerce in their business (Cloete, Courtney and Fintz, 2002). The significance role of the owners/managers has been described by many researchers such as, Cragg and King (1993); Thong (1999); Chatterjee, Pacini and Sambamurthy (2002); Bharati and Chaudhury (2006); Standing, Sims and Stockdale (2004) and Alrousan and Jones (2016). Financial commitments for the adoption of new e-communication infrastructure, appreciation of ICT and technological development are important factors related to executive decisions in the SMEs. As a manager/owner is one of the most important drivers for SMEs (Riemenschneider, Harrison and Mykytn, 2003); challenges could be faced if managers are reluctant to adopt e-communication facilities in their business operations.

However, Karakaya and Shea (2008) think that, vibrant SMEs' owners/managers can transform their organisational targets to grow further, if they do not appreciate the adoption of e-communication facilities, there is stifled growth in the SMEs. It has been established by many researchers that, attitudes of the owner/manager of the SMEs play one of the most important roles of any environment that enables the e-communication facilities adoption and use (Caldeira and Ward, 2002; Cloete, Courtney and Fintz, 2002; Wilson, Daniel and Davies, 2008). To adopt e-communication facilities by SMEs, the owner's enthusiasm is one of the most vital motivating factors identified by many researchers (Cragg and King, 1993; Mehrtens, Cragg and Mills, 2001; Levy and Powell, 2003). This motivation could be extended to include family members or employees in smaller businesses and senior management in larger SMEs (DeLone, 1988; Poon and Swatman, 1999).

Previous research evidence shows that, to adopt and utilise e-communication facilities by SMEs, the roles of owners and managers are important factors. To determine the innovative attitudes of SMEs, the manager is an entrepreneur and crucial figure (Rizzoni, 1991). Therefore, to influence the e-communication adoption by SMEs, a manager's characteristics are expected to be positive and motivational (Mirchandani and Motwani, 2001). Due to the above reasons, the management style of the organisation is determined by the manager. Moreover, characteristics of the

managers such as resistance to change, prior experiences, training and level of education are significant influences which can affect the adoption and utilisation of e-communication facilities by SMEs (Larsen and Wetherbe, 1999; Woodcock and Chen, 2000). A positive correlation between the manager's perception and e-commerce adoption was revealed by Huy (2012). Several prior studies such as, To and Ngai (2006) and Al-Qirim (2007) were supported by the findings of Huy (2012). However, these findings were inconsistent with the findings of Jeon, Han and Lee (2006) as well as Vilaseca-Requena *et al.* (2007).

- **Level of Education**

An acceptable level of education is necessary for owners/managers of the SMEs which can help them to excellently drive e-communication facilities in their business activities. There is a strong association between the success of e-commerce adoption and level of education of the SMEs' owners/managers (Thong, 1999; Sarosa and Zowghi, 2003). However, a large part of the SMEs' owners/managers in developing countries are unaware of the effectiveness of the innovation in their business due to their educational level. Adoption of an innovation and the education level of the owners/managers are positively and significantly related, asserted by Dubelaar, Sohal and Savic (2005). Similarly, a study of Ramdani, Kawalek and Lorenzo (2009) shows that, to adopt and use ICT and e-commerce among SMEs, having a lack of knowledge is one of the main obstacles. A similar opinion has been found from the study that was carried out by Chan and Al-Hawamdeh (2002), and Chang and Tung (2008) where these researchers showed that, adoption of new technology and knowledge of ICT of the head of organisations are significantly related. A significant relationship between the perception of ICT knowledge and ICT adoption has also found by Nguyen (2009).

- **Level of ICT and e-communication knowledge**

To adopt new technology, having adequate knowledge about e-communication and level of ICT are two important factors. According to Teo and Ranganathan (2004) and Looi (2005) adoption of e-communication could be easier by SMEs, if the key personnel such as managers/owners or other decision makers have an acceptable

level of ICT knowledge. Considerations for the further e-communication update in the SMEs could be directly influenced, if higher levels of ICT and e-commerce principles are possessed by the owners/managers (Eriksson and Hultman, 2008). These researchers have also argued that, due to the ease of entry into the business sector and availability of resources, SMEs of the developed countries are well informed than developing countries.

Lower level literacy amongst SMEs is prevalent in most developing countries, argued Molla and Licker (2005). E-communication services might not be easily accepted by the owners and managers of SMEs; if it is difficult for them to comprehend and appreciate the benefits of the new services. Lack of access to ICT has been negatively affecting the SMEs to adopt innovations identified by Duncombe and Heeks (2002). Owners and/or managers of SMEs should be well informed about the potential benefits of the innovations in their business, suggested Scupola (2009). Wilson, Daniel and Davies (2008) emphasised that, the ICT personnel as being more crucial than the financial ability of the SMEs. The Level of ICT skills can influence the e-communication adoption rate in SMEs. For instance, the higher likelihood to adopt e-communication and the higher level of ICT skills are strongly related to each other, according to Sparling and Toleman (2007). In addition, Filiatrault and Huy (2006) showed a significant relationship between the types of business activities and the adoption of e-commerce in their business operations.

- **Social and cultural issues**

In the perspectives of the developing countries, these researchers: Avgerou (2001); Vatanasakdakul, Tibben and Cooper (2004); and Mohtaramzadeh, Ramayah and Jun-Hwa (2018) emphasised considerations of the cultural and social factors in the case of adopting innovation by SMEs.

Organisational Factors

In studying e-commerce adoption, many other factors like electronic payment, Electronic Data Interchange (EDI), mobile commerce, websites, e-marketplace, B2C transactions, B2b transactions, internet banking and online shopping have also been studied by many researchers. Wang, Archer and Zheng (2006); Al-Qirim (2007); and Jiang and Sun (2009) have studied the factors that can influence the SMEs for e-

commerce adoption. A new factor named conspicuousness has been identified by Varaprasad, Sridharan and Unnithan (2013) that affects the internet banking in India. A number of additional factors such as perceived privacy, online trust, perceived security, service quality, intention of the users to be engaged and vendor familiarity were acknowledged by John (2012). A study carried out by Al Ghamdi, Nguyen and Jones (2013) focused on environmental and government support, customers and businesses to increase the rate of innovation adoption. Against the background of the success of the e-commerce adoption, factors such as: privacy, security and trust have been emphasised as the most critical determinants by these researchers: Oreku *et al.* (2009); and Bharat and Abhijit (2010). Organisational factors are those which make the firm unique in the context of nature and a variety of other characteristics (Wang, 2016; Shemi and Procter, 2018). E-commerce adoption could be motivated or hindered by many other factors as presented below:

- **Security**

Choudhury and Choudhury (2010) have laid emphasis on two types of security issues including the confidentiality of the respondents' personal information and ensuring the protection of customers' transactional details. In addition, Tan, Tyler and Manica (2007) claimed that, even now many SMEs in different economies consider the internet and networking jargon as a complex phenomenon. A number of researchers focused on internet security issues in the case of e-commerce diffusions and they have considered it as the key factor (Mukti, 2000; Udo, 2001; Alam *et al.*, 2004). In a developing economy, security concern has been identified as a major obstruction in many studies, to adopt e-commerce by SMEs (Kendall *et al.*, 2001; Limthongchai and Speece, 2003). Alam *et al.* (2004) supported the submissions of these researchers and added that, to integrate the entire system, information safety is essential. Lack of confidence and security concerns were revealed by Beale (1999) in adopting new technologies like e-commerce.

Security concern was identified as the third most important barrier by a survey conducted by Prince Waterhouse Coopers in 1999. In this survey, usages and obstacles of e-commerce adoption by SMEs were highlighted. Killikanya (2000) reveals that, some issues such as trade secrets can hinder the SMEs in adopting

new technology. E-commerce security concern was also found by the Electronic Commerce Resource Centre (ECRC) as a major barrier in developing innovations. For the integrity of the entire system, information security is essential which can influence the enterprises to adopt the innovation (Shim *et al.*, 2001).

In both practice and academia, security and confidentiality are widely discussed issues in the areas of ICT adoption. To manage and control information are strongly related to confidentiality, while to protect against potential threats is referred as security. Hua (2009) discussed the security issues from the consumers' standpoint; in which protecting consumers from information theft and information fraud in the context of online banking have been highlighted. Online security has become noticeable since 2000 and it has been treated as a critical issue when many well-published internet sites were attacked by hackers. Decisions for the e-commerce adoption by SMEs were strongly affected due to confidentiality and security concerns. Afterwards, many researchers have identified confidentiality and security as the major determinant in the e-commerce adoption behaviour (Hesson and Alameed, 2007; Belkhamza and Wafa, 2009).

- **Trust**

Jones and Leonard (2014) mention that, internet safety significantly influences the trust. The intention of use could be positively affected by trust, revealed in the study of Luthfihadi and Dhewanto (2013) conducted in Indonesia. Perceived risk and perceived ease of use were also investigated by these researchers as being insignificant factors in relation to the intention of e-commerce use. Contrary to this, a study carried out in Oman by Alraja and Aref (2015) found that, in the e-commerce acceptance, perceived ease of use and perceived risk act as salient indicators. Researchers such as, Tang, Hu and Smith (2008); Kim and Benbasat (2009); and Beatty *et al.* (2011) emphasised on security measures; although in the e-communication adoption, trust is incorporated with security. Likewise, Beatty *et al.* (2011) have highlighted that, a vast number of meanings are conveyed by trust and it is deeply dependent upon context.

Within the e-commerce concept, the term trust has been investigated by many researchers such as: Mcknight and Chervany (2002); Gefen, Karahanna and Straub

(2003); Pavlou (2003) and Salam *et al.* (2005). For the trust concept, an interdisciplinary typology concept was built by Mcknight and Chervany (2002) and these researchers defined both the operational-level and conceptual-level trusts which are related to e-commerce consumer actions. Users are engaged repeatedly with online purchases because of TAM factors and trust, claimed by Gefen, Karahanna and Straub (2003). Combination of trust and perceived risks were integrated with the TAM to understand the key drivers for engaging users in online transactions. The importance of nurturing consumer trust was highlighted by Salam *et al.* (2005), where these researchers combined the TAM and the trust factors for e-commerce adoption. They observed that, trust was treated as the combination of the psychological, social, behavioural, technological and organisational interactions among non-human and human technological parties.

Furthermore, trust was proposed as a crucial factor by Palvia (2009), for any long-term business there are a number of risks and some aspects of uncertainties are involved. The quality of online shopping and enjoyment were identified by Çelik and Yilmaz (2011) as trust factors in the context of online purchasing attitudes in Turkey.

- **Privacy Concerns**

Bella, Giustolisi and Riccobene (2011) highlight that, there are mainly two paradigms exists to protect customer's privacy and these are related to customer's trust and anonymity. These researchers have also pointed out that, one relies on customer's trust that needs to be conformed to their privacy policy and another insists on the anonymity of the service users. It has been noted by Lawson *et al.* (2003) that, most of the SMEs are unable to secure their system if it is affected by viral attacks due to their financial insufficiency. Moreover, security could be breached during e-commerce transactions, if there is no available specific e-communication regulatory framework.

- **Organisational Readiness**

According to Iacovou, Benbasat and Dexter (1995), prior to decision making for e-commerce adoption, the level of technological and financial readiness is referred to as the organisational readiness. Technological infrastructure and technical expertise

are the main components of the technological readiness (Lim, Baharudin and Low, 2016). Likewise, availability to pay for installation costs, software, hardware and usage fees are referred to as the financial readiness. To adopt e-commerce in firms, sometimes potential benefits are not adequate to be influenced (Wang and Tsai, 2002). If the SMEs think that, they are not ready yet for e-commerce, then they can be reluctant to adopt the available services. Many past studies carried out by a number of researchers: Thong (1999); Chwelos, Benbasat and Dexter (2001); Rao, Metts and Monge (2003); Stansfield and Grant (2003) and Lim, Baharudin and Low (2016) in relation to e-commerce adoption and firms' readiness to adopt new innovation. Results revealed from these research studies showed that, firms equipped with technological infrastructure, internal expertise and enough resources are more likely to adopt e-communication services than the firms where these resources are not available. The importance of organisational readiness has been emphasised in these studies. Similarly, organisational readiness has been identified as one of the significant determinants for adopting e-commerce in business, asserted Iacovou, Benbasat and Dexter (1995).

- **Financial Ability and Cost Implications**

In e-communication adoption by SMEs, financial ability is considered as one of the most important challenges for a developing economy (Cantele and Zardini, 2018). Uncertainty and financial problems were highlighted by Solaymani, Sohaili and Yazdinejad (2012) as the two major factors for the adoption of e-commerce services. Financial resources are associated with buying necessary ICT equipment to setup e-communication facilities, training personnel, consultancy fees and maintenance of infrastructure and websites; observe: Sarosa and Zowghi (2003); and Mutula and van Brakel (2007). Conversely, for adopting e-commerce facilities by UK SMEs, cost is not an inhibitor, claimed by Simpson and Docherty (2004). However, Mutula and van Brakel (2007) proffered a counter view to the above statement and pointed out that, SMEs of developing countries have very little or no financial resources to adopt e-commerce in their businesses.

- **Size of the Organisation**

High level of innovativeness was consistently related to large sizes of organisations founded by Rogers (1995). However, it is apparent from many research studies that, the way of innovation could be led by large or small firms (Fichman, 2000; Goode and Stevens, 2000) and there is no specific effect on the firm size for e-commerce adoption. Furthermore, Zhu *et al.* (2004) revealed a negative relationship between firm size and e-commerce adoption. More innovative and quick decision making are the features of a small size organisation claimed by Raymond (2001). To help in adopting e-communication facilities, the size of the SMEs is one of the motivating issues, argued by many researchers: Thong (1999); Bharati and Chaudhury (2006) and Chee, Suhaimi and Quan (2016). These researchers highlighted plenty of resources of the organisation which can be used to develop and manage the supply chain and disposal systems for creating a link with the suppliers. However, due to the setup cost, it could be challenging for small firms. Similarly, due to the setup cost, it could be challenging for small firms. The size of a firm is treated as an important issue by Teo and Tan (1998) and Ling (2001) as small sizes can hinder organisations to adopt new innovation. Some factors such as greater sensitivity to external forces, lack of professional expertise, major financial constraints, lack of resources and competitive environment are hindering small enterprises to adopt new technologies, highlighted by Thong (1999).

Bharati and Chaudhury (2006) revealed the significant impact of the size of the organisations on ICT adoption in the Boston area, of the USA. Contrary to this, Karakaya and Shea (2008) argued that, in the case of e-commerce adoption, the impact of size to organisations is found to be insignificant and for these reasons they have indicated, the better and easier logistics for deploying e-commerce system. A positive and significant relationship of e-commerce adoption and size of the SMEs has been highlighted by Lun *et al.* (2012) and it is in line with past studies such as Adeyeye, (2008) and Zhu and Kraemer (2002).

- **Perceived Benefits of ICT**

A number of factors including ignorance, lack of education and unknown about the potential benefits can affect SMEs especially in a developing country to adopt ICT in

their business operations (Looi, 2005; Chibelushi and Costello, 2009). Distinguishing the benefits of new innovation is often being thought by the SMEs before using it, because it is rather difficult. Ramsey and McCole (2005) identified another factor that is similar to the “Negative Mind set” for the regulatory environment.

- **Organisational Culture**

Organisational culture of SMEs has been treated as the most important factor in adopting and pursuing e-communication facilities (Montazemi, 2006; Thatcher, Foster and Zhu, 2006; Tan, Tyler and Manica, 2007; Mohtaramzadeh, Ramayah and Jun-Hwa, 2018). E-commerce adoption has been influenced by Taiwanese culture revealed by Thatcher, Foster and Zhu (2006). Moreover, Martinsons (2008) has also shown a significant relationship between organisational culture and the e-commerce adoption in the context of the Chinese firms. Informal and contextual information, personal trust and government steps have been identified by Martinsons (2008) as important factors associated with new technology adoption by Chinese SMEs.

Filiatrault and Huy (2006) pointed out that, for adopting new innovation in the organisation, attitudes of the employees may require change as well as their knowledge of new technology, their level of performance and level of education relevant to their roles. Teo and Tan (1998) highlighted the lack of internet expertise as one of the most important factors which has been hindering organisations to adopt new technology. Thus, the ability to adopt any innovation by organisation could be affected by an employee’s knowledge and it was agreed by Thong (1999). According to this researcher, because of insufficient internal technology expertise, SMEs can take a long time to adopt e-communication and in some circumstances the duration could be longer until they have adequate expertise (Thong, 1999). If features of new innovation are known to the employees or they are already aware of them, then the adoption could happen sooner (Thong and Yap, 1995).

- **Types of SMEs**

The adoption of new innovation can be affected by the types of business enterprises and it has been reflected in the study of Teo and Tan (1998) who studied relationships between types of organisations and adoption of internet. These researchers mainly considered local, foreign and government organisations; number of product categories, characteristics of products and so on. On the adoption of e-commerce, various variables such as, types of activities of the enterprises and size are known to exact great impact (Filiatrault and Huy, 2006; Oliveira and Martins, 2010).

Arguably, there are different needs of the SMEs who operate in different businesses, including whether they need to adopt new innovation or not. Moreover, Thong (1999) and Ramdani, Kawalek and Lorenzo (2009) have shown positive correlation between business types and new innovation adoption. Oliveira and Martins (2010) also noted a similar observation although, no significant relationship between business types and new technology adoption discovered by Nguyen and Waring (2013).

Competitors

Factors such as the external pressures, the media, customers, competitors and the public itself, are known to be able to influence enterprises when adopting technological innovations claimed by Bellaaj *et al.* (2008) and Lim, Baharudin and Low (2016). It has been seen that, indirect or direct pressures could be exerted on SMEs by suppliers, customers and competitors to adopt new innovation. Based on the influence that the market competition has, different researchers opined differently. For example, whilst Filiatrault and Huy (2006) claimed that, for adopting e-commerce by enterprise could be contributed by the intensity of competition. Thong (1999) showed that, in SMEs, adoption of new innovation could be influenced by competition in a very little extent. Contrary to this, it was stated by Premkumar and Roberts (1999) that, influencing the adoption of innovation, competition could be a controlling aspect. Finally, a relationship was developed by Lertwongsatien and Wongpinunwatana (2003) where the intensity of competition and the rate of e-commerce adoption were significantly linked.

Technological Factors

According to Scupola (2009), the factors obtained from the characteristics and nature of the information communication technology (ICT) by SMEs to intend or employ the adoption are known as technological factors; these are linked with the e-communication adoption by SMEs and they have been presented below:

- **Availability and Slow Speed of Internet**

The e-communication adoption by SMEs has greatly underwritten to the delay in many developing countries (Magembe and Shemi, 2002; Molla and Licker, 2005; Uzoka, Seleka and Shemi, 2007). Uzoka, Seleka and Shemi (2007) and Oreku *et al.* (2009) have identified these in rural areas though internet facilities are available, SMEs could be affected by the lack of electricity. In addition, Mutula and van Brakel (2007) and Oreku *et al.* (2009) have shown that, motivation or promoting e-communication facilities could be negatively affected for the slow speed of the Internet.

- **Compatibility**

In the e-commerce adoption, a statistically significant determinant was revealed by Grandona and Pearson (2004) where these researchers showed relationship between e-commerce adoption and compatibility with the values of the organisation and cultures in line with the research published by To and Ngai (2006). Further, Tornatzky and Klein (1982) exposed that, if any new technology is compatible with individual job roles and their values, then it is more likely to be accepted by SMEs. These researchers also highlighted that; the rate of innovation adoption could be increased if the features are compatible with the potential respondents' norms, ideas and cultural values. The adoption of innovation could be hindered or influenced considering the compatibility of the innovation. Meeting users' needs is another important factor and if the needs are met; adoption rate could be faster (Rogers, 1995). Scupola (2003) identified that, the lack of frequent use of e-commerce and lack of critical mass are two important barriers to adopt new, innovation.

- **Complexity of Technology**

Complexity has been defined by many researchers such as, Davis (1989), and Agarwal and Prasad (1998) as a degree where adoption of new technology is considered as comparatively difficult to recognise and utilise in the business activity. In the case of e-communication adoption by SMEs, complexity could be considered as one of the keys affecting factors. Because of the concerns about data management issues, some SMEs are very unconvinced to adopt e-communication facilities (Forman, 2005). However, SME managers having some technological expertise can help to adopt e-communication facilities if they wish. Jennex and Amoroso (2002) have identified the fear of technology which can hinder SME managers to adopt new communication facilities in their firms. These researchers have advised to develop e-business applications for incorporating technological issues amongst SMEs for better performance.

The inverse relationship between perception of innovation complexity and likelihood of adoption was explored by Al-Qirim (2007) and Al-Gahtani (2004). In their published studies, Hesson and Alameed (2007) observed the existence of a significant relationship between the likelihood of e-commerce adoption and observability and security/confidentiality. Mercer (2005) has also reported that, e-communication facilities have been prevented due to the lack of payment facilities in Tanzania. Therefore, e-communication adoption could be affected by unreliable supply of electricity for operating ICT equipment among SMEs in rural areas; it has been evident from the research of Mercer (2005) in Tanzania and Magembe and Shemi (2002) in Botswana. Vatanasakdakul, Tibben and Cooper (2004) argue that, in developing countries, the language barrier can deter many people from participating in adopting the e-communication facilities. According to these researchers most of the e-communication facilities available for the SMEs are developed using the English language which could hinder to the adoption of new technological equipment.

Within developed economies however, adoption of e-communication could be positively affected because of the macro-economic policies (Molla and Licker, 2005; Martinsons, 2008). These studies conducted by Caldeira and Ward (2002) and Dholakia and Kshetri (2004), identified the drivers and barriers of the adoption of e-

communication facilities by SMEs. At the same time, the research conducted by Thatcher, Foster and Zhu (2006) revealed that, e-communication adoption by SMEs could be thrived well, if it is supported by pragmatic and clear business strategy. In addition, Gibbs, Kraemer and Dedrick (2003) argued that, business strategy is one of the strongest drivers for the e-communication adoption in order to extend the existing market, gaining advantages over competitors and reaching new markets. Also, Thong (1999) revealed that, the degree of ICT adoption could be significantly affected by the visionary leadership and attitudes of the managers of the firms.

Iacovou, Benbasat and Dexter (1995) investigated three factors: organisational readiness, external pressure and perceived advantages of the technology, were seen to have affected the adoption of the EDI. These researchers have also identified some issues related to financial and technological resources, imposition by trading partners and competitive pressure which have significant influence on the adoption of new technologies by small firms.

National Culture

A number of researchers such as Im, Hong and Kang (2011) and Mohtaramzadeh, Ramayah and Jun-Hwa (2018) revealed that, information technology can be affected by culture. The importance of cultural dimensions was also highlighted by Lonner, Berry and Hofstede (1980). It has been argued that culture plays an important role in technology acceptance (Srite and Karahanna, 2006), this similar view has also been expressed by other researchers (Park, Yang and Lehto, 2007; Al-Gahtani, Hubona and Wang, 2007). Similarly, in technology acceptance, Srite and Karahanna (2006); Straub, Keil and Brenner (1997); Zakour (2004); Min, Ji and Qu (2008); Veiga, Floyd and Dechant (2001) have suggested cultural values as an important moderator. These researchers also found that, culture has an unforeseen effect on technology adoption where attitudes and beliefs have been identified as the most prominent factors. As claimed by Min, Ji and Qu (2008), a countries population are culturally motivated, and also associated with e-communication adoption. Individual behaviour has been stressed by Straub, Keil and Brenner (1997) for e-communication adoption in consideration of cultural differences in different countries. Impact of national culture on technology adoption has been scrutinised in a number of prior studies:

Bankole, Bankole and Brown (2011); Laukkanen and Cruz (2012); Baptista and Oliveira (2015).

A number of factors like regulations and laws, unions and political power have been listed by Canton, de Groot and Nahuis (2002) as a source of resistance to the adoption of ICT, which is also cited by Pinar (2017) to analyse the impact of natural culture on new technology adoption. Moreover, Pinar (2017) identified the national culture as another source of resistance to adopt new technology. The impact of society's characteristics on technology adoption has been studied by Bruland (1995); MacVaugh and Schiavone (2010). However, Steers, Meyer and Sanchez-Runde (2008) highlighted the limited number of studies carried out on the effect of national culture on technology adoption. Furthermore, Herbig and Palumbo (1994) researched on those studies that reveal the relationship between national culture and technology adoption. These researchers compared the American and Japanese societies and revealed that, individualistic societies are more likely to lead in the process of technology adoption, and that it takes less time to accept and implement new ideas, products, and processes. These findings were also supported by Arogyaswamy and Elmer (2005) and Ifinedo (2016) where it has been stipulated that, countries with high power distance are expected to be very slow in developing new products and services. In line with Herbig and Palumbo (1994), the relationship between national culture and new technology adoption was also explained by Erumban and de Jong (2006).

In many studies, the effects of culture on organisational process and leadership have been looked into (House *et al.*, 2004) but research studies on the impact of culture on ICT adoption are inconclusive (Azam and Quaddus, 2013). Azam and Quaddus (2013) also claimed that, an important role is played by culture in determining not only whether any organisation in a specific country adopts a certain technology, but it also affects the degree to which it is accepted and the ways it is used whereas; the role of culture is still controversial in the use and adoption of information technology, argued by Thatcher, Foster and Zhu (2006). Although, there is a lack of empirical studies focusing on the significant link between cultural dimension and different facets of IT use and adoption Bertolotti (1984); Burn (1995); Erez and Early (1993); Gefen and Straub (1997); Hill *et al.* (1998); Ho, Rahman and Watson (1989); Straub

(1994); Harris and Davison (1999) and Erumban and de Jong (2006) revealed that, the ICT adoption rate and the national culture of a country are closely correlated. This notion has been supported by Thatcher, Foster and Zhu (2006) through their study of business to business (B2B) ecommerce adoption in Taiwanese electronic industry.

A study carried out by Azam and Quaddus (2013) employed cultural dimensions with perceived ease of use and perceived usefulness to analyse the effect of culture on the use and adoption decision of ICT by Bangladeshi SMEs. These researchers found that, perceived usefulness, perceived ease of use, in-group collectivism, Bengali values and Bengali ethical culture have significant effects on the intention to use ICT by SMEs in Bangladesh. It was also emphasised that, Bangladeshi people are very respectful to their language and language martyrs due to their Bengali value, and they prefer to communicate in Bengali language instead of English, which is commonly used in ICT applications in the country, and it was found to have significant influence on intention to use ICT.

Similar to the Bengali value, the ethical culture has been emphasised by Azam and Quaddus (2013), who believed that, any significant development in technology adoption could be evident if the government considers the cultural issues and motivate SMEs owners and other parties to overcome the traditional hierarchical organisational systems where the authority and power is concentrated at the top of the hierarchy. In conjunction with the existing subsidies, grants, supports, policies and motivational programmes, focusing on Bengali value, culture and language may foster the rapid expansion of e-communication adoption by SMEs in Bangladesh, which certainly will result in an improved organisational performance.

External Support

E-communication adoption can face some challenges because of the external environmental factors (Scupola, 2009). Business partners such as customer or supplier (Wilson, Daniel and Davies, 2008) is also an important factor to stimulate the e-communication adoption for SMEs (Parker and Castleman, 2009). The presence of business partner for SMEs is treated as an appealing component where there is no trusted alternative partner in any sector. From the customer's or

suppliers' perspectives, a business partners' relationships could be depicted. As suggested by Castleman (2004), SMEs are always interested to develop and deepen business relationships aiming to establish long lasting partnership. However, if business partners are familiar with competitive advantages and strategic value, then this idea can work well amongst SMEs. Wilson, Daniel and Davies (2008) in their research study on UK SMEs revealed that, e-commerce adoption could be necessary for the significant demand of customers or suppliers. Conversely, participation of the SMEs could be limited, if their partners do not value the adoption of the e-communication facilities or could be adversely affected by external and internal environmental challenges.

Researchers such as, DeLone (1988); Thong, Yap and Raman (1996); Thong (2001); Goode (2002) and Zhu *et al.* (2004) conducted research studies on external support for ICT adoption by SMEs. One of the main targets of these researchers was to reveal the impact of external expertise in the extent of technology adoption and implementation, where mainly institutional bodies like government, vendors and consultants have been emphasised. It was noted by DeLone (1988) that, external supports could be crucial for SMEs because of the lack of specialised knowledge and technical expertise. Knowledge deficiency about e-commerce is another important factor identified by Fichman and Kemerer (1997). These researchers maintained that, in the areas of technology adoption and diffusion, deficiency of technical understanding is one of the most frequently cited terms which hinders the relevant processes.

In the innovation adoption for SMEs, the role of the government is viewed as one of the most powerful institutional drivers to ensure facilities such as, required infrastructure and financial support. Jutla, Bodorik and Dhaliqal (2002) highlighted the roles of government for encouraging SMEs to adopt e-communication by ensuring supportive and stable environment. In the context of e-communication adoption, the roles of government are more importantly considered in developing countries in comparison with the developed nations, revealed from the research carried out by Zhu *et al.* (2004). Similarly, Teo, Tan and Buk (1997) highlighted the government contributions in IT infrastructure, enacting related policies and providing required fund for small firms in Singapore. Supporting Teo, Tan and Buk (1997),

Debreceny *et al.* (2002) opined that, government is the most important driving force to increase the rate of e-commerce adoption. A number of models and theories are used to identify the factors related to e-communication adoption, as well as to analyse commercialisation strategies of the service providers and government contributions which have been briefly discussed in the following section.

2.7 Theories and Models Associated with E-communication Adoption

In the diffusion and adoption of technology literature, Rogers (1995) is one of the most key proponents who proposed and eloquently cited Diffusion of Innovation Theory (DIT). In the DIT mainly diffusion, adoption and innovation of new ideas are highlighted. In the information management research, theory of diffusion of innovation (Rogers, 2003) is one of the widely employed concepts. The DIT generally seeks to analyse the rate of spreading new ideas or technologies using available communication channels over certain period through different cultures (Rogers, 1962). The rate of diffusion of new technologies such as, e-communication could be affected by some factors including adopter's attitudes towards new technology and reliability (Moore and Benbasat, 1991; Agarwal and Prasad, 1998). The theory of diffusion of innovation is criticised by Lyytinen and Damsgaard (2001) due to a number of complex steps. Moreover, according to Baskerville and Pries-Heje (2001), the diffusion innovation theory follows very narrow perspective of technology diffusion and it is dependent on other theories to analyse certain areas of research interest.

Even though the DIT is very popular and replicated in many studies (Looi, 2005; Hultman, 2007), it has however, been criticized in the context of applicability within network based and complex environments (Lyytinen and Damsgaard, 2001). Hultman (2007) argued that, the adoption process of the DIT model is a linear, binary and simplistic nature implying the adoption of technology and has been detached from the SMEs scenario whose characteristics and nature are described as idiosyncratic (Nooteboom, 1988). Lyytinen and Damsgaard (2001) described the e-communication adoption process as dynamic and complex and the DIT has been accused of favouring cross-sectional approach and atomistic features. Kurnia and Johnston (2000), and Hultman (2007) have mentioned the e-commerce adoption as

a process where participants are involved at the individual and agreed level of the SMEs.

In the management information system, one of the latest theories is the Theory of Disruptive Innovation for the last decade with some dimensions such as customisation, convenience and cost of use (Christensen, Anthony and Roth, 2004). Schoolar and Fischer (2004) also highlighted that, in the disruptive innovation process, some factors such as, the way of providing services and significance of the services which are related to certain business areas, should be emphasised. E-communication facilities among SMEs could be used as an influential factor by the Bangladesh banking industry after carefully considering the cost, convenience and customisation of the facilities (Christensen, Anthony and Roth, 2004).

The Technology Acceptance Model (TAM) (Davis, 1989) has been widely utilised by many researchers in the adoption of ICT literature. Considering cognitive instrument processes and social influence processes, TAM has been applied in a longitudinal study by Venkatesh and Davis (2000). In the USA and in the context of the small business, the TAM model has been analysed and tested by many researchers such as Grandona and Pearson (2004); they identified organisational readiness, perceived usefulness, external pressure and perceived ease of use as electronic commerce adoption influencing factors. The TAM model has been criticised by many researchers such as, Taylor and Todd (1995) because of some ignorance and generality of several factors such as cultural and social influences to adopt e-communication services by SMEs in developing countries. Further, Zheng *et al.* (2005) indicated the poor correlation between perceived usefulness and actual use and due to these reasons, the TAM model has not been adapted for this research.

Theory of Institutional Intervention

In most of the developed countries, adoption of technological innovation and usage are well established (Abousaber, 2013). Furthermore, in the case of Japan, Singapore and the United Kingdom, historical events have evidenced the existence of a strong link between organisational success with institutional intervention or assistance. Special attention of the institutional intervention has been noticed in many contemporary researches especially in the case of ICT adoption and usage (King *et al.*, 1994). Sometimes, it is treated as an alternative explanation to identify

the reasons behind adopting and using ICT in the organisational activities. To influence and help ICT diffusion, the government can stand in a better position by setting regulations based on institutional theories which can facilitate the adoption or rejection of new technology (King *et al.*, 1994; Damsgaard and Lyytinen, 1996). As stated by these researchers, supply-push and demand pull are the two main forces that can be utilised by the government to influence new technology adoption. In like manner, the diffusion of innovation can be facilitated by the innovation itself suggested by the supply-push theory. For example, SMEs are adopting innovation due to the recent development of ICT portability and simplification.

To achieve competitive advantages and to improve business operations, SMEs could be influenced by themselves for adopting new technology which is explained by the demand-pull theory. The perceived benefits of innovation can influence the SMEs towards new innovations (Damsgaard and Lyytinen, 1996). However, as claimed by these researchers, the explanation of usage and innovation adoption cannot be limited to the push-pull approaches only; because stakeholders can influence the decision of the organisation based on the environment, business operations that is continued. In this case, different types of stakeholders such as service providers, financial institutions and the government play an important role (Damsgaard and Scheepers, 1999). The government has long term contribution to influence SMEs for technology adoption where this intervention ultimately could be helpful for improving their service quality, argued by Rothwell and Zegveld (1982). Different supports such as, management training, market support, technical support and financial services could be directed by the government intervention. Six strategies such as standard setting, mobilization, subsidy, knowledge building, knowledge deployment and innovation directives were presented by King *et al.* (1994) aiming to influence new adoption processes (Damsgaard and Scheepers, 1999).

According to King *et al.* (1994), regulatory and influence actions play a key role in the adoption and diffusion of any new technology. A body of literature exists: Andersen, Bjørn-Andersen and Dedrick (2003; King *et al.* (1994) and Tornatzky and Fleischer, (1990), the study of these scholars relate to the role of institutional involvement and technology diffusion. IT adoptions by firms are stimulated by six types of institutional

interventions including innovation directives, mobilisation, standard setting, knowledge building and knowledge deployment presented by King *et al.* (1994). Montealegre (1999) argued that, IT adoption could be influenced by institutions through creating demand and enacting rules and regulations for innovative processes and products. Damsgaard and Lyytinen (2001) stated that, in the technology adoption, institutional involvement is treated as imperative and these institutions could be related to industrial associations, non-profit organisations, local government, national and global standardisation organisations and government agencies.

The role of information infrastructure in the context of technology acceptance, internet and wireless infrastructure and telecommunication; and roles of private and government sectors are acknowledged by Andersen, Bjørn-Andersen and Dedrick (2003). The adoption of internet banking in the context of consumers' perspectives studied by Shi and Shambare (2008) revealed that, intention and attitudes could be significantly influenced by coercive and normative pressure. On the same theme, Han (2008) asserts that, e-communication facilities could be helpful for SMEs and financial institutions to reduce costs associated with money transaction which can also save time for SMEs. Therefore, some pressure could come to SMEs from banks for adopting online financial facilities.

Institutional role in e-communication diffusion

Chong and Pervan (2007) stressed that, as both financial service providers and government work closely with the SMEs, they can at the same time play the vital role of the diffusion of e-banking facilities. By setting up appropriate infrastructures for technological update, a suitable environment could be created by the government where they can enact regulations for SMEs. Funding IT projects and SMEs in developing countries could be helpful to set up e-communication infrastructures by the help of donor institutions associated with the government sector. In the e-communication, the adoption process is one of the most vital roles played by the service providers. The adoption of e-communication facilities by SMEs could also be influenced by the pressure of the banking industry (Claessens and Glaessner, 2002; Zekos, 2004). For these reasons, financial institutions/banking industry and government agencies are treated as influencing institutions. Lack of technical

expertise can negatively affect the adoption of e-communication facilities and the banking industry can take this as an opportunity by ensuring technical supports for SMEs (Gehling and Turner, 2007) .

All the firms including SMEs are driven to implement e-communication technology for their own survival and because of the non-adoption of new technology they can be left behind, asserted by Alam *et al.* (2004). Likewise, Jarry Jasinowski, the President of the US National Association of Manufacturers claimed that, from the critical part of the marketplace the small businesses could be shut down, if they do not get the e-commerce game in their business (Alam and Ali, 2011). Subsequently, the government included, all other respondents should pay attention to encouraging SMEs for e-communication adoption.

2.8 Commercialisation Strategies of the Service Providers

The possible disruptive nature of e-communication facility has been examined in this research by considering the service providers' view on the key dimensions of competition. According to Christensen, Anthony and Roth (2004), there is a link between the ICT adoption and some features of customisation, convenience and cost of use (Schmidt and Druehl, 2008). Moreover, a number of researchers (Frikha and McMillan, 2016; Medjahed and Gherbi, 2016; Abusharbeh, 2017 and Zhao, 2017) focused on the banking industy's contribution in the context of economic growth of the developing economy. In this section, commercialisation strategies of the banking industry have been analysed considering the model presented by Christensen, Anthony and Roth (2004) with four main components: cost of use, customisation, convenience and perceived ease of use of e-communication facilities.

Table 2.4: Commercialisation Strategies

Framework Dimensions	Factors investigated	Sources
Vendors' commercialisation strategies	• Convenience • Customisation • Cost of use • Perceived ease of use	Christensen *et al.* (2004) Schmidt and Druehl (2008)

Source: Adapted from Christensen, Anthony and Roth (2004)

- **Convenience**

The flexibility of product use is related to convenience, claimed by many researchers like Christensen, Anthony and Roth (2004); Anthony (2005); Schmidt and Druehl (2008). Likewise, Katz and Shapiro (1994) revealed that, flexibility of e-communication use is strongly linked to compatibility with relevant communication services due to the underlying communication effects. The benefits of network effects are enjoyed by the e-communication users while communicating with other users (Mahler and Rogers, 1999). These researchers also opined that, the users might wish to uphold benefits from network effects from different respondents in the case of e-communication facility usage which can lead to increasing the importance of critical mass for e-communication facility diffusion. Also, new service development could help users to enjoy the benefits of e-communication effects. Consequently, compatibility can reduce the investment of the vendors to attract new users (Shapiro and Varian, 1999). In the case of compatibility, these researchers focused on the element of convenience by exploring vendors' perceptions of e-communication adoption.

It is believed therefore, that experiencing the convenience of using a product depends on the flexibility of the product. Just because of the underlying network effects, e-communication flexibility is dependent on its compatibility of usage with other communication services (Katz and Shapiro, 1994). In the current era, more/less customer service is technologically oriented and the success rate of

earning customer satisfaction is dependent on the compatibility of the technology. It is obvious that, if any organisation wants to upgrade existing technological systems to latest technologies, then they need to install new hardware and software and extra budget could be required (Murillo and Lozano, 2006).

- **Customisation**

In their study on customisation, Christensen, Anthony and Roth (2004) examined the processes a product meets the requirements of an individual user. Additionally, customisation and simplicity are strongly related to each other (Anthony, 2005; Schmidt and Druehl, 2008). Most of the users refer to the e-communication facility comparing with the traditional communication and importance of switching cost is underlined by them (Klemperer, 1987). For instance, if consumers cannot easily use the new applications, the value of customisation may decrease; but to avert this from happening, they need special training. As many users are not familiar with the e-communication facility, it can lead to some complexities which may be further accentuated by incompatibility. Users may face high switching costs in such case, and it can slow down the adoption of e-communication by SMEs (Varshney *et al.*, 2002; Corrocher, 2003). In relation to the banking industry's perceptions, customisation has been explored in this research, aiming to increase the e-communication adoption by SMEs.

Today's business world is very competitive and to survive and become a leader in this competitive environment there is no alternative to having precise information about the market, but to follow some effective strategies that are based on the current situation (Azam, 2007). Among few crucial strategies, the pricing strategy is one of the most important strategies to secure success (Sueyoshi, Goto and Ueno, 2010). Also, Schmidt and Druehl (2008) submit that, the costs related issues are involved in the low-end disruption strategy, such as cost of using technologies, cost of customisation and easiness of the dimensions.

- **Cost of Use**

Many researchers like Adner (2002), Schmidt and Druehl (2008) have defined ease of use after considering the cost or price of use. In relation to price, cost of use of the e-communication services offered by the banking industry has been explored. In the

information research, price is treated as a recurring theme by many researchers in the context of quality of service and price (Mason, 1998; Ono and Aoki, 1998; and Rowe and Richardson, 1998). The cost of e-communication adoption by exploring the service providers' perceptions on the service price has been examined in this research.

In the acceptance and employment of the internet, the cost is an important factor (Ernst and Young, 2001). Innovation adoption could be negatively affected by higher innovation costs and it could be less likely adopted by organisations (Davis, 1979). Furthermore, a variety of factors such as computers, networks, software, hardware, data storage etc. are included in the cost of e-communication adoption process (Wang and Tsai, 2002). Conversely, in their studies, Cox and Ghonein (1996); Premkumar, Ramamurthy and Crum (1997); and, Seyal and Rahim (2006) have shown a significant relationship between technology adoption and the required cost; since, some organisations are not interested in adopting the e-communication facilities because they think the service is expensive; at the same time, they do not find the necessity of the services for their business.

Competition is known to prevail between competitors within the same industry on the ease of using dimensions and it happens after having competition on the functionality and reliability of the dimensions. In general, any organisation involves in the price competition when completing the competition with other two elements of the low-end disruption strategy. If any organisation plans to make improvements on the convenience and customisation elements then, customers get benefits from it; thus, the company becomes able to earn customer satisfaction which is helpful to generate more revenue (Christensen, Anthony and Roth, 2004)

In order to achieve the maximum benefit from the use of technologies, pricing strategy plays an important role (Vijay, Subhash and Robert, 1993). Due to the importance of the pricing strategy before implementing it, special care must be taken by organisations (Rauterkus, 2009). To formulate an effective pricing strategy, most organisations closely monitor the competitors' pricing strategy (Lin, Chen and Chiu, 2010). Therefore, it could be inferred that, by having the basis of the market analysis, organisations are better able to decide their pricing strategy.

- **Perceived Ease of Use**

As suggested by Tan and Teo (2000) and Lee, Park and Ahn (2001), in most cases, users adopt information systems if they find it less complex and easier to access. It was also supported by Davis (1989) who claimed that, acceptance of information system can be strongly affected because of the Perceived Ease Of Use (PEOU). The PEOU was defined by Davis in the TAM model as the degree to which users believe that, free of effort would be one of the main features of using a certain type of system. The use of the e-communication system could be easier and likely to be accepted, if the appropriate skills of the technology are in place and understood.

The Bangladesh banking industry has been providing e-banking services since 2001 and by 2007, 70% of the banks started providing online financial services through online facilities (Rahman, 2007). Although, most of the service providers (the banking industry) offer e-communication facilities, the adoption rate is very slow in SMEs compared to the other industries in the country. In fact, Bangladeshi SMEs are still way behind in exploiting the ICT services (Dewan and Nazmin, 2007; Hoque, 2018). A number of research studies have been carried out in Bangladesh on the related issue such as computer usage (Azam, 2005), telephone banking (Khan, 2001), Internet usages (Awal, 2004); it should be noted however, that no significant research has been done till now on the e-communication services especially for the SMEs.

It is really a matter of regret about the rate of technology adoption of the SMEs sector in Bangladesh, even though this industry is contributing 20-25% of the total GDP of the country and providing 80% employment facilities (Rikta, 2007). It is also found that, more than 40% of the SMEs are not getting any financial assistance from the external sources (International Finance Corporation (IFC), 2003). Therefore, to increase the e-communication adoption rate among SMEs, proper actions could be taken by the government of Bangladesh, the banking industry and SMEs themselves.

Nowadays, life is influenced by technological features and people prefer to get technology-oriented services from the service providers. One of the technology-oriented services in the banking industry is e-banking that is provided by the banks

to the customers. This service has become very popular among the bank customers. This service is provided through the www mechanisms by the banking industry and the customers can do the transactions, manage accounts, apply for and get loans by sitting at home after completing some security checks (Essinger, 1999). One of the main benefits of internet banking is the 24/7 hours available services and users can do their various banking activities such as bill payments and money transactions at any time (Mols, Bukh and Nielsen, 1999). So, it can be concluded that e-communication is helping the banks and other financial institutions to provide better banking services.

It is believed that, in the era of high technology, the long-time survival of banks is dependent on their IT strategy efficiency to remain competitive (Koskosas and Paul, 2002). Nowadays, users are very much aware of the time and facilities and are always looking for something new and innovative from the service providers. In the context of the banking sector, customers are interested in some sort of flexible and convenient services and those are different from the traditional ways of banking. In such case, Internet banking could be a saviour for banks. The banks can provide extensive services to the customers by ensuring contemporary e-communication facilities.

From the banking industry's perspective, internet banking is helping them to reduce the cost of providing service and generating more revenue. On the contrary, from the customer point of view, they can save their time by not standing in queues in banks, as they can do the financial transaction staying hundreds and thousands of miles away from the banks (Peterson and Park, 2006). Some other advantages of internet banking are: it brings efficiency and speed in the banking activities; the banks can reduce the chance of errors in the activities to a great extent and most importantly, service failure can be recovered very promptly.

The electronic payment method is more convenient for both the banks and customers in comparison with the other payment methods. This method costs lower and needs not to be dependent on the service hours and location. Moreover, it helps the banks and customers to control the service and accounts (Karjaluoto, Mattila and Pento, 2002). Some banks are now investing more due to the emergence of internet banking; rather than expanding branches and setting up ATMs (Laukkanen and

Pasanen, 2008). The ICT diffusion is helpful for financial organisations to get competitive advantages, to drop down the maintenance cost and most importantly it helps organisations to maintain various resources effectively (Bradley and Stewart, 2002). In fact, innovation in the technologies can help the organisation to provide more flexible services, to prove better customer service and after all, to establish and maintain good customer relationship management.

The topmost challenge for the banks or other financial institutions today in providing trustworthy internet banking service is the security threat. Even the future of the internet banking is fully dependent on the managing security threats (Chellappa and Pavlou, 2002). From the survey of Business Weekly (2006), it is revealed that, more than 61% of customers would prefer to do internet banking, if the security of the account is strictly maintained and personal information is kept very much protected and confidential (Andrew, 2006). So, to get the maximum benefit from the internet banking, security issues should be handled with utmost care by the service providers. Although e-communication facility is offered by a number of service providers, the government can play an important role in building infrastructure and relevant policies for both service providers and SMEs. The role of government to influence SMEs for e-communication adoption has been presented in the next section.

2.9 The Role of Government to Influence the E-communication Adoption

SMEs are more enforced to adopt e-communication facilities by various researchers for their contribution in the economic development (Acs, 1992). The policies employed in the adoption new technology should be devised and updated for supporting the SMEs improvement. In this case, innovative activities and regional development can encourage SMEs to adopt new technology like e-communication facility. SMEs can achieve their organisational goals if they get support from the e-communication diffusion policies (Storey, 1994). Some new opportunities could be launched by the Bangladeshi SMEs, if new innovation is brought in, such as, e-communication facilities could be implemented in their day to day business operations (Choudrie and Ghinea, 2005; Dwivedi, Khan and Papazafeiropoulou, 2006).

There have been many studies emphasising on the internet and e-business for SMEs in developing countries by a number of researchers such as Schubert and Leimstoll (2006); Love, Irani and Edwards (2004) and Lucchetti and Sterlacchini (2004). The importance of ICT adoption by SMEs is also recognised by governments around the world and many initiatives have been taken by them. Though the contribution of SMEs is known by many governments, the rate of ICT adoption is still low in SMEs (Smallbone *et al.*, 2001; Dawn, Podonik and Dhaliwal, 2002; Lawson *et al.*, 2003; Houghton and Winklhofer, 2004). Most of these studies on technological diffusion and institutional intervention revealed that, a number of particular roles are essential in some countries to make the newly adopted technology effective but it could be dependent on the categories of firms. In the flow of e-communication, the interests and roles of institutions are essential in particularly SMEs in Bangladesh which has been explored.

For developing countries like Bangladesh, updated technologies could be optimistic or pessimistic and because of technological diffusions, critical views could be changed or forced. Consequently, language barriers, social factors, poor infrastructure and high costs could arise in developing countries due to slow diffusion of technology which can affect SMEs (Baskerville and Pries-Heje, 2001). However, by the acceptance of updated technology, small and medium size organisations could be accelerated, although these can be influenced by their organisational culture types, as stated by Yavas, Verhage and Green (1992).

For the development of technological infrastructure, a lot of investments have been made by the government of the Western European Countries (Nielsen and Thomsen, 2009). In comparison, the investment of Bangladeshi government is much lower than a number of developed countries. Conversely, the Bangladeshi government is very firm to develop an enriched telecommunication infrastructure and that's why they have formed a regulatory body, "*Bangladesh Telecommunication Regulatory Commission (BTRC)*".

The government of Bangladesh realised that, for the development of the country, enhancement of IT infrastructure is essential, and have started to invest in it. Due to the decisiveness of the government, a remarkable growth and development is seen in the IT sector in Bangladesh. Moreover, the government of Bangladesh is

promoting more facilities to ensure a good infrastructure for the improvement of information and communication facilities (BTRC, 2011).

Table 2.5: Components of Government Roles in the Context of Technology Adoption

Framework Dimensions	Factors investigated	Source
Government Roles	• Knowledge Building • Knowledge Deployment • Subsidy • Mobilisation • Standard Setting • Innovation Directive	King *et al.* (1994)

Source: Adapted from King et al. (1994)

Financial support from the government is provided through different ways which include subsidies, knowledge deployment and technological resources. To develop the technological infrastructure and innovation, the importance of government funding is immense, and it differs from one country to another (Ang and Pavri, 1994; Abdullahi *et al.*, 2015 and Lee and Jo, 2018). In fact, to overcome the obstacles of the adoption of IT infrastructure, the help of government is important and this help is generally provided in the form of technical, financial and economic support (Sudibyo, Soesanto and Soetjitro, 2017).

- **Knowledge Building**

Knowledge building is done at the time of exploitation of innovation and product design and to accomplish this, it is necessary to have a solid foundation of scientific and technological sight to ensure inclusion of issues related to knowledge building. A lot of patronising has been done to support the knowledge building process; e.g. providing sponsorships for doing research at the universities and research institutions; and this happens by means of supply side influence, believe: King *et al.* (1994). These researchers highlighted that, to create and make use of the technological innovations, knowledge building is assumed aiming to ensure essential skills and information among different organisations are learnt. Knowledge building

programmes could be directly or indirectly funded by the government and one of the renowned forms to provide funding facilities for the universities. Thus, some ICT innovation programmes could be deliberately offered by higher education providers with the support of the government. For example, to support the knowledge building capacity and initial resources, the government of Singapore invested on the Trade Net Programme by targeting the increasing rate of EDI adoption (King and Konsynski, 1990). In supporting the above views on Knowledge and skills development, Brock (2000) observed that, the ICT technical knowledge and skills could also be offered to SMEs by other institutions like ICT vendors and consultants.

- **Knowledge deployment**

Knowledge deployment is necessary to stimulate knowledge distribution and for this knowledge distribution, the importance of universities, schools and colleges is enormous. In some contexts, temporary training can be embedded in the knowledge deployment (King *et al.*, 1994); it could also be facilitated by the government apart from knowledge building activities. To encourage the dissemination of new knowledge among organisation is one of the main objectives of the knowledge deployment dimension, asserted by King *et al.* (1994). There are several forms which could be followed by organisations to increase the rate of diffusion. For example, with the support of other organisations, the government can provide education and training facilities for the adopting organisation. To establish something innovative, various levels of education system could also be changed by the government which can help in ensuring knowledge deployment facilities (Abousaber, 2013). In addition, to establish and support knowledge deployment, people who are living abroad could be brought back to the country by ensuring required facilities which can help in setting up sustainable knowledge deployment.

- **Subsidy**

This is a special kind of support from the government and it is usually provided for the country's development. Subsidy could be provided in the technology development with the purpose of drop down, the risk or cost of IT adoption in the country (King *et al.*, 1994). One of the main aims of subsidy in the technology

adoption is to help the service provider to ensure maximum facilities for ICT activities (Pedersen, 2009). Further, Nielsen and Thomsen (2009) suggested that, this type of funding is allocated by most developed countries for research work so that maximum benefits could be achieved from the technological and communication development.

Rogers (2003) claimed that, if subsidies or incentives could be offered to the organisations which have adopted innovation services, then the rate of innovation adoption might be increased. Some organisations such as ICT consultants, internet service providers (ISP) and ICT vendors could benefit from ICT related subsides. Likewise, some government initiatives such as, reducing tax on ICT services, offering loans and direct grants can help to increase the rate of ICT adoption (Yap and Thong, 1997). Other subsidies like provision of ICT and electrical power services could be offered aiming to increase the rate of innovation adoption (King *et al.*, 1994).

- **Mobilisation**

Mobilisation is a procedure performed to encourage the decentralisation process. This process is effective only when an organisation takes innovation strategy seriously. The effective tools for the mobilisation are creating awareness among the users by doing promotional campaigns (King *et al.*, 1994). Changing the attitude of the adopting organisation is one of the initiatives of mobilisation. For specific innovation, it forces any organisation to think in a specific way (King *et al.*, 1994). The awareness of perceived relative advantage is generally delivered through mobilisation in terms of reduction of operational costs and other relevant benefits (Rogers, 2003). To a large extent, organisations could be influenced by mobilisation to adopt or reject ICT adoption, asserted by Molla and Licker (2005). However, Yap and Thong (1997) contends that, for SMEs to successfully adopt ICT, a successful government intervention initiative has to be evidenced; e.g. the context of ICT adoption in Singapore where different activities like loans, financial subsidies and the provision of ICT technical expertise and ICT seminars were induced.

- **Standard Setting**

To find out the main obstacles to the decentralisation work, social objective is one of the main roles of the standard setting approach; King *et al.* (1994) agree that, this can be done by means of making complete voluntarily laws. At the time of implementing the new technologies, most of the European countries and South Korea carried out an evaluation of the existing infrastructure in order to ensure the standard setting (Teo, 2007 and Kraja, Osmani and Molla, 2014). This is sometimes also referred to as measuring scale of technological services.

Common platforms are an important factor for ICT collaboration; a standard setting can help organisations by enabling regulations to collaborate and communicate with different organisations in line with institutional objectives, highlighted by King *et al.* (1994). For inter-organisational collaboration, the difference in business regulations and ICT platform is one of the bottlenecks where standard settings can create common platforms to collaborate and communicate among different firms. However, in this case similar types of database, data transfer formats and same set of computer networks are required to be used. Individual ICT systems among SMEs and the effective use of ICT are strongly linked to get much benefits (Santhanam and Hartono, 2003). Standards setting initiatives can be supported by a government to encourage SMEs for adopting ICT systems could be linked to the global system. Furthermore, the speed of ICT adoption could also be increased by standard establishment (Damsgaard and Lyytinen, 1996).

- **Innovation directive**

Innovation directive is used to stimulate innovation; before using the generated innovation in the production process for the organisation. This innovation directive is very much assistive in the process of the adoption of new technologies (Dwivedi and Choudrie, 2003). The importance of innovation directives could be discussed in the adoption of e-communication facilities by Bangladeshi SMEs. The use of innovation could be influenced by the statutory power of government to ensure specific norms (Damsgaard and Lyytinen, 1996). Innovative directives could be tied up with different governmental incentives such as financial resources. Through different government mechanisms such as the support of tax and customs authorities, the implementation

of such directives could be ensured. Similarly, King *et al.* (1994) opined that, research and development is another initiative of the government to allocate required resources to spearhead the adoption of ICT awareness among SMEs. Nevertheless, it is evident from literature that, adoption of ICT among SMEs could be failed due to lack of understanding the perceived benefits of the services, claimed by Mendo and Fitzgerald (2004). Thus, characteristics of the SMEs should be seriously considered by the government innovative directives provided.

Government role for SMEs

The role of the government has been cited as a catalyst because of various forms of intervention for the development of e-commerce among SMEs (Thatcher, Foster and Zhu, 2006; Martinsons, 2008). As stipulated by Scupola (2003), government support comes in different forms including technological and financial assistance in the context of institutional support, facilitating policy for SMEs operations in the country, enacting favourable e-commerce laws and improving e-commerce infrastructure.

Chan and Al-Hawamdeh (2002), and Martinsons (2008) asserted that, the governments of the developed countries have helped to enhance the adoption and utilisation of e-communication facilities by enabling the required infrastructure. However, a different scenario is found in the developing countries, where poverty and hunger eradication are the main concerning issues for the government (OECD, 2004). Government contribution in the context of e-commerce development in Singapore has been indicated by Chan and Al-Hawamdeh (2002); this research highlights the need to improve e-commerce infrastructure; to achieve this outcome, deliberate steps were taken by enacting favourable e-commerce laws.

The contribution of the SMEs is significant in the economy of any country and because of it; various facilities are often initiated by the government of that country. According to the OECD (2010), the contribution of the European SMEs were reported to have revealed how the SMEs helped to overcome economic downturn; so that entrepreneurship could be developed by implementing the institutional framework, where the government plays a very crucial role. In addition to this, productive and non-productive forms of firms could be influenced to be balanced through the government enforcing roles. For example, many new SMEs emerged

during the transition when entrepreneurship was booming throughout Central and Eastern Europe (Dibrell, Davis and Craig, 2008).

Nowadays, transitions countries could be divided into two segments and one of those are countries which have reformed in advance, and in the second group are some countries that have partially or very slowly reformed. Based on the business reformation and entrepreneurship, development of the country could differ. Government and government agencies could help the small and medium type enterprises to be more active in the economy of any country. To analyse entrepreneurial behaviour and external environmental factors, some micro level influences are importantly considered by focusing the institutional issues. However, such approaches might not be suitable in the transition environments, evident from the arguments of Peng (2003) and Manolova *et al.* (2008).

Moreover, Davidsson (2003); Baker and Nelson (2005); and, Smallbone and Welter (2006) claimed that, the requirements for embedding entrepreneurship for specific social status was accentuated by renowned researchers. In their view, in the creation of an entrepreneur, a lot dissimilar external conditions and roles of the government were also highlighted by these researchers. For reference reasons, Smallbone and Welter (2006), and Oliver (1997) argued that, attention to the causal impact of cultural pressures, societal and state facts could be drawn, implementing institutional theory; they further observed that the institutional theory could also be implemented to offer some unique insights.

Also, North (2005) explained that, there are the two main types of institutions; the formal and informal, that individual behaviour could be influenced by the formal institution in relation to policies, economic factors, laws and regulations, whereas; values, norms and customs are related to the informal institution. Further, they observed that, enabling and constraining forces could differ based on the formal and informal institutions in the context of entrepreneurship formation, influencing individual and collective perceptions and creating opportunity fields considering both negative and positive factors. Productive entrepreneurship could be formed by the combination of both formal and informal institutional factors and in the case of the rule of law; it could be used for shaping individual behaviour.

In addition, Baumol (1990) claimed that, non-productive forms of entrepreneurship could be formed if the regulation is largely absent and if institutional factors conflicts due to fragile settings. When these factors are very carefully considered, they seem to underlying the application of an institutional approach from the different countries' perspectives. Government roles can therefore affect not only the existing number of small enterprises that are formed and survived, but also those who are operating newly (Trong, Vu Van and Francesca, 2017). In the institutional theory, development and behaviour of the government is one of the vital issues that can subsidise significantly to the setting up and survival of small enterprises in any economic situation.

Institutional change and entrepreneurial opportunities

Sometimes entrepreneurial opportunities could be influenced by various external factors; though these opportunities are exploited and identified by individual or groups of entrepreneurs. This indicates some external conditions in the context of some interests; because this could contribute to the emergence of new opportunities. Shane (2003) mentioned that, new opportunities for entrepreneurs could be affected by macroeconomic influences such as regulation, political forces and changes in technology. Moreover, social trends could also be used as strongly influential issue. In the case of transition economies, it could be applied to attract certain external issue.

The government plays the most important role in the transitional process and for ensuring various facilities they are responsible for developing specific required infrastructure. To facilitate support facilities to small entrepreneurs, governments try to ensure that, the institutional frame is within the context of a certain economy (Groznik, Kovacic and Trkman, 2008). The governments of some countries are trying to reform some infrastructure to ensure a variety of support reach small firms. These small organisations are helping the economy of the country positively and Western and Central European countries are the pioneer of establishing infrastructure. For enterprise development, new regulations and some additional indirect steps could be taken by the government of any country. Although, some high levels of concerns could be raised, but if some contemporary and effective steps could be taken then,

these limitations could be overcome (Smallbone and Welter, 2006; DeCenzo and Robbins, 2004).

To ensure the success of small and medium type organisations, organisational leaders should develop a good leading strategy (Coltman, Devinney and Midgley, 2007). A report presented by Burke and Cooper (2006) revealed that, without thinking the key purposes of any organisational context, team type, team support systems, firms will not be able to gain the information they need to perform and build a proper strategy. Moreover, according to Hackman and Wageman (2005), therefore, three functions which are very important for SMEs are strategy, effort and Knowledge, Abilities and Skills (KSAs).

The government of some countries are investing huge amounts of investment to develop the infrastructure for ensuring some additional facilities for different types of organisations. Among these facilities some are directly, while others are indirectly related to the development of SMEs. For instance, both knowledge building and knowledge deployment are helping small organisations indirectly; and that financial subsidy and mobilisations are directly helping small organisations to support and to facilitate directly (Lyytinen and Damsgaard, 2001).

The financial development of any country could be greatly affected by small entrepreneurship; this can help the country to reduce unemployment and at the same time, the government also get revenue from them. In some countries their economy is strongly related to small businesses and helps contribute to a country's GDP. The national economy could be supported through the provision of technical innovation, providing employment, filling the needs of society and businesses. It is not easy to ensure every technical facility for the whole population of any country by the government. However, such could be ensured by the various small companies and with their innovative techniques; because small companies are strongly related to people of the community, they can easily understand the needs and demands of the particular society (Pedersen, 2009).

Unemployment problems can be reduced by enhancing the development of small entrepreneurship. People may not get their expected jobs or sometimes they may not be interested to work in other facilities. If it happens then, the formation of small

enterprise could be the best solution for reducing the unemployment problems. Many countries of the world encourage their huge population to set up small firms so that better opportunities could be realised in the context of employment (Travica, 2008). People can be more competitive by forming small enterprise, and a better economic society could also result from it. For example, some opportunities have been offered by the UK government for international students to setup small entrepreneurship after completing their studies in their respective countries. In addition, some of the universities have been specified by the government from where international students can get this opportunity after graduating (Nielsen and Thomsen, 2009).

Various needs of the society could be fulfilled by the help of the small enterprises because small firms are very close to the community. Moreover, small firms can be supportive firms to the medium and large organisations in different ways. Aiming the SMEs and enhancing their rate of e-commerce adoption; also, considerable attention is being given by the governments in many countries through issuing regulations and policies. For example, several ICT policy programmes such as the online Business Resources Facility, the Business Entry Point (Business Australia, 2012); the National Technology Online Programme (ITOL), the Building on IT Strengths (BITS), have all been taken by the Australian government to increase the rate of e-commerce adoption by SMEs. Similarly, the UK government introduced the Wales Information Society (WIS) and the UK Online for Business to support SMEs especially for the adoption of e-commerce services (OECD, 2002).

In March 2014, Bangladesh government has launched the National Cyber Security Strategy that provides a framework to ensure a number of internet facilities including the management of critical infrastructure and potential risks of cyberspace. According to this strategy, a few issues were suggested to fix potential risks of cyber-attacks especially for the telecommunications, utilities and the banking industry (Ministry of ICT Bangladesh, 2018). In addition to this, innovation promotion scheme for ICT research, Digital Staff attendance system, Online e-pass system, Recruitment Exam Management System, Hi-Tech Park Information Management System (HIMS) and Smart Lab Management System have been planned for innovation by the Ministry of ICT of Bangladesh (Ministry of ICT Bangladesh, 2018).

Many initiatives have been taken previously by the government of Bangladesh but most of them have not sustained for the long term. However, the current government has announced the Vision 2021, and as part of this plan, many changes such as setting up own satellite system, reducing internet access fee and increased number of internet users are evident (Ministry of ICT Bangladesh, 2018). As mentioned above, many Hi-Tech parks have also been established. Contrary to this, not sufficient skills programmes or providers have been established, which can ensure the knowledge building facilities for Bangladeshi SMEs in particular.

To encourage people, they are taking steps from the root level of the local government system and almost all the Union councils have come under internet and digital facilities. Recently, many Hi-Tech Villages, Hi-Tech Parks (HTP), Hi-Tech Cities and Software Technology Parks (STP) have been established by the Bangladesh government. A report, Bangladesh Your ICT Destination published that, “The IT Industry will be the top most revenue earner for the country in the coming days” (ICT affairs adviser to PM). Janata Tower Software Technology Park Dhaka and Sheikh Hasina Software Technology Park Jessore indicate the mobilisation activities of the current government of Bangladesh (Ministry of ICT Bangladesh, 2019).

Comparing the large organisations, in SMEs the adoption rate of e-commerce facility is low, despite the great attention by the government (Grandona and Pearson, 2004; Chong, 2008; Kartiwi and MacGregor, 2007; Alam and Ahsan, 2007; Long, Lan and Duong, 2011; Chiliya, Chikandiwa and Afolabi, 2011). The precise issues which influence the SMEs to accept and utilise the e-commerce service was tried and identified by these researchers who inferred that; in economic development, SMEs play an important role. SMEs make significant contributions in terms of employment provision as well as their numbers (Kotelnikov, 2007). SMEs were viewed as a vital factor for innovation and growth of any economy observed, Kotelnikov (2007), at the same time, they play important roles in empowerment creation, social change and empowerment and in the self-possession of their developmental or distributional objectives, political stability and democracy. In reducing poverty and the rate of unemployment, the contribution of these firms have become more significant and they can also help developing economic status of any country (Kotelnikov, 2007).

Cost, compatibility and perceived benefits are referred in the technological perspective which influences the SMEs to adopt e-communication services. According to: Iacovou, Benbasat and Dexter (1995); and, Tiago and Maria (2010), the degree of acceptance of the potential benefits is referred by the perceived benefits that e-commerce technology can provide for organisations. Additionally, innovation could be easily prescribed, if compatibility between technology innovation and organisational policies could be ensured (Rogers, 2003). In this research, cost has been considered as one of the vital issues which affect the Bangladeshi SMEs in adopting the e-communication facility. Practically, the lower price of certain technologies, the more likely these will be quickly accepted and utilised among SMEs (Tornatzky and Klein, 1982; Premkumar and Roberts, 1999) which can enhance their overall performance. E-communication adoption and its impact on SMEs' performance has been analysed in the next section.

2.10 E-communication Adoption and its Impact on SMEs

To seek the link and analyse the relationship between ICT adoption and its impact on firms, there is an emergent body of literature available in the areas of SMEs and ICT adoption (Handfield *et al.*, 2000; Truman, 2000; Kurnia *et al.*, 2015, and Okundaye, Fan and Dwyer, 2019). The impact of ICT adoption on performance of firms has been examined by many past studies after considering several levels such as societies, industries, organisations, groups and individuals. To evaluate the impact of ICT adoption on firm performance, several measures like: user satisfaction, information quality, function efficiency, financial and strategic issues have been developed by many researchers.

Different types of financial data like sales returns and investment returns could be typically tested to divulge the statistical association between ICT adoption and performance of the involved firms (Weill, 1992; Mahmood and Mann, 1993). While objectivity could be increased by deploying financial data, there is no direct and elusive links between firm performance and ICT adoption (Mukhopadhyay, Kekre and Kelathur, 1995; Byrd and Marshall, 1997). A research conducted by Teo and Tan (2002) revealed a significant relationship between online marketing activities and performance of the associated organisations where these researchers used

financial data. Though there is a significant connection, in the case of SMEs, many components such as data on investments, revenue, cost of ICT training, IT maintenance, software and hardware are often not available. Even sometimes, if these components are available their reliability and accuracy are still questionable (Hussin, 1998). In addition, for competitive reasons, most of the firms are reluctant to disclose financial data relevant to their business (Mukhopadhyay, Kekre and Kelathur, 1995).

The relationship between adoption of ICT and organisational performance has also been examined by Byrd and Marshall (1997) by using subjective measures. This research was supported by Cragg, King and Husnayati (2002) who showed positive relationship by using subjective measures. These researchers also asserted that, due to ICT adoption in firms, customer loyalty, stronger financial resources, higher sales growth and long-term profitability could be experienced (Cragg, King and Husnayati, 2002). Better organisational performance has also been evident from the research conducted by Ismail and King (2005), where similar measures have been used. Likewise, the existence of a positive relationship between e-commerce adoption and performance of firms was investigated by Daniel, Wilson and Myers (2002) by considering the benefits realised. From this research it is evident that, adopting ICT can help firms to enhance internal communication, improve supply chains, services, competitive positioning and also can help attracting new customers.

Inclusive results on ICT adoption and firm performance have been provided by the above literature and it has been evident that, a wide range of business processes could be benefited by the contribution of ICT and e-commerce and at the enterprise level; both resource management and internal communication could be more competent (OECD, 2004). ICT adoption can help organisations to process data faster than the traditional approach; in addition, it can ensure more efficient back-office functionalities. For business activities, several sophisticated ICT applications like ERP and KMS can be used to share, store and utilise information for decision making. For example, employees can respond to customers more effectively, if the correspondence is carried out based on the customer databases with a history of clients. At inter-firm level adoption of ICT can be helpful in increasing the reliability and speed of transactions; and reducing transaction costs. Moodley (2002) and

Mohtaramzadeh, Ramayah and Jun-Hwa (2018) argued that, if ICT innovation could be adopted by both buyers and suppliers, then information asymmetries could be reduced, and it can help to build a good relationship by real-time communication and internet-based B2B interaction. Thus, ICT adopters can increase reliability and transaction speed in their value chain and can also reduce transaction costs (OECD, 2002 and Nugroho, 2015).

Many important roles such as, creating job opportunities, reducing poverty and in developing economy are played by SMEs in developing economies. Also, sometimes in the national economies, the average growth could be exceeded by the contribution of the SMEs sector which always subsidises expressively to create employment (Esselaar *et al.*, 2007; Higon, 2011). In a study carried out in the UK, Matthews (2007) identified three distinct stages which are termed as sophisticated, substantial and basic in IT and is used in small businesses. Matthews (2007) further points out that, in the Micro enterprises if a sufficient budget, certain infrastructure and skilled ICT personnel could be ensured, then positive impact of ICT adoption could be expected.

Manochehri, Al-Esmail and Ashrafi (2012) asserted that, if ICT is adopted by organisations then flexibility could be influenced; as a result, the small firms can perform better by distinguishing their services and products. A positive impact of ICT adoption on the organisational productivity has been highlighted by Ollo-Lopez and Aramendia-Muneta (2012). As suggested by these researchers, depending on different business sectors, productivity could be directly or indirectly affected for supporting organisational sustainable development. Consequently, physical transportation could be significantly cut down by using social media, e-commerce and email; these can also help advertising and buying or selling goods, banking and sending email and can reduce expenditure (Manochehri, Al-Esmail and Ashrafi, 2012). Conversely, the impact of ICT could be evident in the organisations after a period of adoption and it can lead to long term investments for small firms (Consoli, 2012; Bayo-Moriones, Billon and Lera-Lopez, 2013). Furthermore, organisations need to adjust their structure as well as, need to take initiatives for internal changes like to attend for personal training.

It has been clearly shown in the research of Sabbagh *et al.* (2012) and Manochehri, Al-Esmail and Ashrafi (2012) that, economic growth and productivity of the labour force of organisations could be considerably affected by investments in ICT. Also, Manochehri, Al-Esmail and Ashrafi (2012) and Soto-Acosta, Popa and Palacios-Marqués (2016) clearly shown that, because of the ICT adoption, productivity in manufacturing enterprises could be increased and services could be more easily traded. Thus, very significant and positive outcomes of ICT adoption on productivity have been confirmed by a growing number of studies.

The contribution of ICT investment on the economic growth was analysed by Lau and Tokutsu (1992) based on a large number of enterprises for 1960-1990 period, where the researchers clearly shown that, half of the economic growth has happened in the United States of America due to the ICT investment (Cited in Matei and Savulescu, 2012). Matei and Savulescu (2012) also referred to the World Bank Studies, where 20,000 businesses have been sampled in 50 developing countries, which disclosed that, due to the adoption of ICT, sales and employee growths have become faster and productivity has become higher. In supporting this approach, Matthews (2007) asserted that, enhanced as well as the outreach profitability could be experienced by SMEs after adopting ICT in their organisational activities which can lead to better financial position. Interestingly, this researcher has treated the ICT adoption as a growth supporter instead of considering it as a growth driver.

The application for the credit, credit cards and mortgage can be easily done by SMEs if e-banking facility is adopted alongside; it can reduce the time of transaction (Purcell and Toland, 2003). From the study of Rikta (2007) it is known that, just for sanction of single loan, the owners of SMEs need to visit banks nearly 15-16 times. However, positive impact can be seen if information technology especially e-communication facilities are adopted by SMEs. It is found from some studies that; adoptions of e-communication/ICT facilities have increased the performance of SMEs.

Furthermore, a study conducted by Baldwin and Sabourin (2002) revealed that, firms have been using various e-communication facilities getting more productivity and profitability than non-ICT users. There are some debates for the potential benefits of ICT adoption by SMEs. To increase the potential benefits of the e-communication

facilities among various users; service providers need to upgrade their facilities and users should be aware of costs and risks of those facilities. Some studies have emphasised the market expansion opportunity for SMEs because of ICT adoption. Moreover, some Canadian manufacturing organisations have been considered by Baldwin and Sabourin (2002), where a positive relationship between ICT adoption and firm performance has been shown by these researchers.

E-business facilities can significantly impact the performance of organisations as revealed by a research carried out by the OECD in 2004 where SMEs of European countries have been considered though it was opined that, e-business is not only the panacea for enhancing their overall performance. Positive impact of ICT (WiMax) adoption on business performance has also been evident from a research conducted by Abousaber (2013). By the successful and effective implementation of different ICT software such as KMS and ERP organisations can acquire knowledge in the best possible ways. Customer centric organisations can provide better and effective service, if they know the preference of customers (Han, 2008). Moreover, application procedure for credit, credit cards and mortgage can be easier for SMEs, if e-banking is adopted, and at the same time it can reduce the time of the transaction (Purcell and Toland, 2003).

To increase the potential benefits of e-communication facilities among various users, service providers need to upgrade their facilities and users should be aware of costs and risks of those facilities (Lim, Baharudin and Low, 2017; Nugroho *et al.*, 2017 and Nantembelele and Gopal, 2018). In addition, Electronic Commerce Business Impacts Project (EBIP) conducted by the OECD in 2002 among 220 firms highlighted that, early e-business facilities and adopted organisations were much benefited because of their increased turnover and profitability (Chakraborty, 2009).

Furthermore, a research conducted among thirteen countries by OECD (2002) revealed that, firm performance could be improved by the usage of ICT in terms of customised items, better market share, enhanced response to customers' wants and expanded product range. This research also indicated the way of reducing inefficiency in the use of labour and capital. Numerous studies have examined the advantages of ICT facilities adoption towards performance of the firms. Many evidence were found to support the ICT adoption on small and medium firm's

performance, such as Raymond, Bergeron and Blili (2005) who showed the firm's positive growth because of ICT adoption. ICT adoption and firm performance were linked by many researchers from different contexts such as financial gain (Beck, Wigand and Konig, 2005; Johnston, Wade and McClean, 2007); implementation success (Chong, 2008) and competitive advantage (Teo, 2007; Teo and Pian, 2003).

Al-Qirim (2003); Elbeltagi, Hamad and Moizer (2016) and Cantele and Zardini (2018) claimed that, to have access and gain competitive advantages in the wider market, SMEs are incrementally using e-communication facilities to target the e-commerce. Both sellers and buyers can be significantly benefited from the usage and implementation of ICT facilities (Zhu, 2004) and for SMEs, those advantages could be materialised (Al-Qirim, 2007). Depending on the research objectives and contexts, definition of e-commerce could be differed argued by Grandona and Pearson (2004). Applications and utilisation of ICT to support organisational activities are defined as e-commerce for SMEs (Poon and Swatman, 1999).

In the national economy, SMEs play an important role for making substantial contribution into the national coffers (Jutla, Bodorik and Dhaliqal, 2002; Poon and Swatman, 1999). To increase the e-commerce adoption rate, heavy investments were made by the government under different schemes by targeting the SMEs and growth of the e-business environment, argued by Timmers (1999) and Modahl (2000). In addition to this, Van Beveren and Thomson (2002) reported, some success in e-commerce adoption rates specifically among larger SMEs. Despite raising the question of the unsuitability of the e-commerce service for SMEs, the utilisation of the relevant services remains obstinately low revealed by many researchers (Stokes, 2000; Korchak and Rodman, 2001; Jutla, Bodorik and Dhaliqal, 2002; Goode, 2002; Lewis and Cockrill, 2002). Direct and easy measurable effects such as profits, productivity and growth etc. of ICT were focused in previous research while very few researches studied on indirect effects of ICT on the performance of SMEs. In this study exceptional attention has been paid to analyse the overall performance of the SMEs considering the satisfaction of employees and customers, higher profits and competitiveness.

Conversely, because of several issues such as ICT payoffs which considers different benchmarks, the impact of ICT adoption on firms' performance was still a matter of debate highlighted in the Special Report of e-Business Watch (Koellinger, 2006). Brynjolfsson and Hitt (1996) have shown in their research that, investment of ICT could increase productivity, not the profits. Prasad and Harker (1997) were also agreed with this statement and in their study; they found no positive effect of ICT on profitability but productivity. Further to this, Porter (2001) highlighted that, to capture the benefits of ICT adoption in firms as profits is very difficult and though business transactions could be performed easily due to technology innovation, it can also lead to some complexities. Similarly, overall weak results were revealed in a study conducted by Zhu and Kraemer (2002) in terms of ICT adoption and manufacturing firm performance where inventory efficiency, costs reduction and profitability were considered as main dimensions. Doubts of ICT adoption and firm performance were raised by many studies like Cragg and King (1993) and Power (2005). As argued by Power (2005), firms might find the usage of internet technology easier to implement as well as use, but it does not necessarily mean enhanced performance.

2.11 Literature Gaps and Use of Multiple Theories Adopted in E-communication Adoption by SMEs

In a research Chakraborty (2009) highlighted the impact of investment in telecommunications in developing countries, where the per capita growth was considered and has also shown the positive impact of telecommunication on the economic growth. It must again be noted that, this research did not particularly deal with SMEs. Yaghoobi *et al.* (2010) has shown that, people of the third millennium are more interested in e-communication than traditional approach of communication; these researchers have discussed the e-communication gaps considering two areas Sistan and Baluchestan in Iran but not for any particular types of firms. In the context of e-commerce adoption, government supports related factors are emphasised in the research of Al-Hudhaif and Alkubeyyer (2011). There was no evidence related to the service providers (the banking industry) in their research. The theory of disruptive innovation and vendor's strategies are explored considering IP telephony by Constantiou, Papazafeiropoulou and Dwivedi (2009) but government roles are not considered in this research.

In the research published by Choudrie and Papazafeiropoulou (2007) have revealed the different roles of the government in relation to the adoption of technology. This notwithstanding, the service provider's strategies were not stressed. Some initiatives related to the expansion of technology in developing countries were also identified by McGrath and Maiye (2010) from the government policy perspectives. In comparing developed and developing countries, in his research, Al-Fadhli (2011) has shown that, organisations can get both operational and strategic benefits by enabling electronic transactions and following e-commerce facilities. Although, some potential benefits are emphasised, however, the government initiatives and service provider's strategies are not indicated. It must be noted that, some theoretical ideas related to technology adoption have been suggested by Oh, Ahn and Kim (2003) considering broadband Internet adoption in Korea; however, the banking industry and government related issues are not stressed.

Furthermore, the research conducted by Alam and Ahsan (2007) has shown the relationship between ICT adoption and performance of the Malaysian SMEs. Moreover, a theoretical model has been provided by Riyadh, Akter and Islam (2010) for of e-banking adoption among Bangladeshi SMEs. Even though, some of the factors associated with e-banking services were emphasised, no discussion was carried out on government roles or the service providers' strategies.

In conducting this study, the researcher has reviewed related and contemporary literatures, and gathered some research works related to ICT adoption (Al-Hudhaif and Alkubeyyer, 2011), SMEs (Bhamra, Dani and Bhamra, 2011), SMEs and ICT adoption (Beck, Wigand and Konig, 2005), ICT adoption and performance of SMEs (Beckinsale and Levy, 2004), commercialisation strategies of vendors (Constantiou and Papazafeiropoulou, 2009), government policies (Choudrie and Papazafeiropoulou, 2007), e-banking adoption in developing countries (Riyadh, Akter and Islam, 2010). However, no research has been found which represents SMEs, e-communication gaps, commercialisation strategies of the service providers (the banking industry), roles of government and developing countries examined together which clearly show the gaps in existing literature.

Table 2.6: Key Literature Sources

	Key Researcher/s	Research on
1	▪ Cameron and Quinn (1999)	Diagnosing and Changing Organisational Culture
2	▪ Papazafeiropoulou (2002)	A Stakeholder Approach to Electronic Commerce Diffusion
3	▪ Oh, Ahn & Kim (2003)	Adoption of broadband internet in Korea
4	▪ Beck, Wigand and Konig (2005)	SMEs and ICT adoption
5	▪ Guasch and Ugas (2007)	ICT adoption and performance of SME
6	▪ Choudrie and Papazafeiropoulou (2007)	Government policies for broadband adoption
7	▪ Rahman (2007)	Innovative Technology and Bank Profitability
8	▪ Alam and Ahsan (2007)	ICT Adoption in Malaysian SMEs from Services Sectors
9	▪ Kashfia (2009)	Performance Evaluation of SMEs of Bangladesh
10	▪ Constantiou, Papazafeiropoulou and Dwivedi (2009)	Commercialisation strategies of vendors
11	▪ Chakraborty (2009)	Impact of investment in telecommunications in developing countries considering per capita growth
12	▪ McGrath& Maiye (2010)	The role of institutions in ICT innovation
13	▪ Olatokun and Kebonye (2010)	E-commerce Technology Adoption in Botswana
14	▪ Riyadh, Akter and Islam (2010)	e-banking adoption in developing countries
15	▪ Yoghnoobi*et al.,* (2010)	Digital Gap in Iranian Rural Areas
16	▪ Al-Fadhli (2011)	Critical Success Factors influencing E-Commerce in Kuwait
17	▪ Al-Hudaif and Alkubeyyer	E-Commerce Adoption Factors in Saudi Arabia

	(2011)	
18	▪ Malo (2011)	The Model of E-technology utilization for SMEs
19	▪ Abousaber (2013)	WiMax Technology Adoption by SMEs
20	▪ Shemi (2012)	Factors Affecting E-commerce Adoption in Small and Medium Enterprises
21	▪ Chen and Holsapple (2013)	E-Business Adoption Research
22	▪ Abdul, Narongsak and Seigyoung (2014)	The Application of the TechnologyAcceptance Model Under DifferentCultural Contexts
23	▪ Makame, Kang and Park (2014)	Factors influencing electronic commerce adoption in developing countries
24	▪ Zhu and Chen (2016)	E-commerce use in urbanising China
25	▪ Basarir-Ozel and Mardikyan (2017)	Factors affecting E-commerce adoption

Table 2.7: Theories and Models used in e-communication/ICT adoption

Theories/Models	Researcher/s	Research Issue
Innovation diffusion and stakeholder theories	▪ Papazafeiropoulou (2002)	e-commerce diffusion to SMEs
Diffusion model	▪ Santarelli and D'Altri (2003) ▪ Mehrtens, Cragg, and Mills (2001); Kendall *et al.* (2001)	▪ To measure the diffusion of e-commerce among SMEs ▪ e-business adoption and e-commerce by SMEs
Resource-based theory	▪ Caldeira and Ward (2003)	Successive factors related to IT adoption and usages by SMEs
Disruptive innovation and vendor's strategies	▪ Constantiou, Papazafeiropoulou and Dwivedi (2009)	Vendors' strategies and the IP telephony
Stage model	▪ Daniel, Wilson and Myers (2002)	e-commerce adoption in the United Kingdom

Technology Acceptance Model (TAM).	▪ Davis (1989)	Individual technology adoption procedures
Theory of Planned Behaviour (TPB)	▪ Ajzen (1991)	Issues related to technology adoption
Decomposed Theory of Planned Behaviour (DTPB)	▪ Taylor and Todd (1995)	Analysis of technology adoption related factors

To investigate the factors that affect SMEs to adopt e-communication facilities, a number of theories and models such as Technology Acceptance Model (Davis, 1989), Stage Model (Daniel, Wilson and Myers, 2002), and Resource-Based Theory (Caldeira and Ward, 2003) have been employed by many researchers. However, to investigate the factors that affect Bangladeshi SMEs to adopt e-communication facilities, the Organisational Cultural Assessment Instrument (OCAI), (Cameron and Quinn, 1999) has been followed. This model has assisted the researcher to focus on individual factors: owner/manager characteristics, level of education of the SMEs, level of ICT and e-communication knowledge and social and cultural factors; Organisational factors: security, trust, privacy concern, organisational readiness, financial ability and cost implications, size of the organisation, perceived benefits of ICT, organisational culture and types of SMEs and also on competitors, technological factors and national culture.

To explore the impact of commercialisation strategies of the service providers to influence the Bangladeshi SMEs for adopting e-communication facilities, the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) has been employed by emphasising on a number of features such as, convenience, customisation, cost of use and perceived ease of use of e-communication in the context of Bangladeshi SMEs. Subsequently, the Theory of Institutional Intervention has been utilised to explore the government's roles to influence the Bangladeshi SMEs for adopting e-communication facilities. Government roles associated with technology adoption by SMEs have been analysed in consideration of knowledge building, knowledge deployment, subsidy, mobilisation, standard setting and innovation directive.

To analyse the impact of e-communication on SMEs, three major components: factors affecting SMEs, commercialisation strategies of the service providers and the roles of government have been focused on to conclude the ultimate outcomes of the research. The researcher is enthusiastic in combining the SMEs, government roles and the service providers' commercialisation strategies to evaluate the impact of e-communication adoption on Bangladeshi SMEs' performance. However, no single theory, model or concept has been evident, which can support to investigate factors that affect SMEs, to explore commercialisation strategies of the service providers and roles of government together, which clearly indicates the necessity of multiple theories.

Likewise, in considering this research target, the researcher has developed a new conceptual model to combine organisational culture of the Bangladeshi SMEs (Cameron and Quinn, 1999), government roles (King *et al.*, 1994) and the banking industry's commercialisation strategies (Christensen, Anthony and Roth, 2004) for minimising e-communication gaps between the service providers and Bangladeshi SMEs, which also triggers the implications of multiple theories.

2.12 Summary

Reviewing the existing literature is one of the main goals of this chapter where the impact of e-communication adoption on SMEs' performance in general, with special emphasis on e-communication services used by SMEs has been stressed. Hence, this section reviewed and represented a number of scholarly work associated with the factors which affect SMEs for the adoption of e-communication technology, organisational culture of SMEs, the service providers' commercialisation strategies and the roles of government.

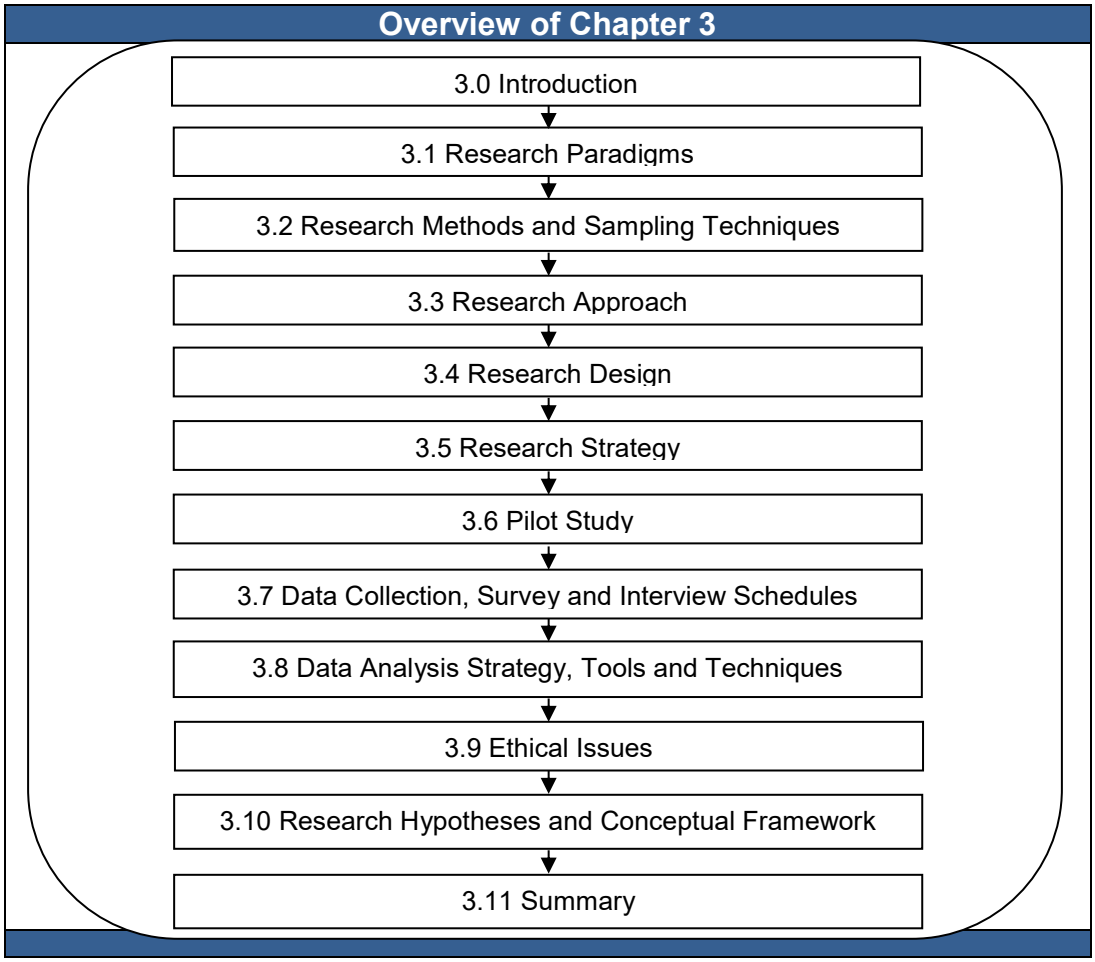
In the organisational context, enough details of the potential benefits of e-communication have been presented and analysed. Also, to underpin the research on SMEs context, explanations for the theoretical perspectives were offered in this section. Finally, and most importantly, the rationale behind the choice of the combination of the OCAI, the theory of disruptive innovation and institutional intervention, as the theoretical framework has been employed in the execution of this research.

In conducting the present study, the research methodologies used, have been examined in the next chapter.

CHAPTER III: RESEARCH METHODOLOGY

Table 3.1 presents an overview of the third chapter which includes introduction, research paradigms, research methods and sampling techniques, research approach, research Design, research Strategy, pilot study, data collection, survey and interview schedules, data analysis strategy, tools and techniques, ethical issues, research hypotheses and conceptual framework and chapter summary.

Table 3.1: Overview of Chapter III

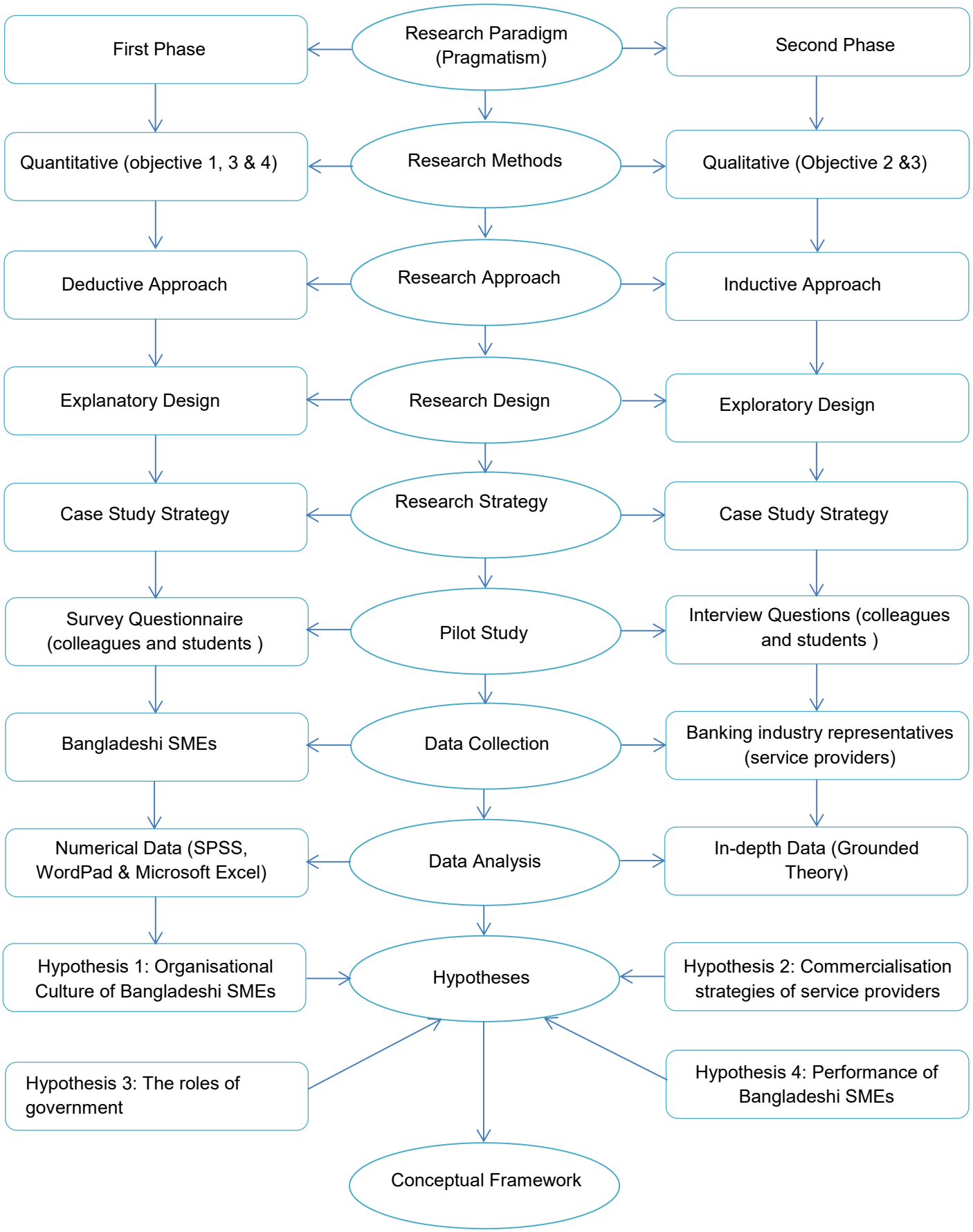


3.0 Introduction

A number of systematic and sequential procedures are pursued to carry out any academic research from problem identification to revealing outcomes (Kumar, 2008). To acquire highly valid and reliable data, the researcher has implemented the mixed research methods. This study has been conducted in consideration of some theoretical foundations such as the Theory of Disruptive Innovation (Christensen, Anthony and Roth, 2004), where the positivism approach has been followed for objectivity. In addition, personal experience has been implemented for the interpretive approach which is associated with subjectivity (Mingers, 2003) of the research phenomenon. However, to overcome the complexity, the pragmatic approach has been utilised throughout the research.

This chapter focuses on research methodologies including research paradigms, research methods and sampling techniques, research approach and research design. Research strategy, the pilot study, data collection, survey and interview schedules, data analysis strategy, tools and techniques, ethical issues, and research hypotheses and conceptual framework have also been discussed. Summary of the research methodology has been presented in Figure 3.1.

Figure 3.1: Summary of the Research Methodology



3.1 Research Paradigms

Kuan and Chau (2001) defined a paradigm as a set of techniques and values which are generally contributed by the members of the scientific community and it acts as a map or guide for identifying research problems and to provide acceptable explanations. Assumptions, valid knowledge and ways of obtaining knowledge are referred to in the epistemology paradigm (Galliers, 1985; Hamilton and Ives, 1992; Myers, 1997b). Critical research, interpretivism and positivism are the three underlying epistemologies used within an information system, observed by Orlikowski and Baroudi (2002). To select the most suitable research paradigm, a framework on philosophical theory has been devised by these theorists: Creswell (2013), Quinlan (2011) and Crotty (1998). Epistemological and ontological frameworks should be considered by the researchers, claimed by Quinlan (2011) and Creswell (2013). However, ontological framework was not examined by Crotty (1998), but focused on the epistemological framework which should be considered by researchers. Quinlan (2011) perceives social constructivism as research paradigm, he argued; whereas, Crotty (1998) treated it as epistemology which can help in selecting the best suited research paradigm.

The implications of e-communication are evident in many multi-disciplinary areas, e.g. engineering, agriculture and marketing alongside many other sectors. Saunders, Lewis and Thornhill (2009) suggested that, in the area of e-communication research, both the epistemological and ontological paradigms can be safely grounded. Known and organised research studies of knowledge are acquired and approached by researchers in electronic communications have concerns in the context of philosophical assumptions, assert Wyssusek, Schwartz and Kremberg (2002).

Chua (1986), and Guba and Lincoln (1994) have defined four broad categories of research paradigms like: ontological, epistemological, anthropology and methodological assumptions where ontological assumption is related to the reality of being of phenomena or the theories of existence. Assumptions associated with the epistemological paradigm are linked to theories of knowledge where some concerning issues are emphasised and made known (King and Kimble, 2004). However, anthropology is about those assumptions which concern human nature, particularly environmental relationship with human beings. The fourth set of

assumptions are considered from the direct implications of the above three sets of assumptions and these are generally termed as methodological assumptions (Roode, 2007). Orlikowski and Baroudi (1991) suggest that, the way of investigating and acquiring knowledge of each of the assumptions has specific consequences.

A basic set of principles regarding the nature of an individual's position within it, has been accentuated by Guba and Lincoln (1994). Possible relationships between the world and other related parts were also shown by these researchers. The process of human inquiry is dealt with in the electronic communications based on the sound conceptualisation of presuppositions, opined Wyssusek, Schwartz and Kremberg (2002). This concept is recognised as research paradigms and these are usually researched under the terms, positivism, realism, interpretivism and pragmatism. Each of these research paradigms have some specific features and own position in regards to ontological, methodological and epistemological contexts (Guba and Lincoln, 1994). All these research paradigms have been briefly examined in the next section.

- **The Positivist Paradigm**

Myers and Avison (2002) asserted that, the positivism is an epistemological position and reality could be described as having measurable properties due to its objective features. These measurable features are not dependent on the observer or any instruments clarified by these researchers. Orlikowski and Baroudi (2002) stated that, any research paradigm could be positivist based on some characteristics like quantifiable measures, evidence of formal propositions, a phenomenon from sample to a stated population and testing hypotheses. Similarly, Fisher (2003) states that, a set of possibilities are held in positivism which can be studied in the natural world as objectivity. Furthermore, laws are being tried for the positivist to find causality through objective analysis.

Oates (2006) has pointed out positivism as the most popular and scientism researched paradigm. Positivism paradigm was founded by Auguste Comte (1798-1857) (Moore, 2010). Moore (2010) has mentioned that, the highest form of scientific knowledge is assumed in the positivism paradigm where this scientific knowledge is directly derived from studies that are of measurable and observable events.

Positivism paradigm indicates several specific principles and laws which could be revealed through observation. Various forms of positivism in formal professions, science and work cultures have been guided by philosophers like Descartes, Popper and Plato (Thornton, 1997).

Orlikowski and Baroudi (1991) claim that, the positivist studies have fixed relationships of premised theory and considered phenomena which are typically investigated with the help of a structural instrument. Moreover, for increasing the predictive knowledge of phenomena, the test of theory is generally served by the (positivists) studies. Positivist studies start from the sample to the stated population; these can be classified based on the evidence related to formal propositions, test of hypotheses, quantifiable measures and drawing of inferences (Orlikowski and Baroudi, 1991).

General theories are employed in the positivist paradigm to generate propositions and these are termed as hypotheses. Hypotheses are replicable subjects to empirical testing and should be testable for falsification and confirmation. In the methodological level, controlled laboratory experiments and large-scale sample surveys are treated as the most suited research methods. Through manipulation of statistical procedures and research design, data collection and analysis can take control within a certain level in this paradigm (Orlikowski and Baroudi, 1991; Chua, 1986).

- **The Interpretive Paradigm**

Klein and Myers (1999) stated that, research related to information systems can be treated as interpretive if knowledge associated with the research, could be gained only through documents, tools, language, consciousness, shared meanings and other artefacts. Orlikowski and Baroudi (1991) expressed the view that, one of the main aims of the interpretive research is to understand specific social groups and their interactions; in relation to: the beliefs, meanings and intentions to constitute their social action.

As highlighted by Chua(1986) and, Orlikowski and Baroudi (1991), in the interpretive research, there is a deeper structure of a phenomena trying to be understood

instead of generalising a population from a research setting. Despite this, it is believed that, other settings could be informed by interpretive research. Eri (2012) believes in a scholarly point of view; interventionism could be a solution-oriented research approach and it is treated as pragmatic whereas; problem solving strategies are followed from a practitioner's point of view. In this case, project design is preferable to research design. Researchers do not confine their research activity; this is one of the main characteristics of an interventionist approach where the researcher would seek to change the situation encountered. Different methodologies could be combined with constructivism and realism in terms of the above discussion.

Hussey and Hussey (1997) stipulated that, to comprehend human behaviour in reference to the respondent's own frame is one of the main concerning issues for the interpretive paradigm. Complexity of human sense making is also focused on within the interpretive paradigm (Lee, 1991). Rather than measurement of social phenomena, the meaning of any event is emphasised in the interpretative paradigm (May, 1998). According to Lee (1991), opposite approaches appeared in regards to the features of the positivist and interpretive paradigms where positivist approach claimed as truly scientific paradigm; and interpretive approach treated as the study of natural science. Likewise, the positivist approach employs quantitative data collection with large number of participants whereas; qualitative data collection employed in the interpretative approach with limited respondents (Myers, 1997; Straub, Gefen and Boudreau, 2005).

- **The Realist Paradigm**

Among large number of researchers, the realism paradigm has become popular due to increasing criticism on the positivist's idea of truth, absolute reality, measurable and verifiable issues (Maxwell, 2012). Moreover, several paradigms like critical theory and constructivism have worked as strong adversaries to positivism; as a result, the realism paradigm gained a considerable number of proponents, like: Guba (1990); Corbetta (2003); and Moses and Knutsen (2012). The realism paradigm could also be discussed from ontological, epistemological and methodological contexts.

Referring to the realist ontology, Moses and Knutsen (2012) claimed that, scientific realists are also convinced like their naturalists counterparts, in the existence of a connection between elements of which the world consists and it does not depend on observations, research, overlooking or ignorance; the realists admit to constructivists. However, in realist epistemology, truth about the objective reality could be found out, believed by the scientific realists, attests Guba (1990). Likewise, the understanding of reality and direction perception could be hampered by the clandestine nature of one or another truth and by the world's complexity. Additionally, intellectual mechanisms and human sensory could not be relied upon acknowledged by the scientific realists (Guba, 1990).

Moses and Knutsen (2012) specified that, the realist methodology, objective reality and truth are strongly believed-in by the realists; that they focussed on the quantitative methodologies by carrying out experiments, standardising questionnaires and surveys for data collection. To find out the possibly buried truth and to match the depth of the studied phenomena; the realist scientists use the qualitative data collection procedures; by doing so, they acknowledge the imperfection of objectivist paradigms. Many different data sources and methods tended to use scientific realists for keeping the inevitable biases as low as possible (Guba, 1990).

- **The Pragmatism**

As claimed by Pansiri (2005), "Pragma" means action, this is a word from where pragmatism originally derived and it is the central concept of pragmatism. According to the pragmatist philosophy, human actions can never be detached from beliefs and past experiences. Thus, these actions are intrinsically associated with human thoughts. Based on possible consequences of actions, people take further action and the results of these actions are used to predict similar actions in the future. Due to the consequences of the beliefs and human actions, pragmatism philosophy is contended by many researchers. Pragmatists argued that, in every turn of events reality could be changed and it is not static at all. Likewise, the world is in a constant state of becoming and not also static. Eventually through actions the world also changes and action is the way to change existence and have the role to an

intermediary. Hence, in pragmatism, actions have been considered pivotal by a number of researchers (Goldkuhl, 2012; Maxcy, 2003; Morgan, 2014). Instead of nature of reality, Morgan (2014b) in his pragmatism approach emphasised on the nature of experience.

Pluralities of methods are embraced in the pragmatism research paradigm which is evident in many historical contributions (Maxcy, 2003). Tashakkori & Teddlie (1998) stipulated that, proposition is considered as the basement of the pragmatism paradigm where methodological and/or philosophical approach is employed by researchers that work best for the specific research problem that is being investigated. A number of researchers: Biesta (2010); Creswell, Vicki and Clark (2011); Johnson and Onwuegbuzie (2004); Maxcy (2003); Morgan (2014); Teddlie and Tashakkori (2009) showed the association between multiple-methods or mixed methods with pragmatism, whereas, instead of focusing on the methods, consequences of research and research questions were focused on. Creswell, Vicki and Clark (2011) added that, both formal and informal rhetoric could be employed in the pragmatism paradigm instead of getting involved in the continuous metaphysical concepts like reality and truth. Single or multiple realities could be accepted in the pragmatism paradigm that is open to empirical inquiry, claimed by Creswell, Vicki and Clark (2011).

- **Constructivism**

From both subjectivists and constructivists, the predominant objectivist paradigm has been heavily criticised. It could be noted that, in the beginning, things were not very easy for the constructivists (Pratt, 2009). To meet scientific quality criteria, the beliefs of the subjectivist approaches were rejected by the positivists because of their scientific exclusiveness. The different constructivists' sub-paradigms like social constructivism (Edwards and Potter, 1992), operative constructivism (Luhmann, 1997) and radical constructivism (Foerster, 1993) are followed in academic research.

The qualitative is most likely to be used by constructivists instead of quantitative method (Steinke, 1999). A typical range of qualitative research tools are used covering depth of knowledge than breadth by selecting precise sample in place of

large sample to draw a holistic picture of any situation (Bryman and Bell, 2007). Legitimacy and popularity of any dominant paradigm can influence the paradigm shift as it could be linked with specific issue. Also, discovering new knowledge could be another reason to be occurring a paradigm shift. As indicated by Martin *et al.* (2015), in more extreme cases own beliefs of the researchers could be abandoned because of new knowledge through which scholars can analyse research data for any narrowly defined case study.

- **Realism versus constructivism**

To eliminate revealed weaknesses, both realism and constructivism approaches tried to reduce key criticisms from their counterparts by refining their own approaches. Boyd (1992) criticised the objectivist methodologies due to its strong theory dependency and provided suggestions like classical objectivist methods which could be the initial preference, should deliberately accept their theory dependency. This notwithstanding, these methods should be included as subjects of investigation, warned Bryman and Bell (2007). Based on this achievement, the selected theory could be complemented and refined, and it should be adjusted with reality; and in the end, should develop subject-adequate methods. The above discussion shows that, the shape of everything between subjectivist approaches and predominantly objectivist, could be assumed by the realist research designs (Molla and Licker, 2005).

When looking at the epistemological and ontological credos, philosophical positions could be easily reconcilable. For example, adopting a constructivist stance relating to epistemology could be a realist on the ontological level, signifying the potential use of methods from the realist range (Crotty, 2013). Boyd's (1992) idea could be utilised in a number of social circumstances especially when anyone needs to select the best suited research design. Despite this, the planned evaluation of the impact of e-communication on Bangladeshi SMEs operational and financial performance is a typical example. Through human construction, social situations can come into existence which is one of the important beliefs of a typical constructivist, argued Searle, (1995). According to Papineau (1985), subjective views and perceptions of an observing and acting person could be supported by this mechanism.

Considering the complexity of the features of the research area, it could be said that, the realist methodology would resolutely lie on the qualitative side. Similarly, the idea of objectivity is not completely ruled out by the constructivists (Baxter and Jack, 2008). The objectivist approach could be suitable for some evolving questions in the research project development. After analysing the indistinct limits between constructivism and realism, the resulting overall approach could be treated as realist (Crotty, 2013). Nevertheless, based on the features of the study area, methodology could be levelled as a constructivist approach with some ingredients from realist and objectivists scales. The objectivist method was appropriate for this research by making the research questions narrow and addressing the single aspect of the impact of e-communication adoption by Bangladeshi SMEs.

- **Interventionism and constructivism**

Being a researcher and manager, the interventionist approach could be against his understanding, but would be strongly related to the research objectives. The researcher could rely on the information provided by the owners and managers of the Bangladeshi SMEs. Craig *et al.* (2008) indicated that, before intervening, the situation should be studied in the interventionist approaches which could be helpful to select the appropriate paradigm. Comparisons between constructivist and interventionist could be discussed from ontological and epistemological, types of data, skills requirement, advantages and disadvantages perspectives. In the light of the ontological context, constructivists are socially constructed in all aspects of a business process whereas; for the interventionist nature of reality is less important. The constructivist can achieve knowledge by understanding people's perception by following several processes of epistemology while, through the changing process within any organisation, knowledge could be created by the interventionist. To generate new knowledge, these people play the most important role as they are also involved in the changes of decisions (Lehmann, 2014).

Descriptive and qualitative data are used by constructivist and collected through interviews with different types of respondents. The constructivists use qualitative data which are generally collected through observation and interviews carried out by the researcher. For data collection, constructivist requires interpretation and interview skills by following narrative investigation techniques whereas,

interventionists work as facilitator and similar to constructivists, interpretation skills are required (Grix, 2002). The deep understanding of specific issues is one of the main advantages of the constructivist. High chance of practically useful insight is an important advantage of the interventionist. One of the disadvantages of the constructivist is that, the insights gained might not be possible to be extendable to other contexts. Specific hypothesis cannot be tested using the interventionist technique and as the results are open, it cannot be predicted (Pringle, 2011).

- **Result and concretisation**

To investigate any research subject, constructivist is one of the most efficient approaches and, subject-related data could be merged with the interpretivist approach, which could be used to analyse social situation intensively (Steinke, 1999). Mostly empirical methods are involved in this approach for data collection procedures, analysing data and summarising conclusions. The framework of ethnography could be one of the suitable interpretivist methodologies to observe different activities of any group like Bangladeshi SMEs without focusing on specific interactions. The grounded theory approach has been considered as a set of research methods by Glaser and Strauss (1967). To analyse the non-subject-specific day to day phenomena, Grounded theory has been designed (Steinke, 1999).

Certain overall structuring features are implemented in the interpretivist case study; especially a clearly defined sequence of research activities is required for the quantitative studies with reference to the selected topic (Bryman and Bell, 2007). However, for qualitative empirical studies, a fixed research design might not be suitable as it could be incompatible with the openness (Steinke, 1999). Research project structure should be flexible for the principles of openness which is strongly linked with qualitative method. For qualitative research, quality criterion is one of the most important factors; of course, it is also important for quantitative method. Without any normative reference system, constructivist research process could be haphazard and arbitrary; and this danger could not be overlooked even though it could be contradictory to the perception of a construct social world (Steinke, 1999). For self-evaluation and orientation, the implications of the constructivist stance need to be integrated with quality criteria. Recommendations from the literature review could be

used to build a multitude of quality framework (Steinke, 1999). The constructed framework could be revised because of the changes in behaviour of the constructivist studies.

- **Justification of the Selected Research Paradigm**

Ontologically, it is assumed from positivist approach that, physical objective (Bangladeshi SMEs) and interactions with e-communications are independently existed and whose characteristics could be relatively apprehended, unproblematic, measured and characterised (Orlikowski and Baroudi, 2002). Specific sample model and large scale sample surveys are generally employed when carrying out any research that leads to positivist approach and in most cases, it leans towards the epistemological and ontological tenets in most scholarly activities linked to e-commerce adoption (Chen and Hirschheim, 2004). To produce facts and figures a certain amount of control is allowed for researchers over the data collection and analysis (Molla and Licker, 2005; Oates, 2006).

The positivist approach in the e-commerce adoption by SMEs was favoured by many studies aligning with objective reality assumption which could be methodically quantified and modelled; statistically tested and measured. Perception based behavioural models have been included in several studies like Technology Acceptance Model (TAM) devised by Davis (1989) used by Mukti (2000); Cloete, Courtney and Fintz (2002); Uzoka, Seleka and Shemi (2007), PERM was developed by Molla and Licker (2005) in the context of developing country by combining the DTI (Rogers, 1995) and the TPB theories.

The factors that hinder Bangladeshi SMEs from adopting e-communication facilities have been investigated in this research. Consequently, the performance of the Bangladeshi SMEs has also been analysed considering the e-communication gaps and e-communication adoption effect. Therefore, this requires addressing the issues of minimising the gap not only by the service providers and the government but also by the Bangladeshi SMEs themselves. This research targets to come up with some recommendations related to e-communications formulated by the service providers (the banking industry respondents), government representatives, and SMEs. The

mixed methods have been followed to perform all necessary tasks and to collect the required information.

Considering the objectivity the subjectivity, pragmatism research philosophy (Mingers, 2003) have been employed. This research has been conducted considering two phases and in one of the phases the survey technique has been utilised by following the OCAI model (Cameron and Quinn, 1999) to collect primary data from Bangladeshi SMEs.

To observe the reality, the interpretive paradigm could be followed and one of this approach's strengths is that, both the researcher and research phenomena are closely involved during the research activities (Walsham, 2006) where certain issues are allowed by a qualification that might not been captured easily by some expression of words or in a controlled instrument. The interpretivism research philosophy tried to be adopted in the second phase of the research and it has been carried out from some experiences and ideas to establish new theoretical idea or conceptual model. Ultimately, the pragmatism paradigm has been employed. For this phase, in-depth information is gathered from the Bangladesh banking industry representatives using semi-structured interview procedures. This phase of the study has been conducted in considerations of several theories such as the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) and institutional theory of intervention (King *et al.*, 1994).

However, neither positivist nor the interpretive paradigm was able to support this research individually to be efficiently carried out but led to another paradigm, the pragmatism which guided this research completion. Morgan (2007) claimed that, in many cases, social scientists not only privilege epistemology over methodology but also they place heavy emphasis on ontological issues. Instead of focusing more interests on epistemological issues, social scientists are debatable as epistemology is primarily a philosophical field of inquiry. Methodology should be focused on as argued by many pragmatists and some researchers emphasised on both methodologies which are related to the research itself, and epistemology, which is the warranted beliefs that influence how the research conducted Morgan (2007).

To acquire objective knowledge, examining empirical evidences and hypothesis testing are focused on by the positivist researchers and constructivists emphasised on relative knowledge by indicating the complexity of reality, whereas; pragmatists underline the continuum process of acquiring knowledge rather than two opposing and mutually exclusive poles of either objectivity and subjectivity, as stated by (Goles and Hirschheim, 2000). Hence, in terms of the mode of enquiry, the pragmatism is positioned somewhere in the centre of the paradigm continuum. Quantitative methods and deductive reasoning are typically supported by the post-positivism paradigm, whereas; inductive reasoning and qualitative approaches are emphasised in the constructivism; however, these both extremes are embraced in the pragmatism and offers a reflexive and more flexible approach to research design (Pansiri, 2005; Morgan, 2007; Feilzer, M, 2010).

Research questions could significantly contribute by mixing qualitative and quantitative research and it is one of the foremost arguments in favour of pragmatist approach. In adopting this stance, to address the research question efficiently, the pragmatist researchers have flexibility to select the best suited methodology and research design. Abductive reasoning is typically associated with pragmatism paradigm which can move back and forth between induction and deduction. The researchers could be actively engaged in this way to create data and theories, strongly claimed by Morgan (2007) and Goldkuhl (2012). However, according to Teddlie and Tashakkori (2009), the best method for pragmatists is the one that is most effective in preparing the anticipated consequences of the inquiry, whether it is a single method, a mix of methods or multiple methods.

3.2 Research Methods and Sampling Techniques

Myers (1997a) suggested that, depending on the research problems and research questions, data characteristics could be numerical, in-depth or mixed. Quantitative responses are composed and summarised in numeric figures to be informative about research issues such as types of organisations, number of employees in the organisation straight forward. Contrary to this, in the qualitative method, responses are recorded by comprised words or group of words, taking photos or images, collecting audio information or by implementing other forms of contemporary data

reservation system. To obtain one's own understanding and for the understanding of SMEs and interpretation of e-communication adoption the words have been deeply analysed.

For specific research design, sampling technique is considered as one of the most important aspects where a set of respondents are selected from a large population (Kurtz and Mackenzie, 2010). In addition, failing to select the appropriate set of respondents for a specific research could lead to irrelevant results. The probability and non-probability are the two main sampling techniques used in academic research (Kurtz and Mackenzie, 2010). Rubin and Babbie (2001) highlighted that, the group of people from where the sample is drawn is known as the population and they consist of similar features. SMEs of Bangladesh especially from Dhaka division are the targeted population of this study.

Neuman (2003) argued that, for a research, choosing the appropriate unit of sample is vital because the data analysis mechanisms are depending on the unit of sample for specific research. In this study, the unit of sample is the SMEs and their present situation relating to the adaptation and impact of e-communication on their performance. It is very difficult to include all members of the targeted population due to various constraints like: financial cost, time, manpower etc. Therefore, a small segment of the population has been selected that reflects the general characteristics of the entire population. Neuman (2003) also suggests that, by studying a small segment of population for examining a specific number of factors can help to generalise the results for the total population.

- **The Quantitative Research Method and Sampling Technique**

The quantitative research method is strongly associated with the positivism research philosophy and concerned with collection of quantifiable data using various research techniques like structured interviews and survey questionnaires. After collecting and arranging quantitative data, researchers can analyse using statistical tools and can compare the results with other similar research. Bryman and Bell (2007) argued that, comparison of different results assist researchers to recognise hidden forms in the data sets; it can also provide foundations for future research works.

According to Jonker and Pennink (2010), the results based on the numerical perspectives such as, statistical data analysis are described in the quantitative method. Moreover, to increase the reliability, statistical tests are used to analyse quantitative data, stated by Hardy and Bryman (2009). It is also known as the traditional method where research results could be presented by using the statistical representations, tables, diagrams or graphs (Cottrell and Mckenzie, 2011). More importantly, the quantitative research method is concerned to analyse only valid and accurate data (Jones III and Gomez, 2010) with objectivity studying of social phenomenon and relatively less time consuming and expensive to conduct in comparison to the qualitative research method.

The quantitative instead of qualitative research method for collecting data from Bangladeshi SMEs has been followed in this research. The researcher has used the survey technique to identify the present e-communication availability and various e-communication requirements of SMEs and it was more efficient than any other techniques. The research survey has been developed targeting the managers/owners of SMEs. This method is useful to identify the present situation of e-communication among SMEs and its problems and gaps. Furthermore, having a strong understanding of the present situation of the e-communication adoption by SMEs has helped the researcher in developing original research ideas related to the subject. The quantitative research method has been followed for the survey part of the research because it is the most efficient way to gather information from more than 400 respondents who are managers/owners of Bangladeshi SMEs.

The survey questionnaire for SMEs is divided into these two groups; one group has already adopted e-communication facilities and the other group is yet to be adopted. The data obtained from these two groups are used for measuring the performance of SMEs in the context of e-communication facilities. Types of businesses, reasons for adopting e-communication facilities, way of dealing e-communication facilities and effectiveness of the e-communication facilities have been emphasised in the e-communication adopter's survey questionnaire. In the non-adopter's survey questionnaire, types of organisations, reasons for not adopting e-communication facilities and barriers for not adopting e-communication facilities are emphasised. The data collected from both groups are tested for their statistical significance. For

these reasons, quantitative method was the best suited for the survey part of this research.

The estimated sample size of the research is based on the number of assumptions made in the study. It may not be possible for the researchers to predict the future conditions of the study but calculation can depict estimation. To calculate the sample size, seven essential steps are followed concerning the end point of the research predicting essential data and statistical test. The significance of the statistical data and approximation of the expected unpredictability are importantly considered in sampling quantitative data. To identify the maximum acceptable risks and utilising these suitable calculations are the main concerning issues of quantitative data sampling (Monsen and Horn, 2008).

The researcher has collected quantitative data from 470 Bangladeshi SMEs (E-communication adopted: 220 and not yet adopted: 250), from Dhaka division considering each type of SMEs listed by the Ministry of Industry of Bangladesh (2013).

- **The Qualitative Research Method and Sampling Technique**

In comparison with quantitative, qualitative research method is concerned about the gathering of data which are related to the opinions, experiences, feelings and judgements of the respondents who are directly involved in the environment which is being studied (Jonker and Pennink, 2010). Denzin (2000) indicated that, qualitative data collection can be done through several research methods: unstructured interviews and observations. Therefore, the objective of the qualitative research is to comprehend a specific social context through examining the explanations of its participants. Bryman and Bell (2007) also argued that, to gain in-depth knowledge about social phenomenon, it is vital to understand the culture including different perspectives of people who are involved in research areas. Also, Layder (1993) claimed that, some researchers and writers believe that, the quantitative and qualitative methods are fundamentally different because of data type but their targets are the same which is to evaluate the research outcomes.

The qualitative research method can provide in-depth understanding about the e-communication situations among the Bangladeshi SMEs and the efficiency of the

strategies of the service providers. In-depth semi-structured interview is one of the key qualitative data collection methods that have been used in this study. This method has been employed to interview the banking industry representatives, involved in this research. Walsham (1995) stated that, the semi-structured interviews are considered as a method that is used within research based on the interpretive research philosophy. Moreover, using interviews allow researchers to know the respondent's ideas about the subject being studied. In the beginning of the study, interviews were conducted and targeted the service providers (the banking sector) representatives, who are in fact capable of providing detailed information about the present situation of e-communication adopted by Bangladeshi SMEs. The qualitative research method for this research was highly implicated for the banking industry representatives of Bangladesh because only this approach has helped to reveal the in-depth information related to e-communication facilities for SMEs.

The researcher planned to use non-probability sampling technique to select sample to collect qualitative data. As discussed earlier, sampling techniques and the subjectivity of the researcher will affect the selection of the sample (Patton, 2002). Non-probability sampling does not look for generalisation because it mainly emphasises on the individual experience rather than the collective opinions (Frankfort-Nachmias and Nachmias, 1996). Some of the researchers such as, Bowling (2002) used this method considering a good subject knowledge in the research area. The researcher also planned to examine the government roles and the banking industry's strategies by collecting data respectively from the representatives. Interviews have been conducted with the banking industry representatives (Bangladesh Bank, 2013) because these banks are directly related to provide various e-communication facilities for Bangladeshi SMEs. To select the key participants such as, the service providers (the bank representatives), non-probability sampling technique (Neuman, 2003) has been employed in this study which helped the researcher to focus on the most suitable respondents.

- **The Justification of Research Methods and Sampling Techniques**

To carry out this research, the primary data have been collected by using both quantitative and qualitative means mixed methods. Benbasat, Goldstein and Mead

(1987) highlighted the importance of using mixed research methods when researchers have concerns about carrying out case studies. Eisenhardt (1989) expressed that, employing mix research methods would facilitate triangulation, which could help to prove different theories derived through the research. In addition, Yin (1994) observed that, triangulation is a process where a same problem examined by different types of data; this process can help researchers to look at the same phenomenon from different angles. Moreover, this can help to generate highly accurate and reliable research results.

Meyer and Rowan (1977) argued that, the selection of research method is dependent on phenomenon and study problem. However, the use of mixed methods can be valuable, and mutual information could be integrated considering the different types of respondents e.g. SMEs, service providers and government representatives. Furthermore, it is suggested by Kaplan and Duchon (1988) that, using mixed method robust insights of any research could be revealed, that is limited for a single method. Multi-level analysis and research questions could be associated using mixed methods (Creswell, 1998). Likewise, new insights of any research could be encouraged by creative and broadening features of mixed methods (Mingers, 2003). After considering these issues, the researcher has decided to select mixed methods with the support of the pragmatic approach instead of a single method because of the different data types and information.

The researcher travelled for the data collection of survey questionnaires from SMEs of Bangladesh and the service providers that are associated with the adoption of e-communication facilities from the banking sector. According to Jones (2000) integration of qualitative and quantitative research could lead to some challenges because they are from different theoretical backgrounds and paradigms. This researcher also argued that, there is a philosophical problem and practical results in the choice of mixed method which can affect the result of the study that has been investigated. The impact of e-communication on SMEs' has been evaluated by employing both qualitative and quantitative methods along with the explanatory research design to investigate the factors which influence SMEs adoption of e-communication. Contrary to this, exploratory research design has been followed to gather in-depth information from the banking industry respondents of Bangladesh. Finally, this research has also identified the obstacles for SMEs encounter in the

adoption of e-communication facilities from the Bangladeshi SMEs and bank representatives' views.

According to Baines and Bal (2002) assurance of results and statistical significance of the data could be affected by the size of the sample selected for any particular research but there is no specific right or wrong size of sample. However, the selected sample size needs to reflect the true nature of the populations from where it is drawn (Cohen, Manion and Morrison, 2000). To reveal the research outcomes appropriately, probability as well as the non-probability sampling has been followed in this research. It is suggested by Leedy (1997) that, non-probability technique can be utilised in quantitative research and highly dependent on availability and accessibility of correct information about the populations and probability sample can be followed for qualitative research. One advantage of non-probability method is the capability of providing a good insight and reliable information about the targeted population (Cohen and Manion, 1994). The financial and time constraints have influenced the researcher to select the sample of Bangladeshi SMEs from Dhaka Division only which includes owners and managers.

3.3 Research Approach

Saunders, Lewis and Thornhill (2009) described two types of research approaches; these are the deductive and inductive, which are mainly employed in academic research and these have been briefly presented below.

- **Deductive Approach**

Theories or hypotheses could be developed by the help of the deductive approach and these could be tested through empirical observation. The deductive approach is treated as one of the most suitable approaches to assess and test the validity of any theory, claimed by Crowther and Lancaster (2008). From general principles, a specific conclusion could be made by utilising the deductive approach. However, Krishnaswamy, Sivakumar and Mathirajan (2009) argued that, not truth but validity is analysed in the deductive approach. Additionally, to test the research hypotheses, various statistical tools are employed in the deductive approach.

- **Inductive Approach**

Crowther and Lancaster (2008) stressed that, in the inductive research approach, developing theories and providing explanations considering the empirical world are the most important features. It was also stated by Krishnaswamy, Sivakumar and Mathirajan (2009) that, from the evidence, the inference is drawn within an inductive approach in the form of conclusions explaining facts or evidence. The inductive approach is stated as the process of generalisation by Dane (2010), where specific information is applied for general situation targeting future events.

- **The Justification of Research Approaches**

The researcher has conducted two surveys for this research to gather information from the Bangladeshi SMEs. One of the surveys have been conducted among the Bangladeshi SMEs which have already adopted e-communication facilities and a second one has been conducted among those SMEs which have not yet adopted this facility. During these surveys, data have been collected using a set of structured questionnaires. The collected data from the Bangladeshi SMEs were tested for statistical significance by using the SPSS software considering the goodness of fit value. Moreover, all the data are presented graphically using Microsoft Excel and WordPad. As the survey data are very structural formatted and can be presented numerically and graphically, so the deductive approach was the best suited approach for this phase.

For in-depth information related to the service providers' strategies in the context of e-communication facilities are collected using semi-structured and face-to-face interview procedures. These collected data have been analysed using a case study strategy. From the service providers, 22 of the participants (the banking industry representatives) were selected. As in-depth information has been collected using interview procedure, the inductive was the best suited approach for this phase of the study. In one of these phases (With Bangladeshi SMEs) the research used the deductive and, in another phase (Bangladesh banking industry representatives) of the research, inductive approach has been followed. After discussing these, it is evident that, the pragmatic approach has been followed in considerations of the research objectives with the support of both deductive and inductive approaches.

3.4 Research Design

According to Saunders, Lewis and Thornhill (2009), changing the research objectives and research questions into a research project, is the main aim of a research design. Some issues such as research strategies, time horizons and research approach are highly considered within the research design. In the research design, a set of contextualised guidelines are emphasised based on several assumptions and considerations, Jonker and Pennink (2010) argued. Furthermore, it connects theoretical notions and elements for collecting empirical materials supported by relevant methods and techniques. There are different types of research designs used in academic research and among them the descriptive, exploratory and explanatory are mainly the designs followed in the contemporary research (Housden, 2008).

- **Explanatory Research Design**

In the explanatory research design, 'why and how' of the research phenomena are answered through hypotheses and theories, opined Krishnaswamy, Sivakumar and Mathirajan (2009). Dane (2010) observed that, this research design is comparatively easier to understand and apply than other approaches. Moreover, McNabb (2010) claims that, in any field, this design could be used to produce a cumulative stream of knowledge. In addition, to gather fundamental information about research issues, contributing factors and other relevant influences, explanatory research design is used efficiently.

- **Descriptive Research Design**

Dane (2010) stipulated that, any particular phenomenon is tried to be defined or measured in the descriptive research design where any attempt is taken to estimate the strengths and intensity of behaviour. This research has also highlighted that, descriptive research design is used to assess the exact on-going issues of any research. Likewise, Krishnaswamy, Sivakumar and Mathirajan (2009) defined the descriptive research design as 'the fact finding' by the support of adequate interpretations. Housden (2008) suggested that, in the descriptive research design generally data collection is involved only once in a time following cross-sectional time horizon. According to Kothari (2009), survey methods of all sorts including

comparative and correlation methods are also followed in the descriptive research design.

- **Exploratory Research Design**

In the exploratory research design, a specific problem is tried to be sorted out by the help of the in-depth information, attests Kurtz and Mackenzie (2010). Housden (2008) believes that, the research question to be answered is identified and defined by the exploratory research design and it intends to initiate insight or ideas by providing directions for further research. Saunders, Lewis and Thornhill (2009) stressed that; the exploratory research design could be very useful if the precise nature of any research problem is unsure.

- **The Justification of the Selected Research Designs**

In this research, both explanatory and exploratory designs have been employed. The research examines the Bangladeshi SMEs, the service providers and government; and because of this, the researcher travelled to Bangladesh several times to collect primary data. To get in-depth and broaden information, exploratory design (Creswell, 1998) was best suited for this research whereas; explanatory research design has been implemented for analysing single truth (Saunders, Lewis and Thornhill, 2009). Both explanatory and exploratory research designs have been used in this research to analyse single truth (survey data from SMEs) and also to gather in-depth information (interview) from the banking industry representatives respectively.

Based on the main issues of this research such as, impact of e-communication, performance of SMEs, commercialisation strategies of the service providers and roles of government, a case study has been constructed. Considering these respondents, several specific theories like the theory of disruptive innovation (Christensen, Anthony and Roth, 2004), institutional intervention techniques (King *et al.*, 1994) and a cultural model (Cameron and Quinn, 1999) have been employed.

With regards to the first research objective, to investigate the factors which hinder SMEs to adopt e-communication facilities, e-communication and e-communication gaps, SMEs in different country perspectives, benefits of e-communication adoption by SMEs and other relevant factors have been analysed in the literature considering a number of contemporary scholarly activities. Consequently, the organisational

culture of the SMEs especially the OCAI model (Cameron and Quinn, 1999) has exhaustively been discussed (Chapter II). To investigate the factors that hinder Bangaldeshi SMEs from adopting e-communication facilities, two sets of survey questionnaires were devised for those who have already adopted and for those who have yet to adopt the service (Appendices A and B).

A number of factors such as, the position of the respondents in the organisation (Survey Question 1), IT background (Survey Question 2), whether they are the decision maker (Survey Question 3) and educated from abroad (Survey Question 4), and nature of the SMEs (Survey Question 5) have been considered for both e-communication adopters and non-adopters. Number of employees (Survey Question 6), duration for using e-communication facilities (Survey Question 7), reasons for using e-communication facility in regards to easy access, reliability, secured payment, cost, mobility and other features (Survey Question 8) have been included in the survey questionnaire for e-communication adopters. In addition, reasons for not adopting e-communication facility in the context of higher price, business types, security issues, inconvenient and unknown issues (Survey Question 7) have been included in survey questionnaire for e-communication non-adopters.

Factors like: cost of the service, security reasons, non-suitability with the business, lack of technology and non-availability of the service (Survey Question 8) that can hinder SMEs to adopt e-communication facility have also been included in the survey for e-communication non-adopters. Furthermore; the most important factors: e.g. cost, funding facilities, assurance of security, training for using e-communication facilities and support from the service providers (Survey Question 9) that can help to adopt e-communication facilities have been considered. Norms, beliefs, education level and attitudes of the owners/managers who are thought to be responsible to adopt of e-communication facilities have been included in both survey questionnaires for e-communication adopters (Survey Question 22) and non-adopters (Survey Question 14). The dominant features of the organisational culture of SMEs, success criteria, employee engagement and strategic emphases have also been added in both survey questionnaires (Adopters Survey Questions 25-30 and non-adopters Survey Questions 17-22).

Research findings from SMEs have been summarised in the Quantitative Findings and Interpretations section (Chapter IV). In considering the first research objective, one of the research hypotheses (Hypothesis 1) has been constructed (Chapter III) and it has been statistically tested in Chapter IV. Finally, research findings from Bangladeshi SMEs in regard to the factors that hinder them from adopting e-communication facilities have been compared with existing literature and concluded in the Discussion and Analysis section (Chapter VI).

For the second research objective, contemporary literature have been analysed in the literature review section (Chapter II, 2.8) to explore the impact of commercialisation strategies of the service providers, based on the theory of disruptive innovation, avers Christensen, Anthony and Roth, (2004). Four dimensions such as convenience, customisation, cost of use and perceived ease of use of the theory of disruptive innovation have been stressed in considering of the service providers' (the banking industry) strategies.

To analyse the convenience dimension, findings on flexibility of e-communication adoption (Appendix D, Interview Question 2), customer satisfaction in terms of compatibility (Appendix D, Interview Question 9), advantages of e-communication services (Appendix D, Interview Question 1) and quality of the service (Appendix D, Interview Question 8) have been summarised in Chapter V. Customisation has been analysed in the context of simplicity of e-communication adoption (Appendix D, Interview Question 11) and technical capability to use e-communication (Appendix D, Interview Questions 7 and 10) (Chapter V). Pricing of the service (Appendix D, Interview Question 5), awareness of consumers' need of low price (Appendix D, Interview Questions 5 and 6), policies to attract consumers (Appendix D, Interview Question 6) and awareness of other competitors have been emphasised for the cost of use dimension. Perceived ease of use dimension has also been summarised in Chapter V. Findings from the service providers (the bank representatives) for the dimensions of the theory of disruptive innovation have been compared with existing literature and conclusion has been made in the Discussion and Analysis section (Chapter VI, 6.2).

To explore the impact of government's policies to influence the Bangladeshi SMEs for adopting e-communication facilities; institutional theory of intervention (King *et al.*,

1994) and it's all the dimensions have been analysed in the literature section (Chapter II, 2.9). The roles of government have been explored in consideration of subsidy, innovation directive, standard setting, knowledge building, knowledge deployment and mobilisation. To analyse all the dimensions of the institutional theory of intervention, findings from Bangladeshi SMEs, the bank representatives and government website have been compared with scholarly activities and presented in the Discussion and Analysis section (Chapter VI, 6.3).

To evaluate the impact of e-communication adoption on Bangladeshi SMEs' performance, contemporary secondary sources have been focused on in the literature section (Chapter II, 2.10). The hypothesis on e-communication adoption and SMEs' performance; and correlation between e-communication adoption and performance of the Bangladeshi SMEs have been presented in the Quantitative Research Finding Section (Chapter IV, 4.3). The impact of e-communication adoption on SMEs' performance in consideration of the service providers' opinion has been summarised in the Qualitative Research Findings (Chapter V, 5.3; Interview question 16). Finally, the impact of e-communication has been evaluated from different perspectives in the Discussion and Analysis section (Chapter VI, 6.4).

For the fourth research objective, a preliminary conceptual model has been devised which aims to increase the rate of e-communication adoption of the Bangladeshi SMEs where four hypotheses have been highlighted. The first hypothesis is related to organisational culture of the SMEs, the second one is related to commercialisation strategies of the service providers; the third hypothesis is related to the government roles, and the fourth hypothesis is related to e-communication adoption of SMEs' performance. Combining all these hypotheses, a conceptual framework has been devised (Chapter III). Subsequently, these hypotheses have been tested (Chapter IV) and an enhanced framework has been developed (Chapter VI) in comparisons of the research findings and existing literature.

3.5 Research Strategy

According to Remenyi *et al.* (2003), in the research methodology, research strategy is one of the important components that provide overall direction of any research including the procedures how that would be carried out. Saunders, Lewis and Thornhill (2009) defined the research strategy as a general plan of how any researcher goes about answering the selected research questions. Bryman (2008) stipulated the research strategy as a general orientation to conduct any research. Saunders, Lewis and Thornhill (2009) highlighted that, based on a number of factors such as, amount of time allocated, the extent of existing knowledge on the subject area, research question and objectives, the philosophical underpinnings of the researchers and resources available, appropriate research strategy has to be selected.

Adopting a different approach, three conditions have been recommended by Yin (2003) prior to selecting any specific research strategy and those conditions are: type of research questions, the degree of focus on historical or contemporary events and the extent of control the investigators have over actual behavioural events. Although a number of research strategies exist, they could be overlapped among them, acknowledged by both Yin (2003) and Saunders, Lewis and Thornhill (2009). Hence, the most advantageous strategy for any specific research should be selected by researchers. Some of the common strategies used in management and business are action research, case study, survey, experiment, archival research, ethnography, grounded theory, participative enquiry, longitudinal studies and cross sectional studies (Collis and Hussey, 2009; Saunders, Lewis and Thornhill, 2009; Easterby-Smith, Thorpe and Jackson, 2008).

- **Experiments**

Ross and Morrison (2004) defined the experiment as a research methodology that is typically associated with the positivist paradigm in which, holding all the conditions constant, standardised procedures are used except in the case of the independent variables. Kaplan and Duchon (1988) explained that, especially in a controlled environment or laboratory, experiments are taken place. In real-life or natural setting, it is not possible to hold any variable constant in the current study where the operational and financial performance of the SMEs planned to evaluate because of

e-communication adoption. Moreover, the impact of the gaps of the e-communication facilities on Bangladeshi SMEs cannot be subjected to laboratory conditions and because of this reason, the experiment strategy is dismissed.

- **Surveys**

Pinsonneault and Kraemer (1993) expressed the view that, in the advanced scientific knowledge and also in the positivist tradition, the survey research strategy is usually utilised. In the survey strategy, after considering all the aspects of a specific phenomenon, a standardised sample is defined. According to Oates (2006), there is no existence between the survey strategy and the subject, and this approach is strongly linked with statistical procedures to test research hypothesis for generalising research outcomes. The objectives of this study are not suitable for the nature of the survey strategy because social interaction between the SME managers and the researcher is essential. Furthermore, in the survey strategy, generalisation of findings is considered as the vital criteria, but this study is firmly anchored on theoretical propositions.

- **Ethnographies**

Avison and Pries-Heje (2005) declared that, generally in the interpretive paradigm the ethnographic research strategy is applied whereby a long time is spent to study social issues. Myers (1997) claimed the ethnography as one of the most in-depth research strategies where researchers are involved observing people's life and culture for a long period of time. Additionally, socially constructed meanings are derived from this strategy from the interactions between participants and the researcher. The ethnography is dismissed for this study because of the time constraints.

- **Action Research**

As stipulated by Avison and Pries-Heje (2005), the action research is associated with the interventionist approach; they claim that, this approach acquires scientific knowledge by collaborating the participating organisations and the researcher. Roode (2007) suggests that, in the action research strategy, mainly two stages are involved; the first stage is about the diagnostic and the second stage is about the

collaborative change experiments. Considering the research domain, hypotheses are constructed in the first stage and collaborative change is experimented in the second stage. Top-level commitment from participating organisations is required in the action research to evaluate the impact of e-communication on SMEs' performance. However, by the interventionist perspectives of the action research strategy, the research condition cannot be satisfied and so; action research strategy has not been implemented in this research.

- **Grounded Theory**

The grounded theory strategy was proposed by Glaser and Strauss (1967) in 1967 for developing a theory, which is grounded in data. Urquhart, Lehmann and Myers (2010) described four distinctive characteristics of the grounded theory. Firstly, to form a theory is one of the main strategies of the grounded theory. Secondly, during the construction of any specific research hypothesis, prior knowledge should not be led because emergence of ideas could be hindered by preconceived theoretical ideas. Thirdly, joint data collection and constant comparisons are engendered in the grounded theory strategy (Urquhart, Lehmann and Myers, 2010).

- **Case Study**

A case study is nothing but a phenomenon of some sorts, which generally occurs in a specific bounded context (Miles and Huberman, 1994). Yin (1994) has pointed out some conditions of a case study strategy, just as it helps when answering why and how questions. Moreover, there is very little control for the researcher over events in this strategy. The case study strategy generally focuses on contemporary events within real-life context considering the limitations between context and phenomena but in many cases, boundaries could not be evident clearly. In addition, within the case study strategy, numbers of sources of evidence are employed. The case study research strategy has been classified into three categories such as, the critical (Myers, 1997a), the interpretive (Klein and Myers, 1999; Myers, 1997a) and the positivist (Yin, 1994).

Multiple or single case study strategy could be followed in any research paradigm. Nonetheless, for easy understanding and providing rich descriptions, a single case

study strategy should employ and this can be used for investigating research phenomena in depth. For more than one context or case generally multiple case study strategy is followed (Baxter and Jack, 2008). The case study research strategy can provide a clear idea about the interaction between new innovations and involvement of the targeted organisations. This study has followed a multiple case study approach to provide in depth understanding of e-communication adoptions by Bangladeshi SMEs.

- **The Justification of the Selected Research Strategy**

This research sought to adopt the case study strategy from these various strategies which is the best fitted strategy in considerations of the research objectives and paradigms. According to Yin (2003), case study strategy is associated with empirical inquiry where contemporary phenomena are investigated within real-life context, especially when the boundaries between context and phenomenon are not clearly evident. Scopes of case study research are covered in this part of Yin's definition, whereas; a range of characteristics are covered in the second part. In the real-life, context and phenomenon are not always distinguishable, acknowledged by the first part of the definition. In the second part, technical characteristics are included by Yin (2003) which clearly indicates that, technically distinctive situations are dealt with by the case study strategy which relies on multiple sources of evidence, and benefits from prior development of theoretical prepositions to guide data collection and analysis.

A case study strategy could be adopted as the preferred research strategy if the context and phenomenon are not readily distinguishable, identified by Yin (2003). In line with Yin (2003), Dul and Hak (2008) added that, in the case study strategy one single case or a number of cases are selected in a real-life context and scores obtained from these cases are analysed in a qualitative manner. Although Yin (2003) and Dul and Hak (2008) focused on the contemporary phenomenon of the case study strategy, Eisenhardt and Graebner (2007) pointed out the historical features. All these were put forward by Collis and Hussey (2009) and they treated a case study as a methodology which could be used to explore a single phenomenon in a natural setting by employing a variety of methods to acquire in-depth knowledge.

Consequently, it is evident from these researchers that different techniques could be accommodated in the case study strategy to obtain in-depth knowledge about a particular phenomenon. Subsequently, both quantitative and qualitative data could be accommodated in the case study research, argued by Yin (2003) and Gerring (2007) where researchers are allowed to get a rich mix of data for specific studies. A case study is a distinctive strategy which has been selected as the research strategy of this study. This strategy has guided the researcher to utilise both quantitative data collected from Bangladeshi SMEs and qualitative data collected from the banking industry representatives of Bangladesh.

Patton (2002) and Creswell's (2003) views are that, the direction of the research is guided by the research strategy that is required to be executed systematically. Bryman and Bell (2007) mentioned that, there are some benefits and drawbacks in every research strategy. For example, in-depth interviews can be utilised to collect detailed information from the respondents, but it can be very time consuming. In addition to this, Easterby-Smith, Thorpe and Jackson (2008) believed that, surveys can be considered as a cost effective and less time consuming research strategy but poor response rate and targeting the wrong respondent segments could jeopardise the research results. Conversely, Crowther and Lancaster (2008) argued that, surveys communication could be done with the respondents directly and results could be obtained from the respondent directly.

Canvaye (1996) views the case study approach as supportive when observing the respondents in a systematic way and helps to understand the problem in detail. Stake (2000) suggests that, as there is a fixed way of doing case studies; the strategy can be executed based on positivism or interpretive research philosophy. The researcher chooses to use case study strategy because of its suitability in examining the incidents considering the research issues. The case study research has been conducted in two phases. Firstly, the researcher established close contacts with respondents to obtain much valuable information about the impact of e-communication on Bangladeshi SMEs. Afterwards, the research design mechanism targeted and analysed descriptive, influential, and normative data provided by the respondents of the study in consideration of the factors which influence the Bangladeshi SMEs for e-communication adoption.

The case study strategy has guided this research to utilise both quantitative data collected from Bangladeshi SMEs and qualitative data collected from the banking industry representatives of Bangladesh. Ways of collecting, summarising and analysing data have been supported by this strategy. Additionally, this strategy has provided ideas of carrying out pilot studies prior to conduct the main research.

3.6 Pilot Study

Leedy (1997) stated that, pilot studies can help researchers to eliminate inconsistencies in data collection through testing a small sample to check easiness and effectiveness of the questionnaire. It can also help researchers to form more accurate questionnaire and hypothesis to validate the appropriateness of certain statistical analysing tools, those are planning to use for identifying research outcomes. Furthermore, the outcomes of the research could lead to the changes of research instruments and hypotheses. In addition, Creswell (2010) highlighted that, the pilot studies can also help to eliminate ambiguities in the survey questionnaires to come up with the finalised version.

Bell (1991) mentions that, the pilot studies can help the researchers to pre-test their various research techniques such as estimated time to complete, understanding of respondents etc. Likewise, it can help the researchers to eliminate sensitive and irrelevant items in research techniques. A pilot study can also help to understand the main concepts and foundations of research techniques and framework of the research results. In addition to this, Burgess (2001) highlighted that, carrying out a pilot study can help researchers to minimise ambiguities of respondents and can also increase the response rate by helping to formulate best suited questionnaire.

The researcher aimed to conduct the pilot study four months prior to the main survey and that was quite sufficient time to make necessary changes for the chosen research techniques before handing over to the Bangladeshi SMEs. To conduct research on diverse cultural environment, one major challenge the researchers could face is the use of appropriate research techniques that employs different languages. For this research, a particular instrument has been developed in a Western country (UK) and it has been translated to the Bengali language for the convenience of the respondents.

Various research works such as Orlando and Law (2000) and Karahanna, Evaristo and Srite (2004) indicate guidelines and systems; these can be used to translate research techniques for the use of cross cultural environments. Once the questionnaire was translated to the Bengali language, it was reviewed by some Bangladeshi colleagues (5) of the researcher and students (10) who are fluent in English and Bengali. Appropriate changes have been made just after getting feedback from colleagues and students regarding the interview question and survey questionnaire and the final version have been designed. To measure the ease and effectiveness of the selected questionnaires are the prime goals of the pilot study and the feedback provided by the participants can help to identify the improvements and changes needed.

Although it was a challenge to carry out the pilot study, with the support of a number of fellow researchers and a few students who were bilingual (English and Bengali) this has been overcome. In the beginning the researcher could not reach a number of respondents who were competent in Bengali and English but within a couple of weeks, some of them managed to attend the pilot study voluntarily. Feedback associated with the language, terms used and types of questions asked has been gathered from each of the participant and afterwards, both the survey questionnaire and interview questions have been amended.

3.7 Data Collection, Survey and Interview Schedules

- **Data collection**

A fundamental framework should be structured to follow the appropriate data collection procedures (Steinke, 1999). Reconstructive and interpretative have been differentiated by Steinke (1999) where this researcher showed that, for the generation of data, interpretative methods are followed. Visual recordings, diary entries or other form of sources could be included in the related data and high degree of naturalness is one of the key benefits of this type of method. As data are not filtered or pre-structured; an interpretative method is quite an intensive resource. In the reconstructive method, a more active role is played by the researcher. Pre-structuring of data could be differed depending on the topic and situation of the study to be carried out. Adoption of reconstructive approach could be influenced by multi-

faced interactions and subject-specific interviews. Structured interview could be excluded, as this approach is suitable for quantitative research design (Bryman and Bell, 2007).

For in-depth information unstructured interview technique could be followed for data collection. However, in this case, openness and high degree of flexibility should be maintained by the researcher (Hoffmann-Riem, 1980). This technique could be time consuming for filtering and coding data. In terms of planned research, semi-structured interview techniques could be followed due to better subject-adequacy comparing with unstructured interview. Five phases qualitative research processes have been defined by Denzin (2000) considering various issues such as, research strategies, interpretive perspectives, major paradigms, multicultural subjects, methods to collect and analyse empirical evidence.

For collecting in-depth information, interview is one of the best techniques that indicates the interpretivism research data (Saunders, Lewis and Thornhill, 2009). Between 1993 and 1998, a large number of journals were reviewed by Mingers (2003) and claimed that, both the survey questionnaires and interview techniques are mostly followed in the field of information systems research. The first phase of this research, in the context of data collection has been related to survey questionnaires and in the second phase, interview has been conducted to gather in-depth information.

The first phase of the research is related to the factors which influence Bangladeshi SMEs to adopt e-communication services. A survey has been carried out in this first phase to gather quantitative data, where the first research question has been answered. In the second phase of the research, qualitative data have been collected from the service providers (the bank representatives) by using the semi-structured interview questions. Convenience and customisation (Constantiou, Papazafeiropoulou and Dwivedi, 2009) in relation to e-communication adoption have been emphasised in the interview questions for the bank representatives.

- **Survey Questionnaire Design and Schedule with Bangladeshi SMEs**

According to Bell (1991), questionnaires are used to collect specific types of data for particular researches. Properly constructed questionnaires can help to avoid irrelevant information and the response rate could be increased. Gall, Borg and Gall (1996) further expressed the view that, researchers need to pay special attention during designing questionnaires to overcome the complexities and language confusions. Bell (1991) argued that, questionnaires should be able to explore the problems related to the research questions. Furthermore, Leedy (1997) remarked that, the questions in the questionnaire need to be arranged in a logical order and they should be clear to the respondents in order for them to be answered easily and quickly.

Survey schedule with Bangladeshi SMEs: To increase the research values and identify the factors related to e-communication facilities a survey has been conducted with the selected Bangladeshi SMEs' managers and owners. This survey has been conducted using a set of structured questions. The surveys have been conducted among eleven types of SMEs classified by the Bangladesh Ministry of Industry. At least one of the SMEs has been selected from each industry.

The researcher has conducted an in-person survey. 30 questions were asked to the Bangladeshi SMEs who have already adopted e-communication facilities (Appendix A) and 22 questions were asked to the Bangladeshi SMEs who have not yet adopted e-communication facilities (Appendix B). The researcher expected 470 responses from the Bangladeshi SMEs who have adopted e-communication facilities but 250 participants responded to the surveys. Moreover, the researcher has collected survey data from 220 Bangladeshi SMEs who have not yet adopted e-communication facilities. Finally, survey statistics used in this research has been presented in Table 3.2.

Table 3.2: Survey Statistics

Survey Statistics		
Issues	E-Communication facilities adopted	E -Communication facilities non-adopted
Number of survey questions	30	22
Total respondents	220	250

To gather different types of data, the researcher followed different schedules with Bangladeshi SMEs and the banking industry representatives. These schedules are presented below:

- **Interview Question Design and Schedules with the Service Providers and Government Representatives**

Interview questions are generally constructed to collect qualitative in-depth information. Different methods such as unstructured, structured and semi-structured methods could be followed to design interview questions. Face to face, telephone interviews and interviews in written form are most commonly used to collect data from different types of participants (Saunders, Lewis and Thornhill, 2009). In agreement, the interview schedule could be used to record any interview with any participants (Neuman, 2003).

The interview schedules for this research have been designed in consideration of the features of the institutional theory of intervention and the theory of disruptive innovation. These theories have helped to explore the situation associated with the impact of e-communication on Bangladeshi SME. Therefore, the researcher planned to interview key government figures related to information and communication and subject area to cover the topics indicated in the interview schedule.

Furthermore, Patton (2002) identified interviews as a very important method to collect qualitative data. To facilitate the qualitative aspects of the study, the interviews with the banking industry representatives have been carried out on a face

to face basis. Moreover, the researcher avoided biasness and to be reflective; while conducting the interviews, the participants were being encouraged by speaking about the subject area of the research.

Interview Schedule with the banking industry representatives: The interview schedule with the banking industry representatives have been based on the theory of disruptive innovation. Commercialisation strategies and distribution process are mainly emphasised in the theory of disruptive innovation, observed by Christensen, Anthony and Roth (2004). As specified by these researchers, sometimes offers provided by service providers might not be suitable for targeted firms. In addition, though any innovation could be highly useful for organisations, they might be reluctant to adopt it. After considering these issues, the researcher collected information from the service providers (Banking industry representatives), focusing on some issues related to financial implications of providing e-communication facilities to SMEs and impact of this opportunity on their (SMEs) performance. Interview schedule with the Bangladesh banking industry representatives emphasised on three concepts including cost of setting up and usefulness, customisation and convenience of e-communication facilities for SMEs.

Interview Schedule with Bangladesh Government Representatives: One of the objectives of this research is to explore the government roles which can influence SMEs to adopt e-communication facility. There were number questions in the interview schedule related to government roles, regulations and implementation of technology especially for SMEs. For this reason, in-depth interview with government representatives is an important part of the qualitative phase. Semi-structured interview strategy was planned to utilise for conducting interviews with government representatives and the questions were formed based on the institutional concepts. In the interview questions, various issues such as mobilisation, knowledge building and deployment, innovative directives, standard settings and financial subsidy were emphasised.

As the interview questions were based on the institutional theory, some factors of supply push and demand pull (King *et al.*, 1994) were also stressed to explore the e-communication flow through the intervention of government. The supply push happens through various product innovations and the demand pull happens with the

preference to use the product and government roles play an important role in both supply push and demand pull. Powerful government policies mean the government implement rules and regulations regarding the implementation of technology and communication facilities. Adoption of e-communication could face some barriers because of government regulations and it could occur if there is a lack of the government representatives in the context of information and e-communication facilities.

This researcher used a framework related to institutional intervention to develop the interview schedule. The main target of the framework is to examine the impact of relevant government institutions to minimise the e-communication gaps that exist in Bangladeshi SMEs. However, due to time constraints and unavailability of schedule, interviews with government representatives were not take place. All the information related to government support for SMEs and other respondents have been gathered from different government websites and publications. Information about the government role has also been collected from the service providers and SMEs of Bangladesh.

3.8 Data Analysis Strategy, Tools and Techniques

- **Data analysis strategy**

As defined by Marshall and Rossman (1999), data analysis is a process where collected data is ordered and structured to reveal results. These researchers described the process as time-consuming, ambiguous and messy but fascinating and a creating process (Schwandt, 2007). Best and Kahn (2006) described that, some sort of logics are required for data analysis. Morrison *et al.* (2011) stated that, interpretive approach follows the deductive process for data collection for specific research. By focusing on the phenomenological approach and programmatic position, the combination of quantitative and qualitative research methods has been utilised in this study. A systematic procedure has been followed in this study to interpret information appropriately and in this case, data have been organised and recorded by following the method described by Antonius (2003).

The essence of capturing data has been described by Schostak and Schostak (2008) and these researchers have mentioned that, data are not pre-populated but are open to reconfiguration and thus alternative ways could be implemented to finding answers to questions. After considering the views of Schostak and Schostak (2008) and Antonius (2003), to analyse data two methods namely quantitative and/or qualitative could be used for any particular research. Important views for qualitative data collection have been provided by Morgan (1998) stating that, the analysis of qualitative methods should be continuous, verifiable, sequential and systematic. This process could be jeopardised by delay due to long time requirements but it could be improved by getting feedback from expertise (Schurink, Fouché and De Vos, 2011). Like qualitative method, the quantitative method could also be used to reveal research findings numerically (Mathews, 2010). Regardless of the quantitative or qualitative method, the purpose of carrying out a research is to reveal findings (Kreuger and Neuman, 2006).

The researcher has analysed various theoretical issues and concepts before constructing the conceptual model for this research. As part of the theoretical background of research aim, the researcher explored government roles considering the institutional theory of interventions (King *et al.*, 1994) and the service providers' commercialisation strategies based on the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) and predicting to analyse the organisational cultural issues particularly in the context of Bangladeshi SMEs. To minimise the electronic communication gaps that exist in Bangladeshi SMEs, the researcher has considered two types of factors (variables). One of them is dependent that is, the operatonal and financial performance of Bangladeshi SMEs. The second of them is independent variables which are the organisational culture of the SMEs, service providers' commercialisation strategies and government roles.

Based on the research questions, the researcher planned a data analysis strategy for both the survey questionnaires and semi-structured interview questions for SMEs and the banking industry representatives. Research objectives and required data have been linked using data analysis strategy (Goldstein, 1995) means, the research objectives have been translated into findings. All the survey findings have been summarised (Chapter IV, 4.1) considering each and every question included in the

questionnaire. To investigate the factors which hinder SMEs to adopt e-communication, all the findings have been compared with the existing literature and conclusion made focusing on the key points such as, the role of owners/managers, position in the organisation, education background, IT background, types and the size of SMEs etc. (Chapter VI, 6.1).

The relationship between the adoption of e-communication facilities and dominating organisational cultural profiles have been revealed by adopting Cameron and Quinn's (1999) OCAI model. The following formula has been used for different cultural positions such as Clan culture in the context of dominant issues.

Clan Culture = MEAN (ClanCu1 + ClanCu2 + ClanCu3 + ClanCu4 + ClanCu5 + ClanCu6)

Where mean score for the question C1A has been represented by ClanCu1; similarly, ClanCu2 represents the mean score for question C2A, etc. The Same procedures have been followed for Adhocracy, Market and Hierarchy cultures (Chapter IV, 4.2).

Findings from the banking industry representatives have been summarised (Appendix H) based on every question included in the interview. Afterwards, the service providers' commercialisation strategies in consideration of the theory of disruptive innovation have been presented in Chapter V (5.1). Finally, the findings have been compared with a number of existing literatures and conclusion has been made in Chapter VI (6.2). Findings from government websites and publications and opinions from the service providers alongside survey findings have been summarised in Chapter V (5.2). In comparisons with contemporary literature, it has been analysed based on the institutional theory of intervention (Chapter VI, 6.3).

- **Data Analysis tools and techniques**

From the Bangladeshi SMEs, survey based numerical data were collected and subsequently, those have been analysed by using Microsoft Excel and the SPSS. In the case of in-depth data analysis, the grounder theory strategy has been pursued after collecting data from Bangladesh banking industry representatives by using a set of semi-structured interview questions; however, in overall the case study strategy has been employed.

Chi-Squared Test: To determine a significance difference between the expected frequencies and the observed frequencies, the Chi-Squared test is generally used and it could be defined as:

$$X^2 = \sum_{i=1}^{k} \frac{(f_o - f_e)^2}{f_e}$$

f_o: Observed survey data

f_o: Expected survey data

k: Types of data (Mathews, 2010).

Chi-squared test (Appendix F) has been implemented in this research to analyse and also to test the statistical significance of the numerical data collected from Bangladeshi SMEs.

To analyse the qualitative data, case study strategies have been followed where theories and models such as, the theory of disruptive innovation and institutional theory of intervention have been considered as benchmark based on the outcomes of a number of scholarly publications.

3.9 Ethical Issues

The researcher has taken all necessary approvals from the respondents of the research and has executed this as planned. Ethical issues could be raised at all the phases of the research including survey and interview and because of this; personal details of the respondents should be kept anonymous (Bryman and Bell, 2007). The ethical issues observed in this research were based on two categories and those are anonymity and confidentiality of data collection (Porter, 1998).

- **Consent of Participants**

The target of the data collection was to inform SMEs, the banking industry respondents and government representatives by showing the University ID and a letter of permission. A short form was also prepared for consent of the participants (Appendix J). Prior permission has been obtained before conducting survey and interview procedures. Regarding the government officials and the banking

representatives the letter of consent has been obtained before any data gathering. According to Frankfort-Nachmias and Nachmias (2000) signing of informed consent letter can reduce the legal responsibility of the researcher and the respondents. Moreover, the respondents for this research have been selected on a voluntary basis and consent was obtained prior to the data collection procedure.

Jordi and Herran (2010) emphasised that, to ensure the anonymity during data collection, manipulation and publication; the results should not contain any personal information of the respondents. Furthermore, the researcher ensured to keep personal information confidential to protect the anonymity and data protection.

- **Confidentiality and Privacy**

The distinct items of information have been referred in confidentiality and it could be revealed under confident conditions whereas; cultural and social characteristics are related to privacy information, claimed by Porter (1998). Moreover, the researcher took control over the timing and the situation related to the respondents in this research. Also, the researcher's main intention was to respect the respondents' backgrounds and not to intrude in their private lives. It was ensured that, information provided by respondents would be used only for this study and these would be stored securely and would not be handed over to any third parties. In addition, respondents were assured that, they have the full right to withdraw from any part or full interview and the survey questionnaire. Ultimately, the researcher was confident that, the privacy and confidentiality of the respondents and their data were protected and very secured. In carrying out this research, all the ethical issues were anonymously overcome alongside strictly maintaining confidentiality and data protection.

3.10 Research Hypotheses and Conceptual Framework

To evaluate the impact of e-communication on SMEs' performance, four hypotheses associated with the research objectives have been constructed.

- **Research Hypotheses**

The proposed hypotheses have been presented below:

H1: Organisational culture of the Bangladeshi SMEs can affect the e-communication adoption

H2: Commercialisation strategies of the service providers can affect the adoption of e-communication by Bangladeshi SMEs

H3: Government roles can affect the adoption of e-communication facility by Bangladeshi SMEs

H4: E-communication adoption can help Bangladeshi SMEs to enhance their overall performance

All these are tested by using the features of the One Sample t-Test, where four null hypotheses such as, $\mathrm{H1}_0$, $\mathrm{H2}_0$, $\mathrm{H3}_0$ and $\mathrm{H4}_0$ have also been considered to test original hypotheses. In addition, the features of the Chi-Squared distribution and goodness of fit value (Asymp. Sig) have been employed to test the research hypotheses.

- **Conceptual Framework**

Hatch (1993) stated that, culture could be changed and at the same time could stay the same. Evaluation of culture has been studied over the last few decades and theorised the changes and stability (White, 1959). Hofstede (1991) defined organisational culture as the values, behaviours and attitudes which represented vision, organisational objectives and the working environment. However, researchers such as Sackmann (1992) focused on the basic assumptions set of beliefs, ideologies, important understandings and collective wills and share sets of core values. Some other additional factors were also suggested by a number of researchers such as, myths, and ceremony (Pettigrew, 1979); symbols (Burchell, Clubb, A. Hopwood, *et al.*, 1980); norms and practices (DeLong and Fahey, 2000). Twati and Gammack (2006) defined culture as socially built and traditionally decided as holistic matters. Krumbholz and Maiden (2000) believed that, in the culture, values and behaviour, beliefs and a number of characteristics associated with organisational life are involved.

Organisational culture was treated as a moderating factor by Chai and Pavlou (2004) while taking a decision for adopting information technology. Due to the organisational

cultural issues, 75% of the technology adoption efforts failed claimed by Cameron and Quinn (1999). Effective leadership and organisational culture is the key to organisational success for small firms (Schneider, 2000) and it was supported by Twati and Gammack (2006). To recognise the factors which influence the adoption of e-communication by SMEs, the organisational culture profile was helpful for this research. Considering the organisational culture of the SMEs, the following hypothesis has been formed:

H1: Organisational culture of the Bangladeshi SMEs can affect the e-communication adoption

Chong (2008) highlighted that, as both financial service providers and government work closely to the SMEs, they can play a key role for the diffusion of e-banking facilities. For the technological update, suitable environment could be created by the government through setting up appropriate infrastructure and enacting regulations and rules for SMEs. In addition to this, funding to IT projects and SMEs in developing countries could be helpful to set up e-communication infrastructures by the help of donor institutions associating with the government sector. Service providers can also play an important role in the e-communication adoption process (Abousaber, 2013). Adoption of the e-communication facilities by SMEs could also be influenced by the pressure of the banking industry (Chowdhury, 2003). For these reasons, financial institutions/banking industry and government agencies are treated as influencing institutions. The lack of technical expertise can negatively affect the adoption of e-communication facilities and the banking industry can take this as an opportunity by ensuring technical supports for SMEs (Bradley and Stewart, 2002).

From the banking industry perspective, internet banking is helping them to reduce the cost of providing services, generating more revenue. In contrast, from the customer point of view, they can save their time by not standing in a queue and can do the financial transactions by staying hundred and a thousand miles away from the banks (Pedersen, 2009). Some other advantages of internet banking are: it brings efficiency and speed in the banking activities; the banks can reduce the chance of errors in activities to a great extent and most importantly, service failure can be recovered very promptly. After considering the above mentioned issues, the following hypothesis has been constructed:

H2: Commercialisation strategies of the service providers can affect the adoption of e-communication by Bangladeshi SMEs

For the development of the technological infrastructure, a lot of investment has been done by the government of Western European Countries (Muller, Nielsen and Boldsen, 2009). In this comparison, the investment of Bangladesh government is much lower than the other developing and developed countries. However, Bangladesh government is really very firm to develop an enriched telecommunication infrastructure; and that's why they have formed a regulatory body, "*Bangladesh Telecommunication Regulatory Commission (BTRC)"* (Kashfia, 2009). The financial support of the government is provided through infrastructure development, subsidies and knowledge deployment. For the development of technological infrastructure and innovation, the importance of government funding is immense and it differs from country to country (Al-Hudhaif and Alkubeyyer, 2011). In fact, to overcome the barriers of adoption of IT infrastructure, the help of the government is really very important.

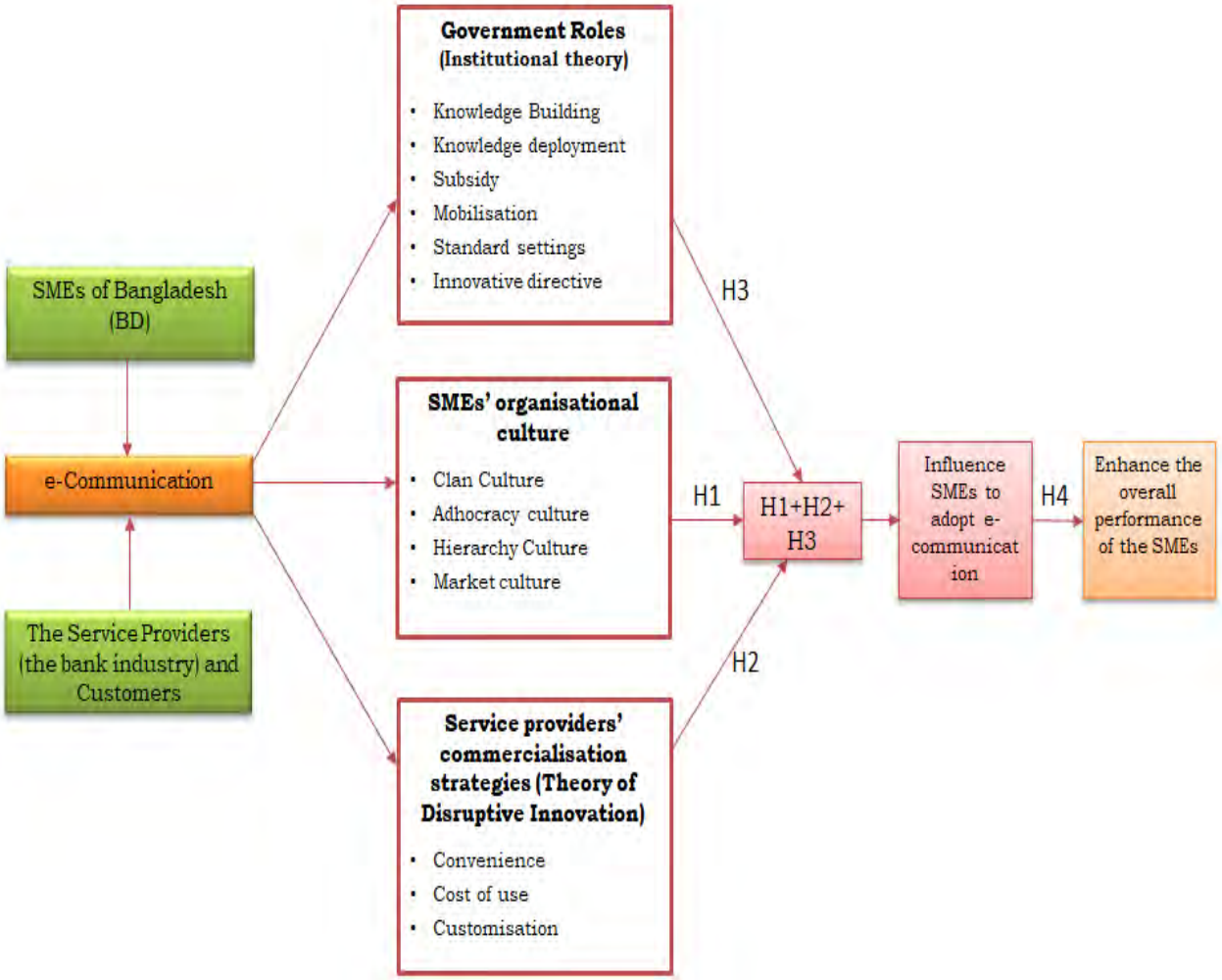
Chan and Al-Hawamdeh (2002) stated that, by different ways such as by enabling the required infrastructure, the governments of the developed nations can help to enhance the e-communication adoption rates. Conversely, a different scenario is found in the developing countries, where governments mainly focused on the issues associated with hunger and poverty eradication (Parker and Castleman, 2009). The role of the government of Singapore has been indicated by (Chan and Al-Hawamdeh, 2002) in the case of e-commerce development, where to improve e-commerce infrastructure, deliberate steps have been taken by enacting favourable e-commerce laws. The above discussion leads to form the following hypothesis for this research:

H3: Government roles can affect the adoption of e-communication facility by Bangladeshi SMEs

The researcher has analysed various theoretical issues and concepts before constructing the conceptual model for this research. As part of the theoretical background of research aim; the researcher analysed government roles considering the institutional theory and the service providers' (the banking industry) commercialisation strategies based on the theory of disruptive innovation adapted

from Christensen, Anthony and Roth (2004) and analysed the organisational cultural issues particularly in the context of Bangladeshi SMEs. To minimise electronic communication gaps between the service providers and Bangladeshi SMEs, the researcher has considered two types of factors (variables). One of the variables is dependent that is, the performance of Bangladeshi SMEs. The second and independent variables are government roles, the service providers' commercialisation strategies and organisational culture of the Bangladeshi SMEs. However, these variables could be efficiently associated if existing e-communication gaps between SMEs and the service providers could be reduced.

Figure 3.2: Conceptual Framework



Source: Adopted from King et al. (1994) and Christensen et al. (2004)

It is predicted by the researcher that, if the three independent variables could be integrated, then the e-communication gaps between the service providers (the

banking industry) and Bangladeshi SMEs could be reduced and as a result, the rate of e-communication adoption would be increased and performance of the SMEs would also be enhanced. For the three independent variables three hypotheses (H1, H2 and H3) are indicated in the conceptual model. Moreover, the integration of these three variables is also presented by one hypothesis H4 (integration of H1, H2 and H3) that indicates the impact of e-communication adoption on the performance of the SMEs of Bangladesh.

H4: E-communication adoption can help Bangladeshi SMEs to enhance their overall performance

If sufficient government support could be provided, efficient commercialisation strategies are followed by the service providers and SMEs are aware enough of e-communication benefits, then there will be increased adoption rates which can enhance the overall performance of the Bangladeshi SMEs.

The following table (Table 3.3) has demonstrated the linkages between the literature review, the hypotheses and methods used, the survey strategy and the associated survey instruments and survey questionnaire design, have been established.

Table 3.3: Linkages between the research objectives, literature review, hypotheses and methods

Research Objectives	Hypotheses	Associated literature, theory and models	Research methods	Sampling techniques and size	Data Analysing tools
1. To investigate the factors that affect Bangladeshi SMEs to adopt e-communication facilities.	**H1:** Organisational culture of the Bangladeshi SMEs can affect the e-communication adoption	• Diffusion of Innovation Theory (DIT) (Rogers, 1995); • Technology Acceptance Model (TAM) (Davis, 1989); • Competing Values Framework (CVF) Quinn and Rohrbaugh *(1981, 1983);* • Organisational Culture Assessment Instrument (OCAI) (Cameron and	• Quantitative research method • Deductive approach • Explanatory research design • Survey technique	Quantitative data from 470 Bangladeshi SMEs (E-communication adopted: 220 and not yet adopted: 250), from Dhaka division of Bangladesh.	• WordPad • Microsoft Excel • SPSS • Chi-Squared Test • Cross tabulation • Asymptotic Significance • Degree of Freedom (DF)

		Quinn, 1999)			
2. To explore the impact of commercialisation strategies of the service providers and government's roles to influence the Bangladeshi SMEs for adopting e-communication facilities.	**H2:** Commercialisation strategies of the service providers can affect the adoption of e-communication by Bangladeshi SMEs **H3:** Government roles can affect the adoption of e-communication facility by Bangladeshi SMEs	• Vendors' Commercialisation Strategies (Christensen, Anthony and Roth (2004); • Theory of Institutional Intervention (King *et al.*, 1994)	• Qualitative research method • Inductive approach • Exploratory research design • Semi-structured face to face 30-45 minutes interview • Interview questions associated with research questions • Prior to finalising the interview questions a few demo interviews	Qualitative data from 22 banking industry representatives of Bangladesh	• Vendors' commercialisation strategies (Convenience, customisation, cost of use and perceived ease of use) • Government roles (Knowledge building, knowledge deployment, subsidy, mobilisation, standard settings and innovation directive)

			carried out with the researcher's friends and research fellows		
3. To evaluate the impact of e-communication adoption on Bangladeshi SMEs.	**H4:** E-communication adoption can help Bangladeshi SMEs to enhance their overall performance	E-communication adoption and firm performance (Byrd and Marshall, 1997; Handfield *et al.*, 2000; Truman, 2000; Daniel, Wilson and Myers, 2002; Cragg, King and Husnayati, 2002; Teo and Tan, 2002; OECD, 2004; Ismail and King, 2005; Esselaar *et al.*, 2007; Higon, 2011; Al-Esmail and Ashrafi, 2012; Ollo-Lopez and Aramendia-Muneta,	• Mixed research methods • Pragmatic approach • Explanatory and exploratory research designs • Survey and semi-structured interview techniques	• Quantitative data from 470 Bangladeshi SMEs • Qualitative data from 22 banking industry representatives of Bangladesh	• WordPad • Microsoft Excel • SPSS • Chi-Squared Test • Cross tabulation • Asymptotic Significance • Degree of Freedom (DF) • Vendors' commercialisation strategies Government roles

		2012; Manochehri, Al-Esmail and Ashrafi, 2012; Consoli, 2012; Bayo-Moriones, Billon and Lera-Lopez, 2013; Abousaber, 2013; Elbeltagi, Hamad and Moizer, 2016; Soto-Acosta, Popa and Palacios-Marqués, 2016; Giotopoulos, Kontolaimou and Korra, 2017; Cantele and Zardini, 2018; He and Li, 2018; Eze, Chinedu-Eze and Bello, 2019			
4. To devise a conceptual model for increasing the	**H1:** Organisational culture of the Bangladeshi	• Diffusion of Innovation Theory (DIT)	• Quantitative research method	Quantitative data from 470 Bangladeshi SMEs	• WordPad • Microsoft Excel • SPSS

e-communication adoption by Bangladeshi SMEs.	SMEs can affect the e-communication adoption **H2:** Commercialisation strategies of the service providers can affect the adoption of e-communication by Bangladeshi SMEs **H3:** Government roles can affect the adoption of e-communication facility by Bangladeshi SMEs **H4:** E-	• Technology Acceptance Model (TAM) • Competing Values Framework (CVF) • Organisational Culture Assessment Instrument (OCAI) • Vendors' Commercialisation Strategies • Theory of Institutional Intervention • E-communication adoption and firm performance	• Deductive approach • Explanatory research design • Survey technique	(E-communication adopted: 220 and not yet adopted: 250), from Dhaka division of Bangladesh.	• Chi-Squared Test • Cross tabulation • Asymptotic Significance • Degree of Freedom (DF)

	communication adoption can help Bangladeshi SMEs to enhance their overall performance				

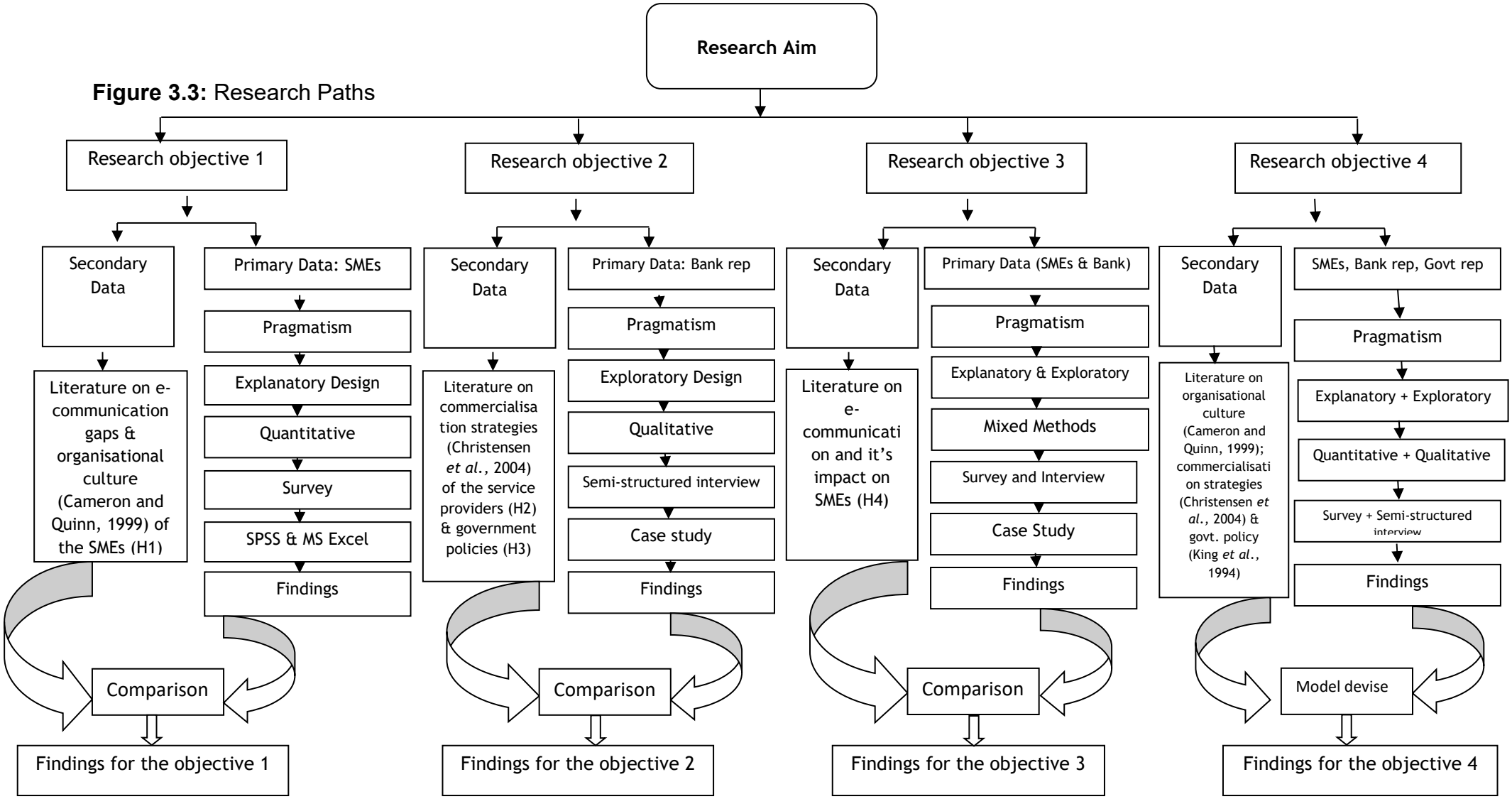
3.11 Summary

Various issues associated with research methodology have been discussed in this section of the study. To sum up, pragmatic approach means both inductive and deductive research approaches have been employed alongside both survey based numerical and interview based in-depth data.

In this chapter, various research paradigms such as positivism, realism, constructivism and interventionism have been briefly analysed from different contexts and the pragmatism has been employed. The researcher has presented various comparisons and contrasts among different methodological approaches and indicated what could be the best suited approach for this research.

The research plans can help to fix the milestones of any research by allocating specific timeframe (Jacobs, 2011). It can also be useful when keeping track of the current position of the research and indicates the requirements of resources. Some of the researchers such as, Ridley (2012) described the research plan as a monitoring tool which can help researchers to keep a record of their updates and allow them to use their initiative to carry out the research on time. After considering the methodological approaches, the following path (Figure 3.3) has been followed in this research in consideration of all the objectives.

Figure 3.3: Research Paths

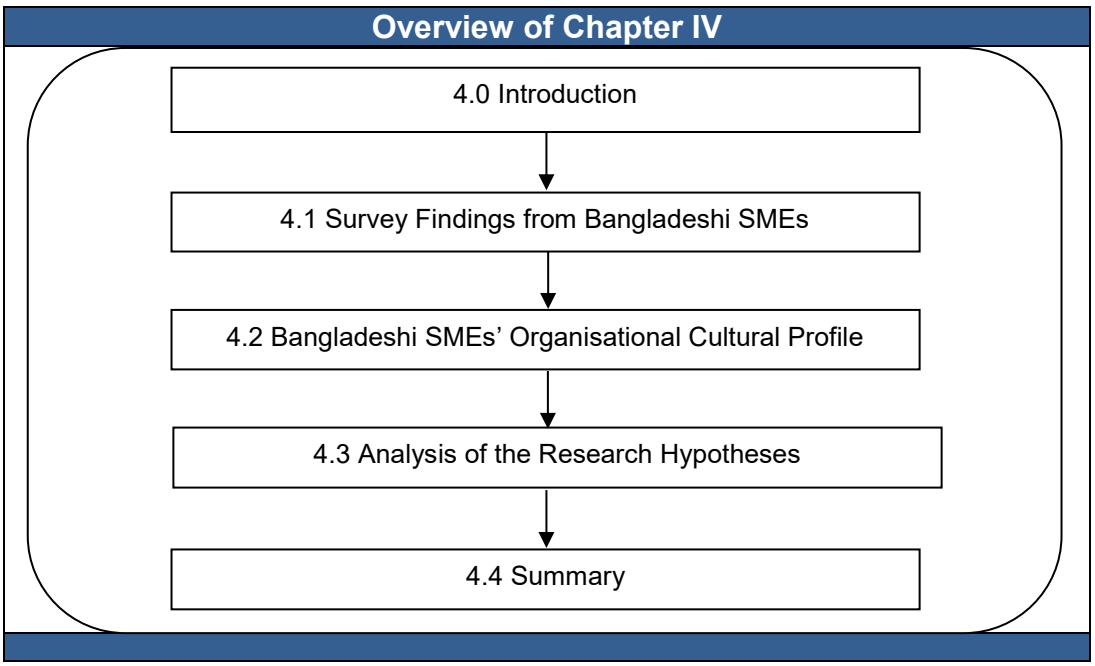


Note: SMEs: Small and Medium Enterprises; Bank rep: Bank Representatives; Govt rep: Government Representatives, H1: Hypothesis 1, H2: Hypothesis 2, H3: Hypothesis 3 & H4: Hypothesis 4

CHAPTER IV: QUANTITATIVE FINDINGS AND INTERPRETATIONS

An overview of the fourth chapter has been presented in the Table 4.1 where introduction, Survey Findings from Bangladeshi SMEs; Organisational Cultural Profile of Bangladeshi SMEs; Analysis of the Research Hypotheses and chapter summary have been highlighted.

Table 4.1: Overview of Chapter IV



4.0 Introduction

Chapter IV represents the quantitative research findings and interpretations of the study. The collected data from the Bangladeshi SMEs have been figured, tabulated and summarised in consideration with the first research objective. This chapter starts with summarising the survey outcomes from the Bangladeshi SMEs. The Chi-Squared test has been employed alongside the OCAI (Cameron and Quinn, 1999) model to identify the dominating organisational culture profile of the Bangladeshi SMEs. Hypotheses of this research have also been tested in this chapter.

4.1 Summary of the Survey Findings from the Bangladeshi SMEs

The researcher has conducted an in-person survey. Thirty questions were asked on e-communication to the Bangladeshi SMEs who have already adopted e-communication facilities (Appendix A) and 22 questions were asked to the Bangladeshi SMEs who are yet to adopt e-communication facilities (Appendix B). Within this research, 220 Bangladeshi SMEs who have adopted e-communication facilities responded fully to the survey. Moreover, the researcher has collected survey data from 250 Bangladeshi SMEs (fully completed) who have not yet adopted e-communication facilities.

Survey findings from the Bangladeshi SMEs that have already adopted e-communication facilities and those who yet to adopt have been presented in this section. From the research it is found that, higher numbers of the Bangladeshi SMEs who have adopted e-communication facilities are run by managers whereas; a big portion of the SMEs who have not yet adopted e-communication facilities are mainly run by owners (Table 4.2). Research findings revealed that, about half of the Bangladeshi SMEs who already adopted e-communication facilities hold backgrounds of IT skills; however, about two thirds of the SMEs do not hold any IT skills and are those who yet to adopt e-communication facilities (Table 4.2). It has been found from this research that, for both types of SMEs in the context of who adopted and who yet to adopt the e-communication facilities; owners/managers are the main decision makers, some of whom are educated from abroad (Table 4.2).

From this research it is revealed that, Bangladeshi SMEs are involved in software development, in electronic and electrical products business and in leather goods business. Likewise, it has been found that, some of the SMEs are doing specialist farming or plantation agriculture, some are doing metal working and light engineering, some are involved in the readymade garments and knitwear business. Furthermore, a number of SMEs are involved in the health care and diagnostics, in plastics and other synthetics, in toiletries/cosmetics/pharmaceuticals, in education services and in wear and consumer goods. The research findings show that, about one third of the Bangladeshi SMEs are with employee ranges of 11-20 who have already adopted e-communication facilities whereas; more than half of the SMEs have 2-5 employees who have not yet adopted e-communication facilities (Table 4.3).

From this research it has been established that, about one third of the Bangladeshi SMEs who have adopted e-communication facility, find it better than the traditional operations due to the reliability that it has and about a quarter of the SMEs believe it is because of the easy access. Conversely, about two fifths of the SMEs have not adopted e-communication facilities for their security concerns and about one fifth of them have not adopted because of their types of business and even about one fifth of them do not know about it (Table 4.4).

Most of the Bangladeshi SMEs have chosen e-communication facilities due to payments being secured and there being easy payment facilities, revealed from this research. Still, about half of the SMEs think that, the security is the main reason which creating barrier to adopt e-communication facilities and some of them also highlighted cost, non-suitability, lack of technology and unavailability as the main barrier (Table 4.5).

Bangladeshi SMEs who have adopted e-communication facilities have known about these services mostly from friends and family members and through mass media. Some of them also knew from the bank employees, mass media and through social media. Conversely, most of the SMEs who have not yet adopted e-communication facilities were agreed that, they have not been contacted by any bank industry representatives; although, only a few of them were not agreed with these participants (Table 4.6).

According to most of the Bangladeshi SMEs, rather than other activities, if SMEs are being communicated directly then they could be attracted more towards the adoption of e-communication facilities. Likewise, about a quarter of the participants emphasised on reducing cost and some of them highlighted the extension of services and providing training by the banking industry for e-communication facilities among Bangladeshi SMEs (Table 4.7). Assurance of security, training opportunity of using e-community facilities and funding from the banking industry were mostly emphasised by the SMEs that can help to adopt e-communication facilities, opined by those who yet to adopt this service (Table 4.7).

A big number of owners/managers of Bangladeshi SMEs who have already adopted and who yet to adopt e-communication services in their firms believed that, owners/managers play the most important role for e-communication facilities and it was strongly supported by most other SMEs from both groups but only a few of them disagreed with their opinion (Table 4.8).

Above half of the Bangladeshi SMEs who have adopted e-communication services stated that, the price of the e-communication facilities is reasonable and some of them strongly supported them. However, some of the SMEs have disagreed about the reasonability of the price for the e-communication facilities as well as being strongly supported by some of the other SMEs. Consequently, most of the SMEs who yet to adopt e-communication services, opined that, funds from any institution can influence them to adopt e-communication facilities and they were again strongly supported by more than a quarter of the participants (Table 4.9).

Above half of the Bangladeshi SMEs who have adopted e-communication facilities have agreed that, the use of e-communication is helping their businesses and some of them are strongly agree with them. Similarly, about two thirds of the SMEs who have not yet adopted e-communication facilities agreed that, adoption of this service can help them to increase their business performance and they are also strongly supported by some of the SMEs. However, more than a quarter of the SMEs who have not adopted e-communication service neither agree nor disagree with them (Table 4.10).

About half of the Bangladeshi SMEs who already have adopted and the remaining two thirds of the SMEs who yet to adopt e-communication facilities have agreed that

the adoption of e-communication facilities could be influenced by norms, beliefs, education level and attitudes of the owners/managers. Similarly, some of the SMEs from both groups strongly supported their opinion. Contrary to this, only a few of the Bangladeshi SMEs were in a disagreement with them (Table 4.11).

About one third of the Bangladeshi SMEs who have already adopted e-communication facilities have disagreed that, the banking industry's policies can help to adopt e-communication facilities and they were strongly supported by many SMEs. However, more than a quarter of the SMEs have disagreed with them and there are also a good number of SMEs supporting these claims. Different opinions have been reflected from the SMEs, most of those who have not yet adopted e-communication facilities. More than two-thirds of the SMEs believe that, the banking industry's policies can help to adopt more e-communication facilities and they were also strongly supported by many SMEs (Table 4.12).

More than a quarter of the Bangladeshi SMEs opined that, the government of the country is helping them to adopt e-communication facilities and some of the SMEs strongly supported them. Nonetheless, more than two fifths of the SMEs have disagreed regarding government support for adopting e-communication facilities. Different scenarios have been evident from the Bangladeshi SMEs who have not yet adopted e-communication facilities. Most of them highlighted that, the government of Bangladesh can help SMEs to adopt e-communication facilities, even though only a few of them do not agree with them (Table 4.13).

Research findings show that, one fifth of the Bangladeshi SMEs have been using e-communication facilities between one-three years and more than two-fifths of the SMEs have started to use since the last six months to one year. In addition, more than one fifth of the SMEs have started using this from the last three to six months (Table 4.14). Research findings indicate that, half of the participants think e-communication facilities are compatible with their business operations and many participants strongly agree with them. However, some of the participants who have already adopted e-communication facilities disagreed with the compatibility of service (Table 4.14).

About one third of the Bangladeshi SMEs who have already adopted e-communication service were agreed that, users of e-communication facilities might

face difficulties during setup and installation and a few of them strongly agreed with this. Still, more than two-thirds of the SMEs disagreed with the setup and installation difficulties as well as some of the participants strongly supported them (Table 4.14). Required training can be useful when using any e-communication facilities easily. It has been agreed by more than three-fifths of the Bangladeshi SMEs as well as, several of the SMEs also supported them. Conversely, some of the Bangladeshi SMEs disagreed with the statement and a number of the participants strongly supported them (Table 4.14).

Research findings have indicated that, more than three-fifths of the SMEs think the use of e-communication facility is easier and many participants strongly supported this. However, some of the Bangladeshi SMEs who have already adopted e-communication facilities have disagreed with the easy usage of the e-communication facilities (Table 4.14). Awareness of the e-communication facilities could be increased in various ways including by the help of the banking industry; this was claimed by about one third of the Bangladeshi SMEs who have adopted the facilities but there were many SMEs that disagreed with the awareness assurance of the banking industry for e-communication facilities (Table 4.14).

Funding from various organisations can help SMEs in adopting e-communication facilities and some of the Bangladeshi SMEs agreed with this statement. Nevertheless, more than two-thirds of SMEs disagreed with gaining funds from various organisations and a quarter of them strongly supported them (Table 4.14). The types of business can affect e-communication adoption facilities and above half of the Bangladeshi SMEs who already adopted e-communication facilities were agreed with this statement and a number of SMEs strongly supported them. Conversely, some of the Bangladeshi SMEs disagreed and some of them strongly supported them, regarding the types of business and influence of e-communication adoption (Table 4.14).

4.1.1 Demographic issues

Table 4.2: Demographic issues for the Bangladeshi SMEs

Table 4.2	Types of organisation	Issues		Statistics						
My position in the organisation		Owner	Manager	Mean	S.D	V	S.E.	D.F	C.S.	A.S.
	Adopted	40%	60%	1.60	0.491	0.241	0.033	1	8.80	0.003
	Non- Adopted	62.8%	37.2%	1.37	0.484	0.235	0.031	1	16.384	0.000
I have IT background	Types	Yes	No	Statistics						
	Adopted	48.6%	51.4%	1.50	0.501	0.251	0.034	1	0.018	0.893
	Non- Adopted	34.4%	65.6%	1.66	0.476	0.227	0.030	1	24.336	0.000
I'm the decision maker	Types	Yes	No	Statistics						
	Adopted	74.5%	25.5%	1.25	0.437	0.191	0.029	1	53.018	0.00
	Non- Adopted	77.6%	22.4%	1.22	0.418	0.175	0.026	1	76.176	0.000
I'm educated from abroad	Types	Yes	No	Statistics						
	Adopted	20.5%	79.5%	1.80	0.404	0.163	0.027	1	76.818	0.00
	Non- Adopted	10.0%	90.0%	1.90	0.301	0.090	0.019	1	160.00	0.000
Statistics based on 220 adopted and 250 non-adopted Bangladeshi SMEs										

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.1: Demographic issues for the Bangladeshi SMEs

a) My position in the organisation

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Owner	40.0%		62.8%
2	Manager	60.0%		37.2%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

b) I have IT background

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Yes	48.6%		34.4%
2	No	51.4%		65.6%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

c) I am the decision maker

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Yes	74.5%		77.6%
2	No	25.5%		22.4%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

d) I am educated from abroad

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Yes	20.5%		10.0%
2	No	79.5%		90.0%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

Position in the Organisation

Table 4.2 presents the position of the Bangladeshi SMEs in considerations of owners and managers. The research findings show that, 40.0% of the Bangladeshi SMEs who have adopted e-communication facilities are run by owners as well as this, 60.0% of the SMEs are run by managers. Research findings have revealed that, the numbers of SMEs who have adopted e-communication facilities run by managers are higher than those SMEs that are run by owners. It has been found from the confidence interval value (220) that, this question has been responded by all the participants. Table 4.2 shows the Chi-squared value 8.80 and the conventional criteria clearly indicate that, the outcome is statistically significant; where the degree of freedom (DF) is 1 and the p value is 0.003. Although, there are many SMEs in Bangladesh, data has been collected from only 220 participants (11 types) and all the SMEs have been treated equally during conducting the research survey.

Table 4.2 also represents the positions of the SMEs considering both owner and manager who have not adopted e-communication services yet. Research findings show that, 62.8% of the Bangladeshi SMEs who have not adopted e-communication facilities yet are run by the owners and 37.2% of them are run by the managers. The research findings revealed that, the numbers of SMEs run by owners are higher than SMEs run by managers. Evidence from the confidence interval value (250) shows that, all the participants have responded to this question. Satisfaction rate is presented in the key analysis Table 4.2. The Chi-squared value found 16.384 evident from the Table 4.2 which is statistically significant with the p value 0.000 and the degree of freedom 1.

IT Background

One of the survey questions was associated with IT background of the Bangladeshi SMEs who have adopted e-communication facilities. Research findings indicate that, 48.6% of the SMEs have IT backgrounds and 51.4% have no IT background respectively as presented in the Table 4.2. Research findings show that, more than half of the Bangladeshi SMEs have no IT background but they have adopted e-communication facilities in their business activities. According to the features of the

Chi-squared test, the outcome of the survey findings is statistically significant with the p value 0.893 for the Chi-squared value 0.018 where the degree of freedom is 1.

Though all the Bangladeshi SMEs have been treated equally, selection of sample size (220) from the large population could be one of the reasons behind this not being statistically significant.

The researcher has included one of the survey questions related to the IT background of the Bangladeshi SMEs who have not adopted e-communication facilities till the survey time. The research findings evidence shows that, 34.4% of the SMEs who have not adopted e-communication facilities yet have any IT background and 65.6% of the participants have no IT background as shown in the Table 4.2. It is evident from the research findings that, although more than one third of the Bangladeshi SMEs come with a background in IT, they have not adopted e-communication facilities in their business operations. In Table 4.2, the Chi-squared value is shown as 24.336 and the conventional criteria clearly show that, the outcome is statistically significant with DF 1 and the p value.

In accordance with the conventional criteria, data related to the IT background of the Bangladeshi SMEs who have not adopted e-communication facilities yet is statistically significant. As well as this, all the Bangladeshi SMEs who have not adopted e-communication facilities yet have been treated similarly, and this could be the most important reason for it.

Decision Maker

Decision makers are one of the most important components for SMEs to adopt any changes in the organisation and because of them; one survey question related to the decision maker. It is found from this research that, 20.5% of the participants were decision maker whereas 79.5% were not who have already adopted e-communication services. About a quarter of the participants who have adopted e-communication facilities were the decision maker and three-fourth of them were not. Table 4.2 shows the Chi-squared value found 53.018 where the p value found 0.000 with DF 1 and so conventional criteria shows that, the outcome is statistically significant. As all the participants have been treated likewise and all types of SMEs

(classified by the Bangladesh Ministry of Industry) have been considered for data collection, this could be the reason for it being significant.

Research findings show that 77.6% of the participants were decision maker whereas; only 22.4% were not, and who have not adopted e-communication facilities yet. Summary of the research findings related to decision making in the context of Bangladeshi SMEs who have not adopted e-communication facilities has been presented within the above table. Most of the participants who have not adopted e-communication facilities were the decision makers and only few of them were not. All the participants have attained this question and the Chi-squared value of the survey findings is 76.176 with the DF 1 and the p value equals to 0.000. The data related to the decision maker collected from Bangladeshi SMEs who have not adopted e-communication facilities yet is statistically significant. As all the participants have been treated equally and all types of SMEs have been considered for data collection, this could be the reason behind the statistical significance.

Educated from Abroad

One of the survey questions was related to the education from abroad of the SMEs and research findings show that, only 20.5% of the participants were educated from abroad and 79.5% of them were not. Research findings related to education from abroad have been presented in the Table 4.2. The research outcomes show that, a smaller part of the Bangladeshi SMEs who have already adopted e-communication facilities were educated from abroad but larger portions have not been educated from abroad. This question has been answered by every survey participant and from the Chi-squared test it is seen that the outcomes are statistically significant where the Chi-squared value equals to 76.818 with the Degree freedom 1 and goodness of fit value (the p value) 0.000. As all the participants have been treated alike and all types of SMEs have been considered for data collection, could be the reason behind the statistical significance. As most of the SMEs run as family businesses and are concentrated on traditional activities, could be the reasons for not being educated from abroad.

In the research survey, there was a question related to the education from abroad of the Bangladeshi SMEs and from the findings it was found that, 90.0% of them were

not educated from abroad. However, 10% of the participants had completed their education from abroad. The research findings discovered that, smaller ratios of the SMEs in Bangladeshi who have not adopted e-communication facilities were educated from abroad but a larger percentage have not been educated from abroad. All the survey participants have answered this question and from the Chi-squared test it is seen that, Chi-squared value is equal to 160.00 with the Degree freedom 1 and goodness of fit value 0.000 and it clearly indicates that the outcomes are statistically significant. As all the participants have been treated equally and all types of SMEs have been considered for data collection, this could be the reason behind the statistical significance.

4.1.2: Nature and Number of employees

Table 4.3: Nature and number of employees of the Bangladeshi SMEs

Table 4.3	Types of organisation	Issues											Statistics						
Nature of my organisation		**SD**	**EE**	**LG**	**SF**	**MW**	**RG**	**HC**	**PS**	**TC**	**ES**	**WC**	**M.**	**S.D**	**V**	**S.E**	**D.F**	**C.S**	**A.S**
	Adopted	11.5%	10.9%	12.7%	7.3%	6.8%	6.8%	10.9%	12.7%	8.6%	5.5%	6.4%	5.56	3.131	9.800	0.211	10	17.600	0.062
	Non- Adopted	0.4%	10.0%	9.2%	11.2%	12.4%	6.8%	14.4%	13.2%	12.0%	4.8%	5.6%	6.20	2.648	7.010	0.167	10	49.816	0.000
Number of employees involved in my organisation	Types	**1**		**2-5**		**6-10**		**11-20**		**21-49**			Statistics						
	Adopted	4.5%		24.8%		20.5%		31.4%		20.5%			3.40	1.180	1.392	0.80	4	41.636	0.00
	Non- Adopted	1.2%		51.2%		33.2%		12.4%		2.0%			6.20	2.648	7.010	0.167	10	49.816	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs																			

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

SD: Software development; **EE:** Electronic and electrical products manufacturing and services; **LG:** Leather goods; **SF:** Specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; **MW:** Metal working and light engineering; **RG:** Readymade garments and knitwear; **HC:** Health care and diagnostics; **PS:** Plastics and other synthetics; **TC:** Toiletries/cosmetics/pharmaceuticals; **ES:** Education services; **WC:** Wear and consumer goods

Figure 4.2: Nature and number of SMEs

1. Adopted			Response (%)	2. Non-Adopted	Response (%)
1	Software development		11.5%		0.4%
2	Electronic and electrical products		10.9%		10.0%
3	Leather goods		12.7%		9.2%
4	Specialist farming/plantation agriculture		7.3%		11.2%
5	Metal working and light engineering		6.8%		12.4%
6	Readymade garments and knitwear		6.8%		6.8%
7	Health care and diagnostics		10.9%		14.4%
8	Plastics and other synthetics		12.7%		13.2%
9	Toiletries/cosmetics/ pharmaceuticals		8.6%		12.0%
10	Education services		5.5%		4.8%
11	Wear and consumer goods		6.4%		5.6%
Statistics based on **220** respondents.				Statistics based on **250** respondents.	

Nature of the SMEs

Different types of Bangladeshi SMEs that have participated in the research survey have been represented in the Table 4.3. Research findings reveal that, 11.5% of SMEs are involved in software development, 10.9% SMEs are involved in electronic and electrical products related business and 12.7% participants are involved in the leather goods business. Moreover, it has been found that, 7.3% SMEs are doing specialist farming or plantation agriculture, 6.8% SMEs are doing metal working and light engineering, 6.8% SMEs are involved in the readymade garments and knitwear business. Furthermore, SMEs are involved within the health care and diagnostics

10.9%, in plastics and other synthetics 12.7%, in toiletries/cosmetics/pharmaceuticals 8.6%, in education services 5.5% and in wear and consumer goods 6.4% SMEs are involved.

It is seen from the research findings that, leather goods and plastics and other synthetics SMEs (12.7%) participated in the survey higher than any other SMEs. The researcher has mainly conducted the research survey among 11 types of SMEs classified by the Ministry of Industry Government of Bangladesh. The evidence of the research findings indicates that, leather goods and plastics and other synthetics related SMEs are the higher groups in contrast to the others. The confidence interval value (220) indicates that, all the participants have responded to this question. With the 10 degrees of freedom, the Chi-Squared value for this (survey question 5) has been found 17.60 and the p value is equal to 0.06 which shows that the outcome is not statistically significant. Only 220 (11 types) have been considered from the large number of SMEs and it could be one of the important reasons behind not being statistical significant of the survey findings for this particular question, although all the Bangladeshi SMEs have been treated equally.

Table 4.3 represents the different types of Bangladeshi SMEs who have participated in the research survey. The study outcome divulged that, 0.4% of SMEs are involved in software development, 10.0% SMEs are involved in electronic and electrical products related business and 9.2% participants are involved in the leather goods business. Additionally, it has been found that, 11.2% SMEs doing specialist farming or plantation agriculture, 12.4% SMEs are doing metal working and light engineering as well as, 6.8% SMEs are involved in the readymade garments and knitwear business. Also, in the health care and diagnostics the percentages are 14.4%, in plastics and other synthetics it is 13.2%, in toiletries/cosmetics/pharmaceuticals there is 12.0%, in education services 4.8% and in wear and consumer goods 5.6% SMEs are involved. It is evident from the research findings that, health care and diagnostics services related to Bangladeshi SMEs who have not adopted e-communication facilities, yet, is the higher group than others. With the 10 degrees of freedom, the Chi-Squared value for this (survey question 5) has been found at 49.816 and the p value is equal to 0.000 which is statistically significant. As all the SMEs have been treated equally, this could be one of the vital reasons behind this being statistically significant within the survey findings for this particular question.

Number of employees

Bangladeshi SMEs have been classified into five groups considering the number of employees ranging from 1, 2-5, 6-10, 11-20 and 21-49. Research findings indicate that; the employee range of 11-20 is in the majority (31.4%) of the Bangladeshi SMEs. Moreover, 24.8.0% SMEs possesses 2-5 employees and 20.5% of SMEs possess 6-10 and 21-49 employees. However, in 4.5% SMEs only a single employee is involved. Only 4.5% of the SMEs are running their business with a single employee. The researcher has conducted the survey mainly within the Dhaka division, Bangladesh. It is very difficult to run any business with a single employee and it could be due to their lower presence. The research confidence interval value (220) shows that, all the participants have attempted this question. The Chi-Squared value for this (survey question 2) has been found at 41.636 with the degrees of freedom4. The goodness of fit value for this question has been found to be 0.000 which is statistically significant.

The research outcomes show that, most of the Bangladeshi SMEs (51.2%) who have not adopted e-communication facilities are in the range of 2-5 employees. Furthermore, 33.2% of the Bangladeshi SMEs who have not adopted e-communication facilities hold 2-5 employees. Nevertheless, 12.4% SMEs possess 11-20 employees, 2.0% possess 21-49 employees and 1.2% possesses single employees to run their business. The research confidence interval value (250) shows that, all the participants have attempted this question. The Chi-squared test features highlight the outcome of the survey findings which is statistically significant with the p value 0.000 for the Chi-squared value 49.816 where the degree of freedom is 4.

4.1.3 Suitability and reasons for not adopting e-communication facilities

Table 4.4: Suitability and reasons for not adopting e-communication facilities

Table 4.4	Types of organisation	Issues					Statistics						
		Easy access	Reliability	Secured payment	Cost	Mobility	M.	S.D	V	S.E.	D.F	C.S	A.S
I find e-communication better than traditional operations because of	Adopted	25.0%	32.3%	17.3%	15.9%	9.5%	2.53	1.284	1.648	0.087	4	34.00	0.00
We have not adopted e-communication because of	Non- Adopted	Higher price	Business types	Security issues	Inconvenient of the facilities	I don't know about it	Statistics						
		11.2%	18.4%	37.6%	14.8%	18.0%	3.10	1.223	1.496	0.077	4	52.6000	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.3: Suitability and reasons for not adopting e-communication facilities

	1. Adopted	Response (%)	2. Non-Adopted	Response (%)
1	Easy access	25.0%	Higher price	11.2%
2	Reliability	32.3%	Business types	18.4%
3	Secured payment	17.3%	Security issues	37.6%
4	Cost	15.9%	Inconvenient of the facility	14.8%
5	Mobility	9.5%	I don't know about it	18.0%
	Statistics based on **220** respondents.		Statistics based on **250** respondents.	

Suitability of the e-communication facilities

SMEs of Bangladesh have adopted e-communication facilities because of some better facilities used, than those traditional operations. It is found from the research that, 25.0% of the SMEs use e-communication facilities for easy access, 17.3% SMEs adopted because of secured payment and 15.9% of the participants also adopted this due to the costs. Moreover, in regards to the reliability of the facilities 32.3% SMEs have adopted e-communication services and 9.5% of the other SMEs adopted it for the mobility feature. The research outcomes show that, more than one third of the SMEs have adopted e-communication services for the reliability and about one fourth of the Bangladeshi SMEs have adopted e-communication facilities for easy access. The key analysis within Table 4.4 indicates that; all the participants have attained this question. The Chi-squared value in Table 4.4 shows 34.0. The degree of freedom is 4 including the p value found 0.000. The conventional criteria evidently indicate that; the result is statistically significant.

Reasons for not adopting e-communication facilities

Bangladeshi SMEs have not adopted e-communication facilities for various reasons including higher price, business types, security issues, inconvenient and for other various unknown factors. It is evident from the research findings that, 11.2% SMEs have not adopted e-communication facilities due to higher price and 18.4% SMEs have not adopted for their business types. Furthermore, 37.6% of the Bangladeshi SMEs have not adopted e-communication facilities for the security issues, 14.8% for

inconvenient and 18.0% for unknown reasons. The large portion of the Bangladeshi SMEs have not adopted e-communication facilities because of the security issues in contrast with the other reasons such as higher price, business types and inconvenient. The key analysis within Table 4.4 shows that, all the participants have attained this question. The Chi-squared value found 52.600 with the p value 0.000 and the DF 4 which shows that, the outcome is statistically significant.

4.1.4 Reasons of choosing and barriers of e-communication facilities

Table 4.5: Reasons of choosing and barriers of e-communication for SMEs

Table 4.5	Types of organisation	Issues					Statistics						
I have chosen e-communication facility because of		Easy payment facilities	Secured payment	Communicating with banking industry	To transfer cash from one place to another	Due to export import facilities	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	30.9%	35.9%	9.5%	15.0%	8.6%	2.35	1.292	1.670	0.087	4	69.909	0.000
Factors that creating barrier to adopt e-communication facilities	Non- Adopted	Cost of the service	Security reasons	Non-suitability	Lack of technology	Unavailability of the service	Statistics						
		14.4%	49.6%	18.4%	9.6%	8.0%	2.47	1.102	1.214	0.070	4	145.280	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.4: Reasons of choosing and barriers of e-communication for SMEs

	1. Adopted		Response (%)	2. Non-Adopted		Response (%)
1	Easy payment facility		30.9%	Cost of the service		14.4%
2	Secured payment		35.9%	Security reasons		49.6%
3	Communication with bank		9.5%	Non-stability		18.4%
4	Transfer cash		15.0%	Lack of technology		9.6%
5	Export & Import		8.6%	Unavailability of the service		8.0%
	Statistics based on **220** respondents.			Statistics based on **250** respondents.		

Reasons of choosing e-communication facilities

Reasons for choosing e-communication facilities has been summarised in the Table 4.5. Bangladeshi SMEs have adopted e-communication facilities due to a number of reasons including easy payment, secured payment system, communicating with the bank, to transfer cash and also for export and import activities. It is evident from the research findings that, 35.9% SMEs preferred e-communication facilities because of secured payment system and 30.9% SMEs preferred an easy payment system. However, 9.5%, 15.0% and 8.6% of the SMEs preferred e-communication facilities as communication involved with the bank, to transfer cash and for exporting and importing activities respectively. The large portion of the Bangladeshi SMEs have chosen e-communication facilities for the secured and easy payment system compared with other activities such as communicating with bank, transferring cash and to export and import. Table 4.5 shows that, all the participants have attained this question. The features of the Chi-squared test show that the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 69.909 where the degree of freedom is 4.

Barriers of e-communication facilities

Different types of barriers for adopting e-communication facilities have been represented in the Table 4.5. 49.6% Bangladeshi SMEs who have not adopted e-communication facilities believe that, the security issue of the service is the main barrier. Moreover, non-suitability has been suggested by 18.4% and the lack of technology has been proposed by 9.6% of the Bangladeshi SMEs. Most of the participants suggest that, security reasons and non-suitability are the main barriers for not adopting e-communication facilities. It is seen from table 4.5 that, all the participants have attained this question. Table 4.5 shows that, the outcome is statistically significant with the Chi-squared value 145.280 the DF is 4 and the p value found 0.000.

4.1.5 Knowing about e-communication facilities

Table 4.6: Knowing about the benefits of e-communication facilities

Table 4.6	Types of organisation	Issues					Statistics						
I heard about the benefits of e-communication facility from		Bank employees or media	Friends and family members	Other organisations	Through mass media	Through social media	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	16.4%	32.7%	23.6%	17.7%	9.5%	2.71	1.211	1.466	0.082	4	33.318	0.000
Banking industry's representatives contacted us regarding e-communication facilities		Strongly disagree	Disagree	No comment	Agree	Strongly agree	Statistics						
	Non- Adopted	21.6%	55.6%	19.6%	1.6%	1.6%	2.06	0.787	0.619	0.050	4	243.4000	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.5: Knowing about the benefits of e-communication facilities

1. Adopted			Response (%)	2. Non-Adopted		Response (%)
1	Bank employees/media		16.4%	Strongly disagree		21.6%
2	Friends and family members		32.7%	Disagree		55.6%
3	Other organisation		23.6%	No comment		19.6%
4	Through mass media		17.7%	Agree		1.6%
5	Through Social media		9.5%	Strongly agree		1.6%
Statistics based on **220** respondents.				Statistics based on **250** respondents.		

Knowing about the benefits of e-communication facilities

All the information related to the hearing of the benefits of e-communication facilities have been presented in the Table 4.6. Bangladeshi SMEs have heard about the e-communication facilities from different sources, and 32.7% of the participants heard it from their friends and family members. Moreover, 17.7% participants heard it through mass media, 23.6% heard from other organisations and 9.5% heard it through social medial. Also, 16.4% participants heard about e-communication facilities from bank employees or the bank media. Friends and family members are the main source of hearing e-communication facilities among Bangladeshi SMEs who already have adopted e-communication facilities, comparing this to the other sources including bank employees/media. Confidence interval value (220) indicates that, all the participants have attained the question (Survey question). The Chi-squared value found 33.318 evident from the Table 4.6 where the p value found 0.000 with the DF 4 and these clearly indicate the statistical significance of the outcomes.

Direct contact with the SMEs by the banking industry's representatives can help them to adopt e-communication facilities as well as, if the Bangladeshi banking industry's representatives contacted them regarding e-communication facilities. Only

1.6% of the Bangladeshi SMEs who have participated in the survey strongly agreed with this statement and 1.6% of them also agreed with them. However, many of the participants (55.6%) opposed the statement and 21.6% of the participants also strongly agreed with them. Likewise, 19.6% of the Bangladeshi SMEs who have not adopted e-communication facilities neither agree nor disagree with the statement. The research outcomes show that, most of the SMEs disagreed with the statement, the banking industry's representatives contacted them regarding e-communication facilities. Table 4.6 shows, that all the participants have attained this question. According to the features of the Chi-squared test, the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 243.400 where the degree of freedom is 4.

4.1.6 Role of the banking industry and other important factors

Table 4.7: Role of the banking industry and other important factors

Table 4.7	Types of organisation	Issues					Statistics						
Banking industry can attract new consumers for e-communication facilities by		Increasing awareness	Reducing costs	Communicating SMEs directly	Extending service areas	Providing required training	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	13.2%	24.1%	30.0%	19.5%	13.2%	2.95	1.223	1.496	0.082	4	23.091	0.000
The most important factors that can help to adopt e-communication facilities	Non- Adopted	Cost	Funding facilities	Assurance of security	Training for using e-communication facilities	Support from Banking industry	Statistics						
		5.6%	16.8%	47.2%	19.2%	11.2%	3.16	1.016	1.032	0.064	4	204.704	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.6: Role of the banking industry and other important factors

	1. Adopted		Response (%)	2. Non-Adopted		Response (%)
1	Increasing awareness		13.2%	Cost		5.6%
2	Reducing costs		24.1%	Funding facilities		16.8%
3	Communicating SMEs		30.0%	Assurance of security		47.2%
4	Extending service areas		19.5%	Training for e-communication facilities		19.2%
5	Providing required training		13.2%	Support form banking industry		11.2%
Statistics based on **220** respondents.				Statistics based on **250** respondents.		

Role of banking industry and other important factors

All the information related to attracting new consumers for e-communication facilities by the banking industry for Bangladeshi SMEs have been summarised in Table 4.7. The banking industry can attract new consumers for e-communication facilities by using various methods such as increasing awareness, reducing cost, communicating SMEs directly, extending service areas and providing training facilities. According to 30.0% of the Bangladeshi SMEs, communicating directly with SMEs potential consumers could be attracted more than by other activities. 24.1% participants also provided their opinion for reducing cost. Moreover, 13.2% participants considered increasing awareness, 19.5% considered extension of services and 13.2% considered providing training as the media of attracting new consumers by the banking industry for e-communication facilities among Bangladeshi SMEs. The large percentage of the participants highlighted direct communication with SMEs for attracting new consumers by the banking industry as well as this, the reducing cost was highlighted. Table 4.7 shows that, all the participants have answered this question. In Table 4.7, the Chi-squared value is shown as 23.091. The conventional criteria with the DF 4 and the p value 0.000 clearly show that, the outcome is statistically important.

Adoption of e-communication facilities by the Bangladeshi SMEs who have not adopted could be affected by various issues like cost, funding facilities, assurance of security, training for e-communication facilities and support from the banking industry. The evidence of the research findings shows that, 47.2% of the participants believe that assurance of security is the most important factor, 16.8% believe the funding facilities is the most vital factor, 5.6% suggest that the cost and 11.2% state that the support from the banking industry is the most important factor for the adoption of e-communication facilities. Research findings indicate that, most of the survey participants are concerned about security assurance and training services for the adoption of e-communication facilities within their organisation. From Table 4.7, it has been seen that, all the participants have attained this question. Table 4.7 shows that, the outcomes are statistically significant with the Chi-squared value 204.704 where the DF 4 and the p value 0.000.

4.1.7 Role of the owner of the Bangladeshi SMEs to adopt e-communication facilities

Table 4.8: Role of the owner of the Bangladeshi SMEs to adopt e-communication facilities

Table 4.8	Types of organisation	Issues					Statistics						
I believe that the owner or the person who is in charge of the organisation plays the most important role in the adoption of e-communication facilities.		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	1.4%	5.5%	13.6%	59.1%	20.5%	3.92	0.824	0.678	0.056	4	234.045	0.000
The owner is the main respondent to adopt e-communication facilities.	Non-Adopted	0.8%	3.2%	5.2%	59.6%	31.2%	4.17	0.733	0.537	0.046	4	320.440	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.7: Role of the owner of the Bangladeshi SMEs to adopt e-communication facilities

	1. Adopted	Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree	1.4%		0.8%
2	Disagree	5.5%		3.2%
3	No Comment	13.6%		5.2%
4	Agree	59.1%		59.6%
5	Strongly Agree	20.5%		31.2%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

Role of the owner of the Bangladeshi SMEs

Information associated with the role of owners/managers in the adoption of the e-communication facilities have been presented in Table 4.8. The adoption of e-communication facilities could be affected by the role of the owners or managers of SMEs. It is evident from the study outcomes that, 59.1% of the Bangladeshi SMEs who have already adopted e-communication facilities have agreed with the statement and 20.5% SMEs strongly supported them. Conversely, in the adoption of the e-communication facilities, 5.5% of the SMEs disagreed with the role of managers/owners and 1.4% SMEs strongly supported them. Moreover, 13.6% SMEs were neutral with the statement. All the participants have attained this question. The Chi-squared test features highlight the outcome of the survey findings which is statistically significant with the p value 0.000 for the Chi-squared value 234.045 where the degree of freedom is 4.

59.6% of the Bangladeshi SMEs, who have not adopted e-communication facilities yet, agreed that the owner is the main respondent to adopt e-communication facilities in their organisation and 31.2% strongly agreed with them. In contrast, 3.2% participants disagreed and only 0.8% of respondents strongly agreed with them. Additionally, 5.2% SMEs are neutral about the issue. Table 4.8 indicates that; all the participants have attempted this question. The Chi-squared value in Table 4.8 shows 320.440. The degree of freedom is 4 including the goodness of fit value found is

0.000. The conventional criteria evidently indicate that; the result is statistically significant.

4.1.8 Price of the e-communication service and funds from other institutions

Table 4.9: Price of the e-communication service and funds from other institutions

Table 4.9	Types of organisation	Issues					Statistics						
The price of the service is reasonable		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	4.1%	9.1%	17.7%	55.9%	13.2%	3.65	0.961	0.923	0.065	4	188.455	0.000
Funds from any institution can influence me to adopt e-communication facilities	Non- Adopted	0.4%	1.6%	5.2%	67.6%	25.2%	4.16	0.617	0.381	0.039	4	404.320	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.8: Price of the e-communication service and funds from other institutions

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree	4.1%		0.4%
2	Disagree	9.1%		1.6%
3	No Comment	17.7%		5.2%
4	Agree	55.9%		67.6%
5	Strongly Agree	13.2%		25.2%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

Price of the e-communication service

Table 4.9 summarised the research findings related to price reasonability of the e-communication facilities. Considering the price reasonability, the researcher has formulated one question in the survey questionnaire for Bangladeshi SMEs. 55.9% of the SMEs believe that, the price of the e-communication facilities is reasonable, and 13.2% SMEs strongly supported them. However, research findings revealed that, 9.1% SMEs have disagreed about price reasonability of the e-communication facilities and 4.1% also strongly supported them. Moreover, 17.7% SMEs were neutral regarding price reasonability of the e-communication facilities. The Chi-squared value found 188.455 is highlighted in Table 4.9 shows that, the outcomes are statistically significant with p value 0.000 and the DF 4.

Funds from other institutions

Adoption of e-communication facilities by SMEs could be influenced by the funds from any financial institution/banking industry and 67.6% participants agreed with this statement and 25.2% participants also strongly agreed with them. In comparison, only 1.6% participants have disagreed with the statement and 5.2% were neutral as they have selected the no comment option. The research findings show that, a large part of the Bangladeshi SMEs (67.6%) who have not yet adopted e-communication facilities believe that, e-communication adoption could be affected by the funds from any financial institution. Key analysis from Table 4.9 shows that, all the participants have attempted this question. The features of the Chi-squared test

show that the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 404.320 where the degree of freedom is 4.

4.1.9 E-communication and performance of the SMEs

Table 4.10: E-communication and performance of the SMEs

Table 4.10	Types of organisation	Issues					Statistics						
Use of e-communication is helping my business		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	3.2%	12.3%	12.3%	55.9%	16.4%	3.70	0.989	0.978	0.067	4	187.545	0.000
Adoption of e-communication can help me to increase my performance	Non-Adopted	0.4%	0.8%	26.0%	69.2%	3.6%	3.76	0.511	0.261	0.032	4	305.424	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.9: E-communication and performance of the SMEs

1. Adopted			Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree		3.2%		0.4%
2	Disagree		12.3%		0.8%
3	No Comment		12.3%		26.0%
4	Agree		55.9%		69.2%
5	Strongly Agree		16.4%		3.6%
Statistics based on **220** respondents.				Statistics based on **250** respondents.	

E-communication and performance of the SMEs

E-Communication facilities can help the business operations. There are 55.9% of the Bangladeshi SMEs that agreed with the statement and 16.4% SMEs have also strongly supported them. Though, 12.3% of the SMEs disagreed and 3.2% of the SMEs strongly supported them, in relation to e-communications in business operations. Additionally, 12.3% SMEs neither agree nor disagree regarding e-communication facilities and business supports and all the information have been summarised in Table 4.10. The Table 4.10 shows the Chi-squared value 187.545 where the p value found 0.000 and the DF is 4. The conventional criteria clearly indicate that; the outcome is statistically significant.

69.2% of the Bangladeshi SMEs who have participated in this survey think that, adoption of e-communication can help to increase the performance of their organisations. However, 26.0% participants have neither agreed nor disagreed with the issue. From the Table 4.10 it is seen that, all the participants have attempted this question. The Chi-squared value found 305.424 evident from Table 4.10 which shows that, the outcomes are statistically significant where the p value found 0.000 with the DF 4.

4.1.10 Norms, beliefs, education level and attitudes of the SMEs owners/managers

Table 4.11: Norms, beliefs, education level and attitudes of the SMEs owners/managers and adoption of e-communication

Table 4.11	Types of organisation	Issues					Statistics						
Norms, beliefs, education level and attitudes of the owners/managers are responsible to adopt of e-communication facilities.		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	2.7%	15.9%	10.5%	48.6%	22.3%	3.72	1.065	1.135	0.072	4	135.455	0.000
Norms, beliefs, education level and attitudes of the owners/managers are responsible to adopt of e-communication facilities.	Non-Adopted	1.2%	4.0%	11.6%	67.2%	16.0%	3.93	0.736	0.541	0.047	4	365.480	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.10: Norms, beliefs, education level and attitudes of the SMEs owners/managers and adoption of e-communication

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree	2.7%		1.2%
2	Disagree	15.9%		4.0%
3	No Comment	10.5%		11.6%
4	Agree	48.6%		67.2%
5	Strongly Agree	22.3%		16.0%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

Norms, beliefs, education level and attitudes of the SMEs owners/managers

All the information related to norms, belief, education level and attitudes of the owners/managers have been presented within Table 4.11. Adoption of e-communication facilities could be influenced by norms, beliefs, education level and attitudes of the owners/managers and 48.6% of the Bangladeshi SMEs who already have adopted e-communication facilities have agreed with this statement. Moreover, 22.3% of SMEs strongly supported their opinion. However, 15.9% of the Bangladeshi SMEs have disagreed and 2.7% strongly disagreed. Furthermore, 10.5% SMEs were neutral about the norms, beliefs, education level and attitudes of the owners/managers and adoption of e-communication facilities. It is evident from the key analysis within Table 4.11 that, all the participants have answered this question. According to the features of the Chi-squared test, the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 135.455 where the degree of freedom is 4.

67.2% of the participants (Bangladeshi SMEs who have not adopted e-communication facilities yet) have agreed that, norms, beliefs, education level and attitudes of the owners/managers are responsible when adopting of e-communication facilities and 16.0% of the participants have strongly agreed with them. Nevertheless, 11.6% participants are neutral about the issue. Table 4.11 indicates that; all the participants have attempted this question. In Table 4.11, the Chi-squared value is shown as 365.480 where the DF is 4 and the p value found

0.000. The conventional criteria clearly show that, the outcome is statistically significant.

4.1.11 Banking industries policies and adoption of e-communication facilities

Table 4.12: Banking industry's policies and adoption of e-communication facilities

Table 4.12	Types of organisation	Issues					Statistics						
Banking industry's policies (and or initiatives) are helping to adopt more e-communication facilities		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	17.7%	29.1%	14.6%	27.7%	10.9%	2.86	1.321	1.744	0.089	4	76.618	0.000
Banking industry's policies can help to adopt more e-communication facilities	Non-Adopted	2.8%	8.0%	7.2%	68.0%	14.0%	3.82	0.870	0.756	0.055	4	367.960	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.11: Banking industry's policies and adoption of e-communication facilities

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree	17.7%		2.8%
2	Disagree	29.1%		8.0%
3	No Comment	14.6%		7.2%
4	Agree	27.7%		68.0%
5	Strongly Agree	10.9%		14.0%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

The banking industry's policies and adoption of e-communication facilities

Considering the banking industry's policies, one question has been added in the survey questionnaire for Bangladeshi SMEs who already have adopted e-communication facilities. 27.7% of the survey participants think that, the banking industry's policies can help to adopt e-communication facilities and 10.9% of the Bangladeshi SMEs strongly supported the statement. However, 29.1% of the SMEs disagreed about the banking industry's policies and 17.7% SMEs have strongly agreed with them. Additionally, 14.6% SMEs were neutral about the banking industry's policies and adoption of e-communication facilities. Key analysis from Table 4.12 shows that, all the participants have attained the question. Moreover, Table 4.12 reveals that, it is statistically significant where the Chi-squared value found 76.618 with the p value 0.000 and the DF 4.

From the research findings it is evident that, 68.0% of the Bangladeshi SMEs who have not adopted e-communication facilities yet have agreed with the positive support of the banking industry and 14.0% of the participants strongly agreed that, the banking industry's policies can help to adopt e-communication facilities by Bangladeshi SMEs. Conversely, 8.0% of the participants have disagreed, 2.8% strongly disagreed and 7.2% of the participants are neutral about the issue. The key analysis within Table 4.12 shows that, all the participants have attempted this question. The Chi-squared test features highlight the outcome of the survey findings which is statistically significant with the p value 0.000 for the Chi-squared value 367.960 where the degree of freedom is 4.

The research outcomes clearly divulged that, the banking industry's strategies can help Bangladeshi SMEs for the adoption of e-communication facilities in their organisation.

4.1.12 Supports from the Bangladesh Government for e-communication adoption

Table 4.13: Supports from the Bangladesh Government for e-communication adoption

Table 4.13	Types of organisation	Issues					Statistics						
Government of Bangladesh is helping SMEs to adopt e-communication facilities		Strongly disagree	Disagree	No comment	Agree	Strongly agree	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	16.8%	27.3%	20.9%	25.9%	9.1%	2.83	1.244	1.547	0.084	4	23.955	0.000
Government of Bangladesh can help SMEs to adopt e-communication facilities	Non-Adopted	1.6%	6.8%	8.8%	60.4%	22.4%	3.95	0.854	0.729	0.054	4	284.520	0.000
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.12: Supports from the Bangladesh Government for e-communication adoption

1. Adopted		Response (%)	2. Non-Adopted	Response (%)
1	Strongly Disagree	16.8%		1.6%
2	Disagree	27.3%		6.8%
3	No Comment	20.9%		8.8%
4	Agree	25.9%		60.4%
5	Strongly Agree	9.1%		22.4%
Statistics based on **220** respondents.			Statistics based on **250** respondents.	

Supports from the Bangladesh Government for e-communication adoption

Research findings related to e-communication facilities and support from Bangladesh government have been briefly summarised in Table 4.13. Government support can help SMEs to adopt e-communication facilities. Considering the government support, the researcher has added one question in the survey questionnaire for the Bangladeshi SMEs. 25.9% of Bangladeshi SMEs said that, the government of the country is helping them to adopt e-communication facilities and 9.1% of the SMEs strongly supported them. However, 27.3% of the SMEs disagreed regarding government support for adopting e-communication facilities and 16.8% SMEs strongly supported them. Likewise, 20.9% of the SMEs who have already adopted e-communication facilities were neutral about government support. It is evident from the key analysis in Table 4.13 that, all the participants have provided their opinion for this question. The outcomes are statistically significant where the Chi-squared value in Table 4.13 shows 23.955 with the degree of freedom (DF) is 4 including the goodness of fit value (p value) found is 0.000.

The government plays an important role in helping the adoption of e-communication facilities (Abousaber, 2013). 60.4% of the Bangladeshi SMEs who have not yet adopted e-communication facilities believe that, the government can help them to adopt e-communication facilities in their organisation and 22.4% of the participants have strongly agreed with them. Nonetheless, 6.8% of the SMEs disagreed, 1.6% has strongly disagreed and 8.8% participants were neutral about the government

support for the adoption of e-communication facilities in their organisation. The key analysis within Table 4.13 shows that, all the participants have attempted this question. The Chi-squared value found 284.520 is highlighted in Table 4.13 where the p value is 0.000 with the DF 4 and the outcome is statistically significant.

4.1.13 Features and encouraging factors for SMEs

Table 4.14: Features and encouraging factors for SMEs to adopt e-communication facilities

Table 4.14	Types of organisation	Issues					Statistics						
My organisation has been using e-communication facilities for		3-6 Months	6-12 Months	1-3 years	3-4 years	More than 4 years	M.	S.D	V	S.E.	D.F	C.S	A.S
	Adopted	22.7%	40.5%	20.9%	10.9%	5.0%	2.38	1.264	1.598	0.085	4	140.382	0.000
E-communication facilities are Compatible with business operations.		Issues					Statistics						
		Strongly disagree	Disagree	No comment	Agree	Strongly agree							
		4.5%	15.9%	14.5%	50.0%	15.0%	3.55	1.069	1.114	0.072	4	133.136	0.000
It was easy to setup and install the e-communication equipment in my organisation.		11.4%	27.7%	10.5%	42.3%	8.2%	2.92	1.217	1.482	0.082	4	94.727	0.000
I had to get training to use this facility		2.7%	10.0%	8.6%	62. 7 %	15.9%	3.79	0.923	0.851	0.062	4	260.682	0.000

Use of e-communication facility in organisations is easier		2.7%	9.5%	10.9%	65.5%	11.4%	3.73	0.884	0.782	0.060	4	289.409	0.000
Awareness assurance of the banking industry for e-communication facilities		8.6%	32.3%	25.9%	27.7%	5.5%	2.89	1.076	1.157	0.073	4	64.455	0.000
We are getting some funds from some institutions for the e-communication facilities.		25.0%	42.3%	17.3%	13.2%	2.3%	2.25	1.046	1.095	0.071	4	97.818	0.000
Types of business can affect the adoptions of e-communication facilities.		2.3%	8.6%	17.7%	54.5%	16.8%	3.75	0.915	0.837	0.062	4	181.727	0.000
Statistics based on 220 e-communication adopted Bangladeshi SMEs													

S.D-Standard Deviation; V-Variance; S.E.-Standard Error; D.F.-Degree of Freedom; C.S.-Chi-Squire, A.S.-Asymptotic Significance

Figure 4.13: Features and encouraging factors for SMEs to adopt e-communication facilities

a) My organisation has been using e-communication facilities for

	Using e-communication facilities for	Response (%)
1	3-6 Months	22.7%
2	6-12 Months	40.5%
3	1-3 years	20.9%
4	3-4 years	10.9%
5	More than 4 years	5.0%
	Statistics based on **220** respondents.	

b) E-communication facilities are compatible with business operations.

	E-communication facilities are compatible with business operations	Response (%)
1	Strongly disagree	4.5%
2	Disagree	15.9%
3	No comment	14.5%
4	Agree	50.0%
5	Strongly Agree	15.0%
	Statistics based on **220** respondents.	

c) It was easy to setup and install the e-communication equipment in my organisation.

	It was easy to setup and install the e-communication equipment in my organisation	Response (%)
1	Strongly disagree	8.2%
2	Disagree	42.3%
3	No comment	10.5%
4	Agree	27.7%
5	Strongly Agree	11.4%
	Statistics based on **220** respondents.	

d) I had to get training to use this facility

I had to get training to use this facility		Response (%)
1	Strongly disagree	2.7%
2	Disagree	10.0%
3	No comment	8.3%
4	Agree	62.7%
5	Strongly Agree	15.9%
Statistics based on **220** respondents.		

e) Use of e-communication facility in organisations is easier

Use of e-communication facility in organisations is easier		Response (%)
1	Strongly disagree	2.7%
2	Disagree	9.5%
3	No comment	10.9%
4	Agree	65.5%
5	Strongly Agree	11.4%
Statistics based on **220** respondents.		

f) Awareness assurance of the banking industry for e-communication facilities

Awareness assurance of the banking industry for e-communication facilities		Response (%)
1	Strongly disagree	8.6%
2	Disagree	32.3%
3	No comment	25.9%
4	Agree	27.7%
5	Strongly Agree	5.5%
Statistics based on **220** respondents.		

g) We are getting some funds from some institutions for the e-communication facilities.

We are getting some funds from some institutions for the e-communication facilities.		Response (%)
1	Strongly disagree	25.0%
2	Disagree	42.3%
3	No comment	17.3%
4	Agree	13.2%
5	Strongly Agree	2.3%
Statistics based on **220** respondents.		

h) Types of business can affect the adoptions of e-communication facilities.

Types of business can affect the adoptions of e-communication facilities.		Response (%)
1	Strongly disagree	2.3%
2	Disagree	8.6%
3	No comment	17.7%
4	Agree	54.5%
5	Strongly Agree	16.8%
Statistics based on **220** respondents.		

Duration of the e-communication service adoption

Bangladeshi SMEs have started to use e-communication facilities for about half of a decade. Research findings show that, 20.9% of the SMEs have been using e-communication facilities for 1-3 years and 22.7% of the SMEs have started to use them since the last six months to one year. From the survey it has also been found that, only 5% of SMEs have been using the e-communication facilities for more than 4 years and 10.9% of SMEs have used this for 3-4 years. Furthermore, 22.7% of SMEs are using e-communication facilities since the last 3-6 months. It is evident from the research findings that the use of e-communication facilities among Bangladeshi SMEs has been increasing gradually. Research findings revealed that, the number of e-communication facilities users increased about six times since the

last four years. From the key analysis, in Table 4.14 it is seen that, all the participants have responded to this question. The features of the Chi-squared test show that the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 140.382 where the degree of freedom is 4.

Compatibility of the e-communications

Research findings related to the compatibility of the e-communications within business operations have been summarised in Table 4.14. One of the survey questions was related to the compatibility of the e-communications in the business operations for Bangladeshi SMEs. Research findings have indicated that, 50% of the participants think e-communication facilities are compatible with their business operations and 15.0% participants have strongly agreed with them. However, 15.9% of participants who have already adopted e-communication facilities have disagreed with the compatibility of service and 4.5% participants strongly supported them. Additionally, 14.5% of participants were neutral regarding the compatibility of the e-communication facilities in business operations. It is evident from the key analysis in Table 4.14 that, all the participants have answered this question. Table 4.14 shows the Chi-squared value 133.136 where the p value found 0.000 and the DF 4. The conventional criteria clearly indicate that; the outcome is statistically significant.

Setup and installation of e-communication facilities

Table 4.14 also presents the information that is related to the setup and installation easiness of the e-communication equipment among Bangladeshi SMEs. Users of e-communication facilities might face difficulties during setup and installation; 27.7% of the Bangladeshi SMEs who have already adopted this service have agreed and 11.4% of the SMES have strongly agreed with the statement in regards to the setup and installation easiness. Contrary to this, 42.3% of the SMEs disagreed with the difficulties and 8.2% participants strongly supported them. 10.5% of the SMEs neither agree nor disagree with the e-communication equipment setup and installation easiness. All the participants have attained the question. The Chi-squared value found 94.727 evident from the Table 4.14 which is statistically significant with the p value 0.000 and the DF 4.

Training to use any e-communication facilities

Information related to training when using e-communication facilities among Bangladeshi SMEs have been summarised in Table 4.14. Required training can be helpful when using any e-communication facilities easily and considering the training for using e-communication facilities; the researcher has added one option for Bangladeshi SMEs. 62.7% of Bangladeshi SMEs opined that, they had to get training before using e-communication facilities and 15.9% SMEs supported their opinion strongly. Conversely, 10.0% of the Bangladeshi SMEs have disagreed with this statement and 2.7% of the participants strongly supported them. Moreover, 8.6% SMEs were neutral regarding the training for using e-communication facilities. It is evident from the Table 4.14 that; all the participants have attained this question. According to the features of the Chi-squared test, the outcome of the survey findings is statistically significant with the p value 0.000 for the Chi-squared value 260.682 where the degree of freedom is 4.

Easy usage of e-communication facilities

Information related to the easy usage of the e-communication facilities are presented within Table 4.14. Considering the easy usage of e-communication facilities the researcher has constructed one question in the survey questionnaire for Bangladeshi SMEs. Research findings indicate that, 65.5% of the SMEs think that the use of e-communication facility is easier and 11.4% of participants strongly supported them. However, 9.5% of the Bangladeshi SMEs who already have adopted e-communication facilities have disagreed with the easy usage of the e-communication facilities and 2.7% SMEs strongly supported them. Mover, 10.9% of the SMEs were neutral regarding the easy usage of e-communication facilities. All the participants have attained this question which is evident from the key analysis Table 4.14. The Chi-squared value is shown as 289.409 in Table 4.14 with the p value 0.000 and the DF 4 and the conventional criteria clearly show that, the outcome is statistically significant.

Awareness of the e-communication facilities

Awareness of the e-communication facilities could be increased in various ways, such as by the help of the banking industry and 27.7% of the Bangladeshi SMEs

who have adopted the facilities have agreed with the statement. Moreover, 5.5% of the SMEs strongly agreed with them. Nevertheless, 32.3% SMEs disagreed with the awareness assurance of the banking industry for e-communication facilities and 8.6% SMEs strongly agreed with them. Furthermore, 25.9% of the SMEs are neither agree nor disagree of the issue and these are presented in Table 4.14. Table 4.14 shows the Chi-squared value found 64.455 where the p value found 0.000 and the DF 4 and the outcome is statistically significant.

Funding from other organisations

Funding from various organisations can help SMEs when adopting e-communication facilities and 13.2% Bangladeshi SMEs agreed with the statement and 2.3% SMEs strongly supported them. However, 42.3% of SMEs have disagreed getting funds from various organisations and 25.0% strongly supported them. Additionally, 17.3% SMEs were neutral regarding funds from some institutions for e-communication facilities and these have been summarised in Table 4.14. The Chi-squared test features highlight the outcome of the survey findings which is statistically significant with the p value 0.000 for the Chi-squared value 97.818 where the degree of freedom is 4.

Types of business

Types of business can influence the adoption of e-communication facilities and 54.5% of the Bangladeshi SMEs who already adopted e-communication facilities agreed and 16.8% SMEs strongly supported them. Conversely, 8.6% of the Bangladeshi SMEs have disagreed and 2.3% strongly supported them, regarding types of business and influence of e-communication adoption. Similarly, 17.7% SMEs were neutral related to the types of SMEs and adoption of e-communication facilities. Information related to types of SMEs and adoption of e-communication facilities have been summarised in Table 4.14. The Chi-squared value in Table 4.14 shows 171.727. The degree of freedom is 4 including the goodness of fit value found is 0.000. The conventional criteria evidently indicate that; the result is statistically significant.

4.2 Bangladeshi SMEs' Organisational Culture Profile

In the Cameron and Quinn's model (1999), clan culture has been treated as a personal place and everyone can share a lot like an extended family; team work, participations and consensus are the main features of organisation's management style and loyalty and mutual trust are the main connectors which keep the organisation together. Secondly, adhocracy culture is considered as very dynamic entrepreneurial place and none wants to take risks, innovating or risk taking and entrepreneurship are the main features of organisational leadership and creating new challenges and acquiring new resources are the main emphasising issues of organisations. In this model, market culture is result, competition and achievement oriented and a major emphasis is provided on job achievement and accomplishment by setting stretch targets. In addition to this, the hierarchy culture is associated with very structural and controlling workplace where organisational procedures are firmly employed; and organising, co-ordinating and smooth running efficiency are the main features of organisational leadership. Likewise, conformity, security of employment, stability in relationships and predictability are the main features of organisation's management style and low cost production, smooth scheduling, efficiency and dependable delivery are the basement of the organisational success (Abousaber, 2013). To specify organisational cultural type of the Bangladeshi SMEs, the OCAI model has been implemented.

Organisational cultural profiles of the Bangladeshi SMEs in the context of e-communication adoption and non-adoption have been presented in Table 4.15 and in the figures from 4.14 to 4.24. Different types of SMEs such as software development; electronic and electrical products manufacturing and services; leather goods; specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; metal working and light engineering; readymade garments and knitwear; wear and consumer goods; plastics and other synthetics; toiletries/ cosmetics/ pharmaceuticals; education services and health care and diagnostics have been considered for this study. Associated data have been collected from the Bangladeshi SMEs and those are analysed considering the characteristics of different type organisational cultures following the Cameron and Quinn's (1999) model.

The clan is the main controlling culture for Bangladeshi SMEs who have already adopted e-communication facilities in their business operations, evident from the Table 4.15. However, Bangladeshi SMEs of metal working & light engineering and SMEs of education services are dominated by hierarchy culture; and adhocracy is the controlling culture for SMEs of electronic and electrical products manufacturing and services (Table 4.15). Table 4.15 also shows that, many Bangladeshi SMEs who have not adopted e-communication facilities are mainly controlled by the adhocracy organisational culture. However, the market culture is controlling the Bangladeshi SMEs of electronic and electrical products manufacturing and services; and education services. The clan culture is dominating the Bangladeshi SMEs of metal working and light engineering; readymade garments and knitwear; Health care and diagnostics and; wear and consumer goods who have not adopted e-communication facilities (Table 4.15).

Table 4.15: Profile of the Bangladeshi SMEs

Types of SMEs	Types of e-communication adoption	Number of participants (N)	Culture type and Mean				Highest mean and dominated culture
			Clan culture	Adhocracy culture	Market culture	Hierarchy culture	
SMEs of software development	**Adopted**	25	30.6333	25.8733	22.7733	20.74	**30.6333 Clan**
	Non-Adopted	1	20	30	25	25	**30 Adhocracy**
SMEs of electronic and electrical products manufacturing and services	**Adopted**	25	23.75	31.306	23.903	22.188	**31.306 Adhocracy**
	Non-Adopted	25	21.1467	25.0933	33.33	20.66	**33.33 Market**
SMEs of leather goods	**Adopted**	28	30.5595	27.25	21.935	20.256	**30.5595 Clan**
	Non-Adopted	23	23.5144	35.7753	20.0217	20.4347	**35.7753 Adhocracy**

SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture	**Adopted**	16	34.2969	26.0416	20.7239	19.7708	**34.2969 Clan**
	Non-Adopted	28	26.1071	32.5416	20.3095	20.8035	**32.5416 Adhocracy**
SMEs of metal working and light engineering	**Adopted**	15	22.1111	23.2889	21.8667	32.7333	**32.7333 Hierarchy**
	Non-Adopted	31	34.3096	25.5914	20.3333	19.6667	**34.3096 Clan**
SMEs of readymade garments and knitwear	**Adopted**	15	30.7111	26.4444	23.5889	18.9778	**30.7111 Clan**
	Non-Adopted	17	32.4705	24.6372	21.0196	21.8725	**32.4705 Clan**

SMEs of health care and diagnostics	**Adopted**	24	32.7569	26.2292	22.2708	20.6667	**32.7569 Clan**
	Non-Adopted	36	36.1111	25.1620	18.3564	21.4814	**36.1111 Clan**
SMEs of plastics and other synthetics	**Adopted**	28	31.7738	25.5952	21.1667	21.4464	**31.7738 Clan**
	Non-Adopted	33	25.3182	32.9798	20.5758	20.8232	**32.9798 Adhocracy**
SMEs of toiletries/cosmetics/pharmaceuticals	**Adopted**	18	31.9167	26.0092	21.1772	20.6759	**31.9167 Clan**
	Non-Adopted	30	26.0277	29.3333	17.7575	18.0858	**29.3333 Adhocracy**

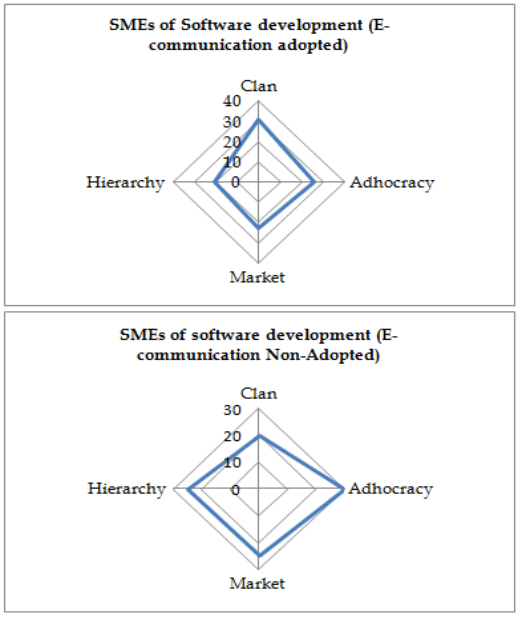
SMEs of education services	**Adopted**	12	22.9027	22.9444	21.3472	32.8056	**32.8056 Hierarchy**
	Non-Adopted	12	21.7778	25.8611	30.00	19.7917	**30.00 Market**
SMEs of wear and consumer goods	**Adopted**	14	31.8809	26.1071	21.3214	21.4047	**31.8809 Clan**
	Non-Adopted	14	31.1904	26.0238	20.6904	21.3214	**31.1904 Clan**
Statistics based on 220 adopted and 250 non-adopted Bangladeshi SMEs							

Organisational culture profile of the SMEs of software development

Dominant culture type of the Bangladeshi SMEs of software development has been represented by the Table 4.15 and Figure 4.14. Dominant culture type could be identified from the highest mean value by using the OCAI model. Highest mean (Table 4.15 and Figure 4.14) clearly indicates that, the clan culture is dominating the Bangladeshi SMEs of software development who have adopted e-communication facilities but those who yet to adopt e-communication facilities are mainly controlled by the adhocracy culture.

In the software development company, everyone can share which suggests it is like an extended family and their team work, participations and consensus are the main features of organisation's management style and this could be a reason that, the clan is their dominating culture. In contrast, the Software Development Company is one of the most innovative, risk taking and entrepreneurial places, but everybody needs to follow the organisational instructions and there is very little chance to share personal experiences. These could be the reason for the e-communications non adopters that, the adhocracy culture is dominating them.

Figure 4.14: Profile of the SMEs of software development



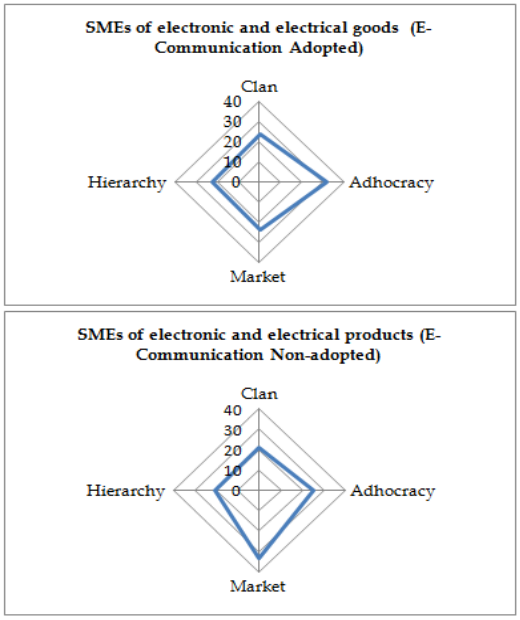
SMEs of electronic and electrical products manufacturing and services

The dominant culture type of the Bangladeshi SMEs of electronic and electrical products manufacturing and services has been shown in Figure 4.15. Observing the highest mean from the Table 4.15 and Figure 4.15, it could be said that, the adhocracy culture is mainly controlling the Bangladeshi SMEs related to electronic and electrical products manufacturing and services. The highest mean value of the collected data (Table 4.15 and Figure 4.15) indicates that, the market culture is the

dominating culture for e-communication facilities non adopters SMEs of electronic and electrical products manufacturing and services.

Bangladeshi SMEs of electronic and electrical products manufacturing and services is a very dynamic entrepreneurial place and innovating or risk taking and entrepreneurship which could be a reason to be dominated by the adhocracy organisational culture. However, electronic and electrical products business is very competitive and achievement oriented and winning in the marketplace are the main emphasising issues of the organisations. These could be the main reasons that, the market culture is dominating the Bangladeshi SMEs of electronic and electrical products manufacturing and services who have not adopted e-communication facilities.

Figure 4.15: Profile of the SMEs of electronic and electrical products manufacturing and services



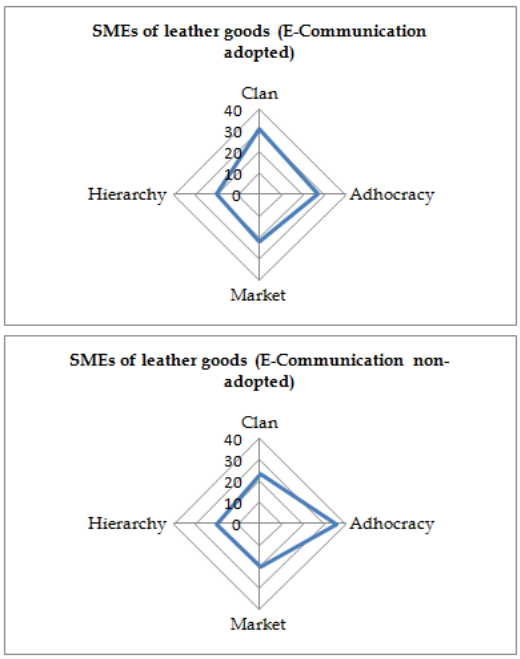
SMEs of leather goods

It is evident from the highest mean value (Table 4.15 and Figure 4.16) that, the clan is the main dominating culture for Bangladeshi SMEs of leather goods who have already adopted e-communication service. Conversely, the adhocracy culture is dominating the Bangladeshi SMEs of leather goods who yet to adopt e-communication facilities. In the Bangladeshi SMEs of leather industry, loyalty and mutual trust are treated as the main connector that holds the organisation together; and everyone can share a lot like an extended family.

Moreover, team work, participations and consensus are the main features of organisation's management style and this could be the reasons behind dominated by the clan culture. Nevertheless, Bangladeshi SMEs of leather industry is considered as very dynamic entrepreneurial place and none wants to take risks but personally none wants to take any responsibility. These could be the reasons that adhocracy culture is dominating for

this type of SMEs who have not yet adopted e-communication facilities.

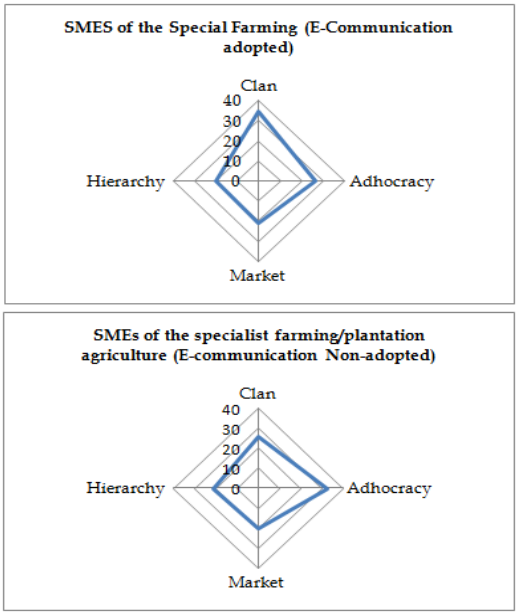
Figure 4.16: Profile of the SMEs of leather goods



SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture

Table 4.15 and Figure 4.17 have shown the dominant organisational cultures of the Bangladeshi SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture where the highest mean value 34.2969 indicates that, the clan culture is dominating them. On contrary to this, the highest mean value 32.516 (from the OCAI test) indicates that, the adhocracy culture is dominating those SMEs who have not adopted e-communication facilities.

Figure 4.17: Profile of the SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture



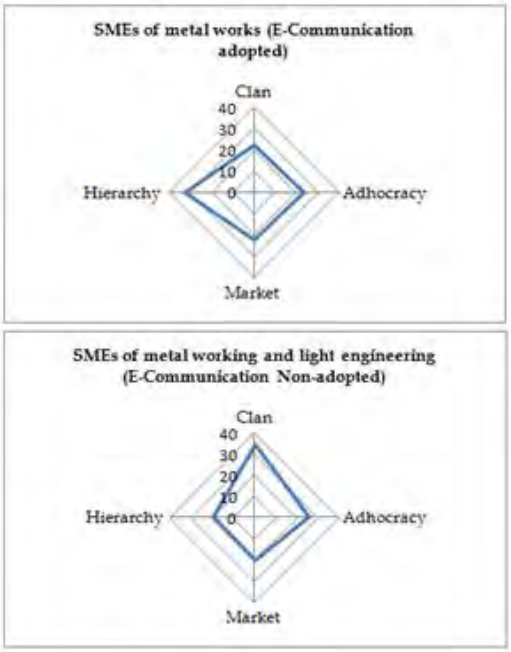
In the SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture teamwork, participations and consensus are the main features of organisation's management style. Additionally, everyone can share just like an extended family; and loyalty and mutual trust are treated as the main connector that keeps the organisation together and these could be the important factors that the clan culture is dominating them. Although, these SMEs include a friendly workplace and no one wants to take risks. Similarly, they are also innovative, and these could be the important factors that the adhocracy culture is controlling them.

SMEs of metal working and light engineering

Table 4.15 and Figure 4.18 show that, Bangladeshi SMEs of metal working, and light engineering are dominant by the hierarchy culture. Conversely, Bangladeshi SMEs of metal working and light engineering (who have not adopted e-communication facilities) are dominant by the clan culture.

As there are a number of risks in metal working and light engineering, Bangladeshi SMEs related to this industry are very structured and controlled place, and formal procedures are strictly followed. Moreover, organising, co-ordinating and smooth running efficiency are the main features of organisational leadership. Likewise, low cost production, smooth scheduling, efficiency and dependable delivery are the basement of the organisational success and these could be influential factors to be dominated by the hierarchy culture.

Figure 4.18: Profile of the SMEs of metal working and light engineering

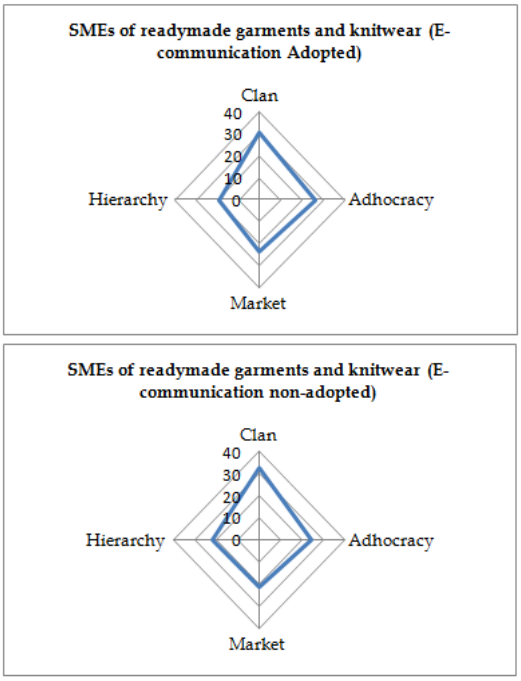


SMEs of readymade garments and knitwear

The controlling organisational culture of the Bangladeshi SMEs of readymade garments and knitwear could be identified by observing the highest mean value from the OCAI techniques. Table 4.15 and Figure 4.19 show that, the highest mean value is 30.71111 which indicate that, the clan is the dominating culture for Bangladeshi SMEs of readymade garments and knitwear. However, the highest mean value 32.4705 indicates that, the clan culture is dominating the SMEs of readymade garments and knitwear (e-communication facilities non-adopters).

Most of the Bangladeshi SMEs of readymade garments and knitwear (both who have and who have not adopted e-communication facilities) treat their workplace like an extended family; and participants and team works are the main features of their organisational management style which could be strongly related to the SMEs of readymade garments and knitwear to be controlled by the clan culture.

Figure 4.19: Profile of the SMEs of readymade garments and

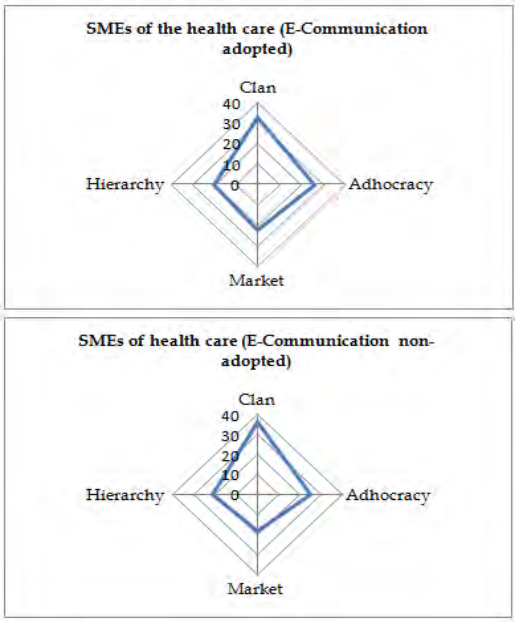


SMEs of health care and diagnostics

In the case of both e-communication adopters and non-adopters (Table 4.15 and Figure 4.20), the highest mean value indicates that, the clan is the dominating culture for Bangladeshi SMEs of the health care and diagnostics.

In the health care and diagnostics industry team work, participations and consensus are treated as most important factors. Moreover, loyalty and mutual trust are considered as the main connector that holds the firms together and because of these the clan culture is dominating the Bangladeshi SMEs of health care and diagnostics.

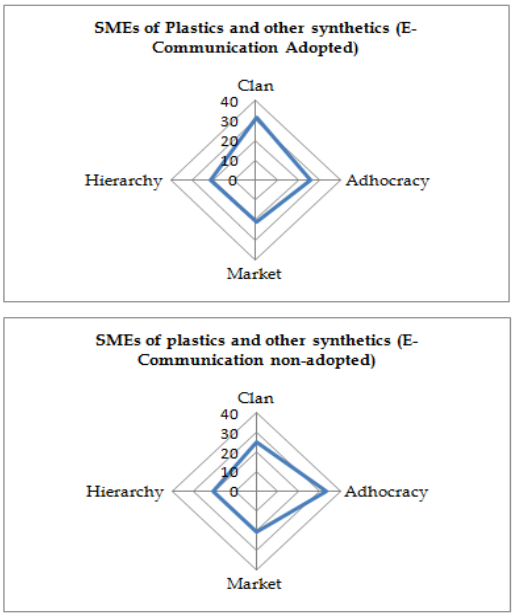
Figure 4.20: Profile of the SMEs of health care and diagnostics



Organisational culture profile of the SMEs of plastics and other synthetics

The highest mean value evident from the Table 4.15 and Figure 4.21 show that, the clan is the dominating organisational culture for Bangladeshi SMEs of plastics and other synthetics. However, the adhocracy is the dominating culture who has not adopted e-communication facilities yet.

Figure 4.21: Profile of the SMEs of plastics and other synthetics



Team work, participations and consensus are treated as important factors in the SMEs of plastics and other synthetics. In addition to this, some factors such as mutual trust and loyalty are considered as important glue and these could be the reasons behind Bangladeshi SMEs of plastics and other synthetics to be dominated by the clan culture. Bangladeshi SMEs of plastics and other synthetics is considered

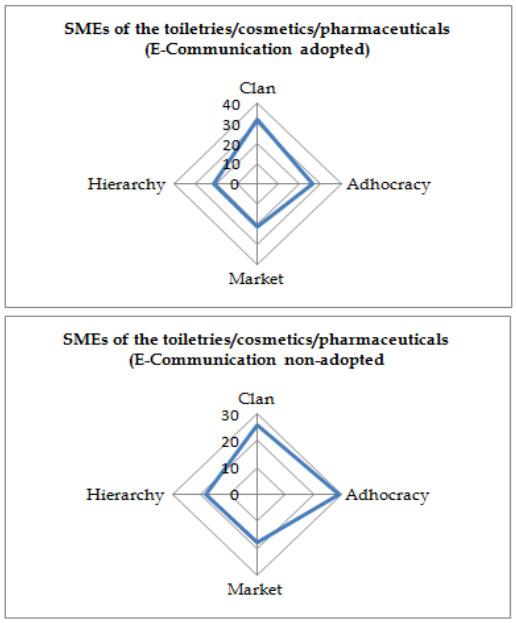
as very dynamic entrepreneurial and innovating place. Besides, organisational leadership and creating new challenges and acquiring new resources are the main emphasising issues of these types of SMEs. These are the main factors that adhocracy culture is dominating the Bangladeshi SMEs of plastics and other synthetics (e-communication facilities non-adopters).

Organisational culture profile of the SMEs of toiletries/cosmetics/pharmaceuticals

Table 4.15 and figure 4.22 represent the mean value of the OCAI model for the Bangladeshi SMEs of toiletries/cosmetics/pharmaceuticals. These pieces of evidence show that the adhocracy culture is dominating the Bangladeshi SMEs of the toiletries/cosmetics/pharmaceuticals but who have not yet adopted e-communication facilities are controlled by the adhocracy culture.

Participations and consensus are treated as important factors in the SMEs of toiletries/cosmetics/pharmaceuticals. Additionally, teamwork is importantly considered. Furthermore, some factors such as mutual trust and loyalty are also considered as important glue and these could be the reasons behind Bangladeshi SMEs of toiletries/cosmetics/pharmaceuticals to be dominated by the clan culture. Bangladeshi SMEs of toiletries/cosmetics/pharmaceuticals are treading as very dynamic entrepreneurial and innovating places. Equally, creating new challenges and organisational leadership are the main emphasising issues of these types of SMEs. These are the main factors related to the Bangladeshi why the adhocracy culture is dominating the SMEs of toiletries/cosmetics/pharmaceuticals (e-communication facilities non-adopters).

Figure 4.22: Profile of the SMEs of toiletries/cosmetics/pharmaceuticals

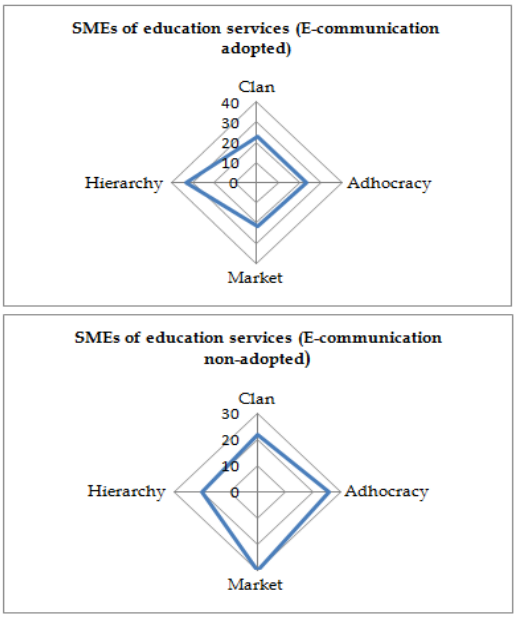


SMEs of education services

Organisational culture profile of the Bangladeshi SMEs of education services could be identified using OCAI techniques following highest mean features. It is evident from the Table 4.15 and Figure 4.23 that; the hierarchy is the dominating culture for Bangladeshi SMEs of education services. However, the market culture is dominating the SMEs who have not adopted e-communication facilities.

Bangladeshi SMEs of education services have a very structured and controlled place. Moreover, formal procedures are strictly followed in the education services. In addition, organising, co-ordinating and smooth running efficiency are the main features of organisational leadership, conformity, security of employment, stability in relationships and predictability are the main features of organisation's management style which may lead to hierarchy culture for the Bangladeshi SMEs involved in education services. However, the market culture is dominating the SMEs of education services who yet to adopt e-communication facility.

Figure 4.23: Profile of the SMEs of education services

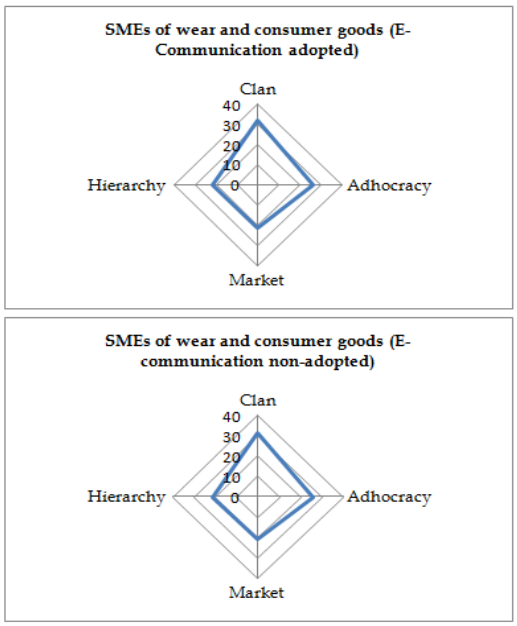


SMEs of wear and consumer goods

Table 4.15 and Figure 4.24 show the dominant organisational culture profile of the Bangladeshi SMEs of wear and consumer goods. The highest mean value for the SMEs of wear and consumer goods has been found 28.0 in the clan quadrant which indicates that, the clan is their dominating organisational culture in the case of both e-communication adopters and non-adopters.

Workplace of the SMEs of wear and consumer goods is friendly and mutual trust and loyalties are considered as the main glues to hold the organisation together. Besides, every member can share a lot like an extended family and these could be the important issues for the Bangladeshi SMEs of wear and consumer goods (both who have adopted e-communication facilities and who have not) and these are the reasons that the clan culture is dominating them.

Figure 4.24: Profile of the SMEs of wear and consumer goods



4.3 Analysis of the Research Hypotheses

To identify the main factors which influence Bangladeshi SMEs for e-communication adoption and their overall performance, the researcher has considered two types of factors (variables). The first one is the dependent that is, the e-communication adoption by Bangladeshi SMEs. The second is the independent variables which are government roles, the service providers (the banking industry's) commercialisation strategies and organisational culture of the Bangladeshi SMEs. It has been predicted within this research that, if these three independent variables could be integrated, then the rate of e-communication would be increased and Bangladeshi SMEs' overall performance will be enhanced. For the three independent variables three hypotheses (H1, H2 and H3) are indicated in the conceptual model. Moreover, the integration of these three variables is also presented by one hypothesis H4 (integration of H1, H2 and H3) that indicates the outcomes of the first three hypotheses.

The hypotheses of this research have been analysed in this section based on the data collected from the Bangladeshi SMEs. To prove or disprove the hypotheses, features of the discrete statistics have been implemented considering the Chi-Squared test. Furthermore, in the discrete statistics, the Asymptotic Significance value (the p value/goodness of fit value) and the Degree of Freedom (DF) are importantly considered especially to test the statistical significance of the collected data. In this study, survey data collected from Bangladeshi SMEs have been tested by using the features of the Chi-Squared test. Cross tabulation procedure has also been followed in this section linking with different survey questions.

- **Hypothesis H1:** Organisational culture of the SMEs can affect the e-communication adoption

To test the hypothesis H1, the null hypothesis ($H1_0$) has been considered which has been tested based on the data collected from both types of Bangladeshi SMEs who have already adopted e-communication facilities and who have not adopted yet.

$\mathbf{H1_0}$**:** Organisational culture of the SMEs cannot affect e-communication adoption

Table 4.16: Test of $H1_0$ Hypothesis

Table 4.16	**Types of organisation**	**One Sample Statistics**				**One Sample Test**					
$\mathbf{H1_0}$: Organisational culture of the SMEs cannot affect e-communication adoption		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
										Lower	**Upper**
	Adopted	220	3.72	1.065	0.072	-3.924	219	0.000	-0.282	-0.42	-0.14
	Non- Adopted	250	3.93	0.736	0.047	-1.548	249	0.123	-0.072	-0.16	0.02
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs											

The null hypothesis $H1_0$ has been tested using the one sample t-test. It is evident from the outcomes that, the P value for SMEs who have already adopted e-communication facilities in Bangladesh is 0.000 which is less than 0.05 and in accordance with the conventional criteria; the null hypothesis is statistically rejected. It means that, the statement, organisational culture of the SMEs cannot affect e-communication adoption is not acceptable in the context of Bangladeshi SMEs who have already adopted the facility. Conversely, P value for SMEs who have not adopted e-communication indicates that, the considered null hypothesis cannot be rejected. To test the Hypothesis H1, the Chi-squared test could be implemented in consideration of e-communication setup and organisational culture of the SMEs which has been shown below.

Cross tabulation (Question 13 and Question 22)

Information related to the ease of setup and installation of the e-communication facilities has been presented in Table 4.14. The relationship between norms, beliefs, education level and attitudes of the SMEs owners/managers and adoption of e-communication has been summarised in Table 4.11. The survey findings (questions 11 and 22) have been tested and summarised by using the features of Chi-squared test as follows.

Table 4.17: Cross tabulation between Questions 13 and 22

Cross Tabulation	**Q.22:** Norms, beliefs, education level and attitudes of the owners/managers are responsible to adopt of e-communication facilities.							
Q.13: It was easy to setup and install the e-communication equipment in my organisation.			Strongly disagree	Disagree	No Comment	Agree	Strongly agree	**Row Total**
	Strongly disagree	Count	0	4	1	11	2	18
		% within Q13	0.0	22.2	5.6	61.1	11.1	100.0%
		%within Q22	0.0	11.4	4.3	10.3	4.1	8.2%
		% of total	0.0	1.8	0.5	5.0	0.9	8.2%
	Disagree	Count	2	13	12	44	22	93
		% within Q13	2.2	14.0	12.9	47.3	23.7	100.0%
		%within Q22	33.3	37.1	52.2	41.1	44.9	42.3%
		% of total	0.9	5.9	5.5	20.0	10.0	42.3%
	No comment	Count	1	5	2	10	5	23
		% within Q13	4.3	21.7	8.7	43.5	21.7	100.0%
		%within Q22	16.7	14.3	8.7	9.3	10.2	10.5%
		% of total	0.5	2.3	0.9	4.5	2.3	10.5%
	Agree	Count	3	13	6	28	11	61
		% within Q13	4.9	21.3	9.8	45.9	18.0	100.0%
		%within Q22	50.0	37.1	26.1	26.2	22.4	27.7%
		% of total	1.4	5.9	2.7	12.7	5.0	27.7%

	Strongly agree	Count % within Q13 %within Q22 % of total	0 0.0 0.0 0.0	0 0.0 0.0 0.0	2 8.0 8.7 0.9	14 56.0 13.1 6.4	9 36.0 18.4 4.1	25 100.0% 11.4% 11.4%
	Column Total	Count % within Q13 %within Q22 % of total	6 2.7% 100.0% 2.7%	35 15.9% 100.0% 15.9%	23 10.5% 100.0% 10.5%	107 48.6% 100.0% 48.6%	49 22.3% 100.0% 22.3%	220 100.0% 100.0% 100.0%
Chi-Square value:14.824			**DF:** 16			**Asymp. Sig:** 0.538		

Compiled by the Researcher (2014)

The cross tabulation between the survey question 13 and question has been presented in Table 4.17. The Chi-Squared value has been found 14.824 with the p value 0.538 and the DF 16 which clearly shows that, the outcome is not statistically significant. After analysing these issues, it could be said that, there is a significant relationship between the installation difficulties of the e-communication facilities in Bangladeshi SMEs and the norms, beliefs, educational level and attitudes of the managers/owners of the SMEs. The hypothesis H2 is then proved from the perspective of Bangladeshi SMEs who have already adopted e-communication facilities in their organisation.

Table 4.18: Correlations between Question 13 and Question 22

Correlations			**It was easy to setup and install the e-communication equipment in my organisation**	**Norms, beliefs, education level and attitudes and adopt of e-communication facilities**
Spearman's rho	**It was easy to setup and install the e-communication equipment in my organisation**	Correlation Coefficient	1.000	.056
		Sig. (2-tailed)	.	.407
		N	220	220
	Norms, beliefs, education level and attitudes and adopt of e-communication facilities	Correlation Coefficient	.056	1.000
		Sig. (2-tailed)	.407	.
		N	220	220

Table 4.18 represents the relationship between the easiness to setup and install the e-communication equipment in Bangladeshi SMEs and their norms, beliefs, education level and attitudes. The above table shows that, there is a positive and significant relationship between setting up and installing the e-communication equipment in the Bangladeshi SMEs and their norms, beliefs, education level and attitudes. The correlation coefficient value (0.56) indicates that, there is quite a strong relationship between the setting up and installing the e-communication equipment and norms, beliefs, education level and attitudes of the Bangladeshi SMEs. It could be summarised that, adoption of e-communication facilities by Bangladeshi SMEs could be influenced by the owners'/managers' norms, beliefs, education level and attitudes.

- **Hypothesis H2:** Commercialisation strategies of the service providers can affect the adoption of e-communication by SMEs

A null hypothesis $H2_0$ has been considered to test the hypothesis H2. To test this null hypothesis, data have been considered from both e-communication adopters and non-adopters contexts.

$\mathbf{H2_0}$**:** Commercialisation strategies of the service providers cannot affect the adoption of e-communication by SMEs

Table 4.19: Test of $H2_0$ Hypothesis

Table 4.19	Types of organisation	One Sample Statistics				One Sample Test					
H2: Commercialisation strategies of the service providers can affect the adoption of e-communication by SMEs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
										Lower	**Upper**
	Adopted	220	2.86	1.321	0.089	-12.764	219	0.000	-1.136	-1.31	-0.96
	Non-Adopted	250	3.82	0.870	0.055	-3.200	249	0.002	-0.176	-0.28	-0.07
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs											

To test the null hypothesis $H2_0$, the one sample t-test has been employed. The above table expose that, the P values for both types of the SMEs who have already adopted e-communication facilities and who have not adopted yet in Bangladesh is less than 0.05 (0.000 and 0.002 respectively) which clearly confirm that, the null hypothesis is statistically rejected for both cases. It reveals that, commercialisation strategies of the service providers cannot affect the adoption of e-communication by SMEs is not acceptable in the context of Bangladeshi SMEs.

Consequently, to test the Hypothesis H2, the Chi-squared test could be implemented in consideration of the easiness of e-communication setup and installation and support from the service providers (commercialisation strategies of the bank industry) which has been shown below.

Cross tabulation between questions 13 and 23

Information related to the easy setup and installation of the e-communication facilities has been presented in Table 4.14 and support from the service providers have been presented in Table 4.12. The Chi-Squared test has been followed to test and summarise the cross tabulation (Questions 13 and 23).

Table 4.20: Cross tabulation between Questions 13 and 23

Cross Tabulation	**Q.23:** The Service providers' policies (and or initiatives) are helping to adopt more e-communication facilities							
			Strongly disagree	Disagree	No Comment	Agree	Strongly agree	**Row Total**
Q.13: It was easy to setup and install the e-communication equipment in my organisation.	Strongly disagree	Count	0	0	0	2	0	2
		% within Q13	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
		%within Q23	0.0%	0.0%	0.0%	8.7%	0.0%	5.4%
		% of total	0.0%	0.0%	0.0%	5.4%	0.0%	5.4%
	Disagree	Count	0	0	1	11	5	17
		% within Q13	0.0%	0.0%	5.9%	64.7%	29.4%	100.0%
		%within Q23	0.0%	0.0%	25.0%	47.8%	71.4%	45.9%
		% of total	0.0%	0.0%	2.7%	29.7%	13.5%	45.9%
	No comment	Count	0	1	0	2	0	3
		% within Q13	0.0%	33.3%	0.0%	66.7%	0.0%	100.0%
		%within Q23	0.0%	50.0%	0.0%	8.7%	0.0%	8.1%
		% of total	0.0%	2.7%	0.0%	5.4%	0.0%	8.1%
	Agree	Count	1	1	3	4	2	11
		% within Q13	9.1%	9.1%	27.3%	36.4%	18.2%	100.0%
		%within Q23	100.0%	50.0%	75.0%	17.4%	28.6%	29.7%
		% of total	2.7%	2.7%	8.1%	10.8%	5.4%	29.7%
	Strongly agree	Count	0	0	0	4	0	4
		% within Q13	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
		%within Q23	0.0%	0.0%	0.0%	17.4%	0.0%	10.8%
		% of total	0.0%	0.0%	0.0%	10.8%	0.0%	10.8%

	Column Total	Count % within Q13 %within Q23 % of total	1 2.7% 100.0% 2.7%	2 5.4% 100.0% 5.4%	4 10.8% 100.0% 10.8%	23 62.2% 100.0% 62.2%	7 18.9% 100.0% 18.9%	37 100.0% 100.0% 100.0%
Chi-Square value: 17.607			**DF:** 16			**Asymp. Sig:** 0.347		

Compiled by the Researcher (2014)

Cross tabulation between the survey questions 13 and 23 has been presented in the Table 4.20. The table 4.20 shows, the Chi-Squared value 17.607 with the p value 0.347 and the DF 16 indicate that, this statement is not statistically significant and therefore, there is a positive relationship between both survey questions 13 and 24. After analysing these issues, it could be said that, there is a significant relationship between the easiness to setup and install the e-communication equipment in Bangladeshi SMEs and the support from the service providers (the banking industry). The hypothesis H2 is then proved from the perspective of Bangladeshi SMEs who have already adopted e-communication facilities in their organisation.

Table 4.21: Correlations between Question 13 and Question 23

Correlations			**It was easy to setup and install the e-communication equipment in my organisation**	**Banking industry's policies and e-communication facilities**
Spearman's rho	**It was easy to setup and install the e-communication equipment in my organisation**	Correlation Coefficient	1.000	.016
		Sig. (2-tailed)	.	.808
		N	220	220
	Banking industry's policies and e-communication facilities	Correlation Coefficient	.016	1.000
		Sig. (2-tailed)	.808	.
		N	220	220

The positive value of the correlation coefficient (0.016) indicates that, there is a positive relationship between the easiness to setup and install the e-communication

equipment and the banking industry's policies in Bangladeshi which is evident from the Table 4.21. Although, the relationship is not too strong, to setup and install the e-communication equipment, commercialisation strategies of the service providers can affect the SMEs.

- **Hypothesis H3:** Government roles can affect the adoption of e-communication facility by SMEs

To test the hypothesis H3, the null hypothesis $H3_0$ has been considered where data from both e-communication adopters and non-adopters equally treated.

$\mathbf{H3_0}$**:** Government roles cannot affect the adoption of e-communication facility by SMEs

Table 4.22: Test of $H3_0$ Hypothesis

Table 4.22	Types of organisation	One Sample Statistics				One Sample Test					
H3: Government roles can affect the adoption of e-communication facility by SMEs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
										Lower	**Upper**
	Adopted	220	2.83	1.244	0.084	-13.931	219	0.000	-1.168	-1.33	-1.00
	Non-Adopted	250	3.95	0.854	0.054	-0.889	249	0.375	-0.048	-0.15	0.06
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs											

The null hypothesis $H3_0$ has been tested by applying the one sample t-test. The P value for SMEs who have already adopted e-communication facilities is less than 0.05 (0.000) (Table 4.22) and in accordance with the conventional criteria; the null hypothesis is statistically rejected. So, it could be said that, government roles cannot affect the adoption of e-communication facility by Bangladeshi SMEs who have already adopted the facility. Conversely, different outcomes have been evident for SMEs who have not adopted e-communication and the P value shows that, the null hypothesis cannot be rejected in their perspectives.

To test the Hypothesis 3, features of the Chi-squared test could be followed in consideration of the easiness of e-communication setup and installation and support from the government which has been shown below.

Cross tabulation (Question 13 and Question 24)

Information related to the easy setup and installation of the e-communication facilities has been presented in Table 4.14 and support from the government has been presented in Table 4.13. The Chi-Squared test has been followed to test and summarise the cross tabulation (Questions 13 and 24).

Table 4.23: Cross tabulation between the survey questions 13 and 24

Cross Tabulation	**Q.24:** Government of Bangladesh is helping SMEs to adopt e-communication facilities							
			Strongly disagree	Disagree	No Comment	Agree	Strongly agree	**Row Total**
Q.13: It was easy to setup and install the e-communication equipment in my organisation.	Strongly disagree	Count	3	5	2	5	3	18
		% within Q13	16.7	27.8	11.1	27.8	16.7	100.0%
		%within Q24	8.1	8.3	4.3	8.8	15.0	8.2%
		% of total	1.4	2.3	0.9	2.3	1.4	8.2%
	Disagree	Count	15	24	23	25	6	93
		% within Q13	16.1	25.8	24.7	26.9	6.5	100.0%
		%within Q24	40.5	40.0	50.0	43.9	30.	42.3%
		% of total	6.8	10.9	10.5	11.4	2.7	42.3%
	No comment	Count	4	8	6	4	1	23
		% within Q13	17.4	34.8	26.1	17.4	4.3	100.0%
		%within Q24	10.8	13.3	13.0	7.0	5.0	10.5%
		% of total	1.8	3.6	2.7	1.8	0.5	10.5%
	Agree	Count	8	15	12	18	8	61
		% within Q13	13.1	24.6	19.7	29.5	13.1	100.0%
		%within Q24	21.6	25.0	26.1	31.6	40.0	27.7%
		% of total	3.6	6.8	5.5	8.2	3.6	27.7%
	Strongly agree	Count	7	8	3	5	2	25
		% within Q13	28.0	32.0	12.0	20.0	8.0	100.0%
		%within Q24	18.9	13.3	6.5	8.8	10.0	11.4%
		% of total	3.2	3.6	1.4	2.3	0.9	11.4%

	Column Total	Count % within Q13 %within Q24 % of total	37 16.8% 100.0% 16.8%	60 27.3% 100.0% 27.3%	46 20.9% 100.0% 20.9%	57 25.9% 100.0% 25.9%	20 9.1% 100.0% 9.1%	220 100.0% 100.0% 100.0%
Chi-Square value:10.950			**DF:**16			**Asymp. Sig:**0.813		

Source: Compiled by the Researcher (2014)

The cross tabulation between the survey question 13 and question 24 has been summarised in Table 4.23. The Chi-Squared value has been found 10.950 with the p value 0.813 and the DF 16 which confirms that, the statement is not statistically significant and therefore, there is a positive relationship between both survey question 13 and survey question 24. After analysing these issues, it could be said that, it was easy to setup and install the e-communication equipment in Bangladeshi SMEs and the government of Bangladesh has helped them to adopt e-communication facilities. The hypothesis H3 is then proved from the perspective of Bangladeshi SMEs who have already adopted e-communication facilities in their organisation. However, to analyse the relationship between the setup and installation easiness of e-communication facility and the Bangladesh government support has been analysed using the correlation analysis as presented in the Table 4.24.

Table 4.24: Correlations between Question 13 and Question 24

Correlations			**It was easy to setup and install the e-communication equipment in my organisation**	**Government of Bangladesh and adopt e-communication facilities by SMEs**
Spearman's rho	**It was easy to setup and install the e-communication equipment in my organisation**	Correlation Coefficient	1.000	-.030
		Sig. (2-tailed)	.	.663
		N	220	220
	Government of Bangladesh and adopt e-communication facilities by	Correlation Coefficient	-.030	1.000
		Sig. (2-tailed)	.663	.
		N	220	220

	SMEs			

The correlation coefficient value (-0.030) shows that, there is a negative relationship between the setup and the installation easiness of e-communication facility and the Bangladesh government support though the hypothesis related to this relationship has been proved and shown in Table 4.24. Still, the negative relationship is quite weak.

- **Hypothesis H4:** E-communication adoption can help SMEs to enhance their overall performance

The null hypothesis $H4_0$ has been considered to test the hypothesis H4, where data from both e-communication adopters and non-adopters equally treated.

$\mathbf{H4_0}$**:** E-communication adoption cannot help SMEs to enhance their overall performance

Table 4.25: Test of $H4_0$ Hypothesis

Table 4.25	**Types of organisation**	**One Sample Statistics**				**One Sample Test**					
H4: E-communication adoption can help SMEs to enhance their overall performance		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
										Lower	**Upper**
	Adopted	220	3.70	0.989	0.067	-4.499	219	0.000	-0.300	-0.43	-0.17
	Non-Adopted	250	3.75	0.549	0.035	-7.254	249	0.000	-0.252	-0.32	-0.18
Statistics based on 220 e-communication adopted and 250 non-adopted Bangladeshi SMEs											

The P values for both types of the SMEs are less than 0.05 (0.000 and 0.000 respectively) which confirms that, the null hypothesis is statistically rejected for both cases. So, it could be said that, e-communication adoption cannot help SMEs to enhance their overall performance is not acceptable in the context of Bangladeshi SMEs. Contrary to this, e-communication adoption can help SMEs to enhance their overall performance which proves the hypothesis H4.

4.4 Summary

It could be summarised from the above discussion that, if government supports appropriately; specific commercialisation strategies are followed by the service providers (the banking industry) and SMEs are aware enough of the benefits then rate of e-communication could be increased.

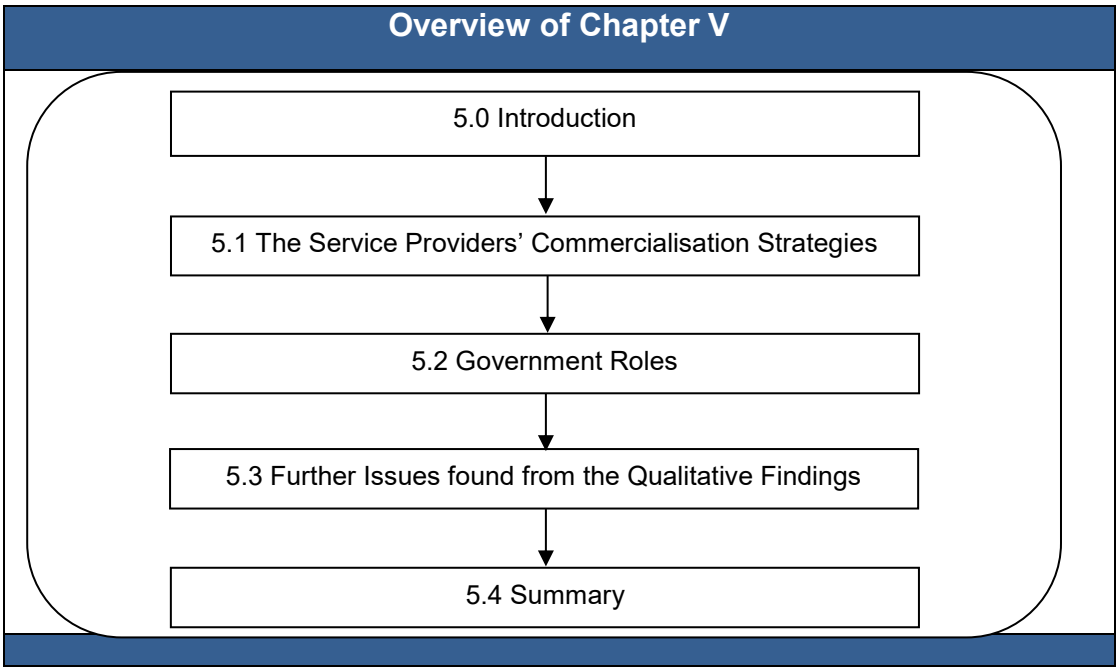
This section represents the quantitative findings of the study, which mainly emphasises on the first research objective. Some of the factors such as characteristics of the owner/manager; knowledge on ICT; social and cultural issues; privacy concern; trust, security, financial ability; size of organisations and organisational culture; technological factors; environmental factors and macro-economic policies have been investigated by collecting data from Bangladeshi SMEs by aiming to identify the main factors which influence e-communication adoption by Bangladeshi SMEs. In addition, organisational cultural profiles of the Bangladeshi SMEs in the context of e-communication adoption and non-adoption have been presented in this study where it has been found that, clan is the dominating organisational culture of the Bangladeshi SMEs. Furthermore, research hypotheses have been tested associated with this study.

The qualitative findings from the banking industry representatives of Bangladesh have been presented in the next chapter.

CHAPTER V: QUALITATIVE RESEARCH FINDINGS

Table 5.1 presents an overview of the fifth chapter that includes the introduction; service providers' commercialisation strategies, government roles, further issues found from the qualitative findings and chapter summary.

Table 5.1: Overview of Chapter V



5.0 Introduction

The qualitative research findings have been presented in Chapter V. As part of the second phase of the study; qualitative data have been collected from the banking industry representatives (the service providers) of Bangladesh. All the qualitative data were collected by using a semi-structured interview technique and the findings have been summarised (Appendix: H) to explore the commercialisation strategies of the service providers (the banking industry) and the government roles, where the second research objective was targeted.

5.1 The Service Providers' Commercialisation Strategies

The service providers' commercialisation strategies in the context of cost of use, customisation and convenience (Christensen, Anthony and Roth, 2004; Schmidt and Druehl, 2008) have been explored within this section by collecting data from 22 Bangladeshi bank representatives. After collecting data from the bank representatives, coded as A, B, C... U and V. Name, code, services offered by these banks, role of the representatives and the duration of interview have been summarised in Table 5.2 presented below.

Table 5.2: The service providers' profile (selected banks)

Bank	Code	Services offered by these banks	Role of the representative	Duration of interview (Minutes)
Agrani Bank Limited	Bank A	General banking, Agri and Rural Banking, Green Banking, Merchant Banking, Islamic Banking and Agent banking	Branch Manager	30
Rupali Bank Limited	Bank B	Rupali Bank Sure Cash, Rupali Festival Deposit Scheme, Rupali Pothoful scheme	Assistant Branch Manager	32

NRB Commercial Bank Limited	Bank C	Corporate Banking, SME Banking, Retail banking	Manager in Operations	35
Eastern Bank Limited	Bank D	SME Banking, Corporate banking, agent and retail banking	Branch Manager	40
Bank Asia Limited	Bank E	Agent Banking, Islamic Banking, Corporate Banking, Retail Banking and SME Banking	Senior Principle Officer	30
NCC Bank Limited	Bank F	Retail Banking, Real time Internet Banking,	Branch Manager	30
NRB Global Bank	Bank G	Consumer Banking, SME Banking, NRB Banking, International Banking	Branch Manager	35
Sonali Bank	Bank H	Corporate Banking, SME Finance, Islamic Banking, Green Banking	Branch Manager and Principle officer	36
Bangladesh Bank	Bank I	Banknote Security, Financial Integrity and customer services, SME actions, E-services	Deputy Director	45
AB Bank	Bank J	Islamic Banking, Retail Banking, SME Banking and Corporate Banking	Branch Manager	40
Janata Bank Limited	Bank K	Green Banking, E-GP services, Rural Credit, Consumer Financing	Branch Manager and Principle Officer	35
National Bank Limited	Bank L	SME and Consumer Credit Schemes, Agriculture Finance	Branch Manager	37
Shahjalal Islami Bank Limited	Bank M	SME Banking, Internet Banking	Branch Manager	39
Dutch Bangla Bank Limited	Bank N	Internet Banking, ROCKET, Agent Banking, VIP	Branch Manager	31

		Banking, SME banking		
First Security Islami Bank Limited	Bank O	SME Banking, Online Banking, Agent Banking, Onkur School Scheme	Branch Manager	32
BRAC Bank Limited	Bank P	Retail Banking, Corporate Banking, SME Banking and Digital Banking	Senior Principle Officer	38
Bank Alfalah Limited	Bank Q	Corporate Banking, SME Banking and Green Banking	Branch Manager	37
Trust Bank Limited	Bank R	International Banking, Corporate Banking, Islamic Banking, SME Banking and Retail Banking	Branch Manager	45
Prime Bank Limited	Bank S	MSME Banking, Islamic Banking, Wholesale Banking and Consumer Banking	Manager in Operations	40
Uttara Bank Limited	Bank T	Green Banking, Agricultural Financing, International Banking,	Senior Principle Officer	40
Southeast Bank Limited	Bank U	Conventional Banking, Islamic Banking, SME Banking, Mobile Financial Service	Branch Manager	42
Bangladesh Krishi Bank	Bank V	Corporate Financing, Poverty alleviation and Micro-credit Programs/Projects, School Banking	Branch Manager	36

As discussed in Chapter III, to understand the emerging phenomena, the qualitative approach has been followed to explore the service providers' commercialisation strategies. The researcher sought the research areas in a natural setting by attempting to make sense of the phenomena by gathering opinions of the respondents who provide e-communication services to SMEs in Bangladesh. Thus,

the researcher has collected first-hand information through direct contact with 22 bank representatives using a set of semi-structured interview questions. To strengthen exploring of the e-communication services, these 22 banks were selected as samples to provide an opportunity to the Bangladeshi SMEs. In this case, semi-structured interview technique has been used by following the same period, living in the same culture and speaking in the same language (Lacity and Janson, 1994). It took over a month to carry out the interviews and, in most cases, the interview processes continued for 30-45 minutes.

There were 16 questions for the service providers (the bank representatives) in the set of the interview questions. The first question was related to the e-communication facilities of the SMEs; including the reason for recommending e-communication facilities especially for them. Responsibility for the e-communication facilities implementation of the SMEs; the current Bangladeshi government's roles for e-communication diffusion among SMEs were asked in questions 3 and 4 respectively. The researcher asked if there is any plan or policy and strategies within their bank to ensure that SMEs have e-communication facilities, within both questions 5 and 6. The interview question 7 was related to the program to support certain SMEs for encouraging them to adopt e-communication facilities; question 8 was related to how e-communication is better than the traditional communication system. Compatibility of e-communication facilities with existing hardware and software was asked in question 9; while question 10 was related to the training requirements needed to use the e-communication facilities. In questions 11 and 12, limited technical skills and required devices for the e-communication service were asked. The way e-communication facilities were favourable to SMEs was asked in question 13, and the policy within the bank to keep the price of e-communication facilities affordable for SMEs was asked in question 14. Estimates of the number of SMEs that have been using e-communication facilities from specific banks were asked in question 15; also, question 16 is related to the recommendations of e-communication facilities for all SMEs.

Identification of the service providers' strategies for e-communication facilities have been focused in the initial analysis of the empirical data. Table 5.3 has shown the

factors which have been explored in this study for the service providers' (the banking industry) commercialisation strategies.

Table 5.3: Factors investigated regarding the service providers' commercialisation strategies

Framework Dimensions	Factors investigated

Vendors' commercialisation strategies	• **Convenience**
	  • Flexibility
	  • Compatibility
	  • Advantages of E-communication services over other services
	  • Quality of service
	• **Customisation**
	  • Simplicity of e-communication and awareness of consumers' requirements(Technical capability needed to use e-communication technology
	• **Cost of use**
	  • Pricing of the services
	  • Awareness of consumers' need of low price
	  • Policies to attract consumers such as economic packages or bundles
	  • Awareness of other competitors
	• **Perceived ease of use**

Source: Christensen et al., 2004 and Schmidt and Druehl, 2008

Convenience of e-communication facilities

For two decades, people have been using the World Wide Web; but in countless ways, it is transforming connectivity among different respondents like individual client and business organisations. According to Enderle (2007), the convenience derived from using e-communication services is strongly linked with the service providers i.e. the banking industry. Therefore, the flexibility of products is also linked with the convenience. Due to the underlying network effects, compatibility and flexibility are related to each other, argued Katz and Shapiro (1994). Without changing the existing system, SMEs might wish to adopt e-communication facilities, which could be a crucial factor to the compatibility with existing software/hardware. Shapiro and Varian

(1999) reasoned that, the rate of e-communication adoption can help to reduce the service providers' investment which has the potential to help them to attract more users. The convenience of using the e-communication facilities has been studied in this section in considering the SMEs and the banking industry (the service providers) of Bangladesh.

- **Flexibility of e-communication technology adoption**

SMEs use the e-communication service by using their existing hardware and software, found from this research. This compatibility indicates the flexibility of the e-communication services offered by the Bangladeshi banking industry. However, depending on the clients' expectations and requirements, features of the e-communication provision could differ; confirmed Jasinkas and Simanaviciene (2008). Reliable services are provided by the e-communication facility referred to in this research. Most of the Bangladeshi banking industry representatives stated that, they are offering very flexible e-communication services that could be used by utilising their existing hardware and software. The representative of Bank A said that:

"[o]ur online banking facilities could be used from any computer and from other electronic gadgets, which are connected to the internet. No additional hardware or software is required. We also provide online pay machines for our SMEs when taking payment from customers." (Appendix H, Question number 2)

Similarly, the representative of bank D opined that, their current digital banking can be used from any existing computer and other electronic gadgets if internet connection is available. No extra equipment is required for their e-communication services (Appendix H, Question number 2). Moreover, Bank G stressed that, only internet connection is required for using the digital banking facilities. However, if a card payment system is operated then some additional devices are offered by the bank with the support of their agencies (Appendix H, Question number 2). The similar opinion has been found from Bank T representative who said that, currently, customers are connected to the bank very closely by their secured and convenient online banking services. SMEs can access their bank at any time to pay bills or transfer balances and to do these, they do not need any additional devices except internet connection (Appendix H, Question number 2).

- **Compatibility and customer service**

Technological compatibility is one of the main factors to make users satisfied. Extra budget could be required, if any technological changes such as updating software and hardware are needed in adopting technology, claimed by Murillo and Lozano (2006). However, assurance was given by several Bangladeshi bank representatives that, no additional training or assistance is required for adopting e-communication facilities by the SMEs; in addition, most of the banks provides customer care and support teams. Support from the banks is available; this is implemented through telephone contact or person to person. All the organisations including SMEs are expected to know the necessary information about the e-communication modernisation prior to adopting it. Most of the representatives affirmed that, they do have a support department that will assist to fix, gratis, and technical problems. At the same time, the representatives highlighted the compatibility of their services especially the SMEs.

The Bank A claimed that:

"[a]nyone can use our online banking facilities by using their computer and other electronic gadgets if those are connected to the internet. No additional hardware or software is required. Additionally, we provide card payment gateway for our SMEs."
(Appendix H, Question number 9)

Their current digital banking can be used from any existing computer and other electronic gadgets if internet connection is available. No extra equipment is required for their e-communication services (Appendix H, Question number 9), told by the representative of Bank D. As stated by the Bank J representative, their digital banking service is compatible with ordinary computer services and no additional equipment is required to access it. However, for pay point, card reader and transaction terminals are required to be installed (Appendix H, Question Number 9).

Similarly, the representative of Bank L said that, to be connected to the e-communication services provided by the banks, no additional hardware or software is required but an internet connection for both personal and business customers. However, if the firms want to set up card payment gateway, then they need to adopt

some additional devices (Appendix H, Question Number 9). Finally, the Bank Q representative said that, e-communication services could be suitable with the existing hardware and software, but the service could be faster and secured by the adoption of some additional services including antivirus software and random-access memory (Appendix H, Question Number 9).

- **Advantages of e-communication services**

Due to the implications of technology and because of the technological features like communication among clients, organisations and suppliers have become easier. Better services could accelerate e-communication technology as well as increase the market share of both the wholesalers and retail customers. Because of its flexibility, it can be accessed from anywhere; it can at the same time, provide advantages to the clients by ensuring easy to use and hassle-free operations, this research infers.

The representative from Bank A opined that:

"[e]-communication is one of the demanding issues for any business to operate efficiently. For SMEs e-communication facilities such as e-mail communication or money transferring can help to avoid unnecessary expenses." (Appendix H, Question Number 1)

It is found from the representative of Bank G that, though communication facilities have been increasing day by day, e-communication facility among Bangladeshi SMEs is still a new idea and it can take time to spread but some of the SMEs are using internet facilities to contact suppliers and customers (Appendix H, Question Number 1). In line with this representative, the Bank J's representative expressed that, small and medium firms could benefit from different perspectives when using e-communication facilities. For example, they can transfer their money to their suppliers within few moments using current technology. This can help them to save money and time and it can also ensure safety as well. As the first private sector bank in this country, we have been providing some additional facilities for SMEs in the context of the technological contributions (Appendix H, Question Number 1).

The Bank L's representative opined that, they are providing various e-communication facilities for their customers. Customers could be benefited by adopting e-communication facilities. They can now check their accounts and transfer balance

very easily using the contribution of the e-communication. Instead of visiting the bank branch, SMEs can pay bills by using online services which can save their time and overall operational performance (Appendix H, Question Number 1). As mentioned by the Bank U, the world has been advancing due to e-communication, but Bangladeshi SMEs still prefer traditional communication. However, some of the SMEs are selling their products using online facilities and it's a good sign to spread the facilities. Moreover, their bank has been providing several facilities to increase their online facilities. On the other hand, many of the SMEs are deprived from the e-communication facilities because of their security concern, lack of technological knowledge and appropriate service availability (Appendix H, Question Number 1).

- **Quality of the service**

According to Perrini, Russo and Tencati (2007), any business organisation considers quality as an important factor; this is not different with the Bangladeshi SMEs; to them, quality is a highly revered factor. Quality within e-communication services has been underlined by all the banking industry representatives, evident from this research.

The Bank E's representative stresses that:

> *"[c]ustomers can connect to the bank all the time for transferring money and for paying bills. Banking connectivity is the main feature of the digital banking."*
> *(Appendix H, Question Number 8)*

The Bank G representative stated that, for record keeping, accessing the bank account frequently and transferring money reliably without hassle, and costs are the main features of the digital banking, which are different than traditional banking in different contexts such as ensuring quality customer service and it can help improve their overall performance (Appendix H, Question Number 8). As revealed by the representative from Bank J, in many cases, e-communication is better than traditional services. Some of the reasons are related to contacting bank, transferring money to others and accepting card payment from customers. Moreover, all-time banking facility is the most attractive feature (Appendix H, Question Number 8).

Likewise, the Bank R's representative stated that, using the e-communication facilities; all the customers can transfer money very quickly from anywhere.

Moreover, online facilities can help customers to transfer money securely. By using e-communication facility, their business customers can also offer quality service by taking card payment which can reduce the risk of carrying cash and ultimately it can help SMEs to improve their operational activities (Appendix H, Question Number 8).

Cost of e-communication technology

Sueyoshi, Goto and Ueno (2010) contended that, mostly, the success of business has strongly been influenced by pricing policies. All good services with reasonable prices support vendors expanding of the e-communication facilities nation-wide, which could be followed against the background of e-communication service expansion among Bangladeshi SMEs, confirms Schmidt and Druehl (2008). After considering the reliability and functionalities factors, most organisations compete having the ease of use dimension in mind. Christensen, Anthony and Roth (2004) maintained that, the value for users could be created by improving the convenience and customisation of the business; at the same time assisting vendors in revenue generating. The element of price for e-communication adoption by Bangladeshi SMEs has also been examined in this research by exploring the banking industry's perceptions of cost of the facility.

- **Pricing of the services**

Vijay, Subhash and Robert (1993) identified price as an important factor for any new technological implementation. Price has been assessed as one of the most vital factors in expanding the e-communication facilities among Bangladeshi SMEs; since it has the potential to influence the services; it has been evidenced by the Bangladesh banking industry. This notwithstanding, the research findings as illustrated below has discussed to different opinions,

According to the representative of the Bank B:

"[w]e have very efficient policies for our customers to ensure secured online banking facilities. We also have a policy for the small and medium firms regarding online banking facilities and affordable service costs." (Appendix H, Question Number 5)

Similarly, the representative of the Bank E expressed that, their target is to ensure high quality digital services for all their valued customers with reasonable costs

where applicable. They are also trying to support SMEs by offering additional facilities like setting up pay point for online purchasing (Appendix H, Question Number 5). Continuous service development was emphasised by the representative of the Bank G stating that, they are continuously improving their services and supporting customers who use technological services, which is one of their foremost targets. Their current policy will help large numbers of customers to enjoy online banking facilities securely. Their newly offered services will add very little extra cost with the existing services. They have kept all types of users in mind to increase this supplementary charge (Appendix H, Question Number 5).

The Bank L's representative said that, for increasing the rate of e-communication adoption, they are offering short training facilities as well as, providing some additional services without adding any fee. They have plans to extend the service all over the country for all types of customers. They are also planning to increase their services nationwide considering different types of online users (Appendix H, Question Number 5). In addition, the Bank N's representative opined that, they are very aware of the online banking services for all their customers. They have been providing online banking services for their customers and trying to improve the service continuously. The representative added that, for SME they provide services under SME banking. They also provide pay point gateway service for their business customers with very affordable service charges which help them to enhance their operational performance (Appendix H, Question Number 5).

- **Awareness of low price for SMEs**

To satisfy customers' expectation, price is considered as an important factor and most of today's service providers think about it prior to offering services, claimed Rauterkus (2009). By following the lower pricing strategies, most of the Bangladeshi banks are offering their services at lower prices; this could thwart their nation-wide expansion, if they do not get support from funding supporters like the government.

Representative from the Bank F has stressed that:

> *"[w]e have taken initiatives to ensure digital banking services for all our business clients by offering required services. We are also planning to create our own*

infrastructure for digital banking services. To influence different types of users and increase the awareness of online facilities with regards to pricing and security, we have a long-term plan in place." (Appendix H, Question Number 5)

Consequently, a representative of Bank M has said that, in the context of the online service, they always encourage their customers. For SMEs, they offer different types of services under their SME banking. They have plans to extend the service for all with affordable cost. They are continuously informing their clients through different media with regards to the vast facilities of the online banking services which can save time and money, as well as it can improve their service (Appendix H, Question Number 5). The Bank C's representative has highlighted that, their bank policy has been encouraging small and medium firms to adopt digital banking options in both money transfer, and communicating with their banking services. Currently, they are charging a lesser yearly fee and additional fee for payment gate-way but it would be reduced in the near future (Appendix H, Question Number 6).

Similarly, the representative of the Bank Q observed that, their future strategy is to extend online service countrywide and to keep prices affordable for SMEs, which might be helpful to increase the online banking service users. Moreover, small firms are concerned about membership fees and if the government provide them with extra support, they could be influenced to adopt new e-communication facilities (Appendix H, Question Number 6).

- **Policies to attract consumers**

Again, keeping prices reasonable is one of the techniques vendors employ in attracting more customers; and in most cases, they are keen to follow their own pricing policies, argued Pedersen (2009). More SMEs could be attracted towards specific service providers due to their lower pricing policies. Hence, effective pricing policies are essential for them considering the current demand and competitors' approaches.

The Bank H's representative said that:

"[w]e are currently working on the development of the digital banking system for our large number of customers. We are also working to keep record of the SMEs

banking activities digitally so that, decisions related to loans could be made based on the information." (Appendix H, Question Number 6)

Similarly, Bank J's representative mentioned that, to support small and medium organisations, they are offering pay point terminals for card payment facilities which can help them to avoid unnecessary hassles to deposit money in person in the bank branch (Appendix H, Question Number 6). In addition, the Bank M's representative pointed out that, they have been trying to extend their special services for SMEs without any extra fee. Moreover, they have plans to provide short training facility which can help them to adopt e-communication services. Moreover, they have plans to provide a short training facility which can help SMEs to adopt e-communication services. As there are many SMEs in the country, the government support can help them to run it efficiently (Appendix H, Question Number 6).

The respondent of Bank O has also pronounced that, they are very aware of the current demand and contemporary issues in the digital banking services and considering these, they moderated their strategy where customers, price and services are importantly considered to extend their online facilities (Appendix H, Question Number 6). Furthermore, Bank S representative stated that, so far, their affordable pricing strategy has created a good impact on the customers related to online services. Moreover, they are trying to increase their services without adding any additional fee which can help to increase the rate of e-communication adoption. However, support from the government can help the SMEs to be attracted more towards e-communication services (Appendix H, Question Number 6).

- **Awareness of other competitors**

According to Lin, Chen and Chiu (2010), competitors' pricing policies are mostly followed by many organisations to attract customers; because of the positive outcomes of such a policy, most of the banking industries are following this same approach. To keep the prices affordable to the SMEs, these service providers compare their prices with other competitors. They monitor and keep prices reduced to attract more clients. Research findings about the awareness of other competitors have been presented in this section.

As suggested by the Bank A representative:

"[c]ustomers are our priority. Comparing with other banks, we charge very little for the online banking facilities. However, we are trying to improve our services for all our clients without imposing any additional charge." (Appendix H, Question Number 14)

Likewise, the Bank C's representatives have pointed out that, they are imposing very little charge for online banking and card payments for their small and medium firms where most of the banks are charging higher than them. They have plans to reduce the charge in the near future (Appendix H, Question Number 14). The representatives of Bank N have also highlighted that, for different types of customers, they follow different pricing strategies and it generally varies based on the type of the account. However, their main target is to provide the best services with affordable fees and it is always similar or lower than other banks (Appendix H, Question Number 14). Moreover, the representative of the Bank T stressed that, both mobile banking and internet banking are reasonable for their customers and they have plans to provide additional service without increasing the half yearly or yearly fee (Appendix H, Question Number 14).

Customisation of e-communication technology

Christensen, Anthony and Roth (2004) agreed that, customisation is related to the distinctive jobs of individual users in relation to how squarely a product line's up with them. If the usage of a new technology is complex, the value of customisation could invariably decrease; at the same time, special training could be required. To meet users' expectation and required infrastructure to access the available services are strongly linked with the customisation (Nielsen and Thomsen, 2009) of e-communication facilities. By exploring the banking industry's perceptions, it has been addressed in this research, in the context of the simplicity of e-communication facility used by Bangladeshi SMEs.

- **Simplicity of e-communication technology and awareness of consumers' requirements**

In their study, Tse and Soufani (2003) observed that, clients could be attracted towards services, if they are easy to use and could have a huge impact in the technology sector. The technological capability needed to use the e-communication services by SMEs has been discussed below.

The representative of Bank A claimed that:

"[m]ost of the SMEs are not aware of technological issues and we very carefully consider their technological competencies during offering e-payment system. Our service is very easy to use. Anybody who has basic computer literacy can access our services. However, if difficulties found, then we provide required support in some of many of our urban branches." (Appendix H, Question Number 11)

In addition, the Bank B representative has also stated that, most of the SMEs are concerned about online banking security related issues though their service which is very simple to use. Limited technical skills might be responsible for it. However, they are offering online facilities in Bengali which has been helping to use the services more confidently compared with others provided in English (Appendix H, Question Number 11). Similarly, Bank E representative opined that, sometimes the limited technical skills of their business customers hinder them to adopt digital facilities. However, they try to assure them the efficiency and security of the service by providing a short training option. Their online and payment gateway services are very easy to use. People with very basic IT knowledge can use it (Appendix H, Question Number 11).

The Bank H's representative said that, they provided services not only in the urban areas, but also in the rural areas of all over the country. They are aware of the limited technical skills of the SMEs. They are trying to introduce a voice recognition system for operating various digital services for their business customers (Appendix H, Question Number 11). Furthermore, the representative of the Bank N told that, one of the important barriers to adopt e-communication services by SMEs is the limited technical skill and they are very aware of it. Considering the limited technical skills, they provide the best suited training support for SMEs to be more familiar with

their adopted service. In addition, they are offering their services to all types of users, such as those who can use basic IT devices, and are able to access our service (Appendix H, Question Number 11).

Likewise, the representative of Bank V remarked that, many of the SMEs are concerned about the technological issues related to their business. They are also concerned about security, costing and convenience related issues. Their training support can help to reduce these negative impacts (Appendix H, Question Number 11). The Bank B representative has highlighted that, for card payment facilities, they supply required devices through their partners. They ensure all types of services for their business customers (Appendix H, Question Number 12).

Again, the Bank K representative has said that, in order to access online services, SMEs do not need any additional device. However, for pay point gateway, they provide services by their partner organisation (Appendix H, Question Number 12). In addition, the representative of Bank N said, as one of the first private banks in Bangladesh, they have been providing various services for long time including online banking and pay point device. They are also delivering the required devices for their business customers including SMEs (Appendix H, Question Number 12).

- ***Technical capability needed to use e-communication technology***

E-communication services could be extended among large numbers of SMEs due to the simplicity of use. Most of the banking industry representatives observed that, additional training is not essential if the e-communication facility is compatible with any personal computer.

The Bank B representative said that:

"[w]e provided training facilities through our support team for our customers due to online services. We also provide training facilities for card payment facilities."
(Appendix H, Question Number 7)

The representative of Bank H said that, they always care for their customers very carefully by their support team and provide training facilities if required for accessing the services (Appendix H, Question Number 7). In addition, the Bank K representative emphasised that, they are directly providing online support for their

personal and business customers. Especially they are showing the usage of the card payment system for their business customers with the help of the support team (Appendix H, Question Number 7). Furthermore, the Bank P representative has opined that, their highly expert team members deal with different types of customers including SMEs with technical issues especially for the digital banking, SMS banking and pay point gateway services. This team also provides training support for business customers if required (Appendix H, Question Number 7).

The Bank A representative mentioned that, for the online option, they generally introduce their customers during the process of opening the account. In addition to this, clients can contact any branch to experience online facilities. They generally provide training facilities for the customers who use online and card payment methods in day to day business activities (Appendix H, Question Number 10). Similarly, the Bank F representative said that, though it is not difficult, for new users they show different methods of using online banking services if they are interested. However, for business customers, they provide train to be competent in using the device for collecting money from customers (Appendix H, Question Number 10).

Additionally, the Bank I representative said that, training for new concepts, new technology could be helpful for the SMEs as most of them might be from different background and they are also concerned about the technological issues. They advise all the banks to provide support for the SMEs through various training and support activities (Appendix H, Question Number 10). The Bank M's representative opined that, SMEs could be influenced and motivated towards the adoption of the e-communication services, and existing barriers in the context of usability could also be reduced. Considering these issues, they have training support option for both personal and business clients (Appendix H, Question Number 10). Moreover, the Bank Q representative has said that, training option for SMEs can help them to be motivated towards the digital banking services which can help them to use their banking services at all time. During the training support, they try to help them for overcoming the concern of technology usages (Appendix H, Question Number 10).

Perceived Ease of Use

The Bank E's Representative said that:

"[e]-communication facility is very compatible with existing hardware and software without adding any extra devices. Only internet connection is required for e-communication facilities." (Appendix H, Question 2)

Similarly, the Bank I's representative said that, most of the banks have been providing technological support for the business customers and they are using various tools and technologies which are compatible with the existing hardware and software. However, an internet connection is required to access these facilities. Some of the banks have been providing devices for card payment and online banking facilities (Appendix H, Question 2).

Likewise, the Bank K representative opined that, e-communication facilities can help SMEs to save money transferring fees because for traditional money transfer, costs are higher than the digital banking. Moreover, they can access the bank at all times. These are the main reasons for recommending e-communication for SMEs (Appendix H, Question 2). As suggested by the Bank Q's representative, e-communication can help SMEs to organise bill payment and it can also help to avoid various charges after checking accounts from anywhere. Suppliers and customers could be connected at all times because of the e-communication facilities (Appendix H, Question 2).

5.2 Government Roles to Influence the SMEs for E-communication Adoption

To develop the technological infrastructure and innovation, the importance of government funding is immense, and it differs from one country to another (Ang and Pavri, 1994; Abdullahi *et al.*, 2015 and Lee and Jo, 2018). In fact, to overcome the obstacles of the adoption of IT infrastructure, the help of government is important and this help is generally provided in the form of technical, financial and economic support (Sudibyo, Soesanto and Soetjitro, 2017).

The Bank I representative disclosed that:

"[i]n the adoption of e-communication technology we are supporting the SMEs through most of our banks. We are also taking steps and informing the government authorities for developing the required infrastructure for the technological development. SMEs should also be interested in adopting new technology to help in developing their business operations. Local government authorities can influence the SMEs to adopt digital facilities." (Appendix H, Question Number 3)

However, the Bank R's representative said that, cost of the e-communication services, convenience and feasibility are important issues from the SMEs context to increase the adoption of the e-communication facilities. The banking industry strategy related to affordable cost and better services are also important factors for the diffusion of the e-communication facilities (Appendix H, Question Number 3). The Bank T representative added that, the banks**,** SMEs' attitudes and the government are the main respondents for the adoption of the e-communication by SMEs. If banks provide services and government take initiatives for the external security issues by building required infrastructure, then SMEs would be more encouraged to adopt e-communication services to improve their business operations (Appendix H, Question Number 3).

The Bank U representative said that, most of the SMEs are run by family members and they are used to the traditional banking services for long time. Cost of services and security issues are also important factors in the case of the e-communication diffusion (Appendix H, Question Number 3). The Bank V representative added that, most of the SMEs prefer the traditional bank services and they are concerned about the price and security issues for adopting new technology in their banking services. Some of the SMEs are also concerned about the usage of the internet due to the lack of technical and educational skills (Appendix H, Question Number 3).

The Bank B representative opined that, the government of Bangladesh has been trying to increase the digital faculties in the countries in different sectors and the banking industry is not behind it. Current government regulations might help to increase the e-communication diffusion among SMEs (Appendix H, Question Number 4). Similarly, the Bank C representative has said that, the central bank and the current government of Bangladesh have been encouraging us to implement

digital communication facilities in the banking sector. Current government policy and guidance can help us to extend their online banking facilities if they can ensure secure technological infrastructure related to them (Appendix H, Question Number 4).

Further to this, the Bank I representative said that, huge investments have been predicted by this current government for developing technological infrastructure. The ICT ministry of Bangladesh has been working to familiarise the digital facilities in most of the public sectors. To encourage people, they are taking steps from the root level of the local government system. Almost all the Union council has come under internet and digital facilities (Appendix H, Question Number 4). The Bank O representative has highlighted that, technology adoption could be increased if the government policies could be implemented following their training programmes and infrastructure. If these could be followed, then the rate of e-communication adoption could be increased in a satisfactory rate (Appendix H, Question Number 4).

As mentioned by the Bank T representative, government policies can help banking industry to follow the digital services and to deliver the service to the users including SMEs. The current government of Bangladesh has been trying to extend the technological services in all the fields which could be positive for increasing the rate of e-communication adoption (Appendix H, Question Number 4). In addition, the Bank V representative has expressed that, the current government has been emphasising on the digital issues everywhere including the banking industry. This policy helps our SMEs to adopt e-communication services. However, government should take more initiatives in the digital security issues (Appendix H, Question Number 4).

5.3 Further Issues Found from the Qualitative Findings

During the interviews with the Bangladesh banking industry representatives, some new issues were identified and have also been discussed in this section. According to most of the bank representatives, existing organisational culture and business types could be the determining factors for the implementation of e-communication by the Bangladeshi SMEs. The adoption of e-communication depends on the needs of the SMEs; in this case, norms, beliefs and attitudes of the owners or managers could

be instrumental to the adopting of this new service. Because few people are involved in the SMEs, they are thus less complex when compared with the larger organisations; this has the advantage of making quick decisions when deciding to adopt new e-communication services. However, SMEs operatives need to be educated and at the same time, be readily available for service when offered by the service providers like the banking industry.

The Bank A representative said that:

"[t]here are many issues related to the adoption of e-communication facilities among SMEs including the types of business, willingness of the SMEs and the awareness of current technological innovation". (Appendix H, Question Number 3)

The Bank B representative has added that, as the banking industry, they are the most important respondents to increase the e-communication facilities. However, SMEs and government authorities are responsible for the e-communication diffusion to SMEs (Appendix H, Question Number 3). Conversely, the Bank F representative has suggested that, not any single respondent is responsible but a group of respondents such as small and medium firms, service providers and the government are responsible for the expansion of the digital banking services (Appendix H, Question Number 3).

The Bank H's representative pointed out that, many factors are involved in the adoption of e-communication facilities including the government and bank supports, providing training by local government or relevant authorities as well as, the organisational culture of the SMEs (Appendix H, Question Number 3). A similar view, highlighted by the Bank O representative is that, business types, education level, willingness of the adoption of new technology, technical skills of the SMEs and service cost, support of the bank are mainly responsible for the diffusion of the e-communication services (Appendix H, Question Number 3).

In addition, the Bank S representative added that, traditional organisational culture, willingness of the SMEs and various strategies of the bank are the main components for the adoption of the e-communication facilities in Bangladesh (Appendix H, Question Number 3). The Bank D representative discoursed that, making aware of the services through various media including social media, TV and newspaper,

SMEs could be encouraged. Moreover, some of their customers have been using this service and have been gaining benefits; it could be highlighted to potential service users (Appendix H, Question Number 13).

Furthermore, the Bank F representative said that, additional support from the government and banking sector can help to extend the digital banking services. Training for both personal and business customers should be more emphasised to increase the rate of adoption of the e-communication facilities (Appendix H, Question Number 13). Moreover, the Bank I representative said that, increasing awareness, explaining to the SMEs of the benefits of the e-communication facilities, supporting them to adopt new technologies and assuring security can encourage SMEs to adopt new technology in their day to day banking activities. Special unit in most branches for SMEs and technology adoption could be helpful (Appendix H, Question Number 13).

The Bank J representative said that, visiting the small and medium firms, informing them about the benefits of the digital banking services and providing them with required training can be helpful to increase the efficiency of the e-communication facilities to SMEs within existing practices (Appendix H, Question Number 13). The Bank N representative added that, ensuring security issues, reducing service cost, providing training and introducing the benefits can help to increase the rate of e-communication adoption by SMEs (Appendix H, Question Number 13). Furthermore, the Bank V representative highlighted that, developing infrastructure in and up to the rural level, providing subsidy facility for e-communication services, motivating SMEs by advertisement and training option can help to increase the adoption of this newly service (Appendix H, Question Number 13).

The Bank D represented said that, they strongly recommend the digital banking services for all types of customers especially for SMEs. Adopting e-communication facilities can save time and money and they can contact the bank and suppliers using the digital banking facilities. Finally, business operations of the SMEs could be easier (Appendix H, Question Number 16). The Bank I representative has also added that, it is of high recommendation that SMEs adopt digital facilities in their banking activities. It can also help them to keep record of the tax payment.

Moreover, digital banking can help them to get a loan easily because of the better financial records (Appendix H, Question Number 16).

The Bank N's representative also said that, they encourage their customers to use the e-communication services, highlighting the twenty-four hours' access of the bank and transferring balance to any account all over the country without any additional fee (Appendix H, Question Number 16). According to the Bank Q representative, digital banking services can help their customers to access and transfer balance, to pay bills and to contact the bank for loans and overdraft facilities. Because of these reasons they encourage the SMEs to go for this opportunity (Appendix H, Question Number 16).

The Bank R representative also added that, SMEs can access their bank account, can transfer balances and can contact other payees through e-communication and because of these exciting features they encourage their customers to adopt digital communication services. They can pay their bills, tax and other payments using the e-communication facilities, which can help save their time and money (Appendix H, Question Number 16). In addition to this, the Bank V's representative highlighted that, SMEs can benefit from different perspectives by adopting e-communication facilities, such as transferring money, and paying their bills from anywhere and because of this; they would recommend them to go for this new service (Appendix H, Question Number 16).

5.4 Summary

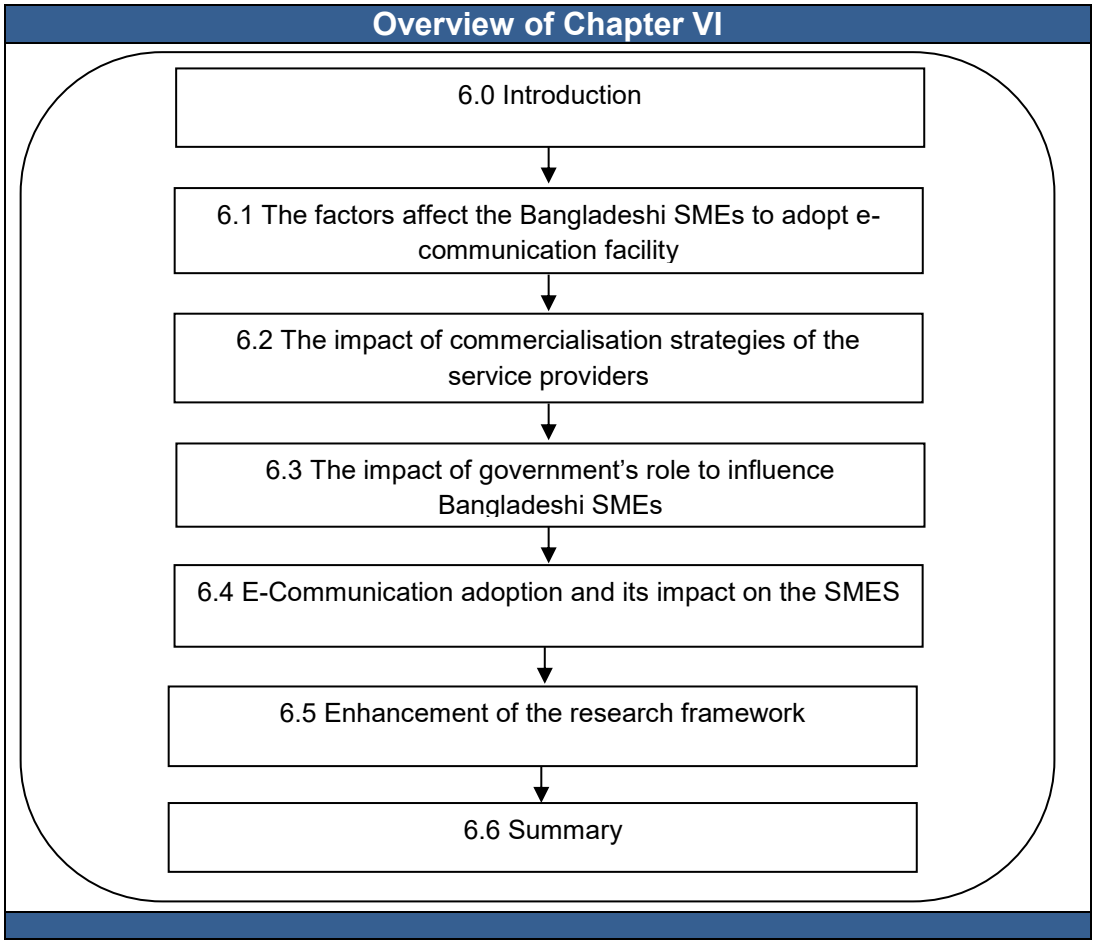
This chapter has explored the qualitative research findings based on the data collected from the Bangladeshi banking industry representatives. The findings have been summarised based on the vendors' commercialisation strategies and the role played by the Bangladeshi government. Summarising the findings of this study has been based on the different dimensions of the commercialisation strategies such as, cost of the service, customisation and convenience. Also, government roles have been explored based on the findings of the banking industry representatives, most of whom have provided positive opinions for the contribution of the government policies especially of the current government in the areas of information technology and infrastructural development.

The discussion and analysis of the research would be presented in the next chapter considering the literature presented in Chapter II, the quantitative findings summarised in Chapter IV and the qualitative findings explored in Chapter V.

CHAPTER VI: DISCUSSION AND ANALYSIS

In Table 6.1, the overview of the sixth chapter has been designed to include the following subheadings: introduction, the factors affecting the adoption of the e-communication capability of the Bangladeshi SMEs; the effect of government's role in influencing the Bangladeshi SMEs; the performance of the SMEs because of adopting the e-communication; the enhancement of the research framework and a chapter summary has also been incorporated.

Table 6.1: Overview of Chapter VI



6.0 Introduction

The factors which affect Bangladeshi SMEs to adopt e-communication facilities, the impact of commercialisation strategies of the service providers and government's roles in influencing the Bangladeshi SMEs' for adopting e-communication facilities have been abridged in sections 6.1, 6.2 and 6.3 respectively. Therefore, sections 6.4 and 6.5 have highlighted the impact of the adoption of e-communication on the Bangladeshi SMEs' performance and enhanced research framework. In addition, further issues encountered in the course of this research have been presented.

The discussions outlined in this chapter are: secondary data collected from different sources, survey data collected from Bangladeshi SMEs and semi-structured interview data collected from the banking industry representatives of Bangladesh. It is also evident from the first phase (survey findings) of the research that, e-communication adoption can be affected by the dominant organisational culture profile and their features. The results have been summarised by comparing the survey outcomes and the existing theories on organisational culture profile.

The literature review on several dimensions such as, convenience, cost and customisation of the vendors' commercialisation strategies, were compared with the opinions, provided by the Bangladeshi banking industry representatives; later, the analysis of the research findings has likewise been underlined. As a consequence, the contributions of government were concluded, having considered several dimensions such as knowledge building, innovation directive, mobilisation, subsidy, standard setting and knowledge deployment of the institutional theory and comparing these with the data collected from various secondary sources (Chapter II) as well as, from the SMEs and the banking industry representatives of Bangladesh. The Institutional Intervention and the theory of disruptive innovation have been combined, taking into consideration the contribution of the government and the service providers for helping the Bangladeshi SMEs in increasing the rate of e-communication adoption exponentially.

6.1 The Factors that Affect Bangladeshi SMEs E-communication Adoption

According to Guasch and Ugas (2007), the e-communication gap/digital gap could be demonstrated between geographical areas, regions, organisations, families, people and countries in the context of their opportunities of information technology adoption and the capability of using the internet taking in consideration of huge functionalities at a wide extend. Dijk (2006) in considering the e-communication gap in terms of the respondents who have already adopted and those yet to adopt the services, has emphasised positives of enjoying the service. In supporting Dijk's (2006) submission above, Brooks, Donovan and Rumble (2005) suggested that, the e-communication gaps divide respondents into two groups; one of who are able to use the information technologies because of adopting the e-communication and one who cannot do so because they have not adopted the e-communication. Therefore, some of the barriers to the e-communication adoption by SMEs have been discovered in a number of studies (Cragg and King, 1993; Awiagah, Kang and Lim, 2016) including this research where Bangladeshi SMEs have been emphasised.

Role of Owners/Managers of the SMEs

It is evident from the analysis of the results (Table 4.8) that, managers/owners play the most important role in the adoption of e-communication facilities by SMEs. Likewise, managers'/owners' roles to adopt e-communication by Bangladeshi SMEs have also been evident from most of the banking industry representatives (Bank B, C, D, F, I, J, K, L, M, N, P, Q, S & T) who participated in the interviews (Appendix: H, Table 5.6). Both of these findings are in-line with studies by DeLone (1988); Cragg and King (1993); Poon and Swatman (1999); Thong (1999); Mehrtens, Cragg and Mills (2001); Cloete, Courtney and Fintz (2002); Chatterjee, Pacini and Sambamurthy (2002); Caldeira and Ward (2002); Riemenschneider, Harrison and Mykytn (2003); Levy and Powell (2003); Standing, Sims and Stockdale (2004); Bharati and Chaudhury (2006); Karakaya and Shea (2008); Wilson, Daniel and Davies (2008) and Alrousan and Jones (2016) who claimed that, business owners and managers are the main respondents to adopt any innovations to their business; in the same way, lively and future focused managers/owners transform the objectives of the SMEs to grow further. This is also similar to studies conducted by

Rizzoni (1991); Larsen and Wetherbe (1999); Woodcock and Chen (2000); Mirchandani and Motwani (2001); To and Ngai (2006); Al-Qirim (2007) and Huy (2012) reasoned that, to inspire the SMEs for e-communication adoption, a manager's leadership qualities are expected to be both positive and motivational; and e-commerce adoption by SMEs and the manager's perception are positively correlated.

It should be noted that, these findings were inconsistent with those observed by Jeon, Han and Lee (2006) as well as Vilaseca-Requena *et al.* (2007). Research carried out by Kaynak and Harcar (2005) also discovered that, the lack of qualified personnel and role played by the managers/owners were found to be the main barriers which hinder the adoption of e-communication facilities by SMEs. The evidence of the research findings (Table 4.2) show that, most of the Bangladeshi SMEs who have already adopted e-communication facilities are run by managers whereas; most of the participants of the Bangladeshi SMEs that are yet to adopt e-communication facilities were found to managed by the owners. This agrees with the studies by Kaynak and Harcar (2005); Levy and Powell (2003). It could be concluded therefore that, in order to adopt e-communication facilities by Bangladeshi SMEs, the roles played by managers are more positive than those played by the owners who are more reluctant to switch to any innovations. The lack of technological knowledge and the resistance to do away with the traditional approaches could be attributed as the main reasons responsible the lower rates of e-communication adoption by owners of the Bangladeshi SMEs.

Even though different opinions have been expressed regarding the role of owners/managers of the SMEs, most of the researchers focused on the importance of their roles. The research findings from SMEs and the banking industry representatives also reveal the role of owners/managers for e-communication adoption by Bangladeshi SMEs. Against the background of the above discussion, this study can conclusively confirm that, in order to increase the e-communication adoption by Bangladeshi SMEs, the role of owners/managers is inevitable. Moreover, criteria such as education and IT background of the owners/managers have been found to be helpful in their influencing of e-communication adoption.

Educational Background and Level of ICT Knowledge

The research analysis shown in Table 4.2 reveals that, the adoption of innovation and the educational level of the owner/manager are positively and significantly related. This study's outcomes are in agreement with the results of the studies by: Thong (1999); Chan and Al-Hawamdeh (2002); Sarosa and Zowghi (2003); Dubelaar, Sohal and Savic (2005); Twati and Gammack (2006); Chang and Tung (2008); Nguyen (2009); Ramdani, Kawalek and Lorenzo (2009) and Abousaber (2013). Similarly, the analysis of the results (Table 4.2) shows that, for the Bangladeshi SMEs, IT background is an influencing factor in adopting e-communication facility. This study's findings support those of Duncombe and Heeks (2002); Teo and Ranganathan (2004); Looi (2005); Molla and Licker (2005); Filiatrault and Huy (2006); Sparling and Toleman (2007); Eriksson and Hultman (2008); Wilson, Daniel and Davies (2008) and Scupola (2009) for acknowledging that, the adoption of e-communication could be made easier, if the key personnel of SMEs such as owners/managers are competent and equipped with the required educational level and ICT knowledge. It could be inferred that, the higher likelihood to adopt e-communication and the higher level of ICT skills are strongly related to each other.

It is obvious from the research findings (Table 5.14) that, the limited technical skills of the Bangladeshi SMEs have been taken into consideration by most service providers. Also, a number of the bank representatives (Bank A, B, C, I, K, N, Q, R, U & V) highlighted the importance of technical (IT) skills of the owners/managers in relation to e-communication adoption even some of the providers also offer training facilities. Findings from the banking industry representatives show that, their online and payment gateway services are very easy to access and people with very basic IT knowledge can use them. In addition, as a number of SMEs are unable to use English as a communication medium, some of the banks are offering online facilities in Bengali which enables them to use the services more confidently. Some of the service providers are also trying to introduce voice recognition systems to operate various digital services for their business customers.

Evidence from several past studies, including this research finding clearly shows that, educational background and the ICT knowledge of the managers/owners have

a direct correlation in influencing the adoption of e-communication facilities into the Bangladeshi SMEs. It should be noted however, that, depending on types and size, the level of implementation of e-communication facilities could vary.

Types and Size of the SMEs

This study (Table 4.3) shows that, adoption of e-communication facilities could be influenced by the types of businesses. The findings from the Bangladesh banking industry representatives (Table 5.18) also show similar outcomes (Bank A, D, H, Q & V). It has also been evident that, Bangladeshi SMEs which are involved in readymade garments and knitwear, software development, health care and diagnostics, education services and electronic and electrical products manufacturing businesses adopt e-communication facilities comparatively higher than other types of SMEs. These findings are supported by the results of recent research studies of Teo and Tan (1998); Thong (1999); Filiatrault and Huy (2006); Ramdani, Kawalek and Lorenzo (2009) and Oliveira and Martins (2010). These scholars support the existence of a positive correlation between the adoption of e-communication and the types of SMEs. Conversely, Nguyen and Waring (2013) support the presence of conflicting evidence in the current literature which shows no significant relationship between e-communication adoption and types of SMEs.

The findings of the research (Table 4.3) give credence to the belief that, the adoption of e-communication facilities by SMEs could be influenced by their organisational size. The same conclusion holds true the banking industry representatives (Table 5.18) who agreed that, the adoption of the e-communication by Bangladeshi SMEs could similarly be affected by their size (Bank A, D, G, I & O). These results agree with the findings of: Rogers (1995); Teo and Tan (1998); Thong, (1999); Ling (2001); Zhu and Kraemer (2002); Bharati and Chaudhury (2006); Adeyeye, (2008); Oni (2008); Lun *et al.* (2012) and Chee, Suhaimi and Quan (2016) all believed that, ICT adoption and firm size are significantly related. There are however, many definitely contradictory results from these previous research studies: Raymond (2001), Zhu *et al.* (2004), Karakaya and Shea (2008); all of whom confirmed that, the impact of the size of the organisation was insignificant.

Although some researchers disagreed, the comparisons between most of the existing literature and the research findings of this study investigated that, type and size of the firm can affect the e-communication adoption by Bangladeshi SMEs. Conversely, the reliability of the e-communication service must be guaranteed by the service providers.

Reliability of e-communication facilities

This research finding shows that, a large part (Table 4.4) of the Bangladeshi SMEs adopted e-communication services due to reliability compared to the traditional approaches. Reliability and trust of the e-communication services are also highlighted by several Bangladeshi banking industry representatives (Bank D, G, I, P & R); evident from the research findings (Table 5.11). This is consistent with the following studies: Mcknight and Chervany (2002); Gefen, Karahanna and Straub (2003); Pavlou (2003); Salam *et al.* (2005); Palvia (2009); Beatty *et al.* (2011); Çelik and Yılmaz (2011); Luthfihadi and Dhewanto (2013); and Jones and Leonard (2014); all of whom argued that, the intention of the use of e-communication could be influenced by trust which is affected by reliability. Nevertheless, Tang, Hu and Smith (2008); Kim and Benbasat (2009) and Beatty *et al.* (2011), all stressed security measures as uniquely important and in the adoption of e-communication, trust is incorporated with security.

Even though the following benefits: quickly and securely money transferring; record keeping; taking payment from customers and contacting the service providers at any time are assured; yet, there is a relatively very low adoption of the rate of e-communication in the Bangladeshi SMEs. The research findings suggest that, in order to increase the rate of e-communication by Bangladeshi SMEs, the service providers need to build a foundation of trust in reliability, security and quality of the services; this conclusion was also reached by the studies of Beatty *et al.* (2011) and Jones and Leonard (2014).

The above review clearly reveals that, e-communication adoption by Bangladeshi SMEs could be influenced by reliability; and the service providers can play the most important role to ensure it. Furthermore, the service providers (the bank industry) need to focus on the cost of the facility for small firms.

Cost of the service

The cost of e-communication service was identified as an important factor for the refusal to adopt e-communication facilities by SMEs in Bangladesh. The results of this research (Table 4.4) are similar to several past studies conducted by the following scholars: Davis (1979); Cox and Ghonein (1996); Premkumar, Ramamurthy and Crum (1997); Mason (1998); Ono and Aoki (1998); Rowe and Richardson (1998); Ernst and Young (2001); Sarosa and Zowghi (2003); Seyal and Rahim (2006); Mutula and van Brakel (2007); Solaymani, Sohaili and Yazdinejad (2012) and Cantele and Zardini (2018). However, the findings of Simpson and Docherty (2004) claim that, cost is not an inhibiting cause in the adoption of the e-commerce facilities by SMEs. The research findings from the Bangladeshi banking industry representatives (Table 5.17) show that, most of the service providers charge a little amount for their e-communication services (Bank A, C, J, K & N) even some of the providers do not charge any fees (Bank H & V) which support the study of Simpson and Docherty (2004).

Nevertheless, present study has determined that, cost is an important deciding factor which influences the SMEs for e-communication adoption, as reflected in the findings of the Bangladeshi SMEs. Although, most of the service providers are offering the e-communication service with very affordable fees and some of them even offering with no charge, the rate of e-communication adoption by Bangladeshi SMEs is comparatively lower. Some service providers' findings suggest (Table 5.16) that: infrastructural development, technological knowledge of the users, educational background, subsidy from the service providers or government, the policies of lowering prices and the availability of training facilities can boost the expansion of the e-communication services among Bangladeshi SMEs. It could be concluded from the above submissions that, cost plays the most significant aspects in the SMEs' adoption of this new e-communication innovation that should be considered by the service providers and relevant others. Simultaneously, the security concerns of both the current and potential customers must be given a higher consideration.

Security concerns

The research findings (Table 4.4) show that, a large portion of the Bangladeshi SMEs is yet to adopt e-communication facilities due to the huge security concerns. A number of Bangladeshi banking industry (Bank A, I & N) representatives (Table 5.16) have highlighted several security concerns. These findings corroborate the studies conducted by: Beale (1999); Killikanya (2000); Mukti (2000); Shim *et al.* (2001); Udo (2001); Alam *et al.* (2004); Limthongchai and Speece (2003); Hesson and Alameed (2007); Tan, Tyler and Manica (2007); Belkhamza and Wafa (2009); Hua (2009); Choudhury and Choudhury (2010) concluded that, still many SMEs in different economies consider the internet and networking jargon as a complex phenomenon and in the e-commerce diffusion, internet security is treated as the key factor.

Against this backdrop, it has been indicated that, due to security issues, many of the Bangladeshi SMEs are not adopting e-communication facility. However, the service providers and the government can provide some additional facilities for SMEs by ensuring security and by imposing new regulations for e-communication services. Likewise, by increasing the awareness level, by explaining the benefits of e-communication facilities to the SMEs, and by ensuring security, the adoption of this facility can be encouraged and enhanced in their day to day activities. Furthermore, the advantages of the convenience of switching over should not be underestimated; rather, it should be highlighted by the service providers.

Convenience of e-communication facility

It is apparent from the research conclusions submitted (Table 4.4) that, due to its easy access features, many SMEs use e-communication facilities. The convenience of the switchover to the e-communication adoption has also been reflected in the conclusions reached by the Bangladeshi banking industry representatives (Table 5.14). A number of the service providers (Bank A, B, E, G & N) focused on the easiness and convenience of e-communication services. These representatives also opined that; Bangladeshi SMEs having limited IT skills can also use their e-communication services because of their ease of application. The results of the studies by Tornatzky and Klein (1982); Katz and Shapiro (1994); Rogers (1995); Mahler and Rogers (1999); Scupola (2003); Grandona and Pearson (2004); Christensen, Anthony and Roth (2004); Anthony (2005); To and Ngai (2006);

Schmidt and Druehl (2008) and Lim, Baharudin and Low (2016) showed relationship between the adoption of e-commerce and its compatibility with the firm's values and culture. Similarly, adoption of new technology could be influenced by the compatibility of the innovation.

Despite the above development, convenience of the e-communication facility has been highlighted by most of the SMEs and the banking industry representatives; it has not been adopted by a large part of the Bangladeshi SMEs. This indicates that, besides convenience, issues like security, reliability, cost and mobility of the service need to be considered alongside increasing the benefit awareness level by the service provider, if the e-communication adoption rate among SMEs in Bangladesh needs to be enhanced.

Awareness of the benefits of e-communication facilities

The research analysis shown in Table 4.6 reveals that, most of the Bangladeshi SMEs are made to be aware of the benefits of e-communication facility by either their family, friends or by other organisations that might not give them a clear picture of the potential efficiencies of this innovation. In addition, the benefits of switching to e-communication by SMEs have thus been suggested by the banking industry representatives (Bank J, K, L, M, N, P & Q); e.g. they stressed: money transferring costs, all time accessibility, easy access, avoiding cash handling and online bill payment (Table 5.5). Likewise, the research findings (Table 4.10) also confirm that, e-communication is helping SMEs to enhance their performance. These findings are consistent with studies by Moodley (2002); Grandona and Pearson (2004); Senn (2004); Stockdale and Standing (2004); Taylor and Murphy (2004); Dibrell, Davis and Craig (2008); Han (2008); Harindranath, Dyerson and Barnes (2008); Haller and Siedschlag (2011); Oni and Papazafeiropoulou (2014); Olise *et al.* (2014); Levenburg, Schwarz and Motwani (2015); Ross and Blumenstein (2015); and Luo and Bu (2016), all agreed that, SMEs have benefits like: productivity, geographical reach, lower costs, speed, competitive advantages and information sharing of the e-commerce.

Although, SMEs and other service providers know the potential benefits of e-communication, the rate of adoption in Bangladesh is abysmally low. If the awareness of the benefits could be increased by the service providers and the

government authorities by focusing on a few case SMEs, then others could be influenced, and the rate of e-communication adoption could be increased. In this case, relevant technological factors should also be emphasised.

Technological factors

The evidence presented by the findings of this research (Table 4.5) further reveals that, many technological factors like: security reasons, non-suitability, lack of technology of the users and unavailability of the service can affect e-communication adoption by SMEs in Bangladesh. The findings of this study, have been found to be consistent with these studies: Khan (2001); Awal (2004); Azam (2005); Dewan and Nazmin (2007); Rikta (2007); Alshehri and Drew (2010); Olatokun and Kebonye (2010); Alamro and Tarawneh (2011); Wang (2016) and Shemi and Procter (2018). Conversely, most of the banking industry representatives (Bank I) highlighted their technological support for business customers (Table 5.5). Some of the banks are (Bank I) working closely with the government to develop the infrastructure in regards to technological support for e-communication adoption (Table 5.6). Besides, some of the banks (Bank F) are in the process of acquiring their own e-communication infrastructural development (Table 5.8). Subsequently, several bank representatives (Bank A, E, I, J, L, Q & V) asserted that, their online banking facilities could be accessed from any computer and or gadgets like smartphones. Furthermore, they added that, no additional hardware or software is required for taking payment from customers (Table 5.12).

The research outcomes from the banking industry representatives have vividly demonstrated that, various types of technological supports are available in Bangladesh for business customers including SMEs. Nevertheless, several factors like the inadequate security measures, organisational culture and the sub-standard technology have all militated against the adoption of the SMEs' e-communication.

Organisational Culture including Norms, beliefs, willingness and attitudes of the SMEs' owners/managers

The research findings evidence illustrated that, for any new technology to be adopted; organisational culture remains a cardinal factor among others that can

militate against the SMEs in Bangladesh. Equally, norms, belief systems and the attitudes of employees all have a huge impact on the adoption of e-communication. This result (Table 4.11) supports the outcomes of the research studies: Schein (1990); Sackmann (1992); Thong and Yap (1995); Teo and Tan (1998); Thong (1999); Lee (2002); Al-Gahtani (2004); Beckinsale and Levy (2004); Chai and Pavlou (2004); Dholakia and Kshetri (2004); Filiatrault and Huy (2006); Montazemi (2006); Thatcher, Foster and Zhu (2006); Twati and Gammack (2006); Tan, Tyler and Manica (2007); Martinsons (2008); Abousaber (2013) and Mohtaramzadeh, Ramayah and Jun-Hwa (2018), all of whom believed that, strong organisational culture is one of the significant conventional forces that fosters the acceptance of innovation in any in organisations. They have also established significant relationships between strong culture and new technology like e-communication adoption by SMEs.

It is also evident from the research findings (Table 5.6) that, organisational culture can affect the adoption of e-communication by SMEs. A number of the bank representatives (Bank I, M, P, Q, S & T) highlighted the importance of willingness and organisational culture to adopt e-communication facility by Bangladeshi SMEs. Furthermore, the research findings show that, mainly four types of organisational culture profiles are followed by Bangladeshi SMEs which are dependent on their business types (Table 6.2). The organisational culture profile can also affect the e-communication adoption by SMEs.

Against the arguments above, this study has established that, before the SMEs can adopt e-communication, knowing the organisational culture profile is important. The study has also identified clan culture as a dominant element which can immensely affect the adoption of e-communication in the Bangladeshi SMEs. It could be concluded therefore, that, organisational culture is one of the most important factors for Bangladeshi SMEs. Also, maintenance of a friendly workplace where the owners and/or managers freely share their opinions with colleagues, can affect the rate of e-communication adoption. At the same time, the service providers should offer best suited facility especially for SMEs.

Role of the Service Providers

Key analysis contained in Table 4.12 illustrates that, service providers can positively affect Bangladeshi SMEs for e-communication adoption. Thus, the role of the service providers has comprehensively been examined in the second phase of this study. Most of the service providers in Bangladesh have been providing digital banking facilities for a large number of users with a very little amount of fees (Table 5.9). The research findings (Table 5.10) confirm that, most of the service providers also avail training facilities to increase the rate of e-communication adoption. In addition, if required, service providers mostly supply additional devices to their business customers through their partner organisation (Table 5.15). Furthermore, at an affordable cost, the best quality service has been highlighted by most of the service providers as an added benefit enjoyed by their customers (Table 5.17).

The research findings agree with studies the conclusions of these scholars: Bradley and Stewart (2002); Karjaluoto, Mattila and Pento (2002); Koskosas and Paul (2002); Christensen, Anthony and Roth (2004); Peterson and Park (2006); Laukkanen and Pasanen (2008); and Schmidt and Druehl (2008), they have shown that, the service providers employ a number business methods to attract new consumers into supporting e-communication: increasing customers' awareness threshold, cost reduction, directly communicating with SMEs; extending service areas and providing training facilities.

The roles of the service providers shown above indicate that, ensuring measures like awareness, affordable costs, reliable and secured services; the Bangladeshi SMEs could be influenced into adopting e-communication technology. Also, securing external funding can remarkably influence Bangladeshi small firms to influence the e-communication adoption.

Funding support from other institutions

The adoption of e-communication facilities by Bangladeshi SMEs could be influenced by the funds from any financial institution/banking industry, evident from this research. These findings (Table 4.9) link well with those of: Iacovou, Benbasat and Dexter (1995); Caldeira and Ward (2002); Gibbs, Kraemer and Dedrick (2003);

Rogers (2003); Dholakia and Kshetri (2004); Molla and Licker (2005); Molla, Taylor and Licker (2006); Thatcher, Foster and Zhu (2006); Martinsons (2008); Nielsen and Thomsen (2009) and Pedersen (2009), all suggest that, e-communication adoption by SMEs could be increased, if subsidies or incentives could be offered to the firms. Similarly, a number of the banking industry representatives (Bank H, I, L & M) emphasised the importance of securing external funding for SMEs (Table 5.16); they further believe that, if funding opportunities or subsidy can be ensured by other institutions, then the rate of e-communication adoption among Bangladeshi SMEs will be increased.

It could be inferred therefore, that, e-communication adoption rate could be increased significantly, if Bangladeshi SMEs get financial support from external bodies including the government.

Government supports for e-communication adoption

The findings of this research shown in Table 4.13 illustrate that, government support can help Bangladeshi SMEs to increase the e-communication adoption rate. Likewise, in order to increase the rate of e-communication incorporation by the Bangladeshi SMEs, several factors were identified from the banking industry representatives (Table 5.6). Also, a number of the representatives (Bank B, D, F, G, H, I, J, N & T) have highlighted the government's contribution to be an influencing factor the SMEs' e-communication adoption. The interviewees focused on government support in areas of infrastructural development and issues of external securities. The support of Bangladeshi government to increase the rate of e-communication has been also reflected in interviews with bank representatives (Table 5.7). These bank representatives (Bank C, E, F, I, M & V) stipulated that, the current government of Bangladesh have been encouraging to implement digital communication facilities in the banking sector and the government is also trying to establish a technological infrastructure to support all types of internet users including SMEs. This huge investment of the government was revealed during the interviewing phase.

These findings are reflected in the studies of these scholars: DeLone (1988); Storey (1994); Thong, Yap and Raman (1996); Teo, Tan and Buk (1997); Thong (2001);

Chan and Al-Hawamdeh (2002); Debreceny *et al.* (2002); Goode (2002); Jutla, Bodorik and Dhaliqal (2002); Love, Irani and Edwards (2004); Choudrie and Ghinea (2005); Dwivedi, Khan and Papazafeiropoulou (2006); Schubert and Leimstoll (2006); Thatcher, Foster and Zhu (2006); Martinsons (2008); and Nielsen and Thomsen (2009), they argued that, in the innovation adoption for SMEs, the role of the government is treated as one of the most powerful institutional drivers to ensure facilities such as required infrastructure and financial support to increase the rate of e-communication adoption. Equally, there is also conflicting evidence in the literature regarding the government support to influence SMEs for e-communication adoption. These researchers: Smallbone *et al.*, 2001; Baskerville and Pries-Heje, 2001; Dawn, Podonik and Dhaliwal, 2002; Lawson *et al.*, 2003; Houghton and Winklhofer, 2004 claimed that, although, the contribution of SMEs is known by many governments, the ICT adoption rate is yet low in SMEs.

Several Bangladeshi government websites illustrate how the government employ the funding mechanism to influence the innovation of e-communication; this is evident from the SMEs and the bank representatives, despite this, the rate at which e-communication is adopted by SMEs has not increased much. Thus, the research findings are in agreement with studies by Smallbone *et al.* (2001); Lawson *et al.* (2003) and Houghton and Winklhofer (2004). The findings illustrate that, if the government can ensure the funding and also monitor the strategies of the service providers for the appropriate facilities offered to SMEs, then the rate of e-communication adoption could be increased among Bangladeshi SMEs.

6.2 The Impact of Commercialisation Strategies of the Service Providers

To analyse the commercialisation strategies of the service providers of Bangladesh (the banking industry), features of the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) have been illustrated in this section.

- **Convenience of e-communication technology**

The relationship between flexibility and convenience (Christensen, Anthony and Roth 2004; Anthony 2005; Schmidt and Druehl, 2008); flexibility and compatibility (Katz and Shapiro, 1994); benefits of network effects (Mahler and Rogers, 1999; Shapiro

and Varian, 1999); requirements of additional equipment and extra cost (Murillo and Lozano, 2006) and the relationship between the service providers and convenience of e-communication (Enderle, 2007) were emphasised in a number of studies. The convenience of using the facilities of e-communication has been explored in this section in order to consider the roles of the Bangladeshi SMEs and the banking industry.

- **Flexibility of e-communication technology adoption**

The bank representatives (Bank A, B, C, D, E, I & T) opined that, SMEs can use the e-communication facility by utilising their existing hardware and software, illustrated in (Table 5.5). This compatibility indicates the flexibility of the e-communication services offered by the Bangladesh banking industry. As suggested by most of the Bangladeshi banking industry representatives, their online banking facilities could be used from any computer and from other electronic gadgets that are connected to the internet; no additional hardware or software is needed with such different gadgets. According to the expressed submission of this study, use of e-communication is better than the traditional operations due to the easy access it provides; suggested by the quarter of the respondents (Table 4.4). Likewise, two fifths of the participants (Table 4.14) in this research opined that, setting up or installing the e-communication equipment was easy within the Bangladeshi SMEs. These findings were corroborated by the studies conducted by: Katz and Shapiro (1994); Christensen, Anthony and Roth (2004); Anthony (2005); Enderle (2007) and Schmidt and Druehl (2008).

In addition, the service providers make available online pay machines for their business clients including SMEs so that customers can easily make a payment to the outlets. Also, with support from other agencies, additional devices are offered by the bank to facilitate business transactions. The research findings again showed that, customers are closely connected to the banks through the use of the banks' secured and convenient online banking services; the SMEs can access their bank at any time when paying bills or transferring balance with ease. The outcome of this study supports the findings of Jasinkas and Simanaviciene (2008); who claimed that, depending on the clients' expectations and requirements, features of the e-communication facility could be different.

Comparisons of the empirical evidence and the research findings show that, e-communication facility offered by the banking industry in Bangladesh is flexible enough to do several activities including paying bills and taking payments from customers. Moreover, the service is easy to access and is better than the traditional methods; despite this innovation, the rate of adoption is not high in Bangladeshi SMEs. With the above indication, factors like compatibility need to be considered by the service providers.

- **Compatibility and customer satisfaction**

The technological compatibility is a factor satisfies customers; to achieve this, extra budget is imperative if business is to cope with technological changes such as updating software and hardware are needed for adopting technology (Murillo and Lozano, 2006). In contrast, it was assured by most of the bank representatives (Bank A, B, H & K) of Bangladesh that, no additional training or assistance is required for adopting e-communication facilities by SMEs and most of them have customer care and support teams. Support from the bank (Bank G & J) is available via phone as well as in person (Table 5.10). These representatives also highlighted compatibility of their services especially for small and medium organisations. The research's (Table 4.14) evidence showing more than two fifth of the participants agreed with the compatibility of the e-communication with their business operations. Moreover, about two third of the SMEs have adopted e-communication due to its easy and secured payment facilities (Table 4.5).

The research findings from the Bangladeshi SMEs (Table 4.5) show that, non-suitability is an important militating factor in the adoption of the e-communication facility. Conversely, the banking industry representatives observes that, digital banking service is compatible with ordinary computer services and no additional equipment is required to access it (Bank J & L). To ensure this, a pay point, card reader and transaction terminals are needed to be installed. This research also proves that, e-communication services could be suitable with the existing hardware and software (Bank P & Q) but the service could be faster and secured by the adoption of some additional services including antivirus software and random-access memory (Table 5.12).

As many SMEs are not adopting e-communication facility for its non-suitability feature, the service providers should take initiatives to redesign the service compatible for small firms. Because of this, service providers should advertise or make available the advantages of the services to both existing and potential clients.

- **Advantages of e-communication services**

It is evident from the analysis of the results (Table 5.4) that, e-communication is one of the demanding issues for any business to operate efficiently. Several advantages of the e-communication facility have been identified in this research and most of the SMEs have adopted the service due to its easy and secured payment facilities, ease in communicating with service providers, to transfer cash, as well as its export and import facilities (Table 4.5). In addition, Bangladeshi SMEs who have already adopted e-communication services agreed with the support of the e-communication facility and they maintained that, the service is helping their business; and according to those who are yet to adopt the service, this new innovation could support them to increase performance (Table 4.10). In like manner, SMEs' e-communication facilities like the e-mail communication or money transfers, helps to avoid unnecessary expenses and undue delays (Bank, A) in contacting suppliers and customers (Bank, G), to transfer money to suppliers within minutes; this way, money is saved, profit maximised as well time to ensure safety (Bank, J). Furthermore, customers can transfer balance easily and can pay bills using online services which can save their time (Bank, L).

The results of this study (Table 5.4) are similar to those of Senn (2004), who outlined these benefits: new features, productivity, geographical reach, lower costs, speed, competitive advantages and information sharing of the e-commerce. Business operations have become easier due to the advanced technological features; therefore, communicating between clients, organisations and suppliers have become easier. Also, better services due to the improved e-communication technology, has increased the market share. As e-communication capability is flexible and easily accessible from anywhere, it offers the advantages of being easy to use, and has hassle-free operations.

Conversely, the advancement in global e-communication (Table 5.4) that, e-communication in Bangladeshi SMEs still lacks behind because of the preferential reliance in the use of traditional communication usage. Nevertheless, some of the SMEs sell their products using online facilities; a good sign to spread the new technology. Despite this, several SMEs are deprived of the e-communication facilities due to their security concerns, lack of technological knowledge and appropriate service availability (Bank E, U & V).

In order to influence the SMEs to adopt e-communication, the service providers should take initiatives to make available workshop in both urban and rural areas; at the same time promotional services should be extended in which the quality of both their products and services are advertised.

- **Quality of the service**

With reference to the research findings (Table 5.11), in many cases, e-communication is better than traditional services and some of the reasons are related to contacting the bank, transferring money to others and accepting card payment from customers. Moreover, an 'all time banking facility' is the most attractive feature (Bank J). Likewise, by using the e-communication facilities, all the customers can transfer money quickly and securely (Bank D & H), and reliably and cost effectively (Bank P) from anywhere. Furthermore, by using e-communication facilities, business customers can also be offered quality service, for example by taking card payment which can then reduce the risk of carrying cash (Bank R). These are consistent with study by Perrini, Russo and Tencati (2007) who treated quality as an important factor for any business organisation.

The quality of e-communication services has been highlighted by a number of banking industry representatives of Bangladesh, evident from the research findings. Research findings also show that, customers can connect the bank at any time for transferring money, paying bills as well as for record keeping, accessing the bank account and transferring money hassle free and without additional cost which ensures quality customer service.

- **Cost of e-communication technology**

In relation to price, cost of use of the e-communication services offered by the service providers (the banking industry) has been explored in this section.

- **Pricing of the services**

Table (5.8) of this study reveals that, most of the Bangladeshi banks have very efficient customer friendly policies for their customers including SMEs to ensure secured online banking facilities with affordable service costs (Bank B & D). High quality digital services with reasonable costs, setting up of payment points, including the online purchasing facilities were emphasised by several representatives including continuous service development, secured online banking facilities with very little extra cost, free offering short training facilities and different types of online users were also found from this research (Bank E, G, N, &) . Furthermore, the key analysis in Table 4.4 shows that, a number of Bangladeshi SMEs find e-communication better than traditional operations because of price; although some of them have not adopted the service due to higher price. These results are in agreement with that of Vijay, Subhash and Robert (1993); Mason (1998); Ono and Aoki (1998); Rowe and Richardson (1998) who treated price as a recurring theme in the context of quality of service and price.

The above analysis reveals that, price has an influencing impact on services and has been considered one of the most important factors in the expansion of e-communication facilities among SMEs as evidence from the Bangladesh banking industry. Consequently, the low price of the service cost could encourage more SMEs to adopt e-communication.

- **Awareness of low price for SMEs**

The findings of this study (Table 5.8) indicate that, most of the banks in Bangladesh have taken initiatives to ensure digital banking services for all their business clients by offering the required services and they are also planning to setup their own infrastructure for digital banking services. The awareness of online facilities with regards to pricing and security are also evident from this finding (Bank F). Different

types of services under the SME banking; affordable cost and continuously informing clients through different media with regards to the vast facilities of the online banking services have also been emphasised by some of the representatives (Bank M). Key analysis from Table 5.9 shows that, pricing policy of the banks (Bank C), and future strategy to extend online services countrywide and to keep prices affordable for SMEs might be helpful to increase the online banking service users if they get support from external bodies like the government (Bank Q). Subsequently, the research analysis shown in Table 4.7 and Table 4.9 reveals that, the service providers can attract new consumers for e-communication facilities by reducing cost as well offering funding facilities. The above research findings concur with studies by Vijay, Subhash and Robert (1993); Rauterkus (2009) and Lin, Chen and Chiu (2010) who emphasis on the benefits from the use of technologies, the role of pricing strategy and the competitors' pricing strategy to influence new users.

- **Policies to attract consumers**

The research analysis in Table 5.9 reveals that, a number of banks in Bangladesh are currently working on the development of the digital banking system for their nationwide clients alongside keeping records of the SMEs banking activities digitally so that, decision related to loan approval could be made based on this information (Bank H). Pay point terminals for card payment facilities, special services for SMEs without any extra fee, moderated strategies regarding the types of customers, price and services and affordable pricing strategy (Banks J, M O &S) this study has identified all in the context of the service providers' policies of attracting consumers. The study's findings (Table 4.7) show that, the service providers can attract new consumers for e-communication facilities by following these policies: increasing awareness, reducing costs, communicating with SMEs directly, extending service areas and providing required training. Moreover, policies like cutting cost, providing funding facilities, the assurance of security and direct support from the service providers, can boost the attraction of more consumers. The findings of this study supports Pedersen's (2009) who argued that, keeping prices reasonable is one of the techniques by vendors for attracting more customers and in most cases; vendors are keen to follow their own pricing policies.

More SMEs could be attracted towards specific service providers for their lower pricing policies. Hence, effective pricing policies are essential for considering the current demand and competitors' approaches.

- **Awareness of other competitors**

The research findings (Table 5.17) submit that, customers are the first and utmost priority of the Bangladeshi banks; they charge very little for the online banking facilities and are trying to improve their services without imposing any additional fees (Bank A). Similarly, a little charge for online banking, card payments for the SMEs, comparing with other providers reducing the charge in the near future (Bank C); different pricing strategies and the best services with an affordable fee (Bank N); and reliability of mobile banking and internet banking and the half yearly/yearly fee (Bank T) have also been revealed in this research. These findings are consistent with studies by Christensen, Anthony and Roth (2004); Lin, Chen and Chiu (2010); Sueyoshi, Goto and Ueno (2010) and Lim, Baharudin and Low (2016) who believed that, if any organisation plans to make improvements on the convenience and customisation elements then, customers get benefits from it and by thus the company becomes able to earn customer satisfaction which is helpful in generating more revenue. These researchers also focused on competitors' pricing policies to attract customers and, link between business success and pricing policies.

However, good services with reasonable prices can help the banking industry to expand e-communication facility nationally. Reliability and functionalities enable many organisations to compete with easy dimension use. Users' value could be created by improving convenience and customisation; as well as helping vendors to generate revenue. Most of the Bangladeshi banks are following the same approach of keeping prices affordable for the SMEs. They should also monitor and reduce prices to attract more clients. Customised services especially for SMEs, can help the service providers influence more customers in adopting the e-communication service.

- **Customisation of e-communication technology**

In relation to the service provider's (the banking industry) perceptions, customisation has been explored in this research aiming to increase the e-communication adoption by SMEs.

  - **Simplicity of e-communication technology and awareness of consumers' requirements**

The research findings from the Bangladeshi banking industry representatives (Table 5.14) show that, many SMEs are unaware of the technological issues; they very carefully consider their technological competencies during the offering of e-payment system. These representatives also claimed that, easy to use services are offered by them and anybody with basic computer literacy can access those services (Bank A). Concerns about online banking security related issues, offering online facilities in the Bengali language and limited technical skills of the SMEs have also been expressed by bank representatives (Bank B & G).

Easy to use payment gateway services and short-term training, services in both urban and rural areas, voice recognition systems for operating various digital services, have also been itemised by this research findings (Bank E, H & N). According to Tse and Soufani (2003), clients could be attracted towards any services, if they are easy to use and this has the potential to create significant impact in the technology sector. Despite this, the results of this study (Table 4.14) found from the SMEs seem not to be in agreement with findings from the service providers, where most of the SMEs disagreed with the awareness assurance of the banking industry for e-communication facilities.

  - **Technical capability needed to use e-communication technology**

The research findings evidence (Table 5.10) shows that, most of the Bangladeshi banks provide training facilities for their customers due to online and card payment services (Bank B & H). Online support for personal and business customers (Bank K) and expert support for the technical issues especially for the digital banking, SMS banking and pay point gateway services (Bank P) have also been identified from the research findings. It is also evident from the research findings (Table 5.13) that, most of the banks generally introduce e-communication services to their customers during

the opening of the account; plus, providing training facilities for the customers who use online and card payment methods daily business activities (Bank A, F & M).

Service providers' efforts to overcome the concern of technology usages have also been revealed in this research (Bank Q). These findings agree with these studies: Christensen, Anthony and Roth (2004); Azam (2007); Schmidt and Druehl (2008) and Sueyoshi, Goto and Ueno (2010) who suggested that, customisation especially technical capability is related to the distinctive jobs of individual users in relation to how squarely a product line's up with them. With reference to the research findings (Table 4.14), to setup and install the e-communication equipment in organisation was easy and compatible with business operations, claimed by most of the SMEs.

Today's business world is very much competitive; to survive and become a leader in this competitive environment, there is no alternative to having precise information about the market; even though some effective strategies based on the prevailing situation, could be followed. If the usage of a new technology is complex, the value of customisation could decrease at the same time, special training could be required for Bangladeshi SMEs. Therefore, if the service could be easily accessed, more SMEs could be influenced to adopt e-communication in their business operations.

- **Perceived Ease of Use**

This study also (Table 5.5) indicates that, the current digital banking offered by the Bangladeshi service providers can be used from any existing computers and other electronic gadgets, if internet connection is available (Bank D) and if some additional hardware and software could be adopted then security and faster data transfer could be ensured (Bank E). Additional software to secure their system (Bank U) and some additional devices with the support of other agencies (Bank G) were also suggested by several representatives (Table 5.12).

In addition, the key analysis of Table 4.4 shows that, one fourths of the SMEs find e-communication better than traditional operations because of the easy access. Consequently, this study's findings claim that, a large part of the Bangladeshi SMEs thinks the use of e-communication facility is easier although a small portion disagreed (Table 4.14). These findings are supported by the studies: by Davis (1989); Tan and Teo (2000) and Lee, Park and Ahn (2001), all claimed that, the

acceptance of information system can be strongly affected due to the perceived ease of use (PEOU); in most cases, customers adopt information systems if they find them less complex and easier to access.

Therefore, use of the e-communication system could be easier and likely to be accepted, if the understanding and appropriate skills of the technology are in place. If consumers cannot easily use the new applications, the value of customisation may decrease; thus, they might need special training because a sizeable number of users are not familiar with the e-communication equipment; which can lead to some complexities which may be further accentuated by incompatibility.

6.3 The Impact of Government Roles to Influence the Bangladeshi SMEs for Adopting E-communication Facilities

According to Nielsen and Thomsen (2009), in order to develop the technological infrastructure; a lot of investments have been made by the government of Western European Countries. Even though the development of infrastructure and technological innovation have been largely funded externally, yet internal funding by the government is immense; it differs from one country to another (Ang and Pavri, 1994; Abdullahi *et al.*, 2015; Sudibyo, Soesanto and Soetjitro, 2017 and Lee and Jo, 2018). Thus, to overcome the obstacles associated with the IT infrastructure, the support of the government which is generally provided in the form of technological and financial support is very vital.

- **Knowledge building**

It is evident from the analysis of the results (Table 5.6) that, the banks, SMEs and the government are the main respondents of increasing the adoption of the e-communication by SMEs (Bank T). The government initiatives for external security issues, convenience, feasibility, the cost of the e-communication services, developing the required infrastructure for the technological development and the role of local government authorities have all been identified in this research as factors which increase e-communication facility by SMEs (Banks R & I). Furthermore, this research evidence (Table 4.13) shows that, a large portion of the Bangladeshi SMEs which already adopted e-communication, disagrees with the government support;

yet, most of the SMEs that are yet to adopt the service, believes that government support can accelerate the adoption of the e-communication facility. These findings are in-line with studies by King and Konsynski (1990); King *et al.* (1994) and Brock (2000), argued that, knowledge building programmes could be directly or indirectly funded by governments; one of the renowned forms to provide funding facilities for universities. Thus, some ICT innovation programmes have been incorporated into the higher education by the providers with the support of the government. Likewise, ICT technical knowledge and skills could also be offered to SMEs by other institutions like ICT vendors and consultants.

Initiatives like the National Cyber Security Strategy, innovation promotion scheme for ICT research, Digital Staff attendance system, online e-pass system, Recruitment Exam Management System, Hi-Tech Park Information Management System (HIMS) and Smart Lab Management System are planned for modernisation by the current Bangladeshi government. Many previously planned Bangladeshi government initiatives are yet to be sustained. However, the current government has announced the Vision 2021; this plan to affect these changes: setting up own satellite system, reducing internet access fee and increasing the number of internet users. Contrary to this, not enough skills programmes or providers have been established to ensure the knowledge building facilities for Bangladeshi SMEs in particular.

- **Knowledge deployment**

The research findings (Table 5.6) reveal that, most SMEs are run by family members who prefer the traditional banking services. Issues such as, service cost, security issues, lack of technical and educational skills have also been found from the banking industry representatives (Bank U & V). This study (Table 5.7) indicates that, the government of Bangladesh and the service providers have been trying to increase the digital facilities countrywide and in different sectors with the support of current regulations aiming to increase the adoption of e-communication among SMEs (Bank B). The contributions of the government and the central bank, coupled with the current government's policy and guidance (Bank C) have been highlighted by a number of representatives. Consequently, huge investments for developing technological infrastructure and taking steps from the root level of the local government system were also suggested by one of the representatives (Bank I).

Thus, information related to training for using e-communication facilities among Bangladeshi SMEs has been demonstrated in this research. The required training can help to ensure using any e-communication facilities easily; considering the training for using e-communication facilities, is a prerequisite; and where most of the Bangladeshi SMEs suggested getting training to use e-communication facilities (Table 4.14).

Again, this study agrees with the results reached by King *et al.* (1994) who opined that, encouraging the dissemination of new knowledge among organisations is one of the main objectives of the knowledge deployment and with the support of service providers, the government can provide education and training facilities for others. It is also evident from the initiatives of the Bangladeshi government to encourage people, by taking steps from the root level of the local government system, as almost all the Union councils are under the internet and digital facilities. Recently, many Hi-Tech Villages, Hi-Tech Parks (HTP), Hi-Tech Cities and Software Technology Parks (STP) have been established by the Bangladesh government to ensure digital services for all including SMEs.

- **Subsidy**

This study's findings (Table 5.9) indicate that, most of the service providers i.e. the banking industry, have their future strategy which aims to extend online services countrywide at the same time keeping prices affordable for SMEs. Concerns about membership fees, extra support from the government and short training facility have been mentioned by several bank representatives (Bank Q & M). Affordable pricing strategy, services while keeping fees on changed including the government's support were also emphasised by one of the representatives to attract clients at the same time enhancing the expansion of e-communication nation-wide (Bank S). Subsequently, evidence from the research findings (Table 5.16) shows that, infrastructure development, technological knowledge of the users, educational background, subsidy from bank or government, lower pricing policies and training facilities enhance the Bangladeshi SMEs in increasing the rate of e-communication adoption (Bank L, M & N). The analysis of this research (Table 4.9 and Table 4.14) reveals that, the contribution of funds from various organisations can boost the expansion of SMEs' adoption the e-communication services.

These results are in agreement with submissions of King *et al. (*1994); Yap and Thong (1997); Rogers (2003); Nielsen and Thomsen (2009) and Pedersen (2009), these scholars opined that, if subsidies or incentives could be offered to the organisations who have adopted innovation services, then the rate of innovation adoption could be increased; and it could provide technological development for the purpose of drop down, the risk or cost of IT adoption in the country.

- **Mobilisation**

Referring to the research findings (Table 5.7), the Bangladeshi government has been trying to develop technological infrastructure to ensure innovative facilities for all. Moreover, they also impose some policies for the service providers i.e. the bank industry, to facilitate services for small and medium firms. It is also evident from the findings that; the current government is trying to implement digital services in all sectors by investing huge amounts of money. Consequently, people are encouraged, people are taking steps from the grass-root level of the local government, almost all the Union council are under internet and digital facilities (Bank D, E, I & M). This being the case, many Bangladeshi SMEs consider the mobility feature which has ensured the expansion of e-communication facilities that have proven to be better than the traditional operations (Table 4.4). These findings mirror the studies by King *et al.* (1994); Rogers (2003) and Molla and Licker (2005) which stipulate that, the effective tools for the mobilisation can create awareness among the users by doing promotional campaigns and through mobilisation in terms of reducing the operational costs. To a large extent, organisations could be influenced by mobilisation to adopt or reject ICT adoption.

However, to the SMEs, a successful government intervention initiative has been evidenced by Yap and Thong (1997) against the background of ICT adoption in Singapore; various activities such as financial subsidies, loans, and the provision of ICT technical expertise and ICT seminars were induced. To encourage people, the government of Bangladesh is taking steps from grass-root level of the local government system, practically all the Union councils have come under the internet and digital facilities. The Janata Tower Software Technology Park Dhaka and Sheikh Hasina Software Technology Park Jessore, propose the mobilisation activities of the

current government of Bangladesh. However, this approach should be extended country wide by focusing on all the 64 districts of Bangladesh.

- **Standard setting**

This research analysis shown in Table 5.7 reveals that, technological modernisation could be increased, if the government policies could be implemented following the training programmes for all including development of infrastructure considering the root level of the country. The roles of the current government have all been highlighted by several Bangladeshi banking industry representatives (Bank O, T & V). Again, it is crystal clear from the analysis of the results (Table 4.13) that, adopting the e-communication method by Bangladeshi SMEs could be influenced by the government. These outcomes are consistent with studies of King *et al.* (1994); Damsgaard and Lyytinen (1996); Harmer (2003) and Abousaber (2013) who recommended a common platform for ICT collaboration and standard setting which can help organisations by enabling regulations to collaborate and communicate with different organisations in line with institutional objectives. Further to this, speed of ICT adoption could also be increased by a standard establishment.

From these survey findings, it has been very clear that, government support can help SMEs to adopt e-communication facilities. After considering the discussion mentioned above, it could be inferred that, the role of the government is essential to setup a standard setting which will support the Bangladeshi SMEs to adopt e-communication facilities.

- **Innovation directive**

The key analysis in Table 5.16 confirms that, minimising the service cost, increasing awareness, developing infrastructure in and up to the rural level, providing direct/indirect subsidy, motivating SMEs by advertisement and training option of the e-communication services, all can help Bangladeshi SMEs to increase the rate of e-communication adoption (Bank P, T & V). The research findings of the Bangladeshi SMEs (Table 4.14) demonstrate that, to setup and install the e-communication equipment in organisations is easy, even though some of them disagreed. These findings are consistent with studies are firmly rooted in the outcomes of: King *et al.* (1994); Damsgaard and Lyytinen (1996), and Choudrie and Papazafeiropoulou

(2007) argued that, innovative directives could be tied up with different governmental incentives such as, resources or finance and the use of innovation could be influenced by the statutory power of the government to ensure specific norms. In contrast, it is evident from the literature associated with ICT adoption that, the adoption of ICT among SMEs could fail for the lack of understanding the perceived benefits of the services (Mendo and Fitzgerald, 2004). Thus, characteristics of the SMEs should be wisely considered by the government innovative directives provided.

These innovative activities: innovation idea and innovation work plan have been initiated by the Ministry of ICT of Bangladesh (Ministry of ICT Bangladesh, 2018) although, no specific plan for SMEs was evident. It is found from the above discussion that, for knowledge building, many initiatives have been taken by the government of Bangladesh; but to date, there is no specific scheme for SMEs. Similarly, several training centres have been established for ICT users but not specifically for SMEs. There is no evidence to suggest that, the government of Bangladesh offers any subsidy to SMEs for the adoption of innovative technology. Almost all the innovation directives are for ICT firms, but no evidence has been found particularly for SMEs and the same applies for the mobilisation activities handled by the government.

6.4 The Impact of E-communication Adoption on SMEs in Bangladesh

The research analysis shown in Table 5.4 reveals that, e-communication is one of the demanding issues for any business to operate efficiently; it can be used to avoid unnecessary expenses for the transference of money, to contact customers and suppliers and to collect payment from any part of the country. This study has also shown that, SMEs can pay bill by using online services which can save their time and increase overall operational performance (Bank, A, B, D, J, L & O). Consequently, the research findings from the Bangladeshi SMEs (Table 4.5) affirms that, a large portion of the Bangladeshi SMEs have chosen e-communication facilities because of the secured and easy payment, comparing with other activities such as communicating with bank, transferring cash and to export and import.

The above research finding concurs with studies by Weill (1992); Mahmood and Mann (1993); Byrd and Marshall (1997); Hussin (1998); Handfield *et al.* (2000); Truman (2000); Cragg, King and Husnayati (2002); Daniel, Wilson and Myers (2002); Teo and Tan (2002); Ismail and King (2005) and Okundaye, Fan and Dwyer (2019) who claimed that, adopting ICT can help firms to enhance internal communication, improve supply chains, services, competitive positioning and also can help attracting new customers. Also, these researchers showed significant relationships between ICT adoption and organisational performance using subjective measures and stressed that, because the ICT adoption in firms, customer loyalty, stronger financial resources, higher sales growth and long-term profitability could be experienced.

It is evident from the analysis of the results contained in Table 5.5 demonstrates that, SMEs could be benefited from the e-communication services by reducing money transferring costs, avoiding cash handling and paying any bill online which can help to improve their operational efficiencies (Bank J, K & N). Moreover, the findings of this study (Table 5.6) indicate that, if the service providers offer services and government takes the right initiatives for the external security issues by building required infrastructure, then SMEs would be encouraged to adopt e-communication which can help them to improve their business operations (Bank I & T). Subsequently, referencing this research's findings (Table 5.8), the service providers are continuously informing their clients through different media with regards to the vast facilities of the online banking services which can save time and money, improve their service, can also enhance their operational performance (Bank M, N & P).

The results of this study in-line with the results of the studies by: Moodley (2002); Esselaar *et al.* (2007); Matthews (2007); Higon (2011); Consoli (2012); Manochehri, Al-Esmail and Ashrafi (2012); Ollo-Lopez and Aramendia-Muneta (2012); Sabbagh *et al.* (2012); Bayo-Moriones, Billon and Lera-Lopez (2013) and Mohtaramzadeh, Ramayah and Jun-Hwa (2018), all focused on inclusive results on ICT adoption and firm performance and it has been evident that, a wide range of business processes could be benefited by the contribution of ICT and e-commerce at enterprise level; both resource management and internal communication could be more competent. Besides, if ICT innovation could be adopted by both buyers and suppliers, then

information asymmetries could be reduced; it can help to build good relationship with internet based B2B interaction and real-time communication. Thus, if ICT is adopted by organisations, then flexibility could be influenced as a result, the small firms can perform better by distinguishing their services and products, claimed by the above researchers.

Again, it is apparent from the research findings (Table 5.11) that, e-communication can help record keeping, frequent accessing of bank accounts, transferring money reliably and securely, avoid of hassles and by using this facility, business customers can offer quality services like taking card payments which can reduce the risk of carrying cash around, could ultimately help SMEs to improve their operational activities (Bank G, L & R). Furthermore, the research analysis in Table 5.13 reveals that, several service providers are offering training facility for their business customers to motivate them towards newly invented electronic services in the day to day business activities to improve their existing services (Bank N & S). In like manner, this study's setting (Table 4.7), the service providers can attract new consumers for e-communication facilities by using various methods such as, increasing awareness, reducing cost, communicating SMEs directly, extending service nationally; and providing training facilities can help them to influence the adoption of e-communication as a result, the overall performance could be enhanced.

The findings above are consistent with the outcomes of these studies: Lau and Tokutsu (1992); Baldwin and Sabourin (2002); Purcell and Toland (2003); Matthews (2007); Rikta (2007); Matei and Savulescu (2012); Elbeltagi, Hamad and Moizer (2016) and Cantele and Zardini (2018), these scholars focused on the impact of ICT on sales and employee growth, productivity outreach profitability and in better financial position. These researchers also stressed that, the positive impact can be seen if information technology especially e-communication facilities are adopted by SMEs and the adoptions of e-communication/ICT facilities, can enhance the performance of SMEs. However, in order to increase the potential benefits of the e-communication facilities among various users, service providers need to upgrade their facilities and users should be aware of costs and risks of those facilities.

Also, it is clear from the research findings (Table 5.19) that, introducing the e-communication service can assist the SMEs to reduce money transfer cost, can also help them to be connected with banks at all times: because of these features, most of the representatives recommend to their business customers to adopt this facility which can support them to enhance their performance (Bank D & U). Similarly, key analysis from Table 4.10 shows that, e-communication facilities can help the business operations; and according to most of the participants, adopting the e-communication can help to increase the performance of their organisations.

The above finding agrees with the recommendations of: Baldwin and Sabourin (2002); Purcell and Toland (2003); Rikta (2007); Han (2008); Chakraborty (2009); Abousaber (2013) and Soto-Acosta, Popa and Palacios-Marqués (2016) believe that, the e-communication facilities can positively affect firm's performance that has been using various e-communication services, getting more productivity and profitability than non-ICT users; but it is not be the panacea for enhancing their overall performance. Moreover, researchers like: Poon and Swatman (1999); Timmers, 1999; Modahl (2000); Jutla, Bodorik and Dhaliqal, (2002); Van Beveren and Thomson (2002); Al-Qirim (2003); Teo and Pian, 2003; Grandona and Pearson (2004); Zhu (2004); Beck, Wigand and Konig (2005); Raymond, Bergeron and Blili (2005); Johnston, Wade and McClean (2007); Teo (2007); Chong (2008); Lim, Baharudin and Low (201)7 and Nantembelele and Gopal (2018) have examined the benefits of e-commerce and ICT facilities adoption towards performance of the firms.

There are some debates in the context of potential benefits and ICT adoption by SMEs. Raising the question of the unsuitability of the e-commerce service for the SMEs; the utilisation of the relevant services remains obstinately low according to these researchers: Stokes (2000); Korchak and Rodman (2001); Jutla, Bodorik and Dhaliqal (2002); Goode (2002); and Lewis and Cockrill (2002). To increase the rate of e-commerce adoption, heavy investments have been made by the current government of Bangladesh under different schemes which targets different customers; including the SMEs that have some success in e-communication adoption, have also been revealed by these findings (Table 4.10). In this research, special attention has been paid to analyse the overall performance of the SMEs considering the opinions of the service providers and the SMEs. The above

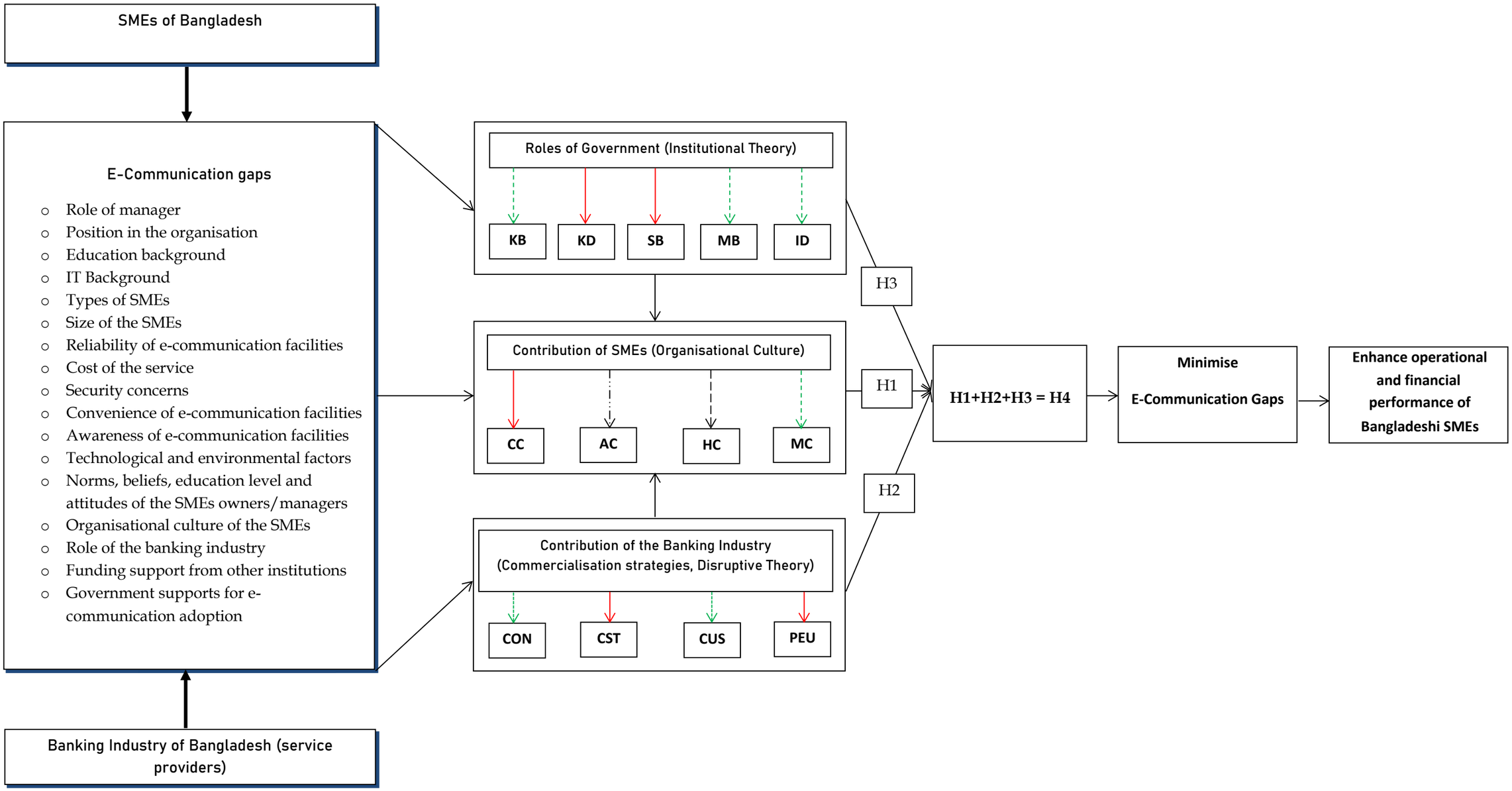
discussion reveals that, there is a positive relationship between e-communication adoption and Bangladeshi SMEs' performance.

6.5 Enhancement of the Research Framework

The conceptual framework of the research reveals that, mainly three respondents who play the most vital role in the adoption of e-communication by Bangladeshi SMEs to enhance their performance as shown in Chapter III (Figure 3.2). The organisational culture of the Bangladeshi SMEs, government roles and the commercialisation strategies of the service providers i.e. the banking industry are the factors identified in this research. To devise the research framework, relevant factors have been discussed in Chapter III (3.10); to identify the dominant organisational culture profile, the OCAI model has been implemented in Chapter IV (4.2). However, the enhanced research framework has been presented in this chapter in considerations of the empirical evidence gathered from both the survey and findings of the interview.

To investigate the factors that impact the Bangladeshi SMEs in adopting e-communication facilities, a survey questionnaire was designed to collect primary data. Afterwards, these survey findings are being compared with existing literature; thereafter, the analysis has been summarised at the beginning of this chapter (6.1). To analyse the service providers' (the banking industry) commercialisation strategies, the theory of disruptive innovation has been stressed. All the dimensions of the disruptive theory have been compared with the research data collected from twenty two banking industry representatives from Bangladesh. The summary of this analysis is evident in section 6.2. The roles of the government have been analysed considering the dimensions of the institutional theory. The dimensions of the institutional theory have also been compared with the data collected from Bangladeshi SMEs, the banking industry representatives, including the data collected from the website of the Bangladesh Ministry of ICT (6.3). After considering the effects of the issues mentioned above, an enhanced conceptual framework has been devised where in the rate of their effect has been indicated by using different types of arrows.

Figure 6.1: Enhanced Conceptual Framework of the Research



KB: Knowledge Building, KD: Knowledge Deployment, SB: Subsidy, MB: Mobilisation, ID: Innovation Directive, CC: Clan Culture, AC: Adhocracy Culture, HC: Hierarchy Culture, MC: Market Culture, CON: Convenience, CST: Cost, CUS: Customisation, PEU: Perceived Ease of Use, H1: Hypothesis 1, H2: Hypothesis 2 & H3: Hypothesis 3, Strong Effect: ↓ Comparatively weak effective: ↓ low effect: ↓

The research framework clearly demonstrates the impact of the role of government by distinguishing the range of impacts of the dimensions of the theory of institutional intervention. Although all the dimensions: knowledge building, knowledge deployment, subsidy, mobilisation and innovation directives play important roles, the impact of knowledge deployment and subsidy is higher than others.

The contribution of the banking industry (service providers) could be easily illustrated and range of effects could be seen in the conceptual framework. The framework shows that, cost and perceived ease of use have stronger effects than the convenience and customisation dimensions of the disruptive theory of innovation.

The clan is the dominance organisational culture for Bangladeshi SMEs, evident from the research framework and they are more interested to adopt e-communication then others.

6.6 Summary

In this chapter, the factors which affect the adoption of e-communication by the Bangladeshi SMEs, the commercialisation strategies of the service providers and government roles have been discussed and analysed by comparing the data collected from various secondary and primary sources like SMEs and the banking industry representatives of Bangladesh. In addition, enhanced research framework and further issues found from this research have also been summarised. Also, these discussions have been continued by aiming at the research objectives.

The first research objective is related to the factors that affect Bangladeshi SMEs in adopting e-communication which has been investigated by focusing on the survey findings. The findings on the first research objective have been summarised under a number of these key factors: the role of owner/manager of the SMEs, educational background, the level of ICT knowledge, the types and size of the SMEs, reliability of e-communication facilities, the cost of the service, the security concerns, the convenience of e-communication facility, the awareness of the benefits of e-communication facilities, technological and environmental factors, organisational culture of the SMEs, the owners/managers, the role play of the service providers,

accessibility of funding support from external institutions and government supports for e-communication adoption.

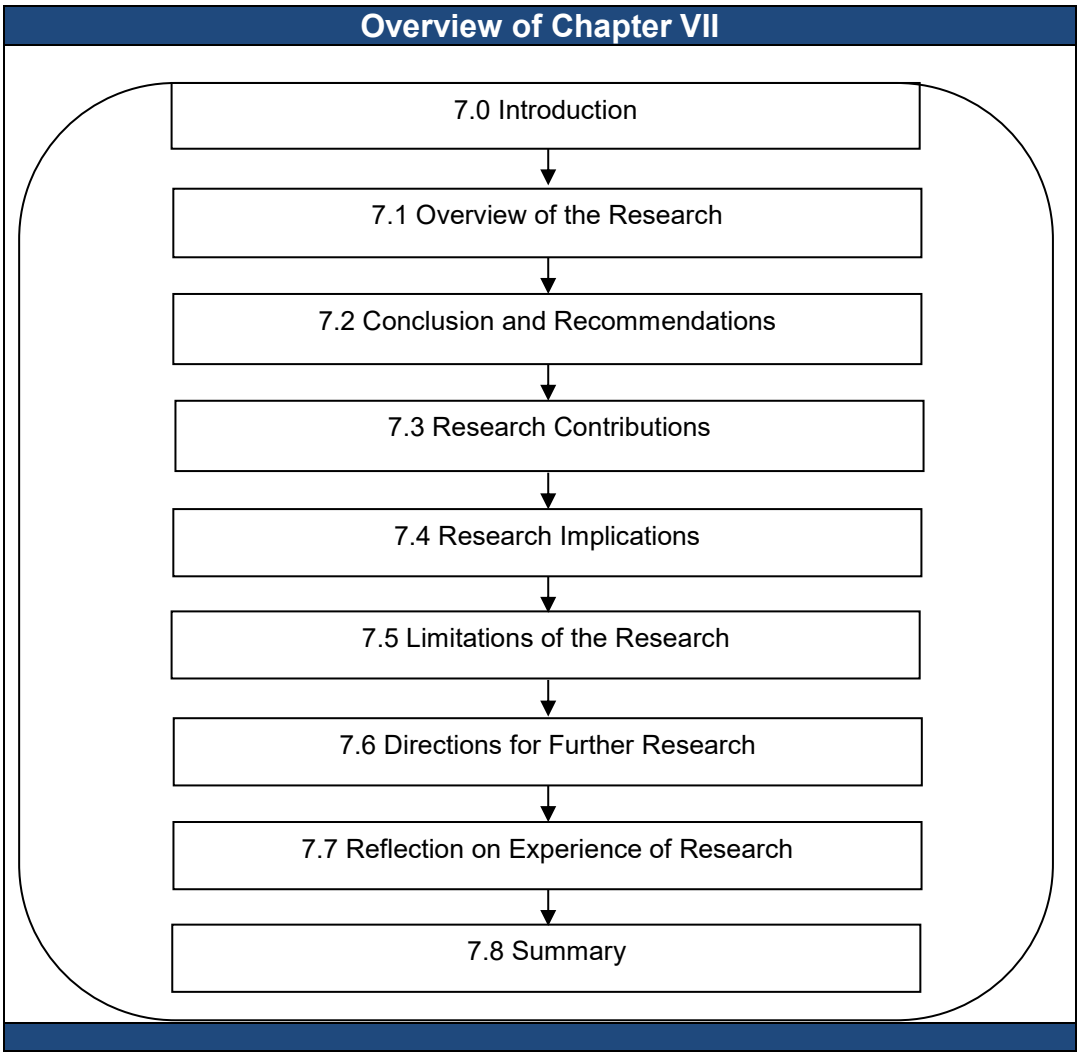
The second research objective is related to the service providers' commercialisation strategies and government's roles that have been discussed under the vendor's commercialisation strategies, by focusing on the theory of disruptive innovation; and the government roles in consideration of the institutional theory of intervention. In the discussion and analysis of the commercialisation strategies of the service providers, convenience, customisation, cost and ease of use dimensions have been studied in the context of the service providers i.e. Bangladeshi banking industry. As part of the second objective, government roles have also been explored. Institutional theory of intervention has been considered mainly as the theoretical foundation of the government roles after considering the key dimensions like knowledge building, mobilisation, subsidy, knowledge deployment, innovation directive and standard setting. To analyse this research objective, mainly secondary data has been applied in conjunction with the information gathered from the Bangladeshi SMEs and the banking industry representatives.

The third research objective is associated with the e-communication adoption and its impact on Bangladeshi SMEs. To evaluate this objective, the findings from the Bangladeshi SMEs and the service providers have been compared with several secondary sources and decision has been concluded. By targeting the fourth research objective, a revised framework has been constructed in this research for increasing the e-communication adoption by Bangladeshi SMEs. Although, the beginning a model was developed, it has been enhanced after summarising the research findings. Conclusion of the research has been served in the next chapter focusing on the research contribution, implications, limitations and areas for further study as well as reflective learning.

CHAPTER VII: CONCLUSION AND FURTHER RESEARCH DIRECTION

Table 7.1 presents the overview of the final chapter that in cooperates summary of the findings, contributions and implications for the research, the limitations, directions for further research and reflections on experience of the research have all been dealt with in this chapter.

Table 7.1: Overview of Chapter VII



7.0 Introduction

The discussion and analysis of this research have been thoroughly investigated in Chapter VI. An overall overview of the entire research has been presented in this final chapter. There are mainly eight sections in Chapter VII; section 7.1 provides a synopsis of the research and section 7.2 concludes the major findings of the research and provides recommendations associated with the reseach objectives. Sections 7.3, 7.4 and 7.5 represent the research contribution, research implications and limitations. Subsequently, directions for further research, reflections on experience of research and the summary are expounded in sections 7.6, 7.7 and 7.8 respectively.

7.1 Overview of the Research

Chapter I: This research began with an introductory overview, problem statement and research aim, which includes the research background. The importance of using e-communication facilities by SMEs has been identified in the context of Bangladeshi SMEs. E-communication facilities have not been widely adopted by Bangladeshi SMEs, despite this; it has the potential to overcome the limitations of the traditional communication procedures. The literature has revealed that, the following factors: cost, strategies of the service providers (the banking industry), government roles, user benefits and organisational culture can influence the SMEs to adopt e-communication facilities.

In business operations and resource management, electronic communication has become an important issue for SMEs. For example, to communicate with clients and suppliers, various types of online communication facilities and applications are used; e.g. e-payment systems are freely provided by almost all the banks in the United Kingdom (Bhamra, Dani and Bhamra, 2011). Yet, these facilities have not been made to be readily available for SMEs in Bangladesh. Furthermore, the role of the service providers (the banking industry) in influencing the SMEs to adopt e-communication facilities has hardly been examined in the context of Bangladesh. Hence, there is a need to identify the factors that influence the e-communication

adoption, and which can affect the operational and financial performance of Bangladeshi SMEs.

Chapter II: This chapter presents the theoretical background of the research; that includes the features of SMEs against the backdrop of the various regions. The existing literature reviews have been examined on the e-communication adoption; those reveal that, no research has been carried out on the e-communication adoption which focuses on the factors that affect the e-communication adoption by Bangladeshi SMEs, organisational culture, the service providers' (the banking industry) strategies and the roles of government. The research on e-communication adoption and e-communication gaps highlight the challenges and evaluation, the benefits of the ease of use; developments and deployment have all been dealt with.

The impact of e-communication on Bangladeshi SMEs has been evaluated in this study. As part of the theoretical background, the institutional theory (King *et al.*, 1994) and the theory of disruptive innovation (Christensen, Anthony and Roth, 2004) have been quoted in respect of their analyses of the government intervention and the service providers' (the banking industry) commercialisation strategies. Moreover, in the literature review section, issues such as benefits, use of e-communication adoption, organisational culture of the SMEs and the factors associated with e-communication adoption have also been examined. With regards to the theoretical background discussed in this chapter, the research model has been developed (Chapter III) by adopting the OCAI (Cameron and Quinn, 1999), institutional theories (King *et al.*, 1994) and the theory of disruptive innovation (Christensen, Anthony and Roth, 2004). The e-communication adoption by Bangladeshi SMEs has been finally conceptualised in terms of their financial and operational performance enhancement.

Chapter III: The research methodology has been outlined in this chapter by aiming to evaluate the impact of e-communication on Bangladeshi SMEs. Research processes and their implications to e-communication adoption by Bangladeshi SMEs from different perspectives have also been presented in this chapter. This research employed the pragmatism paradigm to enhance its effectiveness. It particularly focuses on the pragmatism paradigm; the deductive and the inductive approaches in

collecting the primary data from Bangladeshi SMEs and the banking industry representatives.

The use of mixed research methods in the context of e-communication adoption has been pointed out and the reasons for selecting both methods have been justified in this chapter. It has also illustrated the research paradigms and design, research methods and sampling techniques this study is associated with. Subsequently in this chapter, research approach and strategy, the pilot study, data collection, survey and interview schedules, data analysis strategy, tools and techniques, ethical issues and hypotheses and the primary conceptual framework of the research have been presented and encapsulated.

Chapter IV: In this chapter, the first phase of the research findings presented, targeting the first research objective. The views of 470 Bangladeshi SMEs have been analysed and summarised in this section by using the Statistical Programme for Social Science (SPSS). Some features of descriptive statistics and Chi-Squared distribution have been implemented to test the statistical significance of the research data. To reveal the dominating organisational culture of the Bangladeshi SMEs, the OCAI model has been applied as inferred by Cameron and Quinn (1999).

Factors such as IT background of the SME owners/managers, their position in the organisation, their educational background, whether educated overseas or not, and their decision-making power have been considered during the data collection and analysis for Bangladeshi SMEs. In addition, the nature of the SMEs, the number of employees, the suitability of the e-communication facilities, the reason for adopting or not adopting e-communication facilities, and the barriers of e-communication facilities have been discussed extensively in the context Bangladeshi SMEs. In like manner, such other factors: the role of SMEs' owner, role of the banking industry and the role of the government have equally been analysed. Likewise, four hypotheses of the research have also been analysed in Chapter IV.

Chapter V: In Chapter V, the findings from the service providers (the banking industry representatives) have been presented. To collect data from various participants from the banking industry representatives, the proposed conceptual framework of the research has also been utilised. To analyse the views of twenty-two

Bangladeshi banking industry representatives, the thematic data analysis process was followed. The dimensions of the theory of disruptive innovation have been compared with the views of the Bangladesh banking industry representatives and thus, have been concluded.

The cost of the e-communication facilities has been analysed in the context of the pricing for e-communication services, needs of low prices for Bangladeshi SMEs, the awareness of other competitors and policies to attract have all been dealt with. The convenience dimension has been examined in considering compatibility and customer service, flexibility of the e-communication technology; the advantages and quality of the service have all been perused. Simplicity and technical capability have been focused to analyse the customisation dimension of the theory of disruptive innovation. Furthermore, issues like government roles that influence the SMEs for adopting e-communication and organisational cultural concerns related with the adoption of technology have also been scrutinised in this chapter.

Chapter VI: The discussion and analysis of the research are presented in this chapter; it anchors its arguments from existing literature and research findings on the adoption of e-communication facilities by Bangladeshi SMEs. The factors in relation to e-communication adoption by Bangladeshi SMEs, commercialisation strategies of the Bangladeshi banking industry and the government intervention for supporting e-communication adoption have been mainly stressed in this section. Evidence has shown here that; clan is the most dominating organisational culture among the Bangladeshi SMEs. Consequently, market and adhocracy organisational culture have also been seen to be able to influence SMEs adoption of the e-communication facilities, though it also has a slight dominance the Bangladeshi SMEs. Consequently, the operational and financial performance of the Bangladeshi SMEs could have a positive effect after adopting e-communication facilities, as shown by the findings of the research. Various dimensions of the theory of disruptive innovation such as cost, convenience and customisation of e-communication facilities have been discussed in this chapter.

Finally, new issues like: the factors affecting e-communication adoption by Bangladeshi SMEs, the organisational culture profile of the Bangladeshi SMEs, the

service providers' support for adopting e-communication by SMEs, the governmental roles, e-communication adoption and the impact on Bangladeshi SMEs, and the conceptual framework have revealed in the case of Bangladeshi SMEs. These findings have therefore, been modified for reflection. The newly devised framework could be used to encourage the adoption of e-communication and its impact on Bangladeshi SMEs.

How the research objectives were met, has been presented in Table 7.2.

Table 7.2: Research objectives and their achievement in chapters

Objective No.	Research Objectives	Chapters
Objective 1:	To investigate the factors that affect Bangladeshi SMEs to adopt e-communication facilities.	II, IV & VI
Objective 2:	To explore the impact of commercialisation strategies of the service providers and government's roles to influence the Bangladeshi SMEs for adopting e-communication facilities.	II, V & VI
Objective 3:	To evaluate the impact of e-communication adoption on Bangladeshi SMEs.	II, IV, V & VI
Objective 4:	To devise a conceptual model for increasing the e-communication adoption by Bangladeshi SMEs.	III & VI

The existing literature has been analysed in Chapter II in order to identify the factors affecting Bangladeshi SMEs' e-communication adoption. To compare and to reveal the outcomes in relation to the influencing factors, primary data have been collected from the Bangladeshi SMEs; the findings have been presented in Chapter IV. Thereafter, existing and relevant literature has been compared with the research findings in Chapter VI to finally conclude the study outcomes of the first research objective.

To explore the impact of commercialisation strategies of the service providers (the banking industry), theoretical backgrounds were introduced in Chapter II. The primary research findings were examined in Chapter V and established on the data collected from the Bangladesh banking industry representatives. Furthermore, existing literature and primary research findings have been compared and decisions were produced in Chapter VI. In order to explore the roles of government, in influencing the Bangladeshi SMEs' adopting the e-communication facilities, the existing secondary sources were assembled in the Chapter II. Primary research findings were also presented in Chapters IV and V respectively after collecting data from Bangladeshi SMEs and the banking industry representatives. Later, research outcomes of the second research objective have been revealed in the Chapter VI.

To evaluate the impact of e-communication adoption, literature has been analysed in Chapter II. The primary research findings were examined in Chapter IV and Chapter V and based on the data collected from the SMEs and the banking industry representatives of Bangladesh. Finally, relevant literature has been compared with the research findings in Chapter VI to conclude the study outcomes of the third research objective. A primary research framework has been presented in Chapter III. Thereafter, an enhanced framework has also been conceived in Chapter VI.

7.2 Conclusions and Recommendations

Four research questions have been set out as presented in 1.3 of the chapter of the study, and all these have been answered and relevant recommendations have been made in this section.

This research has investigated a number of factors that influenced Bangladeshi SMEs into adopting e-communication facilities.

Factors such as role of owners/managers of the SMEs, educational background, level of ICT knowledge, types and size of the SMEs and reliability of e-communication facilities, are known to have influenced Bangladeshi SMEs' adoption of the e-communication facilities. Other factors include the cost of the service, security concerns, convenience of e-communication facility and awareness of the benefits of e-communication facilities. Besides, technological factors, organisational

culture including norms, beliefs, willingness and attitudes of the SMEs' owners/managers, role of the service providers, funding support from other institutions and the government also influence the Bangladeshi SMEs' adoption of e-communication facility.

- This study clearly shows that, in order to adopt e-communication facilities by Bangladeshi SMEs, the roles played by managers are more positive than those played by the owners who are more reluctant to switch to any innovations. The lack of technological knowledge and the resistance to do away with the traditional approaches could be taken as the main factors responsible the lower rates of e-communication adoption by owners of the Bangladeshi SMEs. However, if proper training, subsidy and security issues could be ensured by the service providers and the government, owners as well as the managers are likely to adopt e-communication facilities in their business operations.
- The adoption of e-communication could be made easier if the key personnel of SMEs such as owners/managers are competent and equipped with the required educational level and ICT knowledge. However, this could be possible only if the service providers and the government would run a number of training and awareness programmes to ensure basic IT knowledge. In addition to this, the service providers should provide one-to-one training service for each and every SME prior to offering them the e-communication service. It could be inferred that the higher likelihood to adopt e-communication and the more likely higher level of ICT skills are needed. It is obvious from the research findings that the limited technical skills of the Bangladeshi SMEs have been taken into consideration by most service providers. It is also found that online and payment gateway services of the Bangladeshi e-communication service providers are very easy to access and people with very basic IT knowledge can use them. As a number of SMEs are unable to use English as a communication medium, all the banks can offer online facilities in Bengali, which can enable them to use the services more confidently. All the service providers can also introduce voice recognition systems to operate various digital services for the SMEs.

- A number of scholars support the existence of a positive correlation between the adoption of e-communication and the types of SMEs.The findings of the research give credence to the belief that the adoption of e-communication facilities by SMEs could be influenced by their organisational size. It is evident from these research findings that Bangladeshi SMEs that are involved in readymade garments and knitwear, software development, health care and diagnostics, education services and electronic and electrical products manufacturing businesses, adopt e-communication facilities comparatively higher than other types of SMEs. All the service providers should consider the types and size of SMEs prior to offering e-communication facilities and they can focus on the SMEs who are comparatively lack behind than others in technology adoption.
- These research findings show that a large part of the Bangladeshi SMEs adopted e-communication services due to reliability compared to the traditional approaches, and that the intention of the use of e-communication could be influenced by trust, which is affected by reliability. Even though there are a number of benefits: quickly and securely money transferring; record keeping; taking payment from customers and contacting the service providers at any time are assured, there is a relatively very low adoption of the rate of e-communication in the Bangladeshi SMEs. It could be suggested that, in order to increase the rate of e-communication by Bangladeshi SMEs, the service providers need to build a foundation of trust in reliability, security and quality of the services.
- This study has determined that cost is an important deciding factor which influences the SMEs for e-communication adoption. Although most of the Bangladeshi service providers are offering the e-communication service with very affordable fees and some of them even offering with no charge, the rate of e-communication adoption by SMEs is comparatively lower. The research findings suggest that infrastructural development, technological knowledge of the users, educational background, subsidy from the service providers or government, the policies of lowering prices and the availability of training facilities can boost the expansion of the e-communication services among Bangladeshi SMEs. Moreover, this study demonstrates that cost plays the most significant part in the SMEs' adoption of this new e-communication

innovation and therefore should be considered by the service providers and relevant others.

- The research findings show that a large portion of the Bangladeshi SMEs is yet to adopt e-communication facilities due to the huge security concerns. However, the service providers and the government can provide some additional facilities for SMEs by ensuring security and by imposing new regulations for e-communication services. Likewise, by increasing the awareness level, by explaining the benefits of e-communication facilities to the SMEs, and by ensuring security, the adoption of this facility can be encouraged and enhanced in their day to day activities. Furthermore, the advantages of the convenience of switching over should not be underestimated; rather, it should be highlighted by the service providers.
- These research findings show that Bangladeshi SMEs, having limited IT skills, can also use their e-communication services because of their ease of application. Likewise, a number of researchers showed relationship between the adoption of e-commerce and its compatibility with the firm's values and culture. Convenience of the e-communication facility has also been highlighted by most of the SMEs and the banking industry representatives. This indicates that, besides convenience, issues like security, reliability, cost and mobility of the service need to be considered alongside increasing the benefit awareness level by the service provider, if the e-communication adoption rate among SMEs in Bangladesh is to be enhanced.
- This research reveals that most of the Bangladeshi SMEs are made to be aware of the benefits of e-communication facility by either their family, friends or by other organisations that might not give them a clear picture of the potential efficiencies of this innovation. However, if the awareness of the benefits could be increased by the service providers and the government authorities by focusing on a few case SMEs, then others could be influenced, and the rate of e-communication adoption could be increased.
- The findings of this research reveal that, many technological factors like security reasons, non-suitability, lack of technology of the users and unavailability of the service can affect e-communication adoption by SMEs in Bangladesh. However, the research outcomes from the banking industry representatives have vividly demonstrated that various types of technological

supports including SMEs are available in Bangladesh for business customers. Nevertheless, several factors like the inadequate security measures, organisational culture and the sub-standard technology have all militated against the adoption of the SMEs' e-communication, which could be overcome only if the SMEs' owners and managers follow the current trends and requirements and the government ensured security and appropriate infrastructure.

- Strong organisational culture is one of the significant conventional forces that foster the acceptance of innovation in any in organisations and this study also established significant relationships between strong culture and e-communication adoption by Bangladeshi SMEs. The study has also identified clan culture as a dominant element that can immensely affect the adoption of e-communication in the Bangladeshi SMEs. It could be suggested, therefore, that, organisational culture which, is one of the most important factors for Bangladeshi SMEs, should be importantly considered by the services providers and the government prior to offering any service to them.

This research has explored the commercialisation strategies of the service providers and government roles that influence Bangladeshi SMEs to adopt e-communication facilities.

- The research findings show that online banking facilities in Bangladesh could be used from any computer and from other electronic gadgets that are connected to the internet, and no additional hardware or software is needed with such different gadgets. Moreover, use of e-communication is better than the traditional operations due to the easy access it provides. Likewise, setting up or installing the e-communication equipment is easy within the Bangladeshi SMEs. It is also revealed that e-communication facility offered by the banking industry in Bangladesh is flexible enough to do several activities including paying bills and taking payments from customers. Moreover, the service is easy to access and is better than the traditional methods; despite this innovation, the rate of adoption is not high in Bangladeshi SMEs, and this needs to be importantly considered by the service providers and the

government to ensure the provision of other associated factors like security and standard infrastructures.

- It is found from this research that non-suitability is an important militating factor in the adoption of the e-communication facility by SMEs in Bangladesh. Conversely, digital banking service is compatible with ordinary computer services and no additional equipment is required to access it. This research also shows that e-communication services could be suitable with the existing hardware and software, but the service could be faster and secured by the adoption of some additional services including antivirus software and random-access memory. However, as many SMEs are not adopting e-communication facility for its non-suitability feature, the service providers should take initiatives to redesign the service compatible for small firms. Subsequently, service providers should advertise or make available the advantages of the services to both existing and potential clients.
- Business operations have become easier due to the advanced technological features; therefore, communication between clients, organisations and suppliers has become easier as is revealed by this research. As e-communication capability is flexible and easily accessible from anywhere, it offers the advantages of being easy to use, and has hassle-free operations. However, e-communication in Bangladeshi SMEs still lags behind because of the preferential reliance on the use of traditional communication usage. Nevertheless, some of the SMEs sell their products using online facilities, a good strategy to spread the new technology. Despite this, several SMEs are deprived of the e-communication facilities due to their security concerns, lack of technological knowledge and appropriate service availability. In order to influence the SMEs to adopt e-communication, the service providers should take initiatives to make available workshop in both urban and rural areas; at the same time promotional services should be extended in which the quality of both their products and services are advertised. So, service providers should ensure the flexibility and compatibility of e-communication facilities in terms of convenience required. The strategies employed by the service providers to attract consumers, their technical capability and simplicity features in using the e-communication facility need to be ensured.

- The research reveals that a number of banks in Bangladesh are currently working on the development of the digital banking system for their nationwide clients alongside keeping records of the SMEs banking activities digitally, so that decision related to loan approval could be made based on this information. This research also shows that the service providers can attract new consumers for e-communication facilities by following these policies: increasing awareness, reducing costs, communicating with SMEs directly, extending service areas and providing required training. Moreover, policies like cutting cost, providing funding facilities, the assurance of security and direct support from the service providers, can boost the attraction of more consumers. So, if lower pricing policies, promotional offers, potential benefits of the e-communication services and easy to use feature could be ensured, then Bangladeshi SMEs would be influenced by the service providers to adopt this innovation in their business operations.
- This study found that the current digital banking offered by the Bangladeshi service providers can be used from any existing computers and other electronic gadgets if internet connection is available. Also, if some additional hardware and software could be adopted then security and faster data transfer could be ensured. Moreover, in most cases, customers adopt information systems if they find them less complex and easier to access. Therefore, use of the e-communication system could be easier and likely to be accepted if the understanding and appropriate skills of the technology are in place. Consequently, if consumers cannot easily use the new applications, the value of customisation may decrease; thus, they might need special training because a sizeable number of users are not familiar with the e-communication equipment.
- The government initiatives for external security issues, convenience, feasibility, the cost of the e-communication services, developing the required infrastructure for the technological development and the role of local government authorities have all been identified in this research as factors which increase e-communication facility by SMEs. Furthermore, knowledge building programmes could be directly or indirectly funded by governments, one of the renowned bodies that provide funding facilities for universities.

Thus, some ICT innovation programmes have been incorporated into the higher education by the providers with the support of the government. Likewise, ICT technical knowledge and skills could also be offered to SMEs by other institutions like ICT vendors and consultants. Initiatives like the National Cyber Security Strategy, innovation promotion scheme for ICT research, Digital Staff attendance system, online e-pass system, Recruitment Exam Management System, Hi-Tech Park Information Management System (HIMS) and Smart Lab Management System are planned for modernisation by the current Bangladeshi government, and these could help in knowledge building if appropriate regulatory activities could be put in place.

- This study found that the government of Bangladesh and the service providers have been trying to increase the digital facilities countrywide and in different sectors with the support of current regulations aiming to increase the adoption of e-communication among SMEs. Consequently, it is also evident from the initiatives of the Bangladeshi government to encourage people by taking steps from the root level of the local government system, as almost all the Union councils are under the internet and digital facilities. Recently, many Hi-Tech Villages, Hi-Tech Parks (HTP), Hi-Tech Cities and Software Technology Parks (STP) have been established by the Bangladesh government to ensure digital services for all including SMEs and the effect of these could be reflected if proper monitoring and tracking system could be followed by the relevant government bodies.
- It is revealed from the research findings that affordable pricing strategy and services, while keeping fees unchanged including the government's support, can attract clients and at the same time enhance the expansion of e-communication nation-wide. Subsequently, evidence from the research findings shows that infrastructure development, technological knowledge of the users, educational background, subsidy from bank or government, lower pricing policies and training facilities can enhance the Bangladeshi SMEs in increasing the rate of e-communication adoption. Thus, if subsidies or incentives could be offered to the organisations who have adopted innovation services, then the rate of innovation adoption could be increased; and it could

provide technological development for the purpose of drop down, the risk or cost of IT adoption in the country.

- Referring to the research findings, the Bangladeshi government has been trying to develop technological infrastructure to ensure innovative facilities for all. Moreover, they also imposed some policies for the service providers, that is, the bank industry, to facilitate services for small and medium firms. Consequently, people are encouraged and almost all the Union councils are under internet and digital facilities. This being the case, many Bangladeshi SMEs consider the mobility feature which has ensured the expansion of e-communication facilities that have proven to be better than the traditional operations. To encourage people, the government of Bangladesh is taking steps from grass-root level of the local government system. Practically all the Union councils have come under the internet and digital facilities. Moreover, the Janata Tower Software Technology Park Dhaka and Sheikh Hasina Software Technology Park Jessore, proposed the mobilisation activities of the current government of Bangladesh. However, this approach should be extended country-wide by focusing on all the 64 districts of Bangladesh to make e-communication facility readily available for all including SMEs.
- A common platform for ICT collaboration and standard setting can help organisations by enabling regulations to collaborate and communicate with different organisations in line with institutional objectives. It is crystal clear from this research that adopting the e-communication method by Bangladeshi SMEs could be influenced by the government. This research also reveals that technological modernisation could be increased if the government policies could be implemented following the training programmes for all including development of infrastructure considering the root level of the country. Finally, it could be inferred that the role of the government is essential to set up a standard setting, which will support the Bangladeshi SMEs to adopt e-communication facilities.
- Innovative directives could be tied up with different governmental incentives such as resources or finance and the use of innovation could be influenced by the statutory power of the government to ensure specific norms. The research findings show that a number of innovative activities including innovation idea

and innovation work plan have been initiated by the Ministry of ICT of Bangladesh, although no specific plan for SMEs was evident. Subsequently, there is no evidence to suggest that the government of Bangladesh offers any subsidy to SMEs for the adoption of innovative technology. Almost all the innovation directives are for ICT firms, but no evidence has been found particularly for SMEs and the same applies for the mobilisation activities handled by the government which needs be reconsidered by focusing on the SMEs to spread the adoption of e-communication nationwide.

This study has evaluated the impact of e-communication adoption on SMEs in Bangladesh:

- E-communication can be used to avoid unnecessary expenses for the transference of money, to contact customers and suppliers and to collect payment from any part of the country. Moreover, a large portion of the Bangladeshi SMEs have chosen e-communication facilities because of the secure and easy payment, comparing with other activities such as communicating with bank, transferring cash and to export and import. This study finds that SMEs can pay bill by using online services which can save their time and increase overall operational performance. Consequently, adopting ICT can help firms to enhance internal communication, improve supply chains, services and competitive positioning, and also can help attract new customers.
- SMEs could benefit from the e-communication services by reducing money transferring costs, avoiding cash handling and by paying any bill online, which can help to improve their operational efficiencies. Moreover, the findings of this study indicate that if the service providers offer services and government take the right initiatives for the external security issues by building required infrastructure, then SMEs would be encouraged to adopt e-communication, which can help them to improve their business operations. Subsequently, with regards to these research findings, the service providers are continuously informing their clients through different media about the vast facilities of the

online banking services which can save time and money, improve their service, and also enhance their operational performance.

- These research findings also revealed that if ICT innovation could be adopted by both buyers and suppliers, then information asymmetries could be reduced; and it can help to build good relationship with internet based B2B interaction and real-time communication. Thus, if ICT is adopted by organisations, then flexibility could be influenced as a result, and the small firms can perform better by distinguishing their services and products. It is also apparent from the research findings that e-communication can help record keeping, frequent accessing of bank accounts, transferring money reliably and securely, and avoiding hassles, and by using this facility, business customers can offer quality services like taking card payments which can reduce the risk of carrying cash around, and this could ultimately help SMEs to improve their operational activities.
- The e-communication facilities can positively affect firm's performance that has been using various e-communication services, getting more productivity and profitability than non-ICT users; but it is not to be the panacea for enhancing their overall performance. To increase the rate of e-commerce adoption, heavy investments have been made by the current government of Bangladesh under different schemes which targets different customers including the SMEs that have some success in e-communication adoption, all of which have also been revealed in this study. In this research, special attention has been paid to the analysis of the impact of e-communication on SMEs in Bangladesh considering the opinions of the service providers and the SMEs. The research finding reveals that there is a positive relationship between e-communication adoption and Bangladeshi SMEs' performance.
- If the service providers offer services and government take initiatives for the external security issues through the building of required infrastructure, then SMEs would be encouraged to adopt e-communication which in turn can boost improvement of their business operations. Similarly, the service providers can attract new consumers towards e-communication facilities by means of various methods such as increasing awareness, reducing cost, communicating with SMEs directly, extending service coverage and providing

training facilities; these measures can influence the e-communication adoption and, as a result, its overall performance could be enhanced exponentially.

A conceptual model for increasing the e-communication adoption by Bangladeshi SMEs:

- Based on organisational culture profile of the SMEs, commercialisation strategies of the service providers in particular to the banking industry and government intervention, a research model has been devised where theory of disruptive innovation, the OCAI model and institutional theories are integrated. By combining these three factors, the e-communication adoption by Bangladeshi SMEs has been conceptualised in terms of their performance enhancement.
- The conceptual framework clearly indicates that some of the factors such as knowledge deployment and subsidy in the context of government role; clan culture regarding the Bangladeshi SMEs' organisational culture profile, and cost and perceived ease of use dimensions of the service providers' commercialisation strategies have strong effects, compared with other factors, on Bangladeshi SMEs for e-communication adoption, which will ultimately lead to better organisational performance.
- The research framework clearly demonstrates the impact of the role of government by distinguishing the range of impacts of the dimensions of the theory of institutional intervention. Although all the dimensions, knowledge building, knowledge deployment, subsidy, mobilisation and innovation directives, play important roles, the impact of knowledge deployment and subsidy is higher than others. Thus, government can stress much on subsidy and knowledge deployment compared with other dimensions in order to increase the rate of e-communication adoption by Bangladeshi SMEs.
- The contribution of the banking industry could be easily illustrated and range of effects could be seen in the conceptual framework. The framework shows that cost and perceived ease of use have stronger effects than the convenience and customisation dimensions of the disruptive theory of

innovation. Thus, more focus on cost and perceived ease of use can help the service providers to encourage huge number SMEs to adopt e-communication facility. However, convenience and customisation dimensions should not be ignored.

- The clan culture is the dominance organisational culture for Bangladeshi SMEs, evident from the research framework and they are more interested to adopt e-communication then others. Therefore, the service providers and the government can emphasise on others to encourage e-communication adoption by highlighting the potential benefits. Ultimately, the conceptual framework of this research could be used as a tool to identify factors related e-communication adoption and for decision making to support the boosting of the overall performance of SMEs.

7.3 Research Contributions

It is hoped that, this research will be beneficial to other researchers, managers/owners of the SMEs, the e-communication service providers and the Bangladeshi government that has been identified as pertinent to the e-communication adoption by the Bangladeshi SMEs. The contributions of research are presented below against the background of theoretical and critical contexts.

Contribution to Theory

The theoretical contribution is one of the most important contributions of this study, where three issues such as, organisational culture profile; the theory of disruptive innovation and institutional theory of interventions have been integrated. The limitations of previous studies associated with e-communication adoption have been identified in Chapter I. In this research, organisational culture profile, the institutional theory and the theory of disruptive innovation have jointly been utilised rather than individually studying them for e-communication adoption by Bangladeshi SMEs. In addition, this study has confirmed that, besides the institutional theories and disruptive innovation, the OCAI framework has not been previously used to evaluate the impact of e-communication on Bangladeshi SMEs' performance. Also, previous research studies have tended to criticise one and embrace another approach but in this research, all these three factors have been equally emphasised. Along with the

organisational culture model and institutional theory to study e-communication adoption by Bangladeshi SMEs, theory of disruptive innovation (Christensen, Anthony and Roth, 2004) has been integrated. Moreover, an implicit use of the role of government has been reviewed and relevant issues have been identified during the course of this study.

This research unearths a number of issues that previously have never been revealed by any researcher in the context of e-communication adoption, Bangladeshi SMEs and the service providers (the banking industry). Other issues that were discovered during this research work have been presented below.

- **Factors Affecting Bangladeshi SMEs to adopt E-communication**

A number of factors have been identified in this study which can affect e-communication adoption by Bangladeshi SMEs. These factors have not been previously identified by any researchers for Bangladeshi SMEs.

  - **Position in the Organisation**

Research studies: DeLone (1988); Rizzoni (1991); Woodcock and Chen (2000); Mehrtens, Cragg and Mills (2001); Mirchandani and Motwani (2001); Cloete, Courtney and Fintz (2002); Chatterjee, Pacini and Sambamurthy (2002); Caldeira and Ward (2002); Riemenschneider, Harrison and Mykytn (2003); Levy and Powell (2003); Standing, Sims and Stockdale (2004); Bharati and Chaudhury (2006); To and Ngai (2006); Al-Qirim (2007); Karakaya and Shea (2008); Wilson, Daniel and Davies (2008); Huy (2012) and Alrousan and Jones (2016), all highlighted the roles of business owners and/or managers; unfortunately, none of the above studies differentiated the roles of owners and managers. It is evident from the research findings (Table 4.2) that, the numbers of the SMEs who have adopted e-communication facilities run by managers are higher than those SMEs that are run by owners. It could be concluded that, the role of managers is more positive than owners to adopt e-communication services by Bangladeshi SMEs.

- **Educated from abroad**

A significant relationship is known to exist between the acceptable level of ICT knowledge and the higher likelihood to adopt e-communication; these have been revealed in the following studies: Duncombe and Heeks (2002); Teo and Ranganathan (2004); Looi (2005); Molla and Licker (2005); Filiatrault and Huy (2006); Sparling and Toleman (2007); Eriksson and Hultman (2008); Wilson, Daniel and Davies (2008) and Scupola (2009). This notwithstanding, there is no evidence to suggest that, these researchers have discussed the managers'/owners' education from abroad. The research findings (Table 4.2) show that, if the owners/managers of Bangladeshi SMEs were educated from abroad; then the rate of e-communication adoption among them is higher than others.

- **Nature of Business**

A positive correlation between e-communication adoption and types of SMEs have been revealed by a number of researchers such as, Teo and Tan (1998); Thong (1999); Filiatrault and Huy (2006); Ramdani, Kawalek and Lorenzo (2009) and (Oliveira and Martins, 2010) but no research has been found which is associated with Bangladeshi SMEs. The evidence of the research findings (Table 4.3) shows that, the rate of e-communication adoption among Bangladeshi SMEs involved in ready-made garments and knitwear, software development, health care and diagnostics, education services and electronic and electrical products manufacturing are comparatively higher than other types of SMEs.

- **Number of Employees**

Rogers (1995); Teo and Tan (1998); Thong, (1999); Ling (2001); Zhu and Kraemer (2002); Bharati and Chaudhury (2006); Adeyeye (2008); Oni (2008) and Lun *et al.* (2012) support the notion of there being a huge effect of the size of organisations on ICT adoption. However, no research studies were found advocating for Bangladeshi SMEs in relation to e-communication adoption and firm size. The research findings show that; the employee range of 11-20 is in the majority of the Bangladeshi SMEs who have already adopted e-communication facility. Conversely, the large portions

of the Bangladeshi SMEs who yet to adopt e-communication facilities are in the range of 2-5 employees.

- **Reason for adopting e-communication**

Researchers such as, Tang, Hu and Smith (2008), Kim and Benbasat (2009) and Beatty *et al.* (2011) emphasised on security measures, although in the e-communication adoption trust is incorporated with security. Security is also one of the main concerns for e-communication adoption by Bangladeshi SMEs (Table 4.5).On the contrary, many of them have adopted e-communication due to export and import activities and these have not been previously studied by any researchers in the context of Bangladeshi SMEs.

- **Impact of Organisational Culture on Bangladeshi SMEs**

Again, many researchers like Schein (1990); Sackmann (1992); Thong and Yap (1995); Teo and Tan (1998); Thong (1999); Lee (2002); Al-Gahtani (2004); Beckinsale and Levy (2004); Chai and Pavlou (2004); Dholakia and Kshetri (2004); Filiatrault and Huy (2006); Montazemi (2006); Thatcher, Foster and Zhu (2006); Twati and Gammack (2006); Tan, Tyler and Manica (2007); Martinsons (2008); Abousaber (2013); Wang (2016) and Shemi and Procter (2018) showed a positive relationship between a strong organisational culture and the adoption of new technology by SMEs. However, no evidence has been found that is associated with e-communication adoption and the organisational culture of Bangladeshi SMEs. This study reveals that, organisational culture especially attitudes, beliefs and norms of the owners/managers are responsible to adopt of e-communication facilities by Bangladeshi SMEs.

- **Organisational culture profile of the Bangladeshi SMEs**

The research findings in the context of organisational culture of Bangladeshi SMEs have been submitted in this section which considers the different types of SMEs operated throughout the country.

The software development business could be improved by the help of e-communication services and it is one of the main important features of this sector. According to Cameron and Quinn (1999), the features of the clan culture especially a

friendly workplace compared to structural and formalised hierarchy culture, can help this type of SMEs in making decision appropriately to adopt new technology like e-communication. In the software development company, everyone can share a lot like an extended family and their team work, participation and consensus are the main features of organisation's management style. These could be the reasons that, the clan is the dominating culture for the SMEs of software development who have already adopted e-communication. Similarly, the findings of this research submit that, the clan is the dominating culture for Bangladeshi SMEs of leather industry; SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; SMEs of plastics and other synthetics; and SMEs of toiletries/cosmetics/pharmaceuticals who already adopted e-communication facilities.

Most of the Bangladeshi SMEs of readymade garments and knitwear treat their workplace like an extended family; and participants and teamwork are the main features of their organisational management style which could be strongly related to the SMEs of readymade garments and knitwear are mainly dominated by the clan culture. In like manner, the clan culture also dominates the Bangladeshi SMEs of health care and diagnostics and SMEs of wear and consumer goods (both who have and who have not adopted e-communication facilities).

The electronic and electrical products business is very competitive and achievement oriented and winning in the marketplace are the main emphasising issues of the organisations. These could be the main reasons why the market culture is dominating the Bangladeshi SMEs of electronic and electrical products manufacturing and services, who have adopted e-communication facilities. Consequently, the market culture is also dominating the Bangladeshi SMEs of education services (who have already adopted e-communication) who very structured and a controlled place. Besides, the market culture focuses much on external environment instead of focusing on the internal environment and it values control and steadiness.

There are various risks in the metal working and light engineering, because of this, Bangladeshi SMEs related to this industry are very structured and a controlled place, and formal procedures are strictly followed. Additionally, organising, co-ordinating and smooth-running efficiency are the main features of organisational leadership.

Furthermore, low cost production, smooth scheduling, efficiency and dependable delivery are the foundation of organisational success; these could as well be the influencing factors why the hierarchy culture dominates them.

Adhocracy is one of the most innovative, risk taking and entrepreneurial business systems; however, everybody needs to follow the organisational instructions and there is very little chance to share personal experiences. Moreover, organisational leadership and creating new challenges, acquiring new resources, are the main features of the Adhocracy workplace. These could be the reasons why the adhocracy is the dominating culture for the e-communications as the non-adopters of the SMEs of the software development, electronic and electrical products manufacturing and services and leather goods. Correspondingly, the same organisational culture is dominating the SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture, plastics and other synthetics, and toiletries/cosmetics/pharmaceuticals.

Bangladeshi SMEs of the education services are very structured and having a controlled workplace. Issues such as teamwork, laying stress on stability, agreement, values, traditions and official process are the main features of the hierarchy culture. In addition, organising, co-ordinating and smooth-running efficiency are the main features of organisational leadership of the hierarchical culture which dominates the education service of the Bangladeshi SMEs. The dominant organisational culture of the Bangladeshi SMEs has been tabulated below.

Table 7.3: Types of Bangladeshi SMEs and their dominating culture profile

	Types of SMEs	**Dominant Organisational Culture (E-Communication not yet adopted)**	**Dominant Organisational Culture (E-Communication already adopted)**
1	SMEs of software development	Adhocracy culture	Clan culture
2	SMEs of electronic and electrical products manufacturing and services	Adhocracy culture	Market culture

3	SMEs of leather goods	Adhocracy culture	Clan culture
4	SMEs of specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture	Adhocracy culture	Clan culture
5	SMEs of metal working and light engineering	Clan culture	Hierarchy culture
6	SMEs of readymade garments and knitwear	Clan culture	Clan culture
7	SMEs of health care and diagnostics	Clan culture	Clan culture
8	SMEs of plastics and other synthetics	Adhocracy culture	Clan culture
9	SMEs of toiletries/cosmetics/pharmaceuticals	Adhocracy culture	Clan culture
10	SMEs of education services	Hierarchy culture	Market culture
11	SMEs of wear and consumer goods	Clan culture	Clan culture

It was discussed earlier that, SMEs in Bangladesh are hugely dominated by the clan culture because it provides opportunities for the leaders of the organisation to become more supportive and to play the role of mentors to nurture employees in order to make them efficient for organisations (Cameron and Quinn, 1999). It could be concluded therefore, that SMEs can make quick decisions to adopt e-communication in business if the clan culture is being followed; the people of organisation are obliged to come up with their ideas, suggestions which helps management to adopt new technology. Finally, it can be inferred therefore, that, clan culture has a positive impact on the SMEs of Bangladesh.

- **The Service Providers' Support to Adopt E-communication Facilities**

The research findings reveal that a number of Bangladeshi SMEs are unable to read the e-communication instructions because most of these are written in English. To overcome this barrier, some of the service providers (the banks) are offering e-communication facilities written in Bengali; which can help them to use the services

more confidently. Subsequently, some of the service providers are also trying to introduce voice recognition systems for operating various digital services to carry on business operations.

- **Government Roles and E-communication Adoption**

This study evidence has shown that, huge investments have been predicted by the current government for developing technological infrastructure. The ICT ministry of Bangladesh has been working to familiarise the digital facilities in most of the public sectors. Moreover, in order to help and encourage people, they are taking steps from the root level of the local government system. Almost all the union council has come under internet and digital facilities to offer services in the rural areas. Consequently, a number of initiatives such as National Cyber Security Strategy, innovation promotion scheme for ICT research, Digital Staff attendance system, On Line e-pass system, Recruitment Exam Management System, Hi-Tech Park Information Management System (HIMS) and Smart Lab Management System are all in the planning pipeline for innovation by the current Bangladeshi government's target, the Vision 2021.

- **E-Communication Adoption and Bangladeshi SMEs' Performance**

Past studies such as, Moodley (2002); Teo and Tan (2002); Esselaar *et al.* (2007); Matthews (2007); Higon (2011); Consoli (2012); Manochehri, Al-Esmail and Ashrafi (2012); Ollo-Lopez and Aramendia-Muneta (2012); Sabbagh *et al.* (2012); Bayo-Moriones, Billon and Lera-Lopez (2013) and Okundaye, Fan and Dwyer (2019) concentrated on the comprehensive results of ICT adoption and firm performance for European, Middle Eastern and Far Eastern Asian countries. Yet, there are no research studies are found to be associated with the e-communication adoption and the Bangladeshi SMEs' performance. Consequently, the findings of this study show the existence of a significant relationship between e-communication adoption and the Bangladeshi SMEs' overall performance.

- **Conceptual Framework**

This research study has constructed a conceptual model which is theoretically derived from a number of theories and models associated with e-communication adoption and SMEs' performance. The conceptual framework has integrated

organisational culture of the SMEs (the OCAI Model), commercialisation strategies (the theory of disruptive innovation) of the service providers (the banking industry) and the roles of government (the institutional theory) for the first time to evaluate the impact of e-communication adoption on the Bangladeshi SMEs' overall performances.

Contribution to Research Critique

To devise the conceptual model of this study, four hypotheses have been constructed which may pose questions to readers. They can argue that, the fourth hypothesis is not linked with any theory or model like other hypotheses shown in the conceptual model. However, the response to this argument is that, the fourth hypothesis has been considered as the effect factor of this research which is constructed by combining all other hypotheses. Furthermore, even though this hypothesis is not directly linked with any theories and models of the conceptual framework, it has however been supported by the existing literature (Chapter II, 2.10), statistically tested (Chapter IV, 4.3) and decisions reached (Chapter VI, 6.4).

7.4 Research Implications

In both policy and practice, this research has added its contribution by offering a rich insight of the organisational culture of the Bangladeshi SMEs in adoption of e-communication facilities. The traditional way of doing business for SMEs could be changed by adopting e-communication facilities. The various factors which can affect the adoption of e-communication, some of those have been discussed in Chapter II. Many important implications have been summarised after concluding the research findings; these could be helpful to assist the Bangladeshi SMEs, the banking industry representatives and the government in relation to policy making to increase the adoption of e-communication by SMEs. The implications of this research have been presented below:

- **Implications for SMEs mangers/owners**

Organisational characteristics of the Bangladeshi SMEs have been identified in this research by analysing their organisational culture profile. Moreover, the organisational culture profile of the Bangladeshi SMEs could be used as a starting point to take the needed initiatives and changes that has been specially tailored for adopting e-communication services in their business operations. Therefore, within the SMEs, both assessments and change strategies could promptly be done.

The importance of a management role has been demonstrated from the empirical findings of the Bangladeshi SMEs in relation to e-communication adoption in their organisation. In fact, e-communication adoption by SMEs would not be possible without the commitment and support of the managers/owners. To enhance the adoption of e-communication, managers/owners of the SMEs could be treated as important players in the business. A positive and considerable influence of the organisational culture of the Bangladeshi SMEs should be exerted by the owners and managers to adopt e-communication services; when properly done, it could ultimately enhance their overall performance.

Positive attitudes can be used to encourage the Bangladeshi SMEs to adopt the e-communication amenities and when supported by the banking industry and the government, positive outcomes will sure be yielded. Beliefs and participations of the SMEs' managers/owners could be known via different support mechanisms such as training facilities and as working groups. The potential benefits of e-communication facilities should be introduced by the providers and the government bodies of Bangladesh.

The evidence from the research findings confirms that, the IT readiness in SMEs could be helpful in adopting e-communication facilities by Bangladeshi SMEs. In the adoption of e-communication facilities, both organisational and financial resources are major determining factors. The research findings suggest that, the IT background of the owners/managers of the SMEs is more likely related to e-communication adoption; i.e. the better the IT educated owners/managers are, the more the likelihood for them to in cooperate e-communication applications into their businesses. However, awareness of needs and potential benefits of the e-

communication facilities can help in increasing the rate of adoption by Bangladeshi SMEs.

- **Implications for the banking industry**

This research has showed several implications for the banking industry and other technology consultants. Firstly, to increase the rate of e-communication adoption among Bangladeshi SMEs, the e-communication gaps as well as the organisational culture should be considered. Because the clan is the dominating culture of the Bangladeshi SMEs, they are more likely to adopt e-communication facility; and the banking industry and other consultants should be encouraged to be aware of the clan's importance and roles. Thus, the banking industry and other mediating organisations should therefore, focus on role models, analyse and understand characteristics of the SMEs and be encouraged to learn the particular problems these SMEs face. If they are to promote successful diffusion, need to take a more proactive role and most importantly, focus on those parts of the SMEs whose characteristics are more likely to adopt e-communication facilities. Consequently, consultants and the banking industry representatives can design strategies for increasing the rate of e-communication adoption and in this case, factors related to e-communication gaps needs to be accentuated.

Secondly, sometimes adoption of innovation by SMEs could be delayed because of the short- and long-term potential benefits that could be unknown to the decision makers. Bangladeshi SMEs could be hindered in adopting e-communication facilities, as they are not aware of the potential benefits. The lack of awareness was identified in this research as one of the important factors which can militate the adoption of e-communication technology by Bangladeshi SMEs. Therefore, to educate owners/managers of the SMEs and making them to be aware of the potential benefits of e-communication facilities are essential for technology consultants and the banking industry. Activities like developing training strategies, workshops, promotional seminars, on-site visits and presentations, could be helpful to increase the awareness of the SMEs. It can support the business environment and can also protect the SMEs against any adverse developments. The image of the strategic benefits of the new technologies could be built by offering training facilities

for SMEs and in this learning process; the banking industry should play a crucial role.

The required resources for technology adoption could be supported by technology consultants who can help SMEs in diverse ways: by developing interactive websites dedicated to the potential adopters of the e-communication facilities. Consequently, they can also offer a trial period for SMEs before the full adoption of e-communication facilities in their business operations. As a result, the rate of adoption could be increased by consultants and the banking industry. Also, the potential of what e-communication can accomplish for the SMEs could be demonstrated by this technique. At the same time, the service quality should not be compromised; rather, it should be taken care of by the banking industry, as this was stated as an important factor by Bangladeshi SMEs.

- **Implications for the government representatives**

The submissions of this research evidenced that, in order to influence the SMEs to adopt e-communication, a regulatory body will have to play an important role. To increase the rate of e-communication adoption by SMEs, the existing, the newly published regulations and the roles of the government are essential and they should team up. Some roles include the endorsement of low tariffs and tax on e-communication imported products, consumer rights protection and the promotion of e-communication technology used by the SMEs need to be harmonised for effective outcomes. Certainly, in fostering e-communication technology, the government contribution is a critical factor which can assist in overcoming the concerns and challenges faced by SMEs.

By recognising the impact of the relevant policies for the adoption of e-communication by SMEs, the Bangladesh government stands to derive essential benefits from this study. This research has also evidenced that, the Bangladesh government has declared the Vision 2021, which is calculated digitalise and thus transform the country by setting up the required infrastructure, policies and regulations. The importance of the role e-communication plays has been recognised by the government of Bangladesh; however, the findings of this research determine

that, the e-communication adoption of SMEs is not yet been funded. It could be suggested therefore that, if a free awareness programme could be offered by the government, then SMEs stands to benefit from different available resources. Also, the essential requirements of the e-communication facilities for SMEs could be acknowledged by the government by addressing their relevant needs and taking the influencing initiatives like making free trial facilities available.

As discussed earlier that, to ensure a digital society, the Bangladesh government has taken various measures. In fact, potential benefits of the Bangladesh government's information technology effort could be maximised with the help of this research model by understanding the influencing factors for adopting new technologies like e-communication facilities. To enhance capabilities of the SMEs for adopting e-communication facilities, this research model could be applied by the government of Bangladesh.

From these discussions, it could be concluded that, for e-communication facility consultant, the banking industry, the SMEs and for policy makers, this research could be an essential guiding reference; the submissions of which could proof to be invaluable. Therefore, for the rapid diffusion and adoption of e-communication, this research could be treated as a communication medium to link SMEs, the banking industry and the government. Finally, the contribution and the implication of this research could provide directions for the banking industry and the government in diffusing and accelerating e-communication adoption by Bangladeshi SMEs achieving overall performance enhancement.

Implications for Academics

The findings of this research have significant implications for academia in the context of literature, methodological and research findings. Several implications of this study are evident from the literature perspective. For instance, it has been discussed earlier that, major portion of the literature mainly concentrated on ICT adoption by SMEs in developed countries. However, in the present study, literatures on e-communication adoption by SMEs have been expanded to include developing countries. Therefore, this study could constitute a relevant source of knowledge for

many budding academics to carry out their research on e-communication adoption by SMEs in developing countries.

Methodologically, this research has successfully employed two-phase research designs to evaluate the performance of SMEs due to e-communication adoption where both quantitative and qualitative data were utilised for successful research conclusions. This study could be an encouraging body of reference to information system researchers to follow its different methodologies to achieve reliable and richer outcomes.

Several implications of this study in the context of research findings and conceptual model are also evident. For example, a number of factors have been identified herein which can influence the SMEs of developing countries to adopt e-communication services. A significant relationship between e-communication and SMEs' performance has also been disclosed in the context of Bangladeshi SMEs. Similarly, the conceptual model could be helpful to both the current and future academics to combine the use of different types of respondents to achieve a common goal under a single framework.

7.5 Limitations of the Research

Advancing the knowledge of the impact of e-communication on SMEs has been attempted in this research by identifying several factors which influence them to adopt this innovation. The aim and objectives of the study, which were identified in section 1.3, have been achieved and all the research questions have been answered. Nevertheless, several limitations were found considering this study and these are presented in this section under the three themes: methodological limitations, contextual limitations and general limitations. These limitations which are related to each theme have been examined exhaustively in the subsequent sections.

Methodological limitations

Three limitations, relevant to the methodological shortcomings theme, have been identified. The first limitation under the methodological theme is associated with the research framework; to devise a comprehensive research structure, an effort has

been made in this study by employing reliable and valid measures. The data collected for this research have been analysed using powerful and robust techniques. Moreover, generalisation of the research findings has been maximised by choosing the most suitable research design. Conversely, the researcher tried to identify, recognise and understand all the associated limitations. The identified research limitations have been presented in turn.

The limited existing literature on e-communication adoption is the second restraint related to the methodological limitation in this research area. As a secondary source of data, inadequate literature on e-communication adoption by SMEs in a developing country was one of the limitations of the research. The primary data collection from Bangladeshi SMEs and the banking industry representatives was time consuming. Even the primary data could not be collected from the Bangladeshi government representatives due to limited accessibility. In addition, it was difficult to collect data from the Bangladeshi SMEs which were not interested to share their organisational information. If more empirical data could be collected, then the validity, reliability and comprehensiveness of the theory could be improved.

The third limitation under the methodological theme is associated with time horizon. The adoption of e-communication facilities by SMEs in Bangladesh has been analysed at a specific time. Conversely, the studies carried out by Zikmund (2003) and Ouchi (1979) respectively disclosed that, diffusion of innovation is a socialisation process which generally occurred over a time period and could be changed based on the behaviour of the participants. After considering this, it could be said that, longitudinal research could be preferable for analysing the adoption of e-communication by SMEs in a developing country like Bangladesh. However, a considerable human effort and financial investment could be required and that can be very difficult for the researcher to afford.

To devise the conceptual model of this study, four hypotheses have been constructed which may pose questions to readers. They can argue that, the fourth hypothesis is not linked with any theory or model like other hypotheses shown in the conceptual model. However, the response to this argument is that, the fourth hypothesis has been considered as the effect factor of this research which is

constructed by combining all other hypotheses. Furthermore, even though this hypothesis is not directly linked with any theories and models of the conceptual framework, it has however been supported by the existing literature, statistically tested and decisions reached.

Context-related Limitations

Under the context-related theme, four limitations have been identified. The first limitation is related to data collection from a single geographical position. To collect primary data from Bangladeshi SMEs, only the city of Dhaka has been selected. In fact, more research considering all the regions of the country were needed to validate the research outcomes and to identify the e-communication adoption related factors. In addition, if the research could be carried out by collecting data from all over the country, then more efficient result could be reflected. Clear outcomes could also be revealed in association with the impact of e-communication on Bangladeshi SMEs.

The scope of the research is connected with the second limitation of the context-related theme. The research was limited to SMEs in a developing country's perspectives; especially Bangladesh. However, a caution could be exercised in generalising the outcomes for other developing countries which include the neighbouring South Asian Association for Regional Cooperation (SAARC) members that holds almost similar cultural and economic conditions. The outcomes of this study may provide a useful starting point to analyse the impact of e-communication on SMEs in these countries.

The third limitation under the context-related theme is associated with all eleven types of Bangladeshi SMEs considered in this study instead of confining it to a single industry sector. A few issues could be raised in regard to generalising the effects with different industries studied together. However, it is believed that, a holistic perspective could be gained by the researcher if various industries are studied together, alongside it can help reducing the bias of limiting this research to SMEs only.

E-communication in general is the fourth limitation of the context-related theme. The impact of e-communication has been considered in general rather than carrying out the research on a single type of e-communication like e-payment. However, some SMEs are using different features of the e-communication facilities including e-payment, online bank transfer, e-mail communication and mobile banking; for a holistic outcome, this research has focused on all the features instead of concentrating on a single one.

General Limitations

Finally, under the general limitations theme, two constraints have been identified; one of the concerns could be related to data collection from a single respondent of the Bangladeshi SMEs only who are involved in the decision-making activity. If data could be collected from multiple respondents from all the SMEs, then more reliable outcomes could be reflected. Despite this, to collect data from multiple respondents from the same SMEs could be very difficult in the context of accessibility and time spending.

The research approach used in this study is associated with the third limitation where both quantitative and qualitative data were employed. To collect primary data from Bangladeshi SMEs the quantitative method was followed whereas; the qualitative method was utilised to collect data from the service providers' representative. The mixed methods led to a few difficulties while analysing and concluding the outcomes of the research due to the different natures of data collected.

In the next section recommendations and the directions for further research have been addressed in consideration of the identified limitations of this study.

7.6 Directions for Further Research

Further empirical research is required to address the limitations of this study which have been identified in the earlier section. The suggested areas have been classified into the three key areas submitted below:

Generalizability and replicability

The replication of the research is the first concern as to collect primary data from the Bangladeshi SMEs, only the Dhaka City has been selected; whereas in Bangladesh, there are seven additional cities where all the facilities are not equally available. Moreover, if primary data from the SMEs could be collected from all over the country, especially from all the sixty-four districts, different results could be revealed. Therefore, to replicate the research in other parts of the country, further research is needed.

The primary data has been collected from a small number of samples and for this reason, the findings summarised in this research should be interpreted with a caution. The factors related to the impact of e-communication on the Bangladeshi SMEs could be extremely useful, if a larger sample could have been selected from the different regions of the country. Therefore, a future research is needed to select larger research samples from both rural and urban areas to ensure generalizability research outcomes. Further research, to carry out cross-national/cross-regional studies may also reveal different issues which could affect the adoption of e-communication by SMEs.

As part of the theoretical contributions, a number of new concepts and ideas have been contributed in this research particularly for developing country. If further study is carried out, sufficient literatures could be added in the areas of e-communication adoption by SMEs. Moreover, by using the same methodological approaches and theoretical lens, future study could help to replicate this research in large-sized enterprises.

Focus/scope

Evaluating the impact of e-communication on Bangladeshi SMEs is the aim of this research; here, e-communication has been defined as a general term. Because of this, it could be more interesting to lay emphasis on a single e-communication technique; e.g. e-communication using mobile application, online payment system or money transfer using mobile applications.

In this research, only Bangladeshi SMEs were focused on by aiming at the e-communication adoption facilities, but the framework could also be implemented for non-profit and charity organisations; even though non-profit organisations are rarely considered for empirical research in Bangladesh. Similarly, further research areas could be extended to other neighbouring SAARC countries.

The impact of e-communication on Bangladeshi SMEs has been analysed focusing on operational and financial benefit. It could be more interesting to carry out a study focusing on the operational and financial performance of a specific segment of their business and benefit of the Bangladeshi SMEs for the adoption of e-communication facilities.

The selection of a single industry sector such as education, software development and, readymade garments and knitwear would be more exciting, to repeat this research focusing on evaluating the impact of e-communication adoption by Bangladeshi SMEs. The target could be related to explore the deeper understanding for industry-specific factors which affect SMEs for e-communication adoption.

Although this study has evaluated the impact of e-communication on SMEs, the study of e-communication can be taken further to analyse the impact of specific e-communication tool such as online banking and e-payment, and how they can affect the overall performance of SMEs.

Other avenues

Only the managers/owners were selected to get their views; this means that, the research was mono-focal, i.e. limited to one person's view in each enterprise. The views of the other respondents like suppliers, customers, employees and

government representatives could be sought in future researches. This could help to understand the deeper insights about the associated issues that affect SMEs as they adopt e-communication facilities and it will lead to an enhanced knowledge of their organisational culture.

Due to time constraint and accessibility issues, data could not be collected from the government representatives of Bangladesh who are aiming to support the SMEs for e-communication adoption. If further research is carried out, then in-depth information could be gathered from the government representatives; these could lead to the exploration of the real and more details contribution of the Bangladesh government to support SMEs for e-communication adoption.

The framework of this research has been developed specifically focussing on the Bangladeshi SMEs, the service providers and the roles of Bangladesh government. A further study could help in devising a new framework which would be suitable for a specific country, service providers or other stakeholders including the role of a specific government.

Since the time this research data was collected, the passage of time infers that many changes could have taken place in the areas of e-communication technology adoption. Although, the longitudinal research design is relatively time consuming and costly; this technique could be helpful to explore the e-communication facilities, cultural behaviour and overall performance of the SMEs because of the adoption of the new technology. For example, if more time could be endorsed, the researcher could pursue the Bangladeshi SMEs who have participated in the survey to make a follow up survey with the aim to assess the cultural profile of the SMEs and their impact following the adoption of e-communication facilities. Thus, further research could identify more factors related to e-communication adoption which could be a significant contribution to the literature associated with the e-communication adoption. In conclusion, the e-communication facilities could be a major opportunity for Bangladeshi SMEs to enhance their overall performance.

7.7 Reflection on Experience of Research

This section is about the reflections of my learning and the obstacles I encountered during the selection of this research topic, summarising bodies of literature and selecting suitable research methodologies. To illustrate the process, I have utilised the Gibbs Reflective Cycle (Bulman and Schutz, 2013) which has helped me to reflect on the different stages of my learning. Following the Gibbs Reflective Cycle (Gibbs, 1998) I have described specific issues such as the title of this research, the research aim, objectives and research questions. I have also described the research background, literature review and the literature gaps and the conceptual framework for the research. Furthermore, I carried out a discussion on research methodologies including data collection, data analysis and presentation; ethical issues and research plan. In every stage of this research, I have emphasised and given a brief description of my reactions and evaluated my learning before and after attending the PhD programme. In addition, I have drawn a brief conclusion of my learning experiences and I have shown my personal action plan.

I was particularly interested in evaluating the impact of e-communication on Bangladeshi SMEs by focusing on several issues: e.g. factors that affect SMEs for e-communication adoption, commercialisation strategies of the service providers and the government support.

Chronologically, I have discussed my research steps from the research title selection to recommendations for further research. I prepared a preliminary structure for this research to work in a systematic order and have also drawn a research path based on the research objectives. Further, I discussed the theoretical background of the research, including the literature gaps, conceptual framework and the research methodology. Besides, I constructed four hypotheses which were tested during the research project. I tried to expand my educational experience, skills, knowledge and capability during the process of writing my thesis. The guidelines of the Gibbs Reflective Cycle were followed (Gibbs, 1998) out of reflecting on the experiences gained undertaking this study.

According to Hagarty (2011), a basic description can influence anyone to illustrate the scenario accurately and to imagine the whole process impassively. At the

beginning, my idea was that e-communication has an impact on the SMEs. I found several well-researched topics against West European countries' background. Despite this, it is my considered point of view that the possibility of conducting research in developing countries like Bangladesh is still open. Episodes of considerable stress were overcome, before selecting this research topic. However, after attending a training session arranged by LSC, I began to feel more at ease with this research topic.

My emotional approach in selecting this research topic is very striking (Jasper, 2006). At the beginning, it seemed I could not carry out the research as planned and I was concerned that, I could not select a suitable research topic. In addition, I had to change my job during this period. This threw me into a topsy-turvy state of mind because I was under tremendous pressure that, I felt I could not cope with. Initially, I underwent paroxysms of tremendous stress which exhausted me as I was approaching the deadline for this research project. It was realised that, selecting a research topic was a daunting undertaking but it became obvious that, choosing an appropriate research topic within the given timeframe was possible. The lack of confidence in my skills and overlooking the supervisor's recommendations for selecting the research title were the huge negatives.

To evaluate the experience, there is a requirement to take stock of the circumstances (Pearson, 2012). To evaluate the impact of e-communication on Bangladeshi SMEs was the ultimate target of this research. The communication system between the banking industry and the Bangladeshi SMEs has influenced the course of this research; coupled with personal interest in boosting communication efficiency, the research project is unstoppable. The cost of traditional communications between the banking industry and SMEs could be reduced by adopting cost-effective e-communication facilities, argued: Stewart, Mohamed and Marosszeky (2004). Likewise, there is a strong believe that, the performance of the Bangladeshi SMEs would be increased if they adopt effective e-communication in the day to day business operations. It has also been considered that, some theorised perceptions in the reviewed literature were necessary in the selection of a suitable research topic.

Consequently, teaching and learning sessions for the research methodology and a few seminars were attended; these moves widened both my capabilities and confidence to select an appropriate research topic. My supervisor and Director of Studies have helped to enhance my learning experiences, especially during the selection of this research topic. Finally, this research topic was selected: *"E-communication adoption and its impact on SMEs: A case of Bangladesh".* Overall, it has been felt that, the skills employed in undertaking this study in a systematic way by devising a suitable topic have been improved. Yet, there is still room for improving the relevant skills of the research topic selection at the same time do a real reflection on surmounting the important tasks ahead.

In order to select any other future research topic, efforts will be focussed on the current situation and simultaneously remain confident and endeavour to strengthen my skills by perusing several relevant published articles in renowned journals. Most importantly, acquired experience and skills will be utilised to prepare the research aim, objectives and the research questions that are relevant to this examined topic in a bid to accomplish a reliable and worthwhile outcome.

Yin (1994) claimed that, the specification of the research questions or hypothesis and research strategy are important issues in any inquiry. Following the selection of the research topic, there was the existence of a concern about the research aim and objectives; the main driving forces of this study. Prior to meeting with my supervisors, three objectives and three research questions that were relevant to the study, were not clear, because I could not devise a stronger conceptual framework. However, on attending a seminar, I have enhanced my reflective skills and developed four objectives helped in building the research framework. Consequently, several issues like research director, depth and scope are mainly determined by the research aim and objectives. Furthermore, research questions are considered as the central questions of the research which are answered in the Conclusion and Further Research Direction section (Chapter VII). The answer to the research questions could be revealed when the research aim is achieved. The answer to the research questions could be revealed from the achievement of research aim. In the beginning, my research objectives were very broad and they were difficult to follow. However, after joining in the PhD programme, I have attended learning and teaching sessions which have helped me develop achievable research questions.

Following the submission of the draft research aim, objectives and research questions for the initial research proposal, a constructive feedback was given. My director of studies advised that, emphasis should be accorded on the research objectives and research questions in the context of the research topic. The supervisor also suggested the revision of the research objectives and questions; accord due diligence on the theoretical background and the specific methodological approach. This feedback was both disappointing and upsetting and thoughts of giving up this research were manifested. However, discussing with both supervisors and on attending the research methodology training and learning session, these quitting concerns eased, and renewed resolve and confidence subsumed the throbs of abandoning the study. The seminar sessions for the research methodology were much interactive and experience-sharing; these assisted and improved my research skills. Thus, renewed zest of confidence and enthusiasm were reinvigorated; and suitable research objectives and research questions which were appreciated by my supervisor were submitted and eventually accepted.

Before joining the PhD programme, I had limited experience in selecting the appropriate research objectives and questions. This suggested that, I was not capable to carry out research at a higher academic level, and this seemed evident from the feedback obtained from my supervisors. Even though the feedback received advised changing the research objectives and research questions, it did not unhinge the renewed confidence and positivism now acquired; I went through some relevant publications to this research and forged ahead with the study programme. The training and experience-sharing, the feedback provided by the supervisors and the access to previous research studies that was available, helped to devise the new research objectives, that became an organic subset with strong links to this research.

As mentioned earlier, the teaching and learning sessions, the feedback and seminar sessions were really very helpful in selecting suitable research objectives and research questions. This culminated to devising four research questions. Though my confidence has been renewed and boosted, and have gathered the much needed experience from the research methodology module, a few helpful alternative approaches that can enhance smoothing the speedy conclusion of the study were incorporated.

In any research, research background is treated as one of the preliminary steps where several key points such as current information surrounding the issues, previous studies on the issue and a review of the area being researched are emphasised (Saunders, Lewis and Thornhill, 2009). A wealth of contemporary literature has been reviewed to design the research background; in addition, some research evidences were gathered for the initial research proposal; e.g. ICT adoption (Al-Hudhaif and Alkubeyyer, 2011), SMEs and ICT adoption (Beck, Wigand and Konig, 2005), ICT adoption and performance of SMEs (Guasch and Ugas, 2007), commercialisation strategies of vendors (Constantiou, Papazafeiropoulou and Dwivedi, 2009), government policies (Choudrie and Papazafeiropoulou, 2007), and e-banking adoption in developing countries (Riyadh, Akter and Islam, 2010). However, it was not easy to finalise the research background which led to carrying out the research.

The number and variety of options for the theoretical background to the research made it difficult to commence work and to choose a course for literature review in the areas of new technology adoption that is abound with a plethora of theories, concepts and models have been used. To get an idea about the research background, about fifty journal articles were read carefully before selecting the appropriate research background. However, attending the training sessions clarified my ideas and I chose literature sources related to the research objectives. After the training sessions experience, valuable literature fit and relevant to the research, helped shed some light on the background of this research.

One of the goals was to identify reasons why some SMEs struggle to adopt the e-communication facilities and while others thrive to the adoption process. Ultimately, the main aim of this research is to contribute to empirical studies on the adoption of e-communication facilities by Bangladeshi SMEs. To get clear theoretical background to the research, a few trainings arranged by the London School of Commerce (LSC), including a face to face, and webinar sessions were attended. Consequently, I went through Google scholar and other platforms to summarise the research background with the objective of making chosen topic researchable. Ridley (2012) noted that, research background could be summarised using these three points: right direction, better ideas and having a helping hand. These key points have also been reflected in the research background where specific theories and models

have been shown; also, the direction this research has been indicated including the support from supervisor and director of studies as the helping hands.

The above dialogue of this research, employed these issues: convenience, cost of use, perceived ease of use and customisation in relation to the theory of dimensions of disruptive innovation (Christensen, Anthony and Roth, 2004) to analyse the service providers' commercialisation strategies and to investigate the factors which affect e-communication adoption by Bangladeshi SMEs. In addition, the government interventions have been stressed to support the SMEs to evaluate their performance after adopting e-communication facility. Although valuable experience has been gained from this research activities, further training to enhance overall research skills are vital to a successful researcher. Therefore, improving skills like summarising, synthesising and selecting appropriate literature, that are relevant to this research background are imperative.

In scholarly write-ups and higher degree academic research, literature review is treated as a concomitant and a key component which helps to exhibit the depth of reading and demonstrates the researchers' grasp of specific areas (Fink, 2005). Many online resource platforms such as Google Scholar, EBSCO Host, The ProQuest Business, ebrary and Dawsonera, and collected journal articles related to the research area, have been made use of in the course of this study, including more than 200 articles that were collected and studied. However, on considering the research topic, research paradigm, predicted theories, models, sample type and size, twenty five (25) articles which are closely related to the research area either theoretically or methodologically were selected for a detailed review.

During literature selection, first of all, I searched the articles related to my research title and also focused on the articles which have been published between 1998 and 2017. Secondly, serious consideration was made as to whether the articles were written in English and considered as formal sources. Afterwards, articles which dealt with theories and models relevant for this research exercise were selected. After the initial analysis, several articles were discarded because they were not fully available. Finally, literature articles related to the research objectives, potential theories, research paradigms or research theme were selected.

An initial concern about the interactive and iterative process of writing the literature review before joining the research methodology training session hunted me. Moreover, selecting the right literature was a challenging process, especially searching for well-written literature reviews.

I found out from various researchers that, in the management information system, the theory of disruptive innovation was one of the latest theories within the last decade with some dimensions like customisation, convenience and the cost of use, observed Christensen, Anthony and Roth (2004). Also, Schoolar and Fischer (2004) highlighted that, in the disruptive innovation process, factors such as, service provision and the significance of services related to certain business areas should be accentuated and encouraged. E-communication facilities among the SMEs could be used as an influential factor by the banking industry of Bangladesh after carefully considering cost, convenience and customisation of the facilities (Christensen, Anthony and Roth, 2004). From the evidence gathered from the numerous researches, including the experience derived from this study, it could be inferred if cost, convenience and customisation and related issues are carefully considered for SMEs, then the rate of e-communication adoption could remarkably enhance in Bangladesh.

In considering the IP telephony, disruptive innovation and vendor's strategies are explored by Constantiou, Papazafeiropoulou and Dwivedi (2009); this disruptive diffusion process of innovation and commercialisation strategies tenets could be applicable and related to this research. The government policies, according to studies published by Choudrie and Papazafeiropoulou (2007) are related to the adoption of the e-communication technology. It has unveiled some of the ideas on how to identify the roles the Bangladeshi government plays regarding the e-communication facilities. Some initiatives related to technology expansion in developing countries, at the same time support them to identify their governmental initiatives were identified by McGrath and Maiye (2010). Likewise, this research could also harness relevant material support from applying the concept of institutional theory.

An enthusiastic effort has been applied in relating how the SMEs, government roles and the service providers' commercialisation strategies could be used in evaluating

the effect of e-communication adoption by Bangladeshi SMEs. Moreover, considering the research aims and objectives, a conceptual model was devised by combining the SMEs, government roles and the banking industry's commercialisation strategies. This model will influence SMEs to adopt e-communication facility which will ultimately improve their workplace efficiency. Overall, the hope is envisioned research will contribute to the reduction of literature gaps in the areas of the service providers' (the banking industry's) commercialisation strategies, organisational culture of Bangladeshi SMEs and government roles. Consequently, it will assist the banking industry and the government of Bangladesh to influence the SMEs for adopting e-communication facilities to enhance their performance.

According to Robinson, Saldanha and McKoy (2011), if drawing conclusions is limited to the systematic reviewer, then a research gap arises. However, a research gap also indicates a function in the initial point of a specific study. Research gaps also represent an output of literature reviews that motivate further research (ibid, 2006). Occasionally, the term 'research gaps' might be used for research problem that is resolved by means of research (Jacobs, 2011), reasoned that literature gaps, are the missing piece or pieces in the literature, are the areas that are under-explored or have not yet been explored. Notwithstanding, the inadequate knowledge on literature gaps and contribution to a research before, attending the PhD teaching and learning sessions resolved this knowledge conundrum. Having read many journal articles but at the same time could not identify literature gaps for this research, attending the research methodology training sessions remedied this imbalance, as skills for identifying literature gaps were exponentially boosted and confidence level restored.

Initially, being a bit concerned about the identification of literature gaps, even after reading many available journal articles in this research area, a lot of them seemed new. Though naively entertaining thoughts that all the necessary steps had been taken and that there was nothing left in the identification of the literature gaps as efforts being put in place to trying to find out more about the literature gaps. Putting it briefly, attending several training sessions opened the opportunity of being able to identify the literature gaps. I came to know that, literature gaps could be revealed based on sample or population size, research method, data collection or on how

analysis method even based on the regions the research has been carrying out. This way helped in identifying literature gaps for my research was finally ushered and all negative thoughts were turned into strength.

After attending the training sessions, identifying literature gaps became easy because long held perceptions on this topic were fully changed. Whenever relevant literature sources are searched in the undertaken research programme of studies, most of the information gathered was not very specific in the context of country and respondents. Studying this PhD Programme availed the opportunity to access, synthesise and analyse the diverse literature sources unearthed. Moreover, it has helped to enhance the analytical skills, the experience and knowledge gained will be utilised to execute future research projects.

According to Miles and Huberman (1984), the conceptual framework, they contend, is a researcher's map of the territory that is being scrutinised. The critical and historical perspective of the research topic could be revealed from the conceptual framework and it indicates the gaps in the research. During this research exercise, the conceptual framework was learned, understood and a preliminary model which has been modified based on the progression of the research project was devised. However, four hypotheses were developed that are related to government support, the organisational culture of the Bangladeshi SMEs and the banking industry's commercialisation strategies and the overall performance of the Bangladeshi SMEs. In this research project, the significance of these hypotheses using the Chi-squared distribution and the Student's t-test has been tested for reliability.

Despite the limited ideas on the conceptual framework, but after attending the teaching and learning sessions, skills and knowledge were of better-quality. Afterwards, a devised preliminary conceptual framework for my research devised and showed to my director of studies who provided me with constructive feedback. The feedback was helpful to make the framework clearer.

In designing the conceptual framework, several journal articles were studied in order to develop a personal concept that will be both applicable and useful to this research at the same time. Personal ideas, experience, skills and training from different workshops helped in constructing four hypotheses that were instrumental in producing the conceptual framework. To finalise this conceptual framework, I have

accentuated the integration of the four hypotheses. It is hoped that, if enough government supports could be provided, to enhance specific commercialisation strategies which could be followed by the banking industry, and SMEs are made to be aware of e-communication benefits; then the adoption rate could be increased, and e-communication gaps could be minimised and finally overall performance of the SMEs will be enhanced. Although the skills for creating the conceptual framework have been improved, a plan to go through some frameworks related to this research area. Developing a workable framework could be of tremendous assistance in the quest to identify something new; this could also be of help in the professional life and in devising new work maps for problem solving.

Research methodology training has helped me to improve my skills on various methodological issues such as research paradigm, research strategy and research approaches. In this module, I have mainly learnt research paradigms, ways of selecting appropriate research paradigms and also the implications of research paradigm. This module has enhanced my skills in data collection, data analysis procedures and research designs. Consequently, I have learnt to be very specific and focused on the research title and research questions including research objectives.

While doing the bachelor's and master's degrees, research methodologies were studied /examined'. Before being armed with the basic ideas on the different methodological issues like research design, research approach and research methods. However, after attending the PhD research methodology module, knowledge in this area was enhanced especially on research paradigm. Previously, one was only equipped with very basic concepts on research paradigms, but which are now much improved after face to face and seminars sessions. Though a bit concerned about research paradigm and data analysing tools, the training sessions have helped eased my concerns.

Having now learnt many methodological issues such as epistemology and ontology, of which one could only boast of a tiny knowledge of before embarking on this PhD programme. One's knowledge of research strategy and approaches has also been both improved and stabilised. In the research methodology training, the research paradigm was learnt as a set of techniques and values which are generally

contributed by members of a scientific community; which acts as a map or guide for identifying any research problems and also provide an acceptable explanation, observed Kuan and Chau (2001). However, legitimacy and popularity of any dominant paradigm can influence the paradigm shift, as it could be linked to specific issues like discovering new knowledge. In more extreme cases, the researcher's beliefs could be abandoned for the newly acquired knowledge through which scholars can analyse research data for any narrowly defined case study (Martin *et al.*, 2015).

In this research, different types of research paradigms including positivism, post-positivism, pragmatism, anti-science, constructivism, postmodernism, critical theory, post-colonialism, Queen Theory, feminism, post-structuralism and Marxism have been discussed; these can be employed to select an appropriate paradigm for specific research. These measures having been taken and used, one's concepts on epistemological and ontological frameworks were vastly developed, more so, after attending the research methodology training sessions. Although my skills on research methodologies have been enhanced after attending the training sessions, however, I must follow different journal articles and publications to implement those appropriately in my research project. Secondly, I had to attend different seminars arranged by our university.

A process for taking appropriate initiatives for collecting data by the help of research techniques is known as data collection; it is a vital part of any academic research, suggested Saunders, Lewis and Thornhill (2009). When data is inaccurately collected, this could lead to invalid results. Despite having very limited knowledge on data collection, the procedures learnt during the research methodology training sessions, were very helpful and ensured to carrying out reliable and serious work on the main thesis. Gaining the knowledge on data collection methods has been necessitated by attending the research methodology module. Attending the face to face and seminar sessions was hugely delighting; but due to some unavoidable circumstances, few sessions were missed; these ignited consternations and sometimes worry.

Successfully writing a master's degree thesis infers reading and going through a plethora of relevant books and articles on data collection procedures. This

notwithstanding, the PhD training sessions elaborated my perception and has given me a broader picture of the data collection and other relevant issues; e.g. efficiency of different types of data collection procedures, validity and reliability of the sources of the data collection, has immensely assisted and enabled the execution of this research. Another positive unintended outcome is that, this experience and knowledge acquired from learning systematic data collection procedures has now been applied and replicated at the workplace.

According to Steinke (1999), a fundamental framework should be structured to follow the appropriate data collection procedures. The guidance of my supervisors has enabled the acquiring of relevant training in following appropriate data collection methods in this research. Again, this academic exercise has enabled and exposed the wealth of knowledge which fellow researchers have shared and have added their opinions on data collection procedures; these have been very important guidance and have also remarkably enhanced my skills which have been utilised in this research. Research methodology training and the supervisors' contribution have jointly guided me in applying the data collection procedures and the specific ethical issues. Likewise, going through some journal articles earned me better ideas about data collection procedures, especially the data collection from different respondents like SMEs, the banking industry and government representatives.

Face to face and webinar sessions with my supervisor helped me to improve my data analysis and presentation skills. From Marshall and Rossman (1999), I learnt that data analysis is a process where collected data are ordered and structured so that meaning can be revealed. Best and Kahn (2006) pointed out that, some sorts logics could be required for data analysis. Maloney and Campbell-Evans (2002) stated that, interpretive approach follows the deductive process for data collection for specific research. To interpret the information appropriately, data needs to be collected in a systematic way and then they should be organised and recorded by following a specific methodology, described by Antonius (2003). However, the skills used to arrange, analyse and present data were much more developed following discussion with supervisors.

I have gained knowledge about several data analysis and presentation tools such as SPSS and Microsoft Excel, which I have utilised to present my survey data using

graphs, figures, tables and charts, and semi-structured interview data descriptively comparing with existing literature. I have collected quantitative data from Bangladeshi SMEs using a survey technique. To analyse the quantitative data, I have used the Microsoft Excel and SPSS. Secondly, I have collected the qualitative data from the banking industry representatives of Bangladesh by using the semi-structured interview questions.

I know the ethical issues in detail during the training sessions for the research methodology module. Especially from this module, I learnt about the consent of participants, confidentiality, privacy and data protection related issues which really enriched my knowledge about ethical issues relevant to this research. I had basic knowledge on ethical issues but after attending the training sessions, my knowledge has improved. I can now follow the ethical issues related to my research by following systematic procedures and approaches. For example, I have ensured ethical approval for my research before collecting primary data from the participants.

To protect the rights of participants is one of the key concerns of research ethics and it also ensures that participants are not exposed to unnecessary harm (Doody and Noonan, 2016). Appropriate methodological approaches are guided by research ethics as pointed out by Porter (1998). According to Bryman and Bell (2007), ethical issues arise at all the stages of research; therefore, I kept the names of the participants anonymous in both surveys and interviews. The ethical issues which I observed in my research are based on two categories, and these are anonymity and confidentiality of data collection. For my research, I have selected the participants on a voluntary basis. Furthermore, to protect anonymity and data protection, I kept all the information confidential and avoided collecting any personal information. In my research plan, I have highlighted the ethical issues to protect the rights of the participants.

Before starting my main research project, I attended a few training sessions which helped to enhance both my professional skills and understanding of different types of research. In this section, the knowledge I have acquired from this PhD programme has been demonstrated. I have also evaluated my skills improvement by stating my knowledge and skills prior to and after attending the training sessions. Although, my skills have been enhanced after attending the PhD programme, I should attend

several seminars and consult with my supervisors for continuous research and professional skills development.

7.8 Summary

This final chapter has been commenced by providing an overview of the research and then outlined the summary of research findings. The research aimed to evaluate the impact of e-communication on Bangladeshi SMEs. To answer the first research question, a number of factors such as, role of owners/managers, education background and ICT knowledge, types and size of the SMEs, reliability of e-communication facilities, cost of the service, security concerns, convenience of e-communication facility, awareness of the benefits of e-communication, technological factors, organisational culture, role of the service providers, funding support from external bodies and government support have been identified.

The research findings also reveal that, convenience, cost, customisation and ease of use can strongly influence the Bangladeshi SMEs to adopt e-communication services in their business operations which answered the first part of the second research question. Similarly, the government support in the forms of subsidy, mobilisation, knowledge deployment, knowledge building, innovation directive and standard setting has been evidenced in this research by aiming to answer the second part of the second research question. To answer the third research question, an exceptional technique has been followed and it has showed significant relationship between e-communication adoption and its positive impact on Bangladeshi SMEs. A framework has been devised by focusing on existing e-communication gaps, factors that affect e-communication adoption, organisational culture of the SMEs, commercialisation strategies of the service providers (the banking industry) and government support which ultimately answered the fourth research question.

The research contributions have been presented in some theoretical and methodological contexts, and critical perspectives. Several important implications have been summarised in this study after highlighting the research contributions which could be helpful to assist the Bangladeshi SMEs, the service providers (the banking industry) and the government of Bangladesh to make relevant strategies

and policies for increasing the rate of e-communication adoption by SMEs. Several limitations such as, limited accessibility for primary data, data collection from single respondent of the SMEs, inadequate literature and data collection from only one of the cities of Bangladesh have been identified after suggesting the implications of the research.

Several directions for further research such as, to focus on specific e-communication technique, to analyse performance in particular sector, to collect primary data from the government representatives, to collect data from SMEs of all over the country, to increase the number of samples and to follow the longitudinal research design have been suggested in this study. Finally, the reflection on experience has been represented by emphasising the researcher's learning and obstacles that he faced from the beginning to the end of this research.

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9.0 Appendices

Appendix A: Survey Questionnaires for SMEs (e-communication adopted)

SMES SURVEY QUESTIONNAIRE

FOR E-COMMUNICATION FACILITIES ADOPTERS

Part: I												
QN.	**Questions**	**Answer**										
1.	My position in the organisation	Owner							Manager			
2.	I've IT background	Yes							No			
3.	I'm the decision maker	Yes							No			
4.	I'm educated from abroad	Yes							No			
5.	Nature of my organisation	SD	EE	LG	SF	MW	RG	HC	PS	TC	ES	WC
SD: Software development; **EE:** Electronic and electrical products manufacturing and services; **LG:** Leather goods; **SF:** Specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; **MW:** Metal working and light engineering; **RG:** Readymade garments and knitwear; **HC:** Health care and diagnostics; **PS:** Plastics and other synthetics; **TC:** Toiletries/cosmetics/pharmaceuticals; **ES:** Education services; **WC:** Wear and consumer goods												
6.	Number of employees involved in my organisation.	1	2-5	6-10	11-20	21-49						
7.	My organisation has been using e-communication	3-6 Months	6-12 Months	1-3 years	3-4 years	More than 4 years						

	facilities for					
8.	I find e-communication better than traditional operations because of	Easy access	Reliability	Secured payment	Cost	Mobility
9.	I have chosen e-communication facility because of	Easy payment facilities	Secured payment	Communicating with banking industry	To transfer cash from one place to another	Due to export import facilities
10.	I heard about the e-communication facility from	Bank employees or media	Friends and family members	Other organisations	Through mass media	Through social media
11.	Banking industry can attract new consumers for e-communication facilities by	Increasing awareness	Reducing costs	Communicating SMEs directly	Extending service areas	Providing required training
12.	E-communication facilities are Compatible with business operations.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
13.	It was easy to setup and install the e-communication equipment in my organisation.	Strongly disagree	Disagree	No comment	Agree	Strongly agree

14.	I had to get training to use this facility	Strongly disagree	Disagree	No comment	Agree	Strongly agree
15.	Use of e-communication facility in organisations is easier	Strongly disagree	Disagree	No comment	Agree	Strongly agree
16.	The price of the service is reasonable	Strongly disagree	Disagree	No comment	Agree	Strongly agree
17.	I believe that the owner or the person or who is in charge of the organisation plays the most important role in the adoption of e-communication facilities.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
18.	The banking industries have ensured the awareness of e-communication for my organisation.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
19.	We are getting some funds from some institutions	Strongly disagree	Disagree	No comment	Agree	Strongly agree

	for the e-communication facilities.					
20.	Use of e-communication is helping my business	Strongly disagree	Disagree	No comment	Agree	Strongly agree
21.	Types of business can affect the adoptions of e-communication facilities.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
22.	Norms, beliefs, education level and attitudes of the owners/managers are responsible to adopt of e-communication facilities.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
23.	Banking industry's policies (and or initiatives)are helping to adopt more e-communication facilities	Strongly disagree	Disagree	No comment	Agree	Strongly agree
24.	Government of Bangladesh is	Strongly disagree	Disagree	No comment	Agree	Strongly agree

	helping SMEs to adopt e-communication facilities					

Part II: Organisational culture

Characteristics of your organisational culture would be highlighted in this section considering mainly 6 questions with four alternatives. 100 points should be divided among 4 alternatives depending on the extent to which would be fit for your organisation. Higher points should be allocated for the most fitted option. The response column is labelled as score and current rating of your organisation.

25. Dominant characteristics of the organisation		**Score**
A.	My organisation is a personal place and everyone can share a lot like an extended family	
B.	My organisation is very dynamic entrepreneurial place and non wants to take risks	
C.	My organisation is result, competition and achievement oriented and major concern is with getting the job done	
D.	My organisation is very structured and controlled place and formal procedures are strictly followed	
	Total	**100**
26.	**Leadership of the organisation**	**Score**
A.	Facilitating, mentoring and nurturing are the main characteristics of my organisational leadership	
B.	Innovating or risk taking and entrepreneurship are the main features of my organisational leadership	
C.	Aggressive and result oriented focus are main feature of my organisational leadership	
D.	Organising, co-ordinating and smooth running efficiency are the main features of my organisational leadership	
	Total	**100**
27.	**Employee management**	**Score**
A.	Team work, participations and consensus are the main features of my organisation's management style	
B.	Uniqueness, individual risk taking, freedom and innovation are the main features of my organisation's management style	

C.	High demands and achievements and hard driving competitiveness are the main features of my organisation's management style	
D.	Conformity, security of employment, stability in relationship and predictability are the main features of my organisation's management style	
	Total	**100**
28.	**Organisation's glue**	**Score**
A.	Loyalty and mutual trust are the main glue that holds the organisation together	
B.	Commitment to innovation and development are the main glue that holds the organisation together	
C.	Achievement and accomplishment are the main glue that holds the organisation together	
D.	Formal rules and policies are the main glue that holds the organisation together	
	Total	**100**
29.	**Strategic emphases**	**Score**
A.	Participation persistent, high trust, human development and openness are the main emphasising issues of my organisation	
B.	Creating new challenges and acquiring new resources are the main emphasising issues of my organisation	
C.	Hitting stretch targets, competitive actions and achievement and winning in the marketplace are the main emphasising issues of my organisation	
D.	Efficiency, control, smooth operations and performance stability are the main emphasising issues of my organisation	
	Total	**100**
30.	**Criteria of success**	**Score**
A.	Concern for people, employee commitment, team work and development of human resources are the basement of the organisational success	
B.	Most unique and newest products are the basement of the organisational success	
C.	Outpacing the competition, winning in the marketplace and competitive market leadership are the basement of the organisational success	
D.	Low cost production, smooth scheduling, efficiency and dependable delivery are the basement of the organisational success	
	Total	**100**

THANK YOU FOR YOUR CONTRIBUTION!

Appendix B: Survey Questionnaires for SMEs (e-communication non-adopted)

FOR E-COMMUNICATION FACILITIES NON-ADOPTERS

Part: I												
QN.	**Questions**	**Answer**										
1.	My position in the organisation	Owner					Manager					
2.	I've IT background	Yes					No					
3.	I'm the decision maker	Yes					No					
4.	I'm educated from abroad	Yes					No					
5.	Nature of my organisation	SD	EE	LG	SF	MW	RG	HC	PS	TC	ES	WC
SD: Software development; **EE:** Electronic and electrical products manufacturing and services; **LG:** Leather goods; **SF:** Specialist farming/plantation agriculture/agro-business/agro processing/tissue-culture; **MW:** Metal working and light engineering; **RG:** Readymade garments and knitwear; **HC:** Health care and diagnostics; **PS:** Plastics and other synthetics; **TC:** Toiletries/cosmetics/pharmaceuticals; **ES:** Education services; **WC:** Wear and consumer goods												
6.	(a) Number of employees involved in my organisation.	1	2-5	6-10	11-20	21-49						
	(b) I heard about the e-communication facility from	Bank employees or media	Friends and family members	Other organisations	Through mass media	Through social media						
7.	We have not adopted e-communication because of	Higher price	Business types	Security issues	Inconvenient of the facilities	I don't know about it						

8.	Factors that creating barrier to adopt e-communication facilities	Cost of the service	Security reasons	Non-suitability with the business	Lack of technology	Unavailability of the service
9.	The most important factors that can help to adopt e-communication facilities	Cost	Funding facilities	Assurance of security	Training for using e-communication facilities	Support from Banking industry
10.	Banking industry's representatives contacted us regarding e-communication facilities	Strongly disagree	Disagree	No comment	Agree	Strongly agree
11.	Funds from any institution can influence me to adopt e-communication facilities	Strongly disagree	Disagree	No comment	Agree	Strongly agree
12.	The owner is the main respondent to adopt e-communication facilities.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
13.	Adoption of e-communication can help me to increase my performance	Strongly disagree	Disagree	No comment	Agree	Strongly agree

14.	Norms, beliefs, education level and attitudes of the owners/managers are responsible to adopt of e-communication facilities.	Strongly disagree	Disagree	No comment	Agree	Strongly agree
15.	Banking industry's policies can help to adopt more e-communication facilities	Strongly disagree	Disagree	No comment	Agree	Strongly agree
16.	Government of Bangladesh can help SMEs to adopt e-communication facilities	Strongly disagree	Disagree	No comment	Agree	Strongly agree

Part II: Organisational culture

Characteristics of your organisational culture would be highlighted in this section considering mainly 6 questions with four alternatives. 100 points should be divided among 4 alternatives depending on the extent to which would be fit for your organisation. Higher points should be allocated for the most fitted option. The response column is labelled as score and current rating of your organisation.

17. Dominant characteristics of the organisation		**Score**
A.	My organisation is a personal place and everyone can share a lot like an extended family	
B.	My organisation is very dynamic entrepreneurial place and non wants to take risks	
C.	My organisation is result, competition and achievement oriented and major concern is with getting the job done	
D.	My organisation is very structured and controlled place and formal procedures are strictly followed	

	Total	**100**
18.	**Leadership of the organisation**	**Score**
A.	Facilitating, mentoring and nurturing are the main characteristics of my organisational leadership	
B.	Innovating or risk taking and entrepreneurship are the main features of my organisational leadership	
C.	Aggressive and result oriented focus are main feature of my organisational leadership	
D.	Organising, co-ordinating and smooth running efficiency are the main features of my organisational leadership	
19.	**Employee management**	**Score**
A.	Team work, participations and consensus are the main features of my organisation's management style	
B.	Uniqueness, individual risk taking, freedom and innovation are the main features of my organisation's management style	
C.	High demands and achievements and hard driving competitiveness are the main features of my organisation's management style	
D.	Conformity, security of employment, stability in relationship and predictability are the main features of my organisation's management style	
	Total	**100**
20.	**Organisation's glue**	**Score**
A.	Loyalty and mutual trust are the main glue that holds the organisation together	
B.	Commitment to innovation and development are the main glue that holds the organisation together	
C.	Achievement and accomplishment are the main glue that holds the organisation together	
D.	Formal rules and policies are the main glue that holds the organisation together	
	Total	**100**
21.	**Strategic emphases**	**Score**
A.	Participation persistent, high trust, human development and openness are the main emphasising issues of my organisation	
B.	Creating new challenges and acquiring new resources are the main emphasising issues of my organisation	
C.	Hitting stretch targets, competitive actions and achievement and winning in	

	the marketplace are the main emphasising issues of my organisation	
D.	Efficiency, control, smooth operations and performance stability are the main emphasising issues of my organisation	
Total		**100**
22.	**Criteria of success**	**Score**
A.	Concern for people, employee commitment, team work and development of human resources are the basement of the organisational success	
B.	Most unique and newest products are the basement of the organisational success	
C.	Outpacing the competition, winning in the marketplace and competitive market leadership are the basement of the organisational success	
D.	Low cost production, smooth scheduling, efficiency and dependable delivery are the basement of the organisational success	
Total		**100**

THANK YOU FOR YOUR CONTRIBUTION!

Appendix C: Interview Questions for Government Representatives

GOVERNMENT REPRESENTATIVE INTERVIEW QUESTIONS

DURATION OF THE INTERVIEW		GOVERNMENT REPRESENTATIVE
GENERAL QUESTIONS		
Would you kindly mention your position in the organisation? It would be great if you mention the duration of this position?		
Would you mind to mention your level of education, please:		
Age category:		
INTERVIEW QUESTIONS		
1.	Would you kindly say your opinion related to e-communication facilities for small and medium enterprises?	
2.	Do you think that, SMEs should be recommended the e-communication facilities?	
3.	Is there any policy of the Government of Bangladesh in the context of e-communication facilities adoption?	
4.	Would be kindly say about any planning for e-communication facilities for SMEs?	
5.	If you have plan, how it could be helpful for SMEs to adopt e-communication facilities?	
6.	Is there any fund or program for providing training facilities for SMEs in order to attract them towards e-communication technologies?	

7.	Do you think any existing plan, program or initiatives would encourage SMEs to have e-communication facilities?	
8.	Sometimes prices could be a barrier to adopt e-communication facilities, is there any policies that can help specially SMEs to have e-communication facilities with affordable cost?	
9.	Is there any government policy to help SMEs for adopting e-communication facilities?	
10.	Who are mainly responsible for e-communication facilities diffusion to SMEs?	
11.	Would you kindly provide any suggestion regarding the adoption of e-communication facilities by Bangladeshi SMEs?	

THANK YOU FOR YOUR CONTRIBUTION!

Appendix D: Interview Questions for the Banking Industry Representatives

BANKING INDUSTRY REPRESENTATIVES INTERVIEW QUESTIONS

DURATION OF THE INTERVIEW		NAME OF THE BANK
GENERAL QUESTIONS		
What is your position in the bank?		
Your level of education:		
Age category:		
INTERVIEW QUESTIONS		
1.	Would you kindly say your opinion related to e-communication facilities for small and medium enterprises?	
2.	Is there any specific reason for recommending e-communication facilities for SMEs?	
3.	Who are mainly responsible for e-communication facilities diffusion to SMEs?	
4.	What about your opinion in regards to government policies for e-communication diffusion among SMEs?	
5.	Is there any plan or policy in your bank for ensuring e-communication facilities to SMEs?	
6.	Is there any strategy in your bank for the widespread of e-communication facilities among SMEs?	
7.	Do you have any program to support particularly SMEs for encouraging them to adopt e-communication facilities?	

8.	In what way/s is e-communication better than traditional communication system?	
9.	How compatible is e-communication facilities with existing hardware & software those SMEs already have?	
10.	Do you think any special training is required for SMEs in order to use e-communication facilities?	
11.	Are you aware of the limited technical skills of SMEs?	
12.	Do you offer the required devices for SMEs?	
13.	How could be e-communication facilities favourable to SMEs within existing practices?	
14.	Is there any policy in your bank to keep the price of e-communication facilities affordable for SMEs comparing with other banks?	
15.	Would you mind to give an estimation of the number of SMEs those have been using e-communication facilities from your bank? Anything to add?	
16.	Would you recommend e-communication facilities for all SMEs?	

THANK YOU FOR YOUR CONTRIBUTION!

Appendix E: Survey Questionnaire and Interview Questions in Bengali Version

পরিশিষ্ট – ক

ছোট ও মাঝারী ব্যবসায়ীদের জন্য সার্ভে প্রশ্ন

যারা ইতিমধ্যে ইলেকট্রনিক্স প্রযুক্তি ব্যবহার করছেন

সেকশন: ১												
প্রশ্ন নাম্বার	প্রশ্ন	উত্তর										
১.	আমি এ প্রতিষ্ঠানের	মালিক							ব্যবস্থাপক			
২.	আমার তথ্য প্রযুক্তিতে দক্ষতা রয়েছে	হ্যাঁ							না			
৩.	আমিই প্রতি্ষ্ঠানের সিদ্ধান্ত গ্রহণকারী	হ্যাঁ							না			
৪.	আমি বিদেশ থেকে শিক্ষা গ্রহণ করেছি	হ্যাঁ							না			
৫.	আমার ব্যবসার ধরণ	স.উ.	যা.বৈ.	চা.ব.	বি.খা.	ধা.আ	তৈ.পো.	স্বা.জ.	প্লা.অ.	প্র.সা.	শি.প্র	প.অ

স.উ: সফট্ওয়ার উন্নয়ন; যা.বৈ: যান্ত্রিক ও বৈদ্যুতিক সরঞ্জামাদি প্রস্তুতকারি প্রতিষ্ঠান; চা.ব: চামড়াজাত বস্তু প্রস্তুতকারি; বি.খা: বিশেষায়িত খামার/কৃষি/কলা; ধা.আ: ধাতব ও আলোক প্রযুক্তি; তৈ.পো: তৈরি পোশাক প্রস্তুতকারি ও বিপণন ; স্বা.জ: স্বাস্থ্য ও জনসেবা প্রতিষ্ঠান; প্লা.অ:প্লাস্টিক ও অন্যান্য সিরামিক সামগ্রী সরবরাহকারী ; প্র.সা: প্রসাধনী/ঔষধ বিপণন প্রতিষ্ঠান; শি.প্র: শিক্ষা প্রতিষ্ঠান; প.অ: পরিধেয় অ অন্যান্য অত্যাবশ্যক সামগ্রী সরবরাহকারী।

৬.	আমার প্রতিষ্ঠানে কর্মচারী সংখ্যা	১	২-৫	৬-১০	১১-২০	২১-৪৯
৭.	আমি ইলেকট্রনিক্স প্রযুক্তি ব্যবহার করছি	৩-৬ মাস ধরে	৬-১২ মাস ধরে	১-৩ বছর ধরে	৩-৪ বছর ধরে	৪ বছরের বেশী সময় ধরে
৮.	বিভিন্ন কারণে ইলেকট্রনিক্স প্রযুক্তি সাধারণ ব্যবসায়িক কর্মকান্ডের চেয়ে গ্রহণযোগ্য	সহজে ব্যবহারযোগ্য	নির্ভরযোগ্য	নিরাপদ আদান প্রদান	সুলভ	স্থানান্তরযোগ্য
৯.	আমি বিভিন্ন কারণে ব্যবসায়িক কর্মকান্ডের জন্য ইলেকট্রনিক্স প্রযুক্তি গ্রহণ করেছি	সহজে আদান প্রদানযোগ্য	নিরাপদ আদান প্রদানযোগ্য	ব্যাংকের সাথে যোগাযোগের জন্য	অর্থ স্থানান্তরে সহজলভ্যতার জন্য	আমদানী-রপ্তানীর জন্য
১০.	আমি ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা সর্ম্পকে জানতে পেরেছি	ব্যাংক কর্মকর্তা অথবা মিডিয়া থেকে	পরিবার পরিজন থেকে	অন্য প্রতিষ্ঠান হতে	গণমাধ্যম হতে	সামাজিক মাধ্যম হতে
১১.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থার জন্য বিভিন্নভাবে ব্যাংক প্রতিষ্ঠান নতুন গ্রাহক	সচেতনতা বৃদ্ধি করে	মূল্য হ্রাস করে	সরাসরি ছোট ও মাঝারী ব্যবসায়ীদের সঙ্গে যোগাযোগ করে	সুযোগ সুবিধা বৃদ্ধি করে	প্রশিক্ষণের ব্যবস্থা করে

	সংগ্রহ করতে পারে					
১২.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবসায়িক কর্মকান্ডের সঙ্গে ওতপ্রতভাবে সম্পৃক্ত	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৩.	আমার প্রতিষ্ঠানে ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি প্রতিষ্ঠা করা ছিল বেশ সহজ ব্যাপার	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৪.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তির সুযোগ সুবিধা ব্যবহারের জন্য আমাকে ট্রেনিং নিতে হয়েছে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৫.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহার খুব সহজ	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৬.	সার্ভিস চার্জ বেশ সুলভ	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৭.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণের ক্ষেত্রে ব্যবসা প্রতিষ্ঠানের	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত

	মালিক অথবা ব্যবস্থাপক সবচেয়ে গুরুত্বপূর্ণ ভূমিকা পালন করেন					
১৮.	ব্যাংক প্রতিষ্ঠান আমার প্রতিষ্ঠানের ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের ব্যবস্থা নিশ্চিত করেছে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৯.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের জন্য আমরা বিভিন্ন প্রতিষ্ঠান থেকে অর্থ অনুদান পাচ্ছি	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
২০.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি আমার ব্যবসায়িক কাজে সাহায্য করছে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
২১.	ব্যবসায়িক ধরণ ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে প্রভাবিত করে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
২২.	চিন্তা, চেতনা, বিশ্বাস, শিক্ষাগত যোগ্যতা এবং ব্যবসা	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত

	প্রতিষ্ঠাণের মালিক ও ব্যবস্থাপকের মানসিকতা ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে প্রভাবিত করতে পারে					
২৩.	ব্যাংক প্রতিষ্ঠানের পলিসি ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে সহায়তা করতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
২৪.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে বাংলাদেশ সরকার সহায়তা প্রদান করে আসছে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত

সেকশন-২: প্রাতিষ্ঠানিক কর্ম সংস্কৃতি

প্রধানত চারটি বিকল্পসহ ৬টি প্রশ্ন বিবেচনা করে আপনার প্রতিষ্ঠানের কর্ম এই বিভাগে তুলে ধরা হয়েছে। আপনার প্রতিষ্ঠানের জন্য কতটা উপযুক্ত হবে তার উপর নির্ভর করে ৪টি বিকল্পের মধ্যে ১০০ পয়েন্ট ভাগ করতে হবে। সবচেয়ে উপযুক্ত অপশনের জন্য উচ্চতর পয়েন্ট বরাদ্দ করতে হবে। প্রতিক্রিয়া কলামটি আপনার প্রতিষ্ঠানের স্কোর এবং বর্তমান রেটিং হিসেবে লেবেল করা হয়েছে।

২৫. প্রতিষ্ঠানের নিয়ন্ত্রনকারী বৈশিষ্ট্য		প্রতিক্রিয়া
ক)	আমার প্রতিষ্ঠান একটি ব্যক্তিগত জায়গা এবং সবাই একটি বর্ধিত পরিবারের মত অনেক কিছু শেয়ার করতে পারে ।	
খ)	আমার সংস্থা খুব গতিশীল উদ্যোক্তা স্থান এবং কেউ ঝুঁকি নিতে চায় না ।	
গ)	আমার সংস্থা ফলাফল, প্রতিযোগিতা এবং অর্জন ভিত্তিক এবং প্রধান উদ্বেগ কাজ সম্পন্ন করা হয় ।	
ঘ)	আমার সংস্থা খুব কাঠামোগত এবং নিয়ন্ত্রিত স্থান এবং আনুষ্ঠানিক পদ্ধতি কঠোরভাবে অনুসরণ করা হয়।	
	সর্বমোট	১০০
২৬.	**প্রতিষ্ঠানের নেতৃত্বদানকারী বৈশিষ্ট্য**	প্রতিক্রিয়া

ক)	সুবিধা, উপদেশ এবং বিভিন্ন প্রকার সুযোগ প্রদান আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য।	
খ)	উদ্ভাবন বা ঝুঁকি গ্রহণ এবং উদ্যোক্তা আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য।	
গ)	আক্রমণাত্মক এবং ফলাফল ভিত্তিক ফোকাস আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য।	
ঘ)	সংগঠিত, সমন্বয় এবং মসৃণ চলমান দক্ষতা আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য।	
	সর্বমোট	১০০
২৭.	**কর্মী ব্যবস্থাপনা**	প্রতিক্রিয়া
ক)	দলগত কাজ, অংশগ্রহণ এবং ঐকমত্য আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
খ)	অনন্যতা, ব্যক্তিগত ঝুঁকি গ্রহণ, স্বাধীনতা এবং উদ্ভাবন আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
গ)	উচ্চচাহিদা এবংঅর্জন এবং কঠিন প্রতিযোগিতা আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
ঘ)	সামঞ্জস্য, কর্মসংস্থানের নিরাপত্তা, সম্পর্কের স্থিতিশীলতা এবং কর্মপরিকল্পনা আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
	সর্বমোট	১০০
২৮.	**প্রতিষ্ঠানের প্রতি আনুগত্য**	প্রতিক্রিয়া
ক)	আনুগত্য এবং পারস্পরিক বিশ্বাস আমাদের প্রধান সংযোগ কারী যা সংস্থাকে একসাথে ধরে রাখে।	
খ)	উদ্ভাবন এবং উন্নয়নের প্রতি অঙ্গীকার আমাদের প্রধান সংযোগকারী যা সংস্থাটিকে একসাথে ধরে রাখে।	
গ)	অর্জন এবং আদায় আমাদের প্রধান সংযোগ কারী যা সংস্থাকে একসাথে ধরে রাখে।	
ঘ)	আনুষ্ঠানিক নিয়ম এবং নীতি আমাদের প্রধান সংযোগকারী যা সংস্থাকে একসাথে ধরে রাখে।	
	সর্বমোট	১০০
২৯.	কৌশলগত প্রাধান্যকারী বৈশিষ্ট্য	প্রতিক্রিয়া
ক)	অংশগ্রহণস্থায়ী, উচ্চবিশ্বাস, মানব উন্নয়ন এবং উন্মুক্ততা আমার সংস্থার প্রধান বৈশিষ্ট্য।	
খ)	নতুন চ্যালেঞ্জ তৈরি করা এবং নতুন সম্পদ অর্জন আমার সংস্থার প্রধান বৈশিষ্ট্য।	
গ)	লক্ষ্য অর্জন, প্রতিযোগিতামূলক কর্ম এবং অর্জন এবং মার্কেট প্লেসের বৈশিষ্ট্য ভাল অবস্থান তৈরী আমার সংস্থার প্রধান বৈশিষ্ট্য।	
ঘ)	দক্ষতা, নিয়ন্ত্রণ, কর্মক্ষমতা এবং স্থিতিশীলতা আমার সংস্থার প্রধান বৈশিষ্ট্য।	
	সর্বমোট	১০০
৩০.	**সাফল্যের মাপকাঠি**	প্রতিক্রিয়া
ক)	মানুষের জন্য উদ্বেগ, কর্মীদের অঙ্গীকার, দলগত কাজ এবং মানব সম্পদের উন্নয়ন প্রাতিষ্ঠানিক সাফল্যের মূল বিষয়।	
খ)	সবচেয়ে অনন্য এবং নতুনতম পণ্য প্রাতিষ্ঠানিক সাফল্যের মূল বিষয়।	
গ)	প্রতিযোগিতা অতিক্রম, মার্কেট প্লেস এবং প্রতিযোগিতা মূলক বাজার নেতৃত্ব দান সাংগঠনিক সাফল্যের মূল বিষয়।	
ঘ)	কম খরচের উৎপাদন, মসৃণ সময়সূচী, দক্ষতা এবং নির্ভরযোগ্য সরবরাহ সাংগঠনিক সাফল্যের ভিত্তি।	
	সর্বমোট	১০০

গুরুত্বপূর্ণ সময় প্রদানের জন্য আপনাকে অশেষ ধন্যবাদ

পরিশিষ্ট – খ

ছোট ও মাঝারী ব্যবসায়ীদের জন্য সার্ভে প্রশ্ন

যারা এখোনো ইলেকট্রনিক্স প্রযুক্তি ব্যবস্থা গ্রহণ করেনি

সেকশন: ১												
প্রশ্ন নাম্বার	প্রশ্ন	উত্তর										
১.	আমি এ প্রতিষ্ঠানের	মালিক					ব্যবস্থাপক					
২.	আমার তথ্য প্রযুক্তিতে দক্ষতা রয়েছে	হ্যাঁ					না					
৩.	আমিই প্রতিষ্ঠানের সিদ্ধান্ত গ্রহণকারী	হ্যাঁ					না					
৪.	আমি বিদেশ থেকে শিক্ষা গ্রহণ করেছি	হ্যাঁ					না					
৫.	আমারব্যবসার ধরণ	স.উ.	যা.বৈ.	চা.ব.	বি.খা.	ধা.আ	তৈ.পো.	স্বা.জ.	প্লা.অ.	প্র.সা.	শি.প্র	প.অ
স.উ: সফট্ওয়ার উন্নয়ন; যা.বৈ: যান্ত্রিক ও বৈদ্যুতিক সরঞ্জামাদি প্রতিষ্ঠান; চা.ব: চামড়াজাত বস্তুপ্রস্তুতকারী ; বি.খা: বিশেষায়িত খামার/কৃষি/কলা; ধা.আ: ধাতব ও আলোক প্রযুক্তি; তৈ.পো: তৈরি পোশাক প্রস্তুতকারী ও বিপণন; স্বা.জ: স্বাস্থ্য ও জনসেবা প্রতিষ্ঠান; প্লা.অ: প্লাস্টিক ও অন্যান্য সিরামিক সামগ্রী সরবরাহকারী; প্র.সা: প্রসাধনী/ঔষধ বিপণন প্রতিষ্ঠান; শি.প্র: শিক্ষা প্রতিষ্ঠান; প.অ: পরিধেয় অ অন্যান্য অত্যাবশ্যক সামগ্রী সরবরাহকারী												
৬.	ক) আমার প্রতিষ্ঠানে কর্মচারী সংখ্যা	১		২-৫		৬-১০	১১-২০			২১-৪৯		
	খ) আমি ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা সর্ম্পকে জানতে পেরেছি	ব্যাংক কর্মকর্তা অথবা মিডিয়া থেকে		পরিবার পরিজন থেকে		অন্য প্রতিষ্ঠান হতে	গণমাধ্যম হতে			সামাজিক মাধ্যম হতে		

৭.	আমার প্রতিষ্ঠান এখোনো ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ করেনি, কারণ	উচ্চ মূল্যের জন্য	ব্যবসার ধরণ	নিরাপত্তা জনিত কারণে	সুবিধাগুলির অব্যবস্থাপনার জন্য	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি আমার অজানা
৮.	যে কারনে আমার প্রতিষ্ঠান এখোনো ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ করেনি	উচ্চ মূল্যের জন্য	নিরাপত্তাজনিত কারণে	ব্যবসার জন্য অনুপযোগিতার কারনে	প্রযুক্তিতে অদক্ষতার জন্য	সেবার অপ্রাপ্যতার জন্য
৯.	সবচেয়ে যে বিষয়টি আমার প্রতিষ্ঠানকে ইলেকট্রক্সি যোগাযোগ প্রযুক্তি গ্রহণ করতে সহযোগিতা করতে পারে	মূল্য	অর্থ সুবিধা	নিরাপত্তা নিশ্চিতকরন	ই-যোগাযোগ সুবিধা ব্যবহারের প্রশিক্ষণ	ব্যাংক প্রতিষ্ঠান থেকে সহায়তা
১০.	ব্যাংক প্রতিষ্ঠান আমার প্রতিষ্ঠানের ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের ব্যবস্থা নিশ্চিত করতে চেষ্টা করছে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১১.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের জন্য বিভিন্ন প্রতিষ্ঠান থেকে অর্থ অনুদান পেলে আমার প্রতিষ্ঠানও এটা গ্রহণ করতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত

১২.	ব্যবসা প্রতিষ্ঠানের মালিক ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে সবচেয়ে গুরুত্বপূর্ণ ভূমিকা পালন করে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৩.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে আমার ব্যবসা প্রতিষ্ঠানের অর্থনৈতিক অবস্থার উন্নতি হতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৪.	চিন্তা, চেতনা, বিশ্বাস, শিক্ষাগত যোগ্যতা এবং ব্যবসা প্রতিষ্ঠানের মালিক ও ব্যবস্থাপকের মানসিকতা ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে প্রভাবিত করতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৫.	ব্যাংক প্রতিষ্ঠান আমার প্রতিষ্ঠানের ইলেকট্রক্সি যোগাযোগ প্রযুক্তি ব্যবহারের ব্যবস্থা নিশ্চিত করতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
১৬.	ইলেকট্রক্সি যোগাযোগ প্রযুক্তি ব্যবস্থা গ্রহণে বাংলাদেশ সরকার সহায়তা প্রদান করতে পারে	আমি এটার সাথে দৃঢ়ভাবে একমত না	আমি এটার সাথে একমত না	কোন মন্তব্য নেই	আমি এটার সাথে একমত	আমি এটার সাথে দৃঢ়ভাবে একমত
সেকশন-২: প্রাতিষ্ঠানিক সংস্কৃতি						
প্রধানত চারটি বিকল্পসহ ৬টি প্রশ্ন বিবেচনা করে আপনার প্রতিষ্ঠানের কর্ম এই বিভাগে তুলে ধরা হয়েছে। আপনার প্রতিষ্ঠানের জন্য কতটা						

উপযুক্ত হবে তার উপর নির্ভর করে ৪টি বিকল্পের মধ্যে ১০০ পয়েন্ট ভাগ করতে হবে। সবচেয়ে উপযুক্ত অপশনের জন্য উচ্চতর পয়েন্ট বরাদ্দ করতে হবে। প্রতিক্রিয়া কলামটি আপনার প্রতিষ্ঠানের স্কোর এবং বর্তমান রেটিং হিসেবে লেবেল করা হয়েছে।		
১৭. প্রতিষ্ঠানের নিয়ন্ত্রনকারীবৈশিষ্ট্য		প্রতিক্রিয়া
ক)	আমার প্রতিষ্ঠান একটি ব্যক্তিগত জায়গা এবং সবাই একটি বর্ধিত পরিবারের মত অনেক কিছু শেয়ার করতে পারে।	
খ)	আমার সংস্থা খুব গতিশীল উদ্যোক্তা স্থান এবং কেউ ঝুঁকি নিতে চায় না ।	
গ)	আমার সংস্থা ফলাফল, প্রতিযোগিতা এবং অর্জন ভিত্তিক এবং প্রধান উদ্বেগ কাজ সম্পন্ন করা হয়।	
ঘ)	আমার সংস্থা খুব কাঠামোগত এবং নিয়ন্ত্রিতস্থান এবং আনুষ্ঠানিক পদ্ধতি কঠোরভাবে অনুসরণ করা হয়।	
	সর্বমোট	১০০
১৮.	**প্রতিষ্ঠানের নেতৃত্বদানকারী বৈশিষ্ট্য**	প্রতিক্রিয়া
ক)	সুবিধা, উপদেশ এবং বিভিন্ন প্রকার সুযোগ প্রদান আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য ।	
খ)	উদ্ভাবন বা ঝুঁকি গ্রহণ এবং উদ্যোক্তা আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য ।	
গ)	আক্রমণাত্মক এবং ফলাফল ভিত্তিক ফোকাস আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য ।	
ঘ)	সংগঠিত, সমন্বয় এবং মসৃণ চলমান দক্ষতা আমার সাংগঠনিক নেতৃত্বের প্রধান বৈশিষ্ট্য ।	
১৯.	**কর্মী ব্যবস্থাপনা**	প্রতিক্রিয়া
ক)	দলগত কাজ, অংশগ্রহণ এবং ঐকমত্য আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
খ)	অনন্যতা, ব্যক্তিগত ঝুঁকি গ্রহণ, স্বাধীনতা এবং উদ্ভাবন আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
গ)	উচ্চচাহিদা এবংঅর্জন এবং কঠিন প্রতিযোগিতা আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
ঘ)	সামঞ্জস্য, কর্মসংস্থানের নিরাপত্তা, সম্পর্কের স্থিতিশীলতা এবং কর্মপরিকল্পনা আমার সংস্থার ব্যবস্থাপনা শৈলীর প্রধান বৈশিষ্ট্য ।	
	সর্বমোট	১০০
২০.	**প্রতিষ্ঠানের প্রতি আনুগত্য**	প্রতিক্রিয়া
ক)	আনুগত্য এবং পারস্পরিক বিশ্বাস আমাদের প্রধান সংযোগকারী যা সংস্থাকে এক সাথে ধরে রাখে।	
খ)	উদ্ভাবন এবং উন্নয়নের প্রতি অঙ্গীকার আমাদের প্রধান সংযোগকারী যা সংস্থাটিকে একসাথে ধরে রাখে।	
গ)	অর্জন এবং আদায় আমাদের প্রধান সংযোগকারী যা সংস্থাকে একসাথে ধরে রাখে।	
ঘ)	আনুষ্ঠানিক নিয়ম এবংনীতি আমাদের প্রধান সংযোগকারী যা সংস্থাকে একসাথে ধরে রাখে।	
	সর্বমোট	১০০
২১.	**কৌশলগত প্রাধান্যকারী বৈশিষ্ট্য**	প্রতিক্রিয়া
ক)	অংশগ্রহণস্থায়ী, উচ্চবিশ্বাস, মানব উন্নয়ন এবং উন্মুক্ততা আমার সংস্থার প্রধান বৈশিষ্ট্য।	
খ)	নতুন চ্যালেঞ্জ তৈরি করা এবং নতুন সম্পদ অর্জন আমার সংস্থার প্রধান বৈশিষ্ট্য।	
গ)	লক্ষ্য অর্জন, প্রতিযোগিতামূলক কর্ম এবং অর্জন এবং মার্কেট প্লেসের বৈশিষ্ট্য ভাল অবস্থান তৈরী আমার সংস্থার প্রধান বৈশিষ্ট্য।	
ঘ)	দক্ষতা, নিয়ন্ত্রণ, কর্মক্ষমতা এবং স্থিতিশীলতা আমার সংস্থার প্রধান বৈশিষ্ট্য।	

	সর্বমোট	১০০
২২.	**সাফল্যের মাপকাঠি**	প্রতিক্রিয়া
ক)	মানুষের জন্য উদ্বেগ, কর্মীদের অঙ্গীকার, দলগত কাজ এবং মানব সম্পদের উন্নয়ন প্রাতিষ্ঠানিক সাফল্যের মূল বিষয়।	
খ)	সবচেয়ে অনন্য এবং নতুনতম পণ্য প্রাতিষ্ঠানিক সাফল্যের মূল বিষয়।	
গ)	প্রতিযোগিতা অতিক্রম, মার্কেট প্লেস এবং প্রতিযোগিতা মূলক বাজার নেতৃত্ব দান সাংগঠনিক সাফল্যের মূল বিষয়।	
ঘ)	কম খরচের উৎপাদন, মসৃণ সময়সূচী, দক্ষতা এবং নির্ভরযোগ্য সরবরাহ সাংগঠনিক সাফল্যের ভিত্তি।	
	সর্বমোট	১০০

গুরুত্বপূর্ণ সময় প্রদানের জন্য আপনাকে অশেষ ধন্যবাদ

পরিশিষ্ট – গ

বাংলাদেশ সরকারের প্রতিনিধিবৃন্দের জন্য প্রণিত ইন্টারভিউ প্রশ্নমালা

ইন্টারভিউ এর ব্যাপ্তিকাল		বাংলাদেশ সরকারের সম্মানিত প্রতিনিধি
সাধারণ প্রশ্ন		
দয়া করে আপনার পজিশন এবং এ পজিশনে আপনার সময়কাল জানাবেন।		
আপনার শিক্ষাগত যোগ্যতা জানালে বাধিত হব।		
আপনার বয়স		
গবেষণা সংক্রান্ত মূল প্রশ্ন		
১.	ছোট ও মাঝারি প্রতিষ্ঠানের ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ ও ব্যবস্থা সম্পর্কে আপনার মতামত জানতে চাই?	
২.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ সম্পর্কে আপনার পরামর্শ কি?	
৩.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে বাংলাদেশ সরকারের কোন নীতিমালা আছে কি?	
৪.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে বাংলাদেশ সরকারের কোন পরিকল্পনা আছে কি?	
৫.	যদি বাংলাদেশ সরকারের কোন পরিকল্পনা থাকে, তবে তা কিভাবে ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে সহায়ক হবে বলে আপনি মনে করেন?	
৬.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে উৎসাহিত করার জন্য কোন ট্রেইনিং ব্যবস্থা আছে কি, থাকলে দয়া করে তা জানালে বাধিত হব।	
৭.	আপনি কি মনে করেন প্রচলিত/গৃহিত পরিকল্পনা এবং উদ্যোগ ছোট ও মাঝারি	

	প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে উৎসাহিত করবে?	
৮.	অনেক সময় উচ্চ মূল্য ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে বাধা হয়ে দাড়ায়; বাংলাদেশ সরকারের এমন কোন নীতিমালা আছে কি যা ছোট ও মাঝারি প্রতিষ্ঠানগুলোর জন্য তথ্যপ্রযুক্তি গ্রহণে অর্থনৈতিক সহায়তা প্রদান করে?	
৯.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর জন্য বাংলাদেশ সরকারের এমন কোন নীতিমালা আছে কি যা তাদের তথ্যপ্রযুক্তি গ্রহণে সহায়ক হবে?	
১০.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর তথ্যপ্রযুক্তি গ্রহণে কে বা কারা সবচেয়ে বেশী ভূমিকা রাখতে পারে বলে আপনি মনে করেন?	
১১.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর তথ্যপ্রযুক্তি গ্রহণে আপনার আরো কোনো মতামত থাকলে দয়া করে জানাবেন।	

গুরুত্বপূর্ণ সময় প্রদানের জন্য আপনাকে অশেষ ধন্যবাদ

পরিশিষ্ট – ঘ

বাংলাদেশের বিভিন্ন ব্যাংকের প্রতিনিধিবৃন্দের জন্য প্রণিত ইন্টারভিউ প্রশ্নমালা

ইন্টারভিউ এর ব্যাপ্তিকাল		ব্যাংকের নাম
সাধারণ প্রশ্ন		
দয়া করে আপনার পজিশন এবং এ পজিশনে আপনার সময়কাল জানাবেন।		
আপনার শিক্ষাগত যোগ্যতা জানালে বাধিত হব।		
আপনার বয়স		
গবেষণা সংক্রান্ত মূল প্রশ্ন		
১.	ছোট ও মাঝারি প্রতিষ্ঠানের ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ ও ব্যবস্থা সম্পর্কে আপনার মতামত জানতে চাই?	
২.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর তথ্যপ্রযুক্তি গ্রহণে পরামর্শদানে কোনো বিশেষ কারণ আছে কি?	
৩.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর তথ্যপ্রযুক্তি গ্রহণে কে বা কারা সবচেয়ে বেশী ভূমিকা রাখতে পারে বলে আপনি মনে করেন?	
৪.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে বাংলাদেশ সরকারের ভূমিকা সম্পর্কে আপনার মতামত কি?	
৫.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণে উৎসাহিত করনে আপনার ব্যাংকের কোন পরিকল্পনা আছে কি?	
৬.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ বৃদ্ধিতে আপনার ব্যাংকের কোনো নীতিমালা আছে কি?	
৭.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি গ্রহণ বৃদ্ধিতে আপনার ব্যাংকের নিজস্ব কোনো প্রোগ্রাম বা সার্পোট	

	ব্যবস্থা থাকলে তা দয়া করে জানাবেন।	
৮.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থা কিভাবে চলমান সাধারণ যোগাযোগ ব্যবস্থার চেয়ে শ্রেয় বলে আপনি মনে করেন?	
৯.	ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবস্থার জন্য ছোট ও মাঝারি প্রতিষ্ঠানগুলোতে ব্যবহৃত হার্ডওয়ার ও সফটওয়ার কতটুকু ব্যবহারযোগ্য বলে আপনি মনে করেন?	
১০.	আপনি কি মনে করেন ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের জন্য কোন বিশেষ ট্রেইনিং প্রয়োজন?	
১১.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোতে সীমিত প্রযুক্তিজ্ঞান বিষয়ে আপনার অভিমত কি?	
১২.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোতে ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহারের জন্য আপনার ব্যাংক কি কোন যন্ত্রাংশ সরবরাহ করে?	
১৩.	বর্তমান ব্যবস্থায় ছোট ও মাঝারি প্রতিষ্ঠানগুলোতে ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহার বৃদ্ধি কিভাবে জনপ্রিয় করা যায়?	
১৪.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোতে ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহার বৃদ্ধি এবং মূল্যহ্রাসে আপনার ব্যাংকের কোনো পরিকল্পনা আছে কি?	
১৫.	আনুমানিক কত সংখ্যক ছোট ও মাঝারি প্রতিষ্ঠানগুলো আপনাদের ব্যাংকের ইলেকট্রনিক্স যোগাযোগ প্রযুক্তি ব্যবহার করছে?	
১৬.	ছোট ও মাঝারি প্রতিষ্ঠানগুলোর তথ্যপ্রযুক্তি গ্রহণে আপনার আরো কোনো মতামত থাকলে দয়া করে জানাবেন।	

গুরুত্বপূর্ণ সময় প্রদানের জন্য আপনাকে অশেষ ধন্যবাদ

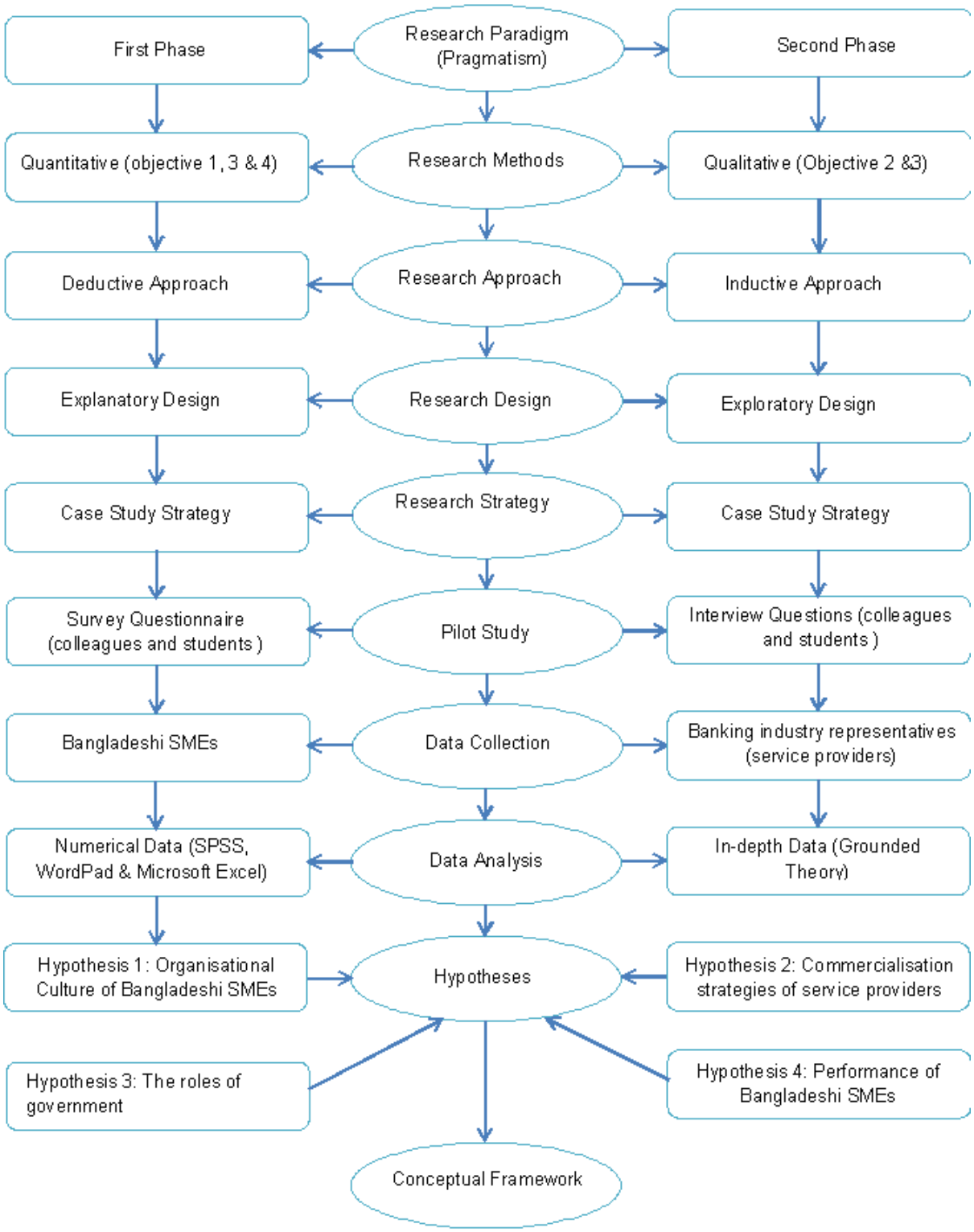
Appendix F: Chi-Squared Table

In order to test the significance of the statistical date (Survey data) Chi square table would be followed and it has been presented below:

Degrees of Freedom	Probability										
	0.95	0.90	0.80	0.70	0.50	0.30	0.20	0.10	0.05	0.01	0.001
1	0.004	0.02	0.06	0.15	0.46	1.07	1.64	2.71	3.84	6.64	10.83
2	0.10	0.21	0.45	0.71	1.39	2.41	3.22	4.60	5.99	9.21	13.82
3	0.35	0.58	1.01	1.42	2.37	3.66	4.64	6.25	7.82	11.34	16.27
4	0.71	1.06	1.65	2.20	3.36	4.88	5.99	7.78	9.49	13.28	18.47
5	1.14	1.61	2.34	3.00	4.35	6.06	7.29	9.24	11.07	15.09	20.52
6	1.63	2.20	3.07	3.83	5.35	7.23	8.56	10.64	12.59	16.81	22.46
7	2.17	2.83	3.82	4.67	6.35	8.38	9.80	12.02	14.07	18.48	24.32
8	2.73	3.49	4.59	5.53	7.34	9.52	11.03	13.36	15.51	20.09	26.12
9	3.32	4.17	5.38	6.39	8.34	10.66	12.24	14.68	16.92	21.67	27.88
10	3.94	4.86	6.18	7.27	9.34	11.78	13.44	15.99	18.31	23.21	29.59
	Nonsignificant								Significant		

Source: Adapted from (Mathew, 2013)

Appendix G: Research Methodology Diagram



Appendix H: Findings from the Banking Industry Representatives

Table 5.4: Findings for interview question 1

Question 1: Would you kindly say your opinion related to e-communication facilities for small and medium enterprises?	
Bank A	E-communication is one of the demanding issues for any business to operate efficiently. For SMEs e-communication facilities such as e-mail communication or money transferring can help to avoid unnecessary expenses.
Bank B	Small and medium businesses can adapt e-communication facilities to contact with their customers and with suppliers. They can save money when contacting customers via e-communication facilities.
Bank C	E-communication facilities can help SME's in different ways including informing customers quickly and cheaply but most of the SMEs are not interested to go for these facilities because of technology concern.
Bank D	Our bank has been providing some services related to technology and it can help SMEs to sell their products and collect payment from any part of the country which can save money.
Bank E	SMEs could be beneficial by adapting e-communication facilities in their business activates but most of them are not aware of it and they are interested in communicating traditionally instead of implementing something new.
Bank F	Most of the SMEs are more commonly concentrated on the traditional communication system though recently many of them are using various techniques to transfer their money but due to security and high costs they are interested to the traditional process.
Bank G	Though communication facilities have been increasing day by day, e-communication facility among Bangladeshi SMEs is still a new idea and it can take time to spread but some of the SMEs are using internet facilities to contact suppliers and customers.
Bank H	Our bank is one of the most renowned banks that, holds interactions with SMEs, and we are trying to provide some facilities related to e-

	communication for our clients. However, most of the SMEs are unaware of the benefits of the internet facilities.
Bank I	As the central bank of the Bangladesh, we have been encouraging other banks to implement contemporary technological innovation in the banking industry. Our bank has also been guiding all types of clients including SMEs on using the e-communication facilities. Some recommendations for SMEs have also been made for other banks in the context of the technological supports.
Bank J	Small and medium firms could benefit from different perspectives when using e-communication facilities. For example, they can transfer their money to their suppliers within few moments using current technology. This can help them to save money and time and it can also ensure safety as well. As the first private sector bank in this country, it has been providing some additional facilities for SMEs in the context of the technological contributions.
Bank K	We have already introduced online banking facilities for our clients. All types of our customers are enjoying various technological features including checking balances and transferring balance to others securely. It is one of the most renowned banks who have been offering e-communication options for our valued customers to improve their banking operations.
Bank L	We are providing various e-communication facilities for our customers. Customers could be benefited by adopting e-communication facilities. They can now check their accounts and transfer balance very easily using the contribution of the e-communication. Instead of visiting the bank branch, SMEs can pay bill by using online services which can save their time and overall operational performance.
Bank M	We are very concerned for our customers and for better services and securities. SMEs have also been taken care of by the facilitating e-communication facilities. SMEs could be benefited in different ways by adopting our internet facilities.
Bank N	Our bank has been providing online banking facilities for our customers for a long time. Online banking facilities have been saving money to transfer

	money and to pay various bills online. Online shopping facilities have also been included in our e-communication facilities.
Bank O	We are offering online banking facilities for our large number of customers. E-communication facilities can help our customers to transfer money to others and also to suppliers. Contribution of e-communication can help to improve the business operations of the SMEs.
Bank P	Our bank has been providing various technological facilities for our customers. We are very closely working with small and medium firms and ensuring various technologies options. Our technological facilities have always been working efficiently and we are encouraging our customers to adopt e-communication facilities to transfer money as well as, communicate with banks and other suppliers.
Bank Q	As a private sector bank, we are offering special services to our customers including SMEs. We are mainly operating our services in most big cities and our SMEs in the urban areas are using online facilities to transfer balance to suppliers and others. However, the rate of e-communication adoption should be increased.
Bank R	We always care our customer very efficiently by offering new facilities including internet communication options. Our online facilities are helping customers to transfer money from one account to another. We are specially offering our SMEs who have contributing much to our society.
Bank S	Some of our SMEs are using our online facilities, but the rate of using online facilities is not high. If infrastructure could be developed and more awareness could be increased, then SMEs could be influenced to adopt technological communication facilities.
Bank T	Technology plays an important role in the business activities, but large portion of the SMEs are deprived from these facilities due to various reasons including lack of technological knowledge, unavailable facilities and security concern.
Bank U	The world has been advancing due to e-communication, but Bangladeshi SMEs still prefer traditional communication. However, some of the SMEs are selling their products using online facilities and it's a good sign to spread the facilities. Moreover, our bank has been providing several

	facilities to increase the online facilities. On the other hand, many of the SMEs are deprived from the e-communication facilities because of their security concern, lack of technological knowledge and appropriate service availability.
Bank V	We are trying to provide various training facilities among SMEs particularly among agro- SMEs to use technological facilities in their business activities. However, the rate of attaining training is low and they are much more interested on the traditional procedures for communication.

Table 5.5: Findings for interview question 2

Question 2: Is there any specific reason for recommending e-communication facilities for SMEs?	
Bank A	Our online banking facilities could be used from any computer and from other electronic gadgets, which are connected to the internet. No additional hardware or software is required. We also provide online pay machines for our SMEs when taking payment from customers.
Bank B	Existing systems could be used for adopting e-communication facilities from our bank.
Bank C	No additional equipment is required for online banking except internet facilities for accessing our digital services.
Bank D	Our current digital banking can be used from any existing computer and other electronic gadgets if internet connection is available. No extra equipment is required for our e-communication services.
Bank E	E-communication facility is very compatible with existing hardware and software without adding any extra devices. Only internet connection is required for e-communication facilities.
Bank F	For using the digital banking services, customers don't need to anything in their device except internet connection. However, for business customers, pay terminal might be required for taking card payment.
Bank G	Only internet connection is required for using the digital banking facilities. However, if a card payment system is operated then some additional devices are offered by our bank with the supports of our agencies.

Bank H	For our online facilities no additional equipment is required. Existing electronic gadgets or computers could be used for this service.
Bank I	Most of the banks have been providing technological support for the business customers and they are using various tools and technologies which are compatible with the existing hardware and software. However, an internet connection is required to access these facilities. Some of the banks have been providing devices for card payment and online banking facilities.
Bank J	SMEs could be benefited from the e-communication services by reducing money transferring costs. It can also help them to collect money securely from customers using their pay point terminal.
Bank K	E-communication facilities can help SMEs to save money transferring fees because for traditional money transfer, costs are higher than the digital banking. Moreover, they can access the bank at all time. These are the main reasons for recommending e-communication for SMEs.
Bank L	There are many reasons for recommending the e-communication for SMEs and one of them is easy access and connection to the bank all the time. Moreover, transactions could be done at any time.
Bank M	E-communication facilities can help SMEs to contact the bank and other respondents quickly. They can also transfer money to any account which is quick and free of charge. Because of these reasons, e-communication could be beneficial for SMEs.
Bank N	Using the e-communication facilities SMEs can be benefited from different perspectives such as they can avoid cash handling, they can pay any bill online and they can contact the suppliers or other relevant respondents with the help of e-communication services which can help them improving their operational efficiencies.
Bank O	Because of fast, free, convenient and secured services, e-communication facilities could be helpful for SMEs. SMEs don't need to wait for the bank hour to access or transfer money due to this efficient service.
Bank P	The digital banking can help users to access their account at anytime from anywhere and account balances can be tracked. In addition, communication with different respondents could be easier because of the

	usage of the e-communication facilities.
Bank Q	E-communication can help SMEs to organise bill payment and it can also help to avoid various charges after checking accounts from anywhere. Suppliers and customers could be connected at all time because of the e-communication facilities.
Bank R	Easy access to bank account at any time and transferring money or paying bill are the main features of the digital banking which influence the SMEs to adopt this new technology in our country.
Bank S	Convenient and constant access of the digital banking services has been attracting many SMEs to adopt it. Moreover, contact with the bank, customers and suppliers could also be made by using the e-communication services.
Bank T	Currently, customers are connected to the bank very closely by our secured and convenient online banking services. SMEs can access their bank at any time for paying bill or transferring balance and to do these, they don't need any additional devices except internet connection.
Bank U	Convenience, mobility and secured are the main reasons behind the digital banking facilities. SMEs can access their bank account from anywhere at any time and they can securely transfer balance from one account to another.
Bank V	E-communication can help our customers to know the current status of their account, balance, bill payment details and they can be connected to our bank at any time.

Table 5.6: Findings for interview question 3

Question 3: Who are mainly responsible for e-communication facilities diffusion to SMEs?	
Bank A	There are many issues related to the adoption of e-communication facilities among SMEs including the types of business, willingness of the SMEs and the awareness of current technological innovation.
Bank B	As the banking industry, we are the most important respondents to increase the e-communication facilities. However, SMEs and government authorities are responsible for the e-communication diffusion to SMEs.

Bank C	The banking industry and the SMEs themselves are the main drivers for the diffusion of e-communication.
Bank D	Bangladesh government, bank industry and the SMEs of this country are responsible for the expansion of the e-communication facilities.
Bank E	For digital banking facilities, not only the bank, but also other respondents such as willingness of the users and securely issues are responsible.
Bank F	Not any single respondent is responsible but a group of respondents such as small and medium firms, service providers and government are responsible for the expansion of the digital banking services.
Bank G	Service providers such as banks, government and the SMEs are mainly responsible for the e-communication adoption.
Bank H	Many factors are involved in the adoption of e-communication facilities including the government and bank supports, providing training by local government or relevant authorities as well as, the organisational culture of the SMEs.
Bank I	In the adoption of e-communication technology we are supporting the SMEs through most of our banks. We are also taking steps and informing the government authorities for developing the required infrastructure for the technological development. SMEs should also be interested in adopting new technology to help in developing their business operations. Local government authorities can influence the SMEs to adopt digital facilities.
Bank J	Willingness of the SMEs, government support's and bank industries services are mainly responsible for e-communication diffusion to SMEs of the Bangladeshi SMEs.
Bank K	Diffusion of e-communication could be easier if the SMEs are aware of the contemporary services provided by banks. Moreover, bank industry can assure the security issues and convenient pricing for SMEs.
Bank L	We banks and the SMEs are the main respondents for adopting e-communication facilities. If a bank provide service with affordable prices and ensure security issues, then the adoption rate could be increased.
Bank M	SMEs' organisational culture and the Bank are the main respondents for the diffusion of the e-communication facilities in this country.
Bank	Government, banks and SMEs are the main factors for the diffusion of the

N	e-communication because if the government encourage SMEs, banks provide services and SMEs get benefits then it could be expanded.
Bank O	Business types, education level, willingness of the adoption of new technology, technical skills of the SMEs and service cost, support of the bank are mainly responsible for the diffusion of the e-communication services.
Bank P	Bank services and SMEs' willingness are the main factors, which can help to increase the rate of e-communication adoption.
Bank Q	Organisational culture of the SMEs supports from the bank and available technical skills are the main components related to the diffusion of the e-communication services.
Bank R	Cost of the e-communication services, convenience and feasibility are important issues from the SMEs context to increase the adoption of the e-communication facilities. Banking industry strategy related to affordable cost and better services are also important factors for the diffusion of the e-communication facilities.
Bank S	Traditional organisational culture, willingness of the SMEs and various strategies of the bank are the main components for the adoption of the e-communication facilities in Bangladesh.
Bank T	The banks**,** SMEs' attitudes and the government are the main respondents for the adoption of the e-communication by SMEs. If banks provide services and government take initiatives for the external security issues by building required infrastructure, then SMEs would be more encouraged to adopt e-communication services to improve their business operations.
Bank U	Most of the SMEs are run by family members and they are used to the traditional banking services for long time. Cost of services and security issues are also important factors in the case of the e-communication diffusion.
Bank V	Most of the SMEs prefer the traditional bank services and they are concerned about the price and security issues for adopting new technology in their banking services. Some of the SMEs are also concern about the usage of the internet due to the lack of technical and educational skills.

Table 5.7: Findings for interview question 4

Question 4: What about your opinion in regards to government policies for e-communication diffusion among SMEs?	
Bank A	We are following government policies to increase digital banking facilities. We have our own mission to increase e-communication options for small and medium types firms.
Bank B	The government of Bangladesh has been trying to increase the digital faculties in the countries in different sectors and the banking industry is not behind it. Current government regulations might help to increase the e-communication diffusion among SMEs.
Bank C	The central bank and the current government of Bangladesh have been encouraging us to implement digital communication facilities in the banking sector. Current government policy and guidance can help us to extend our online banking facilities if they can ensure secure technological infrastructure related to them.
Bank D	Bangladesh government has been trying to develop the technological infrastructure to ensure various facilities for all. It can be helpful for SMEs as well to adopt digital communication facilities.
Bank E	The current government is trying to establish a technological infrastructure to support all types of internet users. They are also imposing some policies for bank to facilitate services for small and medium firms.
Bank F	Our current government has been trying to digitalise services in every industry including SMEs and the central bank is also imposing some regulations beneficial for SMEs. The current government policy can help to extend digital services more efficiently than before.
Bank G	The current government of Bangladesh is trying to introduce and implement technology in all the fields, including banking sector. It can help SMEs to adopt e-communication facilities positively.
Bank H	Government support is very important in the diffusion of the new technologies and the current government is trying to do it from different perspectives, aiming to ensure e-communication facilities for all the bank customers.

Bank I	Huge investments have been predicted by this current government for developing technological infrastructure. The ICT ministry of Bangladesh has been working to familiarise the digital facilities in most of the public sectors. To encourage people, they are taking steps from the root level of the local government system. Almost all the Union council has come under internet and digital facilities.
Bank J	The government of Bangladesh has been encouraging all types of business organisations to use technological supports and this approach could be helpful for increasing digital banking services for small and medium firms.
Bank K	The Bangladesh government is encouraging every sector for the adoption of the e-communication services which could be helpful for increasing the rate of e-communication adoption.
Bank L	Government policies can encourage the adoption of the e-communication services. However, some training facilities and setting up cost (compensation) can encourage more SMEs to adopt digital services.
Bank M	The current government is trying to implement digital services in all the sectors by investing huge amount of money, and it could be really encouraging for SMEs to follow. However, some additional activities such as training facilities and compensate the setting cost can influence more SMEs to adopt e-communication facilities.
Bank N	Government policies with some subsidies for the SMEs can help to increase the rate of e-communication facilities. In the government policy, some issues such as training options should be included for the registered SMEs.
Bank O	Technology adoption could be increased if the government policies could be implemented following their training programmes and infrastructure. If these could be followed, then the rate of e-communication adoption could be increased in a satisfactory rate.
Bank P	Current government policies related to pricing and training facilities can help to increase the rate of e-communication adoption by SMEs. However, the government should implement these policies by their relevant authorities.

Bank Q	Government policies related to the technology adoption could be supportive when increasing the rate of e-communication adoption.
Bank R	Following the government policy, our bank has been trying to increase the rate of digital banking adoption and the adoption rate has been currently increasing.
Bank S	We are following the government policies for increasing the rate of e-communication adoption and it has been increasing day by day. Now today, many of our SMEs have already adopted e-communication services.
Bank T	Government policies can help banking industry to follow the digital services and to deliver the service to the users including SMEs. The current government of Bangladesh has been trying to extend the technological services in all the fields which could be positive for increasing the rate of e-communication adoption.
Bank U	Policies related to the technology adoption have been influencing many industries to go for digital services and we are not far from that as well. The new regulations related to the use of the technology can help SMEs to use digital services and can also protect from misuse of the services.
Bank V	The current government has been emphasising on the digital issues everywhere including the banking industry. This policy helps our SMEs to adopt e-communication services. However, government should take more initiatives in the digital security issues.

Table 5.8: Findings for interview question 5

Question 5: Is there any plan or policy in your bank for ensuring e-communication facilities to SMEs?	
Bank A	We are trying to increase our online banking facilities for all the customers including SMEs. Currently, we are following the guidance of the central bank to increase e-communication facilities for SMEs.
Bank B	We have very efficient policies for our customers to ensure secured online banking facilities. We also have a policy for the small and medium firms regarding online banking facilities and affordable service costs.
Bank	Our bank has a specific policy to increase the digital banking facilities for

C	all.
Bank D	We are very aware of our small and medium firms and we have a specific policy to provide digital banking facilities for them with affordable service cost.
Bank E	Our target is to ensure high quality digital services for all our valued customers with reasonable costs where applicable. We are also trying to support SMEs by offering additional facilities like setting up pay point for online purchasing.
Bank F	We have taken initiatives to ensure digital banking services for all our business clients by offering required services. We are also planning to create our own infrastructure for digital banking services. To influence different types of users and increase the awareness of online facilities with regards to pricing and security, we have a long-term plan in place.
Bank G	We are continuously improving our services and supporting our customers using technological services, which is one of our foremost targets. Our current policy will help large numbers of customers to enjoy online banking facilities securely. Our newly offered services will add very little extra cost with the existing services. We have kept all types of users in mind to increase this little bit charge.
Bank H	As one of the most renowned banks, we are operating in almost all the areas of the country. We have already introduced e-communication facilities for our large number of customers. We have plans to ensure e-communication facilities for all business customers.
Bank I	The Bangladesh Bank has been working to develop the SMEs sector in the country through both public and private banking industries. We also have the SME bank which has been supporting small and medium firms directly. We have the research centre which has been analysing various contemporary issues related to the SMEs.
Bank J	As the first private bank in Bangladesh we are providing various services for our customers. We have been providing online banking services for all types of customers and card payment systems for our business customers.
Bank K	We are working in both, the urban and rural areas and considering various SMEs in the rural areas, we have plan to reduce the service cost in order to

	increase the rate of e-communication services.
Bank L	For increasing the rate of e-communication adoption, we are offering short training facilities as well as, providing some additional services without adding any fee. We have plans to extend the service all over the country for all types of customers. We are planning to increase our services nationwide considering our different types of online users.
Bank M	In the context of the online service, we always encourage our customers. For SMEs, we offer different types of services under our SME banking. We have plans to extend the service for all with affordable cost. We are continuously informing our clients through different media with regards to the vast facilities of the online banking services which can save time and money as well as it can improve their service.
Bank N	We are very aware of the online banking services for all our customers. We have been providing online banking services for our customers and trying to improve the service continuously. For SME we provide services under SME banking. We also provide pay point gateway service for our business customers with very affordable service charges which help them to enhance their operational performance.
Bank O	Extension of online banking for all types of our customers is one our main targets in the context of the e-communication services. Many of our customers are already using the service and many of them are in the pipeline. We are continuously improving our online services.
Bank P	We are offering various online services over a long period of time for our customers including SMEs. We are also providing pay point gateway and SMS banking services for SMEs. We are continuously improving our services considering contemporary demands.
Bank Q	In order to provide better digital service as well as extend it as country wide we are working with our partner companies. One of the main targets of the current plan is to enhance and extend online banking services for all types of customers including SMEs.
Bank R	We offer special services for small and medium firms under our SME banking. We are working very closely with the SMEs and have plans to extend digital services for them without any additional fee.

Bank S	As part of e-communication services, we provide online banking facilities for our valued customers. We also provide services for small and medium organisation through our SME banking.
Bank T	We are continuously improving our services as part of our development plans and we have already started online services for our personal and business customers. We also provide special services for small and medium firm under out SME banking service.
Bank U	Our online banking facilities are available for all and we provide special service for our small and medium business customers. We provide pay point gateway as part of the financial transaction using debit and credit cards.
Bank V	Customers are our priority and for small and medium business, we offer SME banking facilities. We are also offering online banking facilities for all our business customers.

Table 5.9: Findings for interview question 6

Question 6: Is there any strategy in your bank for the widespread of e-communication facilities among SMEs?	
Bank A	Our current strategy is strongly related to contemporary services for all our clients. Moreover, we have plans to launch new services for our large number of SMEs.
Bank B	We are encouraging our SMEs and we also have some strategies for improving online facilities for them.
Bank C	Our bank policy has been encouraging small and medium firms to adopt digital banking options in both money transfer and communicating with our banking services. Currently, we are charging a little yearly fee and additional fee for payment gate-way but it would be reduced in near future.
Bank D	We are trying to provide various digital services with very little charges and some of the services are free of cost.
Bank E	We have been planning to provide digital banking facilities for all our business customers.
Bank F	We have a long-term strategy for ensuring high quality digital services for

	our all types customers including SMEs.
Bank G	Our current strategy is to ensure better digital facilities for all types of customers including SMEs.
Bank H	We are currently working on the development of the digital banking system for our large number of customers. We are also working to keep record of the SMEs banking activities digitally so that, decisions related to loans could be made based on the information.
Bank I	We are working with all the banks within the country. We are currently, advising all the banks to use digital communication facilities in all the banking activities. We are also advising all the banks to increase the digital facilities for the small and medium firms.
Bank J	For supporting small and medium organisations, we are offering pay point terminals for card payment facilities which can help them to avoid unnecessary hassles to deposit money in person in the bank branch.
Bank K	Our future pricing strategy for the rural SMEs can help to increase the rate of e-communications services than ever before.
Bank L	To keep and continue our short training services for SMEs as well as keep prices affordable, we can help to increase the rate of e-communication facility.
Bank M	We have been trying to extend our special services for SMEs without any extra fee. Moreover, we have plans to provide short training facility which can help them to adopt e-communication services. Moreover, we have plans to provide a short training facility which can help SMEs to adopt e-communication services. As there is a large number of SMEs in the country, the government support can help us to run it efficiently.
Bank N	For SMEs we have plans to provide additional services without any extra fee which might be helpful to increase the rate of e-communication adoption.
Bank O	We are very aware of the current demand and contemporary issues in the digital banking services and considering these, we moderate our strategy where customers, price and services are importantly considered to extend the online facilities.
Bank	We are trying to keep our price affordable and always trying to extend

P	services considering current demands.
Bank Q	Our future strategy is to extend online service countrywide and to keep prices affordable for SMEs, which might be helpful to increase the online banking service users. Moreover, small firms are concerned about membership fees and if government provide them extra support, they could be influenced to adopt new e-communication facilities.
Bank R	We are supporting our online customers by adding various additional features without any additional fee and it can help to increase the digital banking adoption rate.
Bank S	So far, our affordable pricing strategy has created a good impact on the customers related to online services. Moreover, we are trying to increase our services without adding any additional fee which can help to increase the rate of e-communication adoption. However, support from the government can help the SMEs to be attracted more towards e-communication services.
Bank T	Our convenience and cost-effective future strategy can help SMEs to adopt the e-communication services.
Bank U	We have plans to spread the service all over the country for all of our customers. Without any additional fee, we are trying provide additional services for our SMEs.
Bank V	Yes, we have some strategies related to the extension of the online services. We are currently providing services for business customers and we have plans to extend the special service for small and medium firms.

Table 5.10: Findings for interview question 7

Question 7: Do you have any program to support particularly SMEs for encouraging them to adopt e-communication facilities?	
Bank A	We have different types of facilities such as support department for all types of customers. We also offer some additional facilities for SMEs. However, in the context of e-communication facilities, we have no certain programme only for SMEs.
Bank	We provide training facilities through our support team for our customers

B	due to online services. We also provide training facilities for card payment facilities.
Bank C	Short training facilities for all types of customers are available in our bank.
Bank D	To offer training facility to our customers regarding digital banking is one of the most efficient supports for our customers to access internet banking.
Bank E	Training to our business customers and providing digital devices are the main contributions for our business customers.
Bank F	Short term training is the main support for our business customers to use the digital banking services.
Bank G	We are supporting our customers by providing the best quality services both in person also via telephone services.
Bank H	We always care our customers very carefully by our support team and provide training facilities if required for accessing our services.
Bank I	All the banks throughout the country have been providing required support for the SMEs following the guidance of the Bangladesh Bank.
Bank J	Supporting all types of customers by existing services is our service motto. We are offering training facilities of digital banking for supporting business firms and we have also telephone services for all types of users.
Bank K	We are directly providing online support for our personal and business customers. Especially we are showing the usage of the card payment system for our business customers with the help of our support team.
Bank L	Our online supportive team always provide support for the digital services.
Bank M	Yes, we provide instant support for the business customers related to the online activities.
Bank N	We are very aware of our customer's demand in both traditional and digital banking services. Our expert team provide supports for online banking and pay point service.
Bank O	Our online support team provides the required support for all type's customers including business customers.
Bank P	Our highly expert team members deal with different types of customers including SMEs with technical issues especially for the digital banking, SMS banking and pay point gateway services. This team also provides

	training support for business customers if required.
Bank Q	We have a technical supportive team who provide supports for our customers related to online and SMS banking facilities.
Bank R	Yes, we generally show the accessing procedure of the digital banking services for our customers.
Bank S	We do have some expert staff members who deal the limited technical skill customers for showing our digital services.
Bank T	Customers are our priority and because of this, we show our online services to customers.
Bank U	We do support our customers by showing the online banking account accessing procedures.
Bank V	We have various training facilities for our customers and recently we are providing short time training support for our small and medium firms.

Table 5.11: Findings for interview question 8

Question 8: In what way/s is e-communication better than traditional communication system?	
Bank A	E-communication systems are faster than the traditional system and it can help to save money for transferring balance and it can also help to be connected to the bank at all time.
Bank B	Using the traditional banking means more time is required when transferring cash and other activities. However, online banking can help to save money when transfer money to suppliers or others.
Bank C	Prompt services and money saving are the main two more facilities available in the digital banking comparing with traditional banking option.
Bank D	It can dispatch money from one account to another within moments; it can help transferring money freely and securely. It can also be accessed at any time which is not possible in the traditional banking.
Bank E	Customers can connect to the bank all the time for transferring money and for paying bills. Banking connectivity is the main feature of the digital banking.
Bank F	Faster and regular banking facilities are the main contributions of the digital

	banking services.
Bank G	For record keeping, accessing the bank account frequently and transferring money reliably and without hassle, and cost are the main features of the digital banking, which are different than traditional banking in different contexts such as ensuring quality customer service and it can help improving their overall performance.
Bank H	Using the digital banking facility, users can access bank facilities twenty-four hours a day and seven days a week. Moreover, within short period of time, balance can be transferred to others.
Bank I	Record keeping, faster communication, reliability, being able to access and connected with bank at any time and communication with bank and other relevant respondents at any time are the main additional features of the digital banking system comparing with the traditional banking.
Bank J	In many cases, e-communication is better than traditional services. Some of the reasons are related to contacting bank, transferring money to others and accepting card payment from customers. Moreover, all-time banking facility is the most attractive feature.
Bank K	Many of our rural customers are interested in the traditional banking service, though digital banking service can help them to be connected to the bank at all time. The digital banking system can help customers to transfer money within moments and it is secure to use.
Bank L	Traditional communication systems in the bank are slower than the contemporary system. The current e-communication system can help SMEs to share information, contact with suppliers and banks and it is easily accessible and can help to increase service efficiency.
Bank M	E-communication systems can help to contact different respondents quickly and it can save time and money for the small and medium firms.
Bank N	In order to reserve information, communicate with others, transferring balance and maintaining communication with bank e-communication system is much better than the traditional service.
Bank O	For providing information updates quickly and more cost effectively, e-communication system is better than traditional communication system for small and medium firms.

Bank P	E-communication system for small and medium firms can be one of the best opportunities to communicate others quickly, reliably and cost effectively. Moreover, it can help to keep private information secured.
Bank Q	SMEs can contact others using the e-communication system and they can save money for transferring balance and updating organisational situation quickly and securely.
Bank R	Using the e-communication facilities, all the customers can transfer money very quickly from anywhere. Moreover, online facilities can help customers to transfer money securely. By using e-communication facility, our business customers can also offer quality service like by taking card payment which can reduce the risk of carrying cash and ultimately it can help SMEs to improve their operational activities.
Bank S	E-communication service is faster, convenient and cost effective than the traditional communication system in the context of the information sharing and keeping record efficiently for long period of time.
Bank T	E-communication systems can allow users to contact others within short period and it can help to improve the quality of service for small and medium firms.
Bank U	From different perspectives such as money saving, time saving and easy access, the contemporary e-communication system is better than the traditional communication system.
Bank V	E-communication systems are better than the traditional communication in the context of faster service, security and cost effectiveness for small and medium firms.

Table 5.12: Findings for interview question 9

Question 9: How compatible is e-communication facilities with existing hardware & software those SMEs already have?	
Bank A	Anyone can use our online banking facilities by using their computer and other electronic gadgets if those are connected to the internet. No additional hardware or software is required. Additionally, we provide card payment gateway for our SMEs.
Bank	Existing system could be used for adopting e-communication facilities from

B	our bank.
Bank C	No additional equipment is required for online banking except internet facilities for accessing our digital services.
Bank D	Our current digital banking can be used from any existing computer and other electronic gadgets if internet connection is available. No extra equipment is required for our e-communication services.
Bank E	E-communication facilities are very compatible with existing hardware and software without adding any extra devices. Only internet connection is required for e-communication facilities.
Bank F	When using the digital banking services, customers don't need to anything in their device except have access to internet connection. However, for business customers, pay terminal might be required for taking card payment.
Bank G	Only an internet connection is required when using digital banking facilities. However, if a card payment system is operated then, some additional devices are offered by our bank with the supports of our agencies.
Bank H	For our online facilities no additional equipment is required. Existing electronic gadgets or computer could be used for this service.
Bank I	Most of the banks have been providing technological support for the business customers and they are using various tools and technologies which are compatible with the existing hardware and software. However, an internet connection is required to access these facilities. Some of the banks have been providing devices for card payment and online banking facilities.
Bank J	Our digital banking service is compatible with ordinary computer services and no additional equipment is required to access it. However, for pay point, card reader and transaction terminals are required to be installed.
Bank K	The existing hardware and software could be used for accessing our digital banking services except internet connection.
Bank L	To be connected to the e-communication services provided by the banks, no additional hardware or software is required but an internet connection for both personal and business customers. However, if the firms want to set up card payment gateway, then they need to adopt some additional

	devices.
Bank M	E-communication services for SMEs could be compatible with the existing hardware and software but it can be more efficient if some additional hardware and software could be adopted for increasing security and faster data transfer.
Bank N	SMEs can use the e-communication services when using the existing hardware and software. However, to increase service efficiency and allow it to be more secured, some additional software and hardware could be helpful.
Bank O	Existing hardware and software can be used to adopt e-communication facilities by Bangladeshi SMEs. However, some security software and extended hardware can help to ensure security and quick services.
Bank P	For connecting with e-communication facilities, existing hardware and software could be compatible but some additional software and hardware can increase the service efficiency in the context of security and faster services.
Bank Q	E-communication services could be suitable with the existing hardware and software but the service could be faster and secured by the adoption of some additional services including antivirus software and random access memory.
Bank R	SMEs can use the existing hardware and software for adopting e-communication services. However, some additional devices and software can help to increase the efficiency of the services in the context of security and efficiency.
Bank S	Existing hardware and software could be used for adopting e-communication services, but some additional facilities can increase the efficiency of the service.
Bank T	E-communication services are compatible with the existing hardware and software. However, the services could be more efficient in the context of response time and safety if some additional equipment could be adopted.
Bank U	SMEs can use their existing hardware and software for the adoption of the e-communication services, but to setup pay point gateway they need to adopt additional hardware and software. In addition, they need to adopt

	some additional software to secure their system.
Bank V	Existing hardware and software in the computing system are compatible for e-communication services adopted by SMEs. However, their services could be faster and more secured by adopting some additional security system.

Table 5.13: Findings for interview question 10

Question 10: Do you think any special training is required for SMEs to use e-communication facilities?	
Bank A	For the online option, we generally introduce our customers during the process of opening the account. In addition to this, they can contact any branch to experience online facilities. We generally provide training facilities for the customers who use online and card payment methods in day to day business activities.
Bank B	We offer short training for using online facilities. Moreover, we always ensure short training for SMEs particularly for the card payment facilities.
Bank C	As many of the SMEs are not technologically competent, so short training can help them to encourage the facilities confidently.
Bank D	Special training for new customers, particularly who are not competent with using online services could be great support.
Bank E	We provide direct support for our customers to access internet banking for new users. Secondly, we provide training for our business customers in developing pay point and card payment services.
Bank F	Though it is not difficult, for new users we show different methods of using online banking services if they are interested. However, for business customers, we train to be competent in using the device for collecting money from customers.
Bank G	Training can help users to be more competent in using the digital services. Moreover, training can help to avoid unnecessary hassles.
Bank H	Our bank is aware of training facilities for all types of banks especially for business customers. We generally provide short training for accessing our online banking and card payment systems.
Bank I	Training for new concepts, new technology could be helpful for the SMEs as most of them might be from different background and they are also

	concerned about the technological issues. We advise all the banks to provide support the SMEs through various training and support activities.
Bank J	For SMEs, training opportunities can increase confidents when using the digital banking services. Considering this, we have short training option for our customers in the context of digital banking usage.
Bank K	We provide support for SMEs to use the online services for the first time. We also provide training for the business customers including SMEs for using the pay point gateway.
Bank L	Training facilities for SMEs can be one of the good options and the barriers should be known. SMEs have been leaning towards the idea for adopting e-communication services and it can also help them to be motivated towards new technological facilities available for them.
Bank M	SMEs could be influenced and motivated towards the adoption of the e-communication services, and existing barriers in the context of usability could also be reduced. Considering these issues, we have training support option for both personal and business clients.
Bank N	We have been providing training facilities for our clients for increasing the rate of digital banking services and this training has been formulated to make users familiar with the service. Moreover, it can help to motivate them towards newly invented electronic services in the day to day business activities to improve their existing services.
Bank O	Our training option for small and medium firms can help the users to be confident and familiar. It can also help to overcome existing organisational barriers when adopting new technological facilities.
Bank P	Training related to the technology adoption can help to influence and motivate SMEs and they can be familiar with the newly devised services to increase their performance. We have been providing training support that can be used with e-communication services in their banking activities.
Bank Q	Training option for SMEs can help them to be motivated towards the digital banking services which can help them to use their banking services at all time. During the training support, we try to help them for overcoming the concern of technology usages.
Bank	We have been emphasising on the concerning issues of the SMEs for

R	adopting e-communication services. We have also been encouraging them to adopt digital services to save their money and time in the context of the banking service usage.
Bank S	Our training support for SMEs has been helping them to be motivated towards newly invented services in the banking industry of Bangladesh. We are supporting them to aim and overcome their own concerning issues and to improve their business operations.
Bank T	We have been providing short training support facilities for our business customers, which can help them to be motivated to adopt e-communication services. Moreover, it can help to be competent in the usage of the contemporary e-communication business tools.
Bank U	Confidence of the SMEs for adopting the e-communication services could be increased due to the training support provided by banks and considering this issue, we provide short training support for our personal and business customers.
Bank V	Training facilities related to the usage of the e-communication service can help SMEs to be more familiar with the system and it can help them to reduce the security concern. Moreover, it can also help them to be influenced to adopt new technologies in their business activities.

Table 5.14: Findings for interview question 11

Question 11: Are you aware of the limited technical skills of SMEs?	
Bank A	Most of the SMEs are not aware of technological issues and we very carefully consider their technological competencies during offering e-payment system. Our service is very easy to use. Anybody who has basic computer literacy can access our services. However, if difficulties found, then we provide required support in some of many of our urban branches.
Bank B	Most of the SMEs are concern about online banking security related issues though our service is very simple to use. Limited technical skills might be responsible for it. However, we are offering online facilities in Bengali which has been helping to use the services more confidently comparing with others provided in English.
Bank	Our bank is very aware of the limited technological competencies of the

C	small and medium firms. Considering these, we always provide training facilities to our customers for using digital banking facilities.
Bank D	We are aware of the technological skills of the SMEs and accessing capability. Because of these, we are planning to introduce voice recognised digital banking system so that, everyone can access our services.
Bank E	Sometimes the limited technical skills of our business customers hinder them to adopt digital facilities. However, we try to assure them the efficiency and security of the service by providing short training option. Our online and payment gateway services are very easy to use. People with very basic IT knowledge can use it.
Bank F	A big number of our small and medium business customers are not aware of technological issues. However, we offer them the digital services and we also provide required training to use these services.
Bank G	We are aware of the limited technical skills of the SMEs and considering this, we are introducing very easy access and friendly service formulated in the Bengali language.
Bank H	We provide services not only in the urban areas, but also in the rural areas of all over the country. We are aware of the limited technical skills of the SMEs. We are trying to introduce voice recognition systems for operating various digital services for our business customers.
Bank I	Most of the SMEs are from different backgrounds and they are very concern with the security issues of the technologies. We very carefully consider this issue and we have special guidelines for other banks to provide support and train for newly adopted technologies considering the competencies of the SMEs.
Bank J	Limited technical skills of our customers might hinder to adopt new digital banking services. However, we always try to train this specific service so that, they can be familiar with the usage and benefits.
Bank K	As we are working in both the rural and urban areas, we can feel this issue very much comparing with other banks. In order to avoid this issue, we provide training services for our business customers including SMEs.
Bank L	Limited technical skills of the SMEs are important issues for the adoption of the e-communication services and because of this; we importantly consider

	this issue and provide related services.
Bank M	We always importantly consider the limited technical skills of the SMEs in order to provide contemporary supports. Our technical support is suitable for both personal and organisational implications.
Bank N	One of the important barriers to adopt e-communication services by SMEs is the limited technical skill and we are very aware of it. Considering the limited technical skills, we provide the best suited training supports for SMEs to be more familiar with their adopted service. In addition, we are offering our services for all types of users, such those who can use basic IT devices are able to access our service.
Bank O	We are aware of the limited technical skills of the SMEs and considering the existing limited skills we also provide support to overcome when using our digital services efficiently. We always influence them to improve their skills related to technical skills.
Bank P	Limited technical skills can be one of the barriers for SMEs to adopt new technological issues and we are also keeping our eye on this issue. We are providing technical supports for our SMEs by providing technical training supports.
Bank Q	Our bank is aware of the limited technical skills of the SMEs and because of it; we have prepared our training, aiming to this important issue. Our training service can help SMEs to overcome some limited technical skills.
Bank R	We are aware of the limited technical skills of the SMEs and our training support can help them to be compatible with the digital communication services.
Bank S	Our bank is very aware of the limited technical skills of the SMEs for using the e-communication services. Our training service can help to motivate to improve the technical skills of the SMEs.
Bank T	During any service for SMEs, we are considering all the relevant options. We also provide relevant support, considering the limited skills of the SMEs.
Bank U	We are aware of the limited technical skills of the SMEs and considering this issue, we provide relevant training support.
Bank	Many of the SMEs are concerned about the technological issues related to

V	their business. They are also concerned about security, costing and convenience related issues. Our training support can help to reduce these negative impacts.

Table 5.15: Findings for interview question 12

Question 12: Do you offer the required devices for SMEs?	
Bank A	For online and card payments, we offer required devices through our recommended agents.
Bank B	For card payment facilities, we supply required devices through our partners. We ensure all types of services for our business customers.
Bank C	We offer digital devices for card payments. We offer this service for business customers.
Bank D	SMEs are our important clients and we offer digital payment devices and card payment terminal with reasonable costs.
Bank E	We offer additional devices for our business customers to collect card payments from customers.
Bank F	Business customers are offered online terminal to accept payments from debit or credit card.
Bank G	To ensure better services, we are offering card payment terminals for our business customers.
Bank H	Our business customers are using card payment terminal for getting card payment.
Bank I	We are not directly linked with the SMEs but most of our banks are providing the required supports and devices for accessing online banking and payment making.
Bank J	We offer a pay point device for our business customers.
Bank K	In order to access online services, SMEs don't need any additional device. However, for pay point gateway, we provide services by our partner organisation.
Bank L	We are offering online banking services for both personal and business customers.
Bank	We are offering SMS banking and online banking services for our

M	customers.
Bank N	As one of the first private banks in Bangladesh, we have been providing various services for long time including online banking and pay point device. We are delivering the required devices for our business customers including SMEs.
Bank O	We are going to deliver the pay point gateway service very soon and we are just waiting for the confirmation of our board.
Bank P	We have been providing online banking services including the pay point gateway facility for long time and we are delivering the required device to our business customers.
Bank Q	We are not delivering any device currently, but we have a plan to set up pay point gateway service by the end of this year.
Bank R	Our business account holders are connected to our partner companies from where they can adopt pay point device linked with our bank.
Bank S	For business purposes we provide pay point devices by the help of our partner companies.
Bank T	Yes, we deliver payment taking devices for our business customers in order to take transaction from customers.
Bank U	We provide pay point devices for our business customers for taking payment using customer's debit or credit card.
Bank V	We don't provide any device for SMEs, but we have plans to deliver the pay point gateway with the support of our partner companies.

Table 5.16: Findings for interview question 13

Question 13: How could be e-communication facilities favourable to SMEs within existing practices?	
Bank A	SMEs themselves can help to increase the facilities. Moreover, the government can also provide some additional facilities for SMEs by ensuring security and by imposing new regulations for online banking services.
Bank B	If training and some promotional offer could be offered among SMEs, then they could be more influenced to adopt e-communication facilities in their firms.

Bank C	Training that includes delivering free online devices, can help SMEs to be motivated towards the adoption of e-communication by our small and medium organisations.
Bank D	Making aware of the services through various media including social media, TV and newspaper, SMEs could be encouraged. Moreover, some of our customers have been using this service and have been gaining benefits; it could be highlighted to potential service users.
Bank E	If customers could be trained for using the e-communication and if their membership fee could be reduced, then it could be more favourable.
Bank F	Additional support from the government and banking sector can help to extend the digital banking services. Training for both personal and business customers should be more emphasised to increase the rate of adoption of the e-communication facilities.
Bank G	If benefits of the service could be highlighted and additional training facilities could be provided, then adoption of the e-communication could be increased.
Bank H	Service charges could be reduced in the case of card payment; benefits of the digital banking system could be advertised by banking industry. Moreover, some additional training facilities for business customers can help them to be attracted towards digital banking services.
Bank I	Increasing awareness, explaining to the SMEs of the benefits of the e-communication facilities, supporting them to adopt new technologies and assuring security can encourage SMEs to adopt new technology in their day to day banking activities. Special unit in most branches for SMEs and technology adoption could be helpful.
Bank J	Visiting the small and medium firms, informing them the benefits of the digital banking services and providing them required training can be helpful to increase the efficiency of the e-communication facilities to SMEs within existing practices.
Bank K	If training facilities could be increased and if some subsidies could be made for SMEs, then the rate of e-communication services could be increased in Bangladesh.
Bank L	If subsidy could be offered for the digital services and benefits could be

	highlighted, then the rate of e-communication adoption would be increased.
Bank M	Infrastructure development, technological knowledge of the users, educational background, subsidy from bank or government, lower pricing policies and training facilities can help the extension of the e-communication services.
Bank N	Ensuring security issues, reducing service cost, providing training and introducing the benefits can help to increase the rate of e-communication adoption by SMEs.
Bank O	Training facility for the digital service users, reducing cost with the same service quality and subsidy can help SMEs to increase the adoption of e-communication services.
Bank P	Minimising the service cost, increasing the awareness and highlighting the benefits of the e-communication services can help to increase the rate of adoption by Bangladeshi SMEs.
Bank Q	If maintaining the quality of the service, economy of bundle could be offered, then adoption of the e-communication could be increased.
Bank R	If more compatible services could be provided with affordable services and if the benefit of the service could be more highlighted then, SMEs could be attracted for the adoption of the e-communication.
Bank S	Increasing the awareness of the benefits of the technology, providing required training and developing feasible, though available infrastructure can help SMEs to adopt the e-communication facilities.
Bank T	Reducing service charges or providing direct/indirect subsidy for technology adoption can help SMEs to be attracted more towards the e-communication services.
Bank U	E-government initiatives and increasing awareness of the digital services can help to extend the e-communication facilities.
Bank V	Developing infrastructure in and up to the rural level, providing subsidy facility for e-communication services, motivating SMEs by advertisement and training option can help to increase the adoption of this newly service.

Table 5.17: Findings for interview question 14

Question 14: Is there any policy in your bank to keep the price of e-communication facilities affordable for SMEs comparing with other banks?	
Bank A	Customers are our priority. Comparing with other banks, we charge very little for the online banking facilities. However, we are trying to improve our services for all our clients without imposing any additional charge.
Bank B	Best quality services within affordable costs is one of our mottos for our customers. We are also aware of small and medium types firms.
Bank C	We are imposing very little charge for online banking and card payments for our small and medium firms where most of the banks are charging higher than us. We have plans to reduce the charge in near future.
Bank D	Service cost is one of the important issues for small and medium firms and we are very aware of it. We are imposing very nominal charges for our customers.
Bank E	To keep the price more affordable we try to provide best opportunities and we have some policies for it as well.
Bank F	We are very aware of the pricing policy for our services. Different pricing policies are followed based on the types of account and services.
Bank G	We are trying to keep the charge as affordable as possible.
Bank H	To increase the number of digital banking users, we are imposing very little charge, compared to other banks and for SMEs we are offering free services.
Bank I	We have guidelines for all the banks to follow for the pricing of the technological supports. It is advisable for all the banks to keep the service charge affordable.
Bank J	We always think about our customers and service charge. We are taking very affordable fees from our small and medium business customers.
Bank K	We always follow a lower pricing strategy for service charge. For online service, we charge lower comparing to other banks.
Bank L	In the context of the internet service, we have our policy that is aiming to ensure best quality service with affordable cost.
Bank	In the online banking service, we follow our pricing policy which is

M	reasonable and cost effective for all types of customers.
Bank N	For different types of customers, we follow different pricing strategies and it generally varies based on the type of the account. However, our main target is to provide the best services with affordable fee and it's always similar to lower to other banks.
Bank O	The online account fee for our customers is affordable and we are trying to provide more services with the same fee.
Bank P	For our valued customers, we are offering various exciting online services with a very reasonable service charge following our pricing strategy.
Bank Q	Internet banking service fees are very reasonable in our bank. We have the specific pricing policies for different types of customers including SMEs.
Bank R	Our i-banking service offer special service for the SMEs under the SME banking option, keeping the service charge reasonable.
Bank S	We offer both mobile banking and online banking for our small and medium firms through our SME banking services where service charge is tried to be kept affordable.
Bank T	Both mobile banking and internet banking are reasonable for our customers and we have plans to provide additional service without increasing the half yearly/yearly fee.
Bank U	Our service charge for the online service is affordable and we are continuously improving our service without adding extra charges.
Bank V	Considering the digital services of other banks, we are keeping our service cost reasonable even some of our features are fully free for SMEs.

Table 5.18: Findings for interview question 15

Question 15: Would you mind in providing an estimation of the number of SMEs those have been using e-communication facilities from your bank? Anything to add?	
Bank A	A big number of SMEs have been currently using e-communication facilities, particularly in the urban areas and who are involved in software business, electrical business, education services, health care service and garment businesses. Mainly, renowned and medium enterprises are our main clients. However, it's very difficult to provide the exact figure. We are

	expecting to increase our online services all over the country in near future for all types of customers.
Bank B	It's difficult at the moment to tell the total numbers, but many of our SMEs have been using online banking and card payment systems.
Bank C	We have a huge number of customers including SMEs who have been using online banking facilities and card payment systems.
Bank D	It's very difficult to say the right figure but I can say that, many of our SMEs have been using digital banking services all over the Bangladesh. Some examples are educational institutions, electrical and computer and readymade garment related SMEs who are mostly using our e-communication services. These SMEs are comparatively doing their business in the main city area and a bit bigger in size.
Bank E	We have many customers who are using, e-communication facilities.
Bank F	A big portion of our customers are using digital banking facilities. The rate of using e-communication services would be increased in near future.
Bank G	We are operating our services mainly in the urban areas and large numbers of our business customers have been using the digital banking services. We have a number of small and medium companies who are using our e-communication services. However, rate of e-communication usages among small SME is lower.
Bank H	Our services are provided for all types of customers. Many of our business customers are using the digital banking services. However, the percentage of the digital banking is not too high, estimated around 10-15% of our business customers are using digital banking services especially who are doing readymade garments and electronic businesses.
Bank I	Many of the Bangladeshi SMEs, especially who have been operating their business activities in the cities and towns adopted the e-communication facilities in their banking activities. Number of the adoption would be increased in near future. Currently, we are focusing on small enterprises which are a bit way behind comparing with others.
Bank J	About one third of our business customers have been using the digital banking services. However, the rate of digital banking among personal

	users is more than the SMEs users.
Bank K	Not too large but some of our business customers are using online banking facilities to transfer balance and to contact our bank.
Bank L	It's difficult to point out the exact percentage but some of our customers are currently using online banking facilities and the rate of adoption has been increasing.
Bank M	Many of our urban customers are using online banking facilities and some of the SMEs have also adopted e-communication facilities.
Bank N	Numbers of e-communication facilities has been increasing day by day and SMEs are also becoming interested in the adoption of technology.
Bank O	We have many customers who have already adopted e-communication services and there are many customers in the pipeline to adopt the service in near future. We are encouraging small enterprises for adopting our services.
Bank P	We are continuously trying to increase the rate of digital banking services and currently this rate has increased comparing this with the previous years.
Bank Q	Day by day more customers are becoming interested to online banking services to be connected to the bank at all time and rate of the adoption of the e-communication services have also been increasing among readymade garment and health care pharmacies.
Bank R	It's our target to increase the rate of e-communication facilities to ensure better and faster services and the rate has increased in the current year.
Bank S	Many of our customers have already adopted e-communication services and the rate of adoption has been increasing.
Bank T	We are trying to support our clients for the adoption of e-communication facilities and the rate of adopting digital services have been increased recently.
Bank U	Some of our SMEs who are involved in technology and garment industries are using our digital banking facilities. However, the rate of this adoption is not too high.
Bank V	We have started our online facilities for all types of clients including SMEs in areas of readymade garment and electronic businesses and some of

	them have already adopted these facilities for operating banking activities online.

Table 5.19: Findings for interview question 16

Question 16: Would you recommend e-communication facilities for all SMEs?	
Bank A	As these newly adopted facilities can help in different ways, we would obviously recommend our customers, especially SMEs to adopt e-communication facilities for improving their services and save time.
Bank B	I would obviously recommend SMEs to adopt e-communication facilities in both money transaction and communication with bank branches.
Bank C	We always encourage SMEs to use digital banking and card payment systems to avoid the hassles of bearing cash. Some of our SMEs are doing better in their business operations as they use online payment system to pay for their suppliers.
Bank D	I strongly recommend the digital banking services for all types of customers especially for SMEs. Adopting e-communication facilities can save time and money and they can contact the bank and suppliers using the digital banking facilities. Finally, business operations of the SMEs could be easier.
Bank E	We always recommend our customers to use the digital communication facilities.
Bank F	We recommend that all types of users, be more focused on the digital banking services which can save their time and money.
Bank G	Better services and customer priorities are the main targets of our bank. We obviously recommend our customers to use digital banking services in order to help to be connected with the bank at all time.
Bank H	We strongly recommend our customers to use the digital banking services to make payment and to communicate with bank.
Bank I	It is of our high recommendations for SMEs to adopt digital facilities in their banking activities. It can also help them to keep record of the tax payment. Moreover, digital banking can help them to get loan easily because of the better financial records.
Bank J	For improving the financial services and for keeping the organisations up to date, we always recommend e-communication facilities for the SMEs.

Bank K	We always encourage our customers to adopt the better services provided by our bank and we would also recommend SMEs to adopt e-communication services to do their day to day banking.
Bank L	We recommend our customers to adopt digital banking services because it can help them to pay bills online and to transfer balance at any time.
Bank M	Because of the convenience and affordable services, we recommend our SMEs to adopt e-communication services.
Bank N	We encourage our customers to use the e-communication services, highlighting the twenty- four hours access of the bank and transferring balance to any account all over the country without any additional fee.
Bank O	Our customers can access their account at any time, and they can keep records of their banking activities online easily and securely. These have influenced us to encourage SMEs to adopt the newly introduced services.
Bank P	To improve banking services and to check and transfer balance to others quickly and freely, we encourage our SMEs to adopt the e-communication facilities.
Bank Q	Digital banking services can help our customers to access and transfer balance, to pay bills and to contact the bank for loans and overdraft facilities. Because of these reasons we encourage our SMEs to go for this opportunity.
Bank R	SMEs can access their bank account, can transfer balances and can contact other payees through e-communication and because of these exciting features we encourage our customers to adopt digital communication services. They can pay their bills, tax and other payments using the e-communication facilities, which can help saving their time and money.
Bank S	We recommend our SMEs to adopt e-communication services, which can help them to be connected to our bank at all-time securely.
Bank T	Because of various opportunities, such as accessing accounts twenty-four hours with easy access and transferring balance from anywhere, we recommend our SMEs to adopt the e-communication facility.
Bank U	E-communication service can help SMEs to reduce money transferring cost and can also help to be connected to the bank at all time and we

	recommend them to adopt this facility which can support them enhancing their performance.
Bank V	SMEs can be benefited from different perspectives by adopting e-communication facilities, such as they can transfer money, pay bills from anywhere and because of this; we would recommend them to go for this new service.

Appendix I: Participant Information Sheet

Cardiff Metropolitan University
(UWIC) Ethics Committee

Participant Information Sheet

Project reference number: 20046496.14.08.14

Title of Project: Impact of e-communication on SMEs' performance: A case of Bangladesh

Background:
This research is a PhD work aimed at evaluating the impact of e-communication on Bangladeshi SMEs' performance.

- This request to participate in this research is entirely voluntary and you are free to withdraw your voluntary participation at any stage.
- I would like to inform and assure you that your participation in this research process will only be limited to your voluntary acceptance to take part in this interview.
- Please be assured that there is no anticipated risk or discomfort associated to your participation in this study.
- Apart from the anticipated benefit for the general good of SMEs in the research jurisdiction, there is no personal or financial benefit associated to participating in this study.
- Please note that any information I get from you will be treated with strict confidentiality in accordance with the UK Data Protection Act 1998 and the university's policy on research data protection and storage. The UK Data Protection Act 1998 classifies sensitive personal data as consisting of information as to:

a. The racial or ethnic origin of the participant
b. Political opinions
c. Religious belief or other beliefs of similar nature
d. Membership of a trade union
e. Physical or mental health condition
f. Sexual life
g. The commission or alleged commission of any offence
h. Any proceedings for any offence committed or alleged to have been committed, the disposal of such proceedings or the sentence of any court in such proceedings (www.legislation.hmso.gov.uk/acts/acts 1998/19980029.htm, as cited in Cardiff Met Ethics Application Guidance Policy)

- Do you have any questions to ask?
- If you want to find out more about this research project or if you are in need of more information regarding your participation and the security of your personal data (if any), please contact my Principal Supervisor on the address below:

Prof. Dr. John Koenigsberger
Address: London School of Commerce,
Chaucer House, White Hart Yard, London, SE1 1NX
Telephone: 0044 (0) 2077634918

PLEASE NOTE: *YOU WILL BE GIVEN A COPY OF THIS SHEET TO KEEP TOGETHER WITH A COPY OF YOUR CONSENT FORM*

Appendix J: Participant Consent Form

Cardiff Metropolitan University | Prifysgol Metropolitan Caerdydd

Cardiff Metropolitan University Ethics Committee

PARTICIPANT CONSENT FORM

Cardiff Met Ethics Reference Number: 20046496.14.08.14

Participant name or Study ID Number: 20046496

Title of Project: Impact of e-communication on SMEs' performance: A case of Bangladesh.

Name of Researcher: Rabiul Islam

Participant to complete this section: Please initial each box.

1. I confirm that I have read and understood the information sheet 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 agree to take part in the above study. ☐

Consider the following important additional information:

1. I agree to the interview being audio recorded ☐

2. I agree to the use of anonymised quotes in publications ☐

_____ _____

Signature of Participant Date

Rabiul Islam _____ _____

Name of person taking consent Date

_____

Signature of person taking consent

** When completed, 1 copy for participant & 1 copy for researcher site file*