



**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF NATURAL AND COMPUTATIONAL**  
**SCIENCES**  
**SCHOOL OF INFORMATION SCIENCE**

**ASSESSMENT OF ETHIOPIAN FINANCIAL**  
**INSTITUTIONS READINESS FOR E- COMMERCE**  
**ADOPTION**

**BY**  
**SIMENEH TADESSE**

**JUNE 2018**  
**ADDIS ABABA, ETHIOPIA**



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**ADOPTION**

**A Thesis Submitted to the school of Graduate Studies of**  
**Addis Ababa University in Partial Fulfillment of the**  
**Requirements for the Degree of Master of Science in**  
**Information Science**

**By: SIMENEH TADESSE**

**Advisor: GASHAW KEBEDE (PhD)**

**JUNE 2018**

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**Ato. Getachew Jemaneh**

Examiner

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Date

## Declaration

I, Simeneh Tadesse, declare that the work which is being presented in this thesis entitled “Assessment of Ethiopian Financial Institutions readiness for e-commerce adoption” is an original work of my own and prepared under the guidance of my advisor Dr. Gashaw Kebede. It has not been presented for any scholastic achievement in the University. All the sources of the materials used in this dissertation paper have been duly acknowledged.

Signature\_\_\_\_\_

Date 05/06/2018

This thesis has been submitted for examination with my approval as university advisor.

Signature\_\_\_\_\_

Date 05/06/2018

Gashaw Kebede (PhD)

Advisor

## Dedication

*This work is dedicated to my mother W/ro Etenesh Teshome and my wife W/rt Hideat Tsegaye  
who inspire me in every moment of my life!*

*And above all, to my Lord and Savior Jesus Christ!*

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First of all, praise to my Almighty God and His Son Jesus Christ for the everlasting love that showed to me on the cross and throughout my life. He is indeed my courage, inspiration, wisdom, and hope in the courses of this program.

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## Abstract

The 21<sup>st</sup> century is known by the rapid growth of Information and Communications Technology (ICT). The advancement in ICT introduced many new concepts to the world. One of these concepts is electronic – commerce (e- commerce). E- commerce is generally defined as a way of sharing business information, maintaining business relationships and conducting business transactions by means of telecommunications networks. E- commerce provides advantages for both the buyer and seller. It avoids geographical barriers and promotes trade from all corners of the world.

Many firms in the developed countries are being driven toward the adoption of e- commerce. In only two decades, it has become the backbone for many of the prestigious firms in the world. However, most of the firms in the developing countries have been struggling in e- commerce adoption. Like any other businesses, the financial institutions (Banks, Insurances and MFIs) could be benefited by adopting e- commerce in their business. They can use the technology and business practice of e- commerce to market their products to the customers. Most of the financial institutions in the developed world are already started using e- commerce to advertise and sell their products online.

In Ethiopia, e- commerce is in its infant stage and only a few businesses are trying to adopt it. Currently, there are 70 financial institutions including banks, insurances and MFIs, but there is none which uses e- commerce as a business platform to sell their products online. The financial institutions in Ethiopia stand to gain considerably from e- commerce solutions, considering that there are various products and services that can be provided by these financial institutions to the online customers. However, evidence on the ground shows that the promise of e- commerce has not been realized by these institutions. The use of e- commerce in the financial institutions won't be an option if they want to stay competitive in the global economy.

This research assessed Ethiopian Financial institutions readiness for e- commerce adoption. The research evaluates the readiness of factors for e- commerce adoption in the selected financial institutions (banks, insurances and MFIs) in Addis Ababa. The research used a STOPE model as, which consisted of five e- readiness domains and sixty-four factors related to Strategic, Technology, Organization, People and Environment. In the STOPE model factors are evaluated individually and collectively. Each factor, at any level, would be evaluated according to a scale of five grades. The model serves as a guide to develop questionnaire and interviews, collect and

analyze data, and draw conclusion. This research is mostly a quantitative type of research; however, it also examines qualitative data such as interviews.

To participate in the survey 6 banks of which 1 is a consortium of banks, 5 insurances, and 6 MFIs of which 1 is the association of MFIs are selected. From the total population size of 205 individuals a sample size of 76 individuals are selected. A total of eighty-five questionnaires were distributed and seventy-six questionnaires are returned. Data encoding, cleansing and analysis were made using SPSS v.20. The research used Alpha model to analysis the reliability of the research questions. The Cronbach's Alpha for the questionnaire in this study is 0.812, which is greater than 0.70 (minimal alpha value).

This study uses McConnell analysis method. Based on the mean of the manifest variables five groups have developed: Red [1 – 1.80], Red – Amber [1.81 – 2.6], Amber [2.61 – 3.40], Amber – Blue [3.41 – 4.20], and Blue [4.2 - 5]. Accordingly, five out of twelve factors in the Strategy readiness are classified as Amber – Blue; six out of twelve factors are classified as Amber; one out of twelve factors is classified as Red – Amber. Similarly, three out of twelve factors in Technology readiness are classified as Amber – Blue; nine out of twelve factors are classified as Amber. In Organization readiness seven out of twelve factors are classified as Amber and the other five classified as Red- Amber. In People readiness six out of twelve factors are classified as Red- Amber, three out of twelve factors are classified as Amber and the other three are classified as Amber – Blue. In Environmental readiness one factor is classified as Red, four out of twelve factors are classified as Red – Amber, six out of twelve factors are classified as Amber, and only one factor is classified as Amber – Blue. Generally, Banks have better readiness for e – commerce adoption than insurances and MFIs with a cumulative mean of 3.09, 2.78, and 2.78 respectively.

The quantitative analysis result supplemented with interview. The qualitative data mainly focuses on identifying the challenges of e- commerce adoption in the financial institutions. A number of challenges related to each of the five domains are discussed in the discussion part of the study. The research highlighted some recommendations/ feedbacks for the successful implementation of e- commerce in the financial sectors.

**Key Words:** e- commerce, e- readiness, STOPE model, technology adoption

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## List of Acronyms

AEMFI – Association of Ethiopian Microfinance Institutions  
AIDB – Agricultural and Industrial Development Bank  
ATM – Automatic Teller Machine  
B2B – Business to Business  
B2C – Business to Consumers  
B2E – Business to Employee  
B2G – Business to Government  
B2M – Business to Manager  
BOP – Base of the Pyramid  
CBE – Commercial Bank of Ethiopia  
C2B – Consumer to Business  
C2C – Consumer to Consumer  
ECX – Ethiopian Commodity Exchange  
e- Banking – Electronic Banking  
e- Business – Electronic Business  
e- commerce – Electronic Commerce  
e- Communication – Electronic Communication  
e- Payment – Electronic Payment  
e- Service – Electronic Service  
e- Signature – Electronic Signature  
EDI – Electronic Data Interchange  
EPRDF – Ethiopian People’s Revolutionary Democratic Front  
ER- Environmental Readiness  
ERP – Enterprise Resource Planning  
FI – Financial Institutions  
G2B – Government to Business

G2C – Government to Government  
G2E – Government to Employees  
GDP – Growth Domestic Product  
GTP – Growth and Transformation Plan  
I-Commerce – Internet Commerce  
ICT – Information and Communication Technology  
IMF – International Monetary Fund  
INSA – Information Network Security Agency  
ISO – International Organization for Standardization  
ISPs – Internet Service Providers  
ISHOPA - Imperial Savings and Home Ownership public Association  
IT – Information Technology  
ITU – International Trade Union  
LAN – Local Area Network  
M- Birr – Mobil Birr  
MCIT – Ministry of Communications and Information Technology  
MF – Micro Finance  
MFIs – Micro Finance Institutions  
NBE – National Bank of Ethiopia  
NGO – Non- Governmental Organization  
OR – Organizational Readiness  
PERM – Perceived E- Readiness Model  
PEER – Perceived Environmental E- Readiness  
PKI – Public Key Infrastructure  
POER – Perceived Organizational E- Readiness  
PR- People Readiness  
PSS – Premier Switch Solutions  
SEM – Structural Equation Modeling

SR – Strategic Readiness

STOPE – Strategy, Technology, Organization, People, and Environment

TR- Technological Readiness

UTAUT – Unified Theory of Acceptance and Use of Technology

UNCTAD – United Nations Conference on Trade and Development

UNDP – United Nations Development Programme

VAN – Value Added Network

WAN – Wide Area Network

## CHAPTER ONE: INTRODUCTION

### Background of the study

Electronic commerce (e-commerce) is a powerful concept and process that has fundamentally changed the way of doing commerce/ trade. It's one of the main criteria of revolution of Information Technology and communication in the economy (Yaser, 2013, p. 190). Vladimir Zwass, editor – in – chief of International Journal of Electronic Commerce, defines e-commerce as a way of sharing business information, maintaining business relationships and conducting business transactions by means of telecommunication networks (Zwass, 1996, p. 3); Another scholar defines e-commerce as the buying and selling of goods and services on the Internet (Abdul, 2016, 19). In addition to the buying and selling, other business activities in which the electronic communication medium plays a central role are considered e-commerce. These activities include the communication of information, the management of payment, the negotiating and trading of financial instruments, and the management of transport (Heng, 2002, p. 318)

E-Readiness is 'a measure of the degree to which a country, business or organization may be ready, willing or prepared to obtain benefits which arise from information and information technologies' (Ali and Alrayes, 2014, p. 468).

Financial Institution can be defined as a company engaged in the business of dealing with monetary transactions, such as deposits, loans, investments, currency exchange, insurance and micro-finance services. According to the National Bank of Ethiopia (NBE), Banks, insurance companies and micro-finance institutions are major financial institutions operating in Ethiopia. (NBE, Annual Report 2016/17). Hence, this research considers the above three financial sectors while trying to assess the readiness for e-commerce adoption.

Ethiopia is the second-most populous country in Sub-Saharan Africa with a population of 99.4 million and population growth rate of 2.5% in 2015. The economy has experienced strong and broad-based growth over the past decade, averaging 10.8% year in 2003/04 – 2014/15 compared to the regional average of 5.4%. The expansion of services and the agricultural sector account for most of this growth, while manufacturing performance was relatively modest.

Economic growth brought with it positive trends in poverty reduction in both urban and rural areas (The World Bank Report, 2017). The Ethiopian economy is projected to grow 11.1 % in 2017/18 in contrast to IMF's forecast of 3.7 % growth for the world and 3.4 % for Sub – Saharan Africa (World Economic Outlook, October 2017).

The government of Ethiopia is currently implementing the second phase of the Growth and Transformation Plan (GTP). In the GTP I the concept of e-commerce have been introduced to improve the quality and efficiency of public and private sectors. GTP II, which will run from 2015/16 to 2019/20, aims to continue the improvements in the ICT and transforms the country's economy to the next level, predominantly knowledge and information- based economy & society (GTP II, 2016).

The Ministry of Communications and Information Technology (MCIT) has a mission to develop, deploy and use ICT to improve the livelihood of Ethiopians and optimize its contribution to the development of the country. The Ministry has thus undertaken a number of eGovernment assignments including e-commerce. The Ministry has developed the National eGovernment Strategy and Implementation plan and strives hard to realize its accomplishment (eGovernment Strategy and Implementation plan, 2011). The National eGovernment Strategy and Implementation Plan is an indicator of Ethiopia's commitment to promote technology solutions like e-commerce in businesses such as financial institutions.

Uneven diffusion of e-commerce and the Internet is creating a “digital divide” and exacerbating the gap between rich and poor countries. There is an assumption that the Internet is a tool for Western (especially U.S.) economic and cultural hegemony, a long-held fear of many opponents of globalization (Gibbs, Kraemer and Dedrick, 2006, p. 6). Most of developing nations are still agrarian society, and they are consumers of technology products from the western world. Like any other technology products, e-commerce was invented in the USA, and businesses in Europe and Asia adopted it. Countries which are the leaders in e – commerce adoption have started using it. It has been massively contributing to the Growth Domestic Product (GDP) of these countries. It even became a primary engine of the economic growth of these countries (Tan and Ludwig, 2016, 408). Despite the fact that e- commerce is a key player of the economy in the developed world, developing countries such as Ethiopia are still struggling

to adopt it. Financial Institutions are believed to be the leader in technology adoption; the case seems different in Ethiopia. Ethiopia's financial institutions are way behind e-commerce adoption.

According to the UNCTAD report, the world is classified in to five groups based on the level of readiness for e-commerce adoption. Northern America, Australia and the Scandinavians have very high readiness; Europe and parts of Asia have high readiness; China, Brazil, South Africa and Nigeria have medium readiness; India, Southern America, and parts of Africa have low readiness; the rest of Africa and some parts of Asia have very low readiness. Ethiopia has been grouped in the last group. There is a wide difference among continents, and Africa is the least benefited continent from e-commerce. To facilitate more inclusive e-commerce, developing countries like Ethiopia would seek to catch up in all e-readiness factors. Report indicated that Ethiopia ranks 133 out of the 144 countries in e-commerce adoption (UNCTAD, 2017).

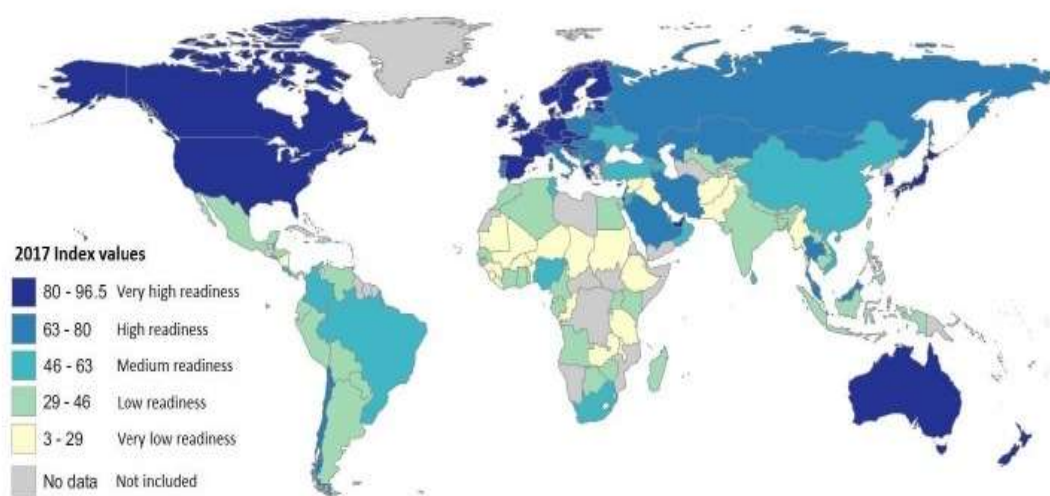


Figure 1: Map of the UNCTAD E- Commerce Index 2017 (Source: UNCTAD)

## History of Financial Institutions in Ethiopia

### *Banking in Ethiopia*

In Ethiopia, modern banking started in 1905 with the establishment of Abyssinian Bank, in 1906. The Bank was totally managed by the Egyptian National Bank. The society at that time being new for the banking service, Bank of Abyssinia had faced difficulty of familiarizing the public with it. As a result, despite the monopolistic position, the Bank earned no profit until

1914. In 1931 Bank of Abyssinia was legally replaced by Bank of Ethiopia shortly after Emperor Haileselassie came to power. Bank of Ethiopia was purely Ethiopian institution and was the first indigenous bank in Africa and established by an official decree on August 29, 1931 <sup>1</sup>.

During Italian Invasion, the Italians established branches of their main Banks namely Banca d'Italia, Banco di Roma, Banco di Napoli and Banca Nazionale del lavoro, and started operation in the main towns of Ethiopia. However, they all ceased operation soon after liberation except Banco di Roma and Banco di Napoli which remained in Asmara. In 1941 another foreign bank, Barclays Bank, came to Ethiopia with the British troops and organized banking services in Addis Ababa, until its withdrawal in 1943 <sup>1</sup>.

In 1943, the State Bank of Ethiopia commenced full operation, and it acted as the central Bank of Ethiopia. The State Bank of Ethiopia had established 21 branches including a branch in Khartoum, Sudan and a transit office on Djibouti until it ceased to exist by bank proclamation issued on December, 1963. The National Bank of Ethiopia with more power and duties started its operation in January 1964. No.207/1955 of October 1963, Commercial Bank of Ethiopia took over the commercial banking activities of the former State Bank of Ethiopia <sup>1</sup>.

The first privately owned bank, Addis Ababa Bank Share Company, was established on Ethiopians initiative and started operation in 1964 with a capital of 2 million in association with National and Grindlay Bank, London which had 40 percent of the total share. In 1968, the original capital of the Bank rose to 5.0 million and until it ceased operation, it had 300 staff at 26 branches. There were other financial institutions operating in the country like the Imperial Savings and Home Ownership public Association (ISHOPA) which specialized in providing loans for the construction of residential houses and to individuals under the guarantee of their savings. There was also the Saving and Mortgage Corporation of Ethiopia whose aims and duties were to accept savings and trust deposits account and provide loans for the construction, repair and improvement of residential houses, commercial and industrial buildings and carry out all activities related to mortgage operations <sup>1</sup>.

Following the declaration of socialism in 1974 the government extended its control over the whole economy and nationalized all large corporations. Then Addis Bank and Commercial Bank of Ethiopia S.C. were merged by proclamation No.184 of August 2, 1980 to form the sole

commercial bank in the country till the establishment of private commercial banks in 1994. Proclamation No.99 of 1976 brought into existence the Agricultural and Industrial Bank, which was formed in 1970 as a 100 percent state ownership, was brought under the umbrella of the National Bank of Ethiopia. In the Dergue regime, there were only three banks in the country, named The National Bank of Ethiopia (NBE), The Commercial Bank of Ethiopia (CBE), and Agricultural and Industrial Development Bank (AIDB) <sup>1</sup>.

Following the demise of the Dergue regime in 1991 that ruled the country for 17 years under the rule of command economy, the EPRDF declared a liberal economy system. In line with this, Monetary and Banking proclamation of 1994 established the national bank of Ethiopia as a judicial entity, separated from the government and outlined its main function. Monetary and Banking Proclamation No. 83/1994 and the Licensing and Supervision of Banking Business No. 84/ 1994 laid down the legal basis for investment in the banking sector. Consequently shortly after the proclamation the first private bank, Awash International Bank was established in 1994.

Currently there are 16 private and 3 government banks in the Ethiopian banking industry, and they have 4,257 branches throughout the country. As a result, in 2017, bank branch to population ratio is 1:22,164 people. About 33 % of bank branches were located in Addis Ababa (NBE, Annual Report 2016/17). There are no foreign banks in the country, and the system remains isolated from the effects of globalization <sup>1</sup>.

### *Insurance in Ethiopia*

Insurance is one of the key pillars of the financial services sector in Ethiopia. The history of insurance service is as far as modern form of banking service in Ethiopia which was introduced in 1905. Modern Insurance service was introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of a foreign insurance company. In the 1954, there were nine insurance companies that were providing insurance service in the country. With the exception of Imperial Insurance Company that was established in 1951, all the remaining of the insurance companies were either branches or agents of foreign companies <sup>1</sup>.

The first remarkable event that the Ethiopian insurance market witnessed was the promulgation of proclamation No. 281/1970. This proclamation was issued to provide for the control & regulation of insurance business in Ethiopia. It is peculiar in that it created an Insurance Council and an Insurance Controller's Office. The controller of insurance licensed 15 domestic insurance companies, 36 agents, 7 brokers, 3 actuaries & 11 assessors in accordance with the provisions of the proclamation immediately in the year after the issuance of the law <sup>1</sup>.

Four years after the enactment of the proclamation, the military government that came to power in 1974 put an end to all private entrepreneurship. Then all insurance companies operating were nationalized and from January 1, 1975 onwards the government took over the ownership and control of these companies & merged them into a single unit called Ethiopian Insurance Corporation <sup>1</sup>.

After the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance businesses heralded the beginning of a new era. Immediately, after the enactment of the proclamation private insurance companies began to increase (Yuvaraj and Abate, 2013, p. 139).

Currently, there are 16 private and 1 government owned insurance companies operating in 492 branches throughout the country. About 53.5 percent of insurance branches were situated in Addis Ababa (NBE, Annual Report 2016/17) <sup>1</sup>.

### *Microfinance in Ethiopia*

Microfinance (MF) is seen as one of the most efficient instruments to promote economic development and to fight poverty in poorer countries. Micro- finance Institutions (MFIs) are often defined in terms of the following characteristics: targeting the poor (especially the poor women); promoting small businesses and building capacity of the poor (Alemayehu, 2008, p.1).

In Ethiopia MF services were introduced after the demise of the Derg regime following the policy of economic liberalization. MF is taken as a shift from government – and – NGO – subsidized credit programs to financial services run by specialized financial institutions. With this shift some NGO and government microcredit programs were transformed to MFIs. A regulatory framework was put in place to license and supervise the institutions (Proclamation No. 40/1996) under the country's central bank (Degefe, 2009, p.3).

Currently, there are 35 MFIs are operating in the country. Amhara, Dedebit, Oromiya, Omo and Addis Credit and Savings institutions were the major MFIs accounting for 83.7 % of the total capital, 93.1 % of savings, 88.6 % of the credit and 89.9 % of the total assets of the MFIs sector (NBE, Annual Report 2016/17).

<b>Banks</b>	<b>Insurances</b>	<b>Microfinance (MFIs)</b>	<b>Institutions</b>
Commercial Bank of Ethiopia	Ethiopian Ins. Cor.	Amhara	Diredawa
Development Bank of Ethiopia	Awash Ins. Cor S.C	Dedebit	Agar
Awash International Bank	Africa Ins. Com S.C	Oromia	Letta
Dashen Bank	National Ins. Cor. Of Eth.	Omo	Harbu
Abyssinia Bank	United Ins. Com. S.C	Gasha	Digaf
Wegagen Bank	Nile Ins. Com. S.C	Wisdom	Harar
United Bank	Nyala Ins. Com. S.C	Sidama	Lefayeda
Nib International Bank	Lion Ins. Com. S.C	Africa Village FS	Tesfa
Cooperative Bank of Oromiya	Ethiopia Ins. Com. S.C	Bussa Gonfa	Dynamic
Lion International Bank	Oromia Ins. Com. S.C	PEACE	Somali
Oromia International Bank	Abay Insurance	Meklit	Lideta
Zemen Bank	Berhan Insurance S.C	Addis	Nisir
Bunna International Bank	Tsehay Insurance S.C	Meklit	Adaday
Berhan International Bank	Lucy	Eshet	Rays
Abay Bank	Bunna Insurance S.C	Wassasa	Gambella
Addis International Bank		Benishanul Gumuz	Kendil
Debut Global Bank		Shashemene	SFPI
Enat Bank		Metemamen	

Table 1: Lists of financial institutions in Ethiopia. (Source: <http://www.nbe.gov.et>)

### **E-commerce in Financial Institutions**

According to Heng (2002), there are three aspects in which e-commerce can affect financial institutions.

- First, financial institutions can use the technology and business practice of e-commerce to market their products to the customers. Currently, these are some of the main products in the financial institutions: Deposits, Credit Facilities, Local Transfers, Trade Service, Forex Service, Money Transfer, Saving and Current account savings, Profit sharing saving account, fixed-time deposit, Loan Linked Savings, Non Loan Linked Savings, Loans/ Credit products, Life Insurance, Non- Life Insurance.

- Second, e- commerce provides a business opportunity for financial institutions to offer new products and services to serve the needs of e- commerce.
- Third, the new business environment associated with e- commerce provides opportunity for institutional innovations in banking and finance, which can help to lay a sounder foundation for the international financial system.

Heng (2002) stated that the beauty of Internet lies in its low cost, convenience and availability. It enables banks and other financial institutions to offer services with the following qualities: 24-hour, seven-days-a-week availability, convenience, fast delivery, customer focus and personal service. For example, banks can reduce the time taken to approve mortgage application from weeks to hours. Some other areas wherein banks can develop services are: protection for e- commerce participants against fraud, electronic billing and assistance for small businesses.

Almost every financial firm, from the most prestigious Wall Street Investment bank to the provider of micro credit to the very poor, has found that it has no choice but to invest in an internet strategy. “And having invested in it, it will need to persuade its customers to use it”. Bank customers who enjoy the convince of on – line purchase from Amazon.com may expect their banks to improve the services. However, financial institutions need to be more than becoming Internet Savvy and embracing the practices of e- commerce. They need to see themselves as worthy contributors of e – commerce and to play their roles in a positive way in institutional innovators (Heng, 2002, p.22).

A research conducted in Kenya in 2011 indicated that there are products and services that the banking industry can offer to customers through the e- commerce. The study stated that the majority of banks in Kenya have adopted e- commerce products and services. E- Commerce can improve customer service, reduced number of customers in the banking hall, reduced operating costs and increased market share. E- Commerce has been improved business operations in various banks in Kenya; the operation function is that part of the organization that is concerned with the management of the business process that produces the goods and services supplied to the customer (Magutu, Mwangi, Nyaoga, Ondimu, Kagu, Mutai, Kilonzo & Nthenya, 2011). These researchers argued that e-commerce products and services are methods used by banking organizations to carry out their transactions without necessarily coming into physical contact with their clients.

There is a possibility for banks to act as information intermediaries. In such a construction, a bank customer downloads software from the bank that s/he knows and can trust. With the help of the software, s/he can browse without the target websites knowing his identity at all. When s/he decides to buy an article on-line, the software generates a new identity for him, with a fictitious name and email address, a coded postal address, and a one- off credit card number. The new identity is sent, via the online merchant, back to the bank. The bank would then check the details of the transaction and approves the transaction. Banks have entered the picture by being supportive party in on- line transactions.

E- Commerce provides a new avenue for a few of the biggest commercial banks with technological readiness to offer other B2B e- commerce (Wenninger, 2000). Banks with technological know- how can offer their expertise to assist businesses to participate in e – commerce. In concrete terms, they can help smaller firms set up the infrastructure and payment capabilities to engage in e- commerce.

Like the banking industry, e- commerce will enable insurers to significantly lower costs, realize business process efficiencies, and enable insurers to better position themselves competitively. There are already thousands of insurers online, and it became very tough for insurance companies in the developing countries to do business in the traditional way. The insurance industry can employ the internet not only to distribute information rather to offer the capability of online transactions.

According to Garven (2000, p.68), e-commerce can cause insurers to move away from a product – oriented approach to more of a consumer – oriented approach. Grossman, McCarthy and Aronson (2004) emphasized the relevancy of e- commerce in insurance companies. And he mentioned that e-commerce is being adopted slowly in insurance companies of the developing world. Garven and Aronson claimed that e- commerce has the potential to become a multibillion dollar business in the insurance industry.

The insurance industry provides an appropriate model that combines both B2C and B2B applications. Online insurance requires the traditional methods of insurance to be replaced by online processes analogous to those in e- commerce. Consumers search from different insurance companies for products that they are willing to purchase. They evaluate the products from different companies to determine the one that best suits their needs. The insurance company then

conveys the terms of the insurance policy to the customer and the customer responds with details including a description of the entity being insured, the terms and the duration of the insurance policy. When both the customer and insurance company agree to go ahead with the transaction, the buyer pays the initial premium to the insurance company and the policy certificate is sent to the buyer (Dasgupta and Sengupta, 2002, p.45). E- Insurance or e- commerce version of Insurance involves the advertisement, recommendation, negotiation, purchase, and claim settlement of insurance policies through the internet.

In addition to the banking and Insurances Institutions, Microfinance institutions (MFIs) have started using e-commerce to reach most people at the base of the economic pyramid (BOP). Microfinance is the provision of convenient financial services and products to the poor, low – income households and micro and small enterprises (NBE, Annual Report 2016/17). Customers of MFIs are mostly businesses which are small in size and don't have the capacity to get loan from banks.

Like any other business, the adoption of e-commerce in MFIs can provide the following benefits for both the MFIs and their consumers: It provides more reliable service to customers, it improves the competitive position of the company, it improves the company's image, it builds trust with customers, it builds trust with suppliers, it reduces operational costs, and it reduces workforce (Alrawabdeh, 2016, p.168).

Other than direct benefits that e- commerce provides for MFIs, it also creates a new business model which involves MFIs in addressing consumers' need. A research conducted by Ahmed, Hossein, Rahman, Osugi, Fukuda and Yasuura (2015), indicated that MFIs can be utilized as an intermediary between the supplier and the consumer. For example, in Bangladesh, around 20 million people representing BOP have access to MFIs to carry out financial transactions in a regular basis with their associated MFIs. MFIs purchased things online on behalf of their customers who don't have access to the internet and don't know how to operate on computers.

Financial Institutions in Ethiopia have untapped potential, which can be develop by adopting e- commerce. As the country's economy is growing rapidly in the last decade, there is a huge potential that financial institutions have related to e- commerce. Hence, this study tries to assess the readiness of these institutions for e- commerce adoption.

## Statement of the problem

Financial institutions in Ethiopia stand to gain considerably from e-commerce solutions, considering that there are various products and services that can be provided by these financial institutions to online customers. However, evidence on the ground shows that the promise of e-commerce has not been realized by these institutions. Almost every financial institution has a website providing information about the company and products. However, these websites are little more than passive online version of the company's brochures. These sites are used primarily for marketing support and do not support interactive dialog and purchase order options for interested clients.

The use of e-commerce in the financial institutions won't be an option if they want to stay competitive in the global economy. Financial Institutions of developed countries started using e-commerce many years ago, and developing countries such as Kenya and India are some way into adopting it. As can be seen in different literatures and the pre – study assessment, financial institutions in Ethiopia are way back.

In general, there are only few researches conducted in Ethiopia related to e-commerce; the situation even worse when it comes to the readiness of financial institutions for e-commerce adoption. There are few researches conducted in Addis Ababa University related to the readiness of banks for technology adoption. However, these studies focus either on specific factors or specific services such as e-payment. The readiness of other financial institutions (Insurance and MFIs) for e-commerce adoption didn't get emphasis in the past; I couldn't find studies related to e-commerce adoption in the Insurance and MFI businesses, which shows that there is a need to conduct a comprehensive research considering all of the financial institutions, and using a model which considered inclusively all of the readiness factors.

## Research Questions

This research is intended to answer the following questions:

- I. Are Financial Institutions (Banks, Insurances, MFIs) in Addis Ababa ready to adopt e-commerce?

- II. Which Financial sector, i.e., banks, insurances or MFIs have better readiness for e-commerce adoption? And which of the STOPE's domains are ready in the financial sectors and which are not?
- III. What are the challenges related to the adoption of e-commerce in the Financial Institutions?

## **Objective of the study**

### **General objective of the Research**

- The main objective of this research is to assess Ethiopian Financial Institutions readiness for e-commerce adoption. The research evaluates the readiness of factors for e-commerce adoption in the selected financial institutions in Addis Ababa from Strategic, Technology, Organization, Environment and People's perspective.

### **Specific objectives of the Research**

- To characterize the existing e-commerce processes and practices in the financial institutions.
- To identify the e-readiness factors for e-commerce adoption in the financial institutions.
- To determine the status of e-readiness of selected local financial institutions from STOPE perspective.
- To explore the challenges related to e-commerce adoption in the local financial institutions.

## **Scope of the Study**

According to different literatures, there are numerous e-readiness factors that can influence e-commerce adoption. These factors mainly grouped as Individual, Organization, and Environmental. The research uses STOPE framework, which consist of e-readiness factors related to Strategy, Technology, Organization, People, and Environment. The research assesses the readiness of selected financial institutions (banks, insurance & MFIs) for e-commerce adoption based on factors indicated in STOPE model. There are various researches conducted based on STOPE model such as: Assessment of Ethiopian Health Facilities Readiness for

Implementation of Telemedicine (Amare, Getachew & Philip, 2014); Enterprise resource planning: a review and a STOPE view (A.Bakry & S.Bakry, 2005); STOPE- based approach for e- readiness assessment case studies (Al-Osaimi, Alheraish and Bakry, 2006). This research concentrates on the financial institutions operating at Addis Ababa. However, the result can be extended for financial institutions operating in other parts of the country, and in similar developing countries.

### **Limitation of the study**

Due to time and financial constraints only selected financial institutions participated in this study. The study conducted only in Addis Ababa, and may not be an indicator of the situations in other businesses outside the financial sectors. However, findings related to some of the factors can provide a clue regarding e-commerce situation all over the country.

This study focuses more on the quantitative aspects of e- commerce's readiness in the financial institutions although legal issues are among the major factors in the readiness of e-commerce, this study didn't conduct a depth analysis related to the legal issues. However, the participants' opinion regarding the readiness of legal and policy framework is included in this study.

### **Significance of the study**

E-commerce became a multibillion dollar business, and it creates doors for many businesses to reach their customers 24/7, work collaboratively, and share markets (Uzoka, 2008). It helps consumers order products and services online in a very short time, compare prices and qualities, minimize cost, and more. Despite the fact that developed countries have been benefited from e-commerce, the rest of the World is struggling even to adopt it. It's obvious that e-commerce is contributing much to the GDP nations. Some developing countries such as China, Singapore, India, and South Africa are started strengthening their economy assisted by e-commerce. Nevertheless, Africa ranks the lowest in all the indicators related to e-commerce readiness, namely telecom, payment – solutions, logistics, legislations and awareness (UNCTAD E- Commerce Week, 2017). Unless all stakeholders start working together, the growth of e-commerce in developing countries won't be realistic.

Like any other developing country Ethiopia is new for e-commerce. In general, e-commerce has not been started yet in the country although there are some businesses struggling to make it happen. There is a consensus between stakeholders (government, private sectors, and service providers) to introduce and promote e-commerce in the society. And specific actions have been taken by the government of Ethiopia; the government established the Ministry of Communication and Information Technology (MCIT), and ordained it to initiate and administer ICT related projects in the country. MCIT has developed the National Strategy for e-government services, in which e-commerce gets considerations.

This research can be considered as a continual project on others work. It paves the way for e-commerce adoption in Addis Ababa, Ethiopia by assessing the readiness of financial institutions for e-commerce adoption. The study tries to identify the correlations between factors, and evaluate the readiness of factors at the various domains of STOPE model in the selected financial institutions. The research explores the readiness of factors and tries to identify the major challenges related to e-commerce adoption in the financial institutions. This research helps decision-makers, financial institutions, and other practitioners by providing comprehensive information related to the readiness of e-commerce adoption in the financial market.

## **Organization of the study**

This research consisted of five chapters. Chapter one is about the introduction/background of the study, statement of the problem, research questions, objectives of the study, scope and limitation, and significance of the research. Chapter two is about review of related literature. In this chapter, history of e-commerce, types of e-commerce, why we need e-commerce, limitation of e-commerce, e-commerce related studies in Ethiopia, e-readiness factors for e-commerce adoption and more topics are discussed. In addition, the model (STOPE) that will be used in this research will be illustrated. Chapter three discusses about the research methodology in which a clear and systematic approach of data collection and analysis methods will be presented. It provides arguments why those methods and instruments are selected. The next chapter, chapter 4 is about data analysis, presentation and discussion. The last chapter is about findings, conclusions and recommendations.

## CHAPTER TWO: LITERATURE REVIEW

### Overview

Objective of this chapter is to understand basics of e-commerce and discuss related works by other scholars. The chapter begins with the history of e-commerce, and it discusses about technology that was in place before e-commerce; the chapter presents the types of e-commerce and their differences; the importance of e-commerce and its limitations; practices related to e-commerce adoption in other developing nations; critical e-readiness factors for e-commerce adoption. STOPE model is presented in detail.

### History of e-commerce

Electronic Commerce (e-commerce) is a new and certainly a trendy name, but the practice it denotes originated about a half century ago in the Berlin airlift. This practice became Electronic Data Interchange (EDI), the computer – to – computer exchange of standardized electronic transactions documents over some kind of private network or value added network (VAN) (Zwass, 1996, p.3). In the 1960s a cooperative effort between industry groups produced a first attempt at common electronic data format. The formats, however, were only for purchasing, transportation, and finance data, and were used primarily for intra- industry transactions. It was not until the late 1970s that work began for national EDI standards, which developed well into the early 1990s (Applying e-commerce in Business, 2003).

In EDI both sides would have to have the same application software and the data would be exchanged in an extremely rigorous format. In sectors such as retail, automotive, defense and heavy manufacturing, EDI was developed to integrate information across larger parts of an organization's value chain from design to maintenance so that manufacturers could share information with designers, maintenance and other partners and stakeholders. The EDI system was very expensive to run mainly because of the high cost of the private networks. Thus, uptake was limited largely to cash – rich multinational corporations.

By 1996 no more than 50,000 companies in Europe and 44,000 in the USA were using EDI, representing less than 1 percent of the total number of companies in each of the respective continents (Applying E-Commerce in Business, 2003). Some say dates of e-commerce return to

prior of the internet, but due to the costs of this style of business, only business and financial institutions and corporations could use it (Yaser, 2013, p.190). The arrival of the commercial use of the internet, driven by its World Wide Web subset, has been defining the new e-commerce since 1993. Among the principal technologies directly enabling modern e-commerce are: computer networking and telecommunications; client/ server computing; multimedia (and hypermedia in particular); information retrieval systems; EDI; message handling and workflow management systems; groupware and electronic meeting systems; and public – key cryptography (Zwass, 1996, p.3).

Many firms are being driven toward greater adoption of e-commerce by pressure to compete at the global level (Gibbs, Kraemer and Dedrick, 2006, p.5). With the advent of the Internet, the term e-commerce began to include:

- Electronic trading of physical goods and of intangibles such as information.
- All the steps involved in trade, such as on-line marketing, ordering, payment and support delivery.
- The electronic provision of services such as after sales support or on-line legal advice.
- Electronic support for collaboration between companies such as collaborative on-line design and engineering or virtual business consultancy teams (Applying E-Commerce in Business, 2003).

## **Definitions of e-commerce**

E-commerce has been defined in several ways depending on the context and research objective of the author (Elizabeth and Michael, 2004, p.197). The following are some of the definitions from different authors:

- e-commerce is sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks (Vladimir, 1996, p. 3).
- e-commerce is the buying and selling of goods and services on the internet (Abdul, 2016, p. 19; Elizabeth and Michael, 2004, p.197).

- e-commerce is the interaction between communication systems, data management systems and security, which because of them exchange commercial information in relation to the sale products or services, will be available, so the definition, the main components of e-commerce are: communication systems, data management systems and security (Yaser, 2013, p. 190).

The wide range of business activities related to e-commerce brought about a range of other new terms and phrases to describe the internet phenomenon in other business sectors. Some of these focus on purchasing from on- line stores on the internet. Since transactions go through the Internet and the Web, the terms *I- Commerce* (Internet Commerce), and even *Web-Commerce* have been suggested but are rarely used (Applying E-Commerce in Business, 2003).

### Impacts of e-commerce

E-commerce is not solely the internet, websites or dot com companies. It's about a new business concept that incorporates all previous business management and economic concepts. As such, e-commerce impact on many areas of business and disciplines of business management studies (Applying E-Commerce in Business, 2003). For Example:

- **Marketing** – issues of on-line advertising, marketing strategies, and consumers' behavior and cultures.
- **Computer Science** – development of different network and computing technologies and languages to support e-commerce, for example linking front and back office legacy systems with the 'web- based' technology.
- **Finance and accounting** – on-line banking; issues of transaction costs.
- **Economics** – the impact of e-commerce on local and global economics; understanding the concepts of a digital and knowledge – based economy and how this fits into economic theory.
- **Management information systems** – analysis, design and implementation of e-commerce systems within an organization.
- **Business law and ethics** – the different legal and ethical issues that have arisen as a result of a global 'virtual' market.

## Types of e-commerce

There are various types of e-commerce and many different methods to characterize these clusters. The major types of e-commerce are as follows (Yaser, 2013, p. 192; Rania, 2011, p.101).

- **B2B (Business – to – Business)** is a type of commerce transaction that exists between businesses or a transaction that occurs between a company and other company to transfer of services and products, for example online wholesale, in which businesses sell materials, products and services to other businesses on the websites.
- **B2C (Business – to – Consumers)** refers to transactions between a business and its end consumer and so it create electronic storefronts that offer information, goods, and services between business and consumers in a retailing transaction or it is an internet and electronic commerce model that indicates a financial transaction or online sale between a business and consumer.
- **C2B (Consumer – to - Business)** is the transfer of services, goods or information from consumers to business or it is a business model where end users create products and services that are used by business and institutions.
- **C2C (Consumer – to – Consumer)** is an electronic internet facilitated medium, which involves transactions among users and it is a business model which two consumers deal business with each other directly.
- **B2E (Business – to – Employee)** uses an intrabusiness network which allows companies to provide products and/ or services to their employees. Typically, companies use B2E networks to automate employee – related corporate processes.
- **B2G (Business – to – Government)** is a derivative of B2B marketing and often referred to as a market definition of “public sector marketing” which encompasses marketing products and services to various government levels – including federal, state and local – through integrated marketing communications techniques such as strategic public relations, branding, marcom, advertising, and web- based communications.
- **B2M (Business – to – Manager)** is a new model e-business. It refers to transactions between enterprises (product sellers or any other workers) and professional managers.

- **G2B (Government – to - Business)** is the online non – commercial interaction between local and central government and the commercial business sector, rather than private individuals (G2C).
- **G2C (Government – to - Citizen)** is the communication link between a government and private individuals or residents.
- **G2E (Government – to – Employees)** is the online interactions through instantaneous communication tools between government units and their employees.

## WHY e-commerce?

The buyers gain a clear advantage when the internet gives them access to the global market, by which they can compare prices across regions, find out whether prices vary by order fragmentation and get awareness about substitute products. Due to transparency of the market, customer can compare the services of various e-commerce sites easily. The main benefit from customers' point of view is significant increase and saves of time and eases access from anywhere in the globe. The following are some of the benefits of e-commerce from customers' point of view (Abdul, 2016):

- Reduced transaction costs for participating exchange in a market.
- Increased comfort – transactions can be made 24 hours a day, without requiring the physical interaction with the business organization.
- Time saving – Customer can buy or sell any product at any time with the help of internet.
- Quick and continuous access to information –Customer will have easier to access information check on different websites at the click of button.
- Convenience- All the purchases and sales can be performed from the comfort sitting a home or working place or from the place a customer wants to.
- Switch to others companies – Customer can easily change the company at any time if she service of a company is not satisfactory.
- Customer can buy a product which is not available in the local or national market, which gives customer a wider range of access to product than before.
- A customer can put review comments about a product and can see what others are buying or see the review comments of other customers before making a final buy.

The main benefits of e-commerce from sellers' point of view is increasing revenue and reducing operation and maintenance costs through internet. These include as follows:

- Increases revenue.
- Reduces operation and maintenance costs.
- Reduces purchase and procurement costs.
- Raises customer loyalty and retention.
- Reduces transportation costs.
- Develops customer and supplier relationships.
- Improves speed of the process of selling.
- Improves internal and external communication, and
- Develops the company image and brand. (Abdul, 2016)

### **Limitation of e-commerce**

E-commerce has its own limitations according to (Abdul, 2016); (Yaser, 2013) and Applying e-commerce in business, (2003). The following are some of the limitations:

- There is a lack of system security, reliability, standards, and some communication protocol. Customers loss their money if the website of e-commerce is hacked. Most common problem of e-commerce website is not having enough cyber security.
- Rapid evolving and changing technology, so there is always a feeling of trying to 'catch up' and not be left behind.
- There is no guarantee for product quality. Our order might be damage in the post or things may look different online to what you actually receive for example, slightly different colors and feel of clothes or the freshness of vegetables and fruits.
- E-commerce allows to users that buying and selling goods and services without graphic limitations but in this method we have not any contacts and relationships with other persons and loss our social contacts.
- In developing countries there is a culture of buying product be negotiating price with seller, which is not easily possible in case of e-commerce in developing countries because of lack infrastructure facility.

- Cost of access to the internet and computing devices for customers. And lack of basic technical knowledge.
- Lack of trust and protection of consumer rights because they are interacting with faceless computers.

## **Related works in Ethiopia**

There are some studies previously conducted in Addis Ababa University related to e-readiness and e-commerce adoption. I have examined the following researches in order to understand the overall situation of e-commerce in the country, and assess gaps in the previous studies that may be included in this study.

Emishaw Tefera has proposed a framework for e-commerce adoption in the banking industry. The scope of his study is constrained only to the banking industry and he tried to assess only organization related e-readiness factors. His study is the closest to this study as compared to the rest. He proposed the need for additional study, considering all the factors (organizational, environmental and technological), and other industries (Emishaw, 2017).

Senait Wondafrash has conducted a research related to legal bindings and regulations for e-commerce adoption. Her focus area was Ethiopian Commodity Exchange (ECX). She found out that the existing law which regulates commercial transactions is enacted before cyber- world and hence, it's not capable of facilitating e-commerce transactions (Senait, 2015). Another researcher named Tigist Ashenafi has conducted a research on the legality of E- Commerce and E – Signature under Ethiopian Law. She stated that the legislation governing e-communication and storage of information in Ethiopia is inadequate or outdated, because it does not give recognition to e-commerce (Tigist, 2017).

Yitbarek Zewde has conducted a research on digital financing/ e-payment which can be considered as another e-readiness factor which can influence e- Commerce adoption. On his study, Yitbarek stated that the use of credit card and other digital money is very minimal and it's highly influences the readiness of the environment for e-commerce adoption (Yitbarek, 2013).

This research uses STOPE (Strategy, Technology, Organization, People and Environment) model for e-readiness assessment of financial institutions for e-commerce adoption. STOPE model has been used by many researchers for various e-readiness assessments. For Example: Amare, Getachew & Philip applied STOPE model to understand the readiness of

Health institutions in implementing telemedicine in Ethiopia. (Amare, Getachew & Philip, 2014). The details related to STOPE model is presented on literature and methodology part of this study.

## **Overview of STOPE E- Readiness Model**

According to Molla and Licker (2005), studying e-readiness factors that affect e-commerce adoption in developing countries is an important consideration for an understanding of the global diffusion of e-commerce. As they have stressed, there is a lack of consensus among e-readiness assessment tools. They emphasized that there is a clear lack of appropriate model to investigate e-commerce adoption in developing countries. In this research, I will be using STOPE model to assess the readiness of financial institutions for e-commerce adoption.

The paper uses STOPE (Strategy, Technology, Organization, People and Environment) model to conduct an assessment on the readiness of financial institutions for e-commerce adoption in Addis Ababa, Ethiopia. STOPE model was developed by Bakry, and it has been used for evaluating the readiness of various e-government solutions, such as e-health, e-commerce etc.

STOPE model was developed based on ten previous assessment studies (Al-Osaimi, Alheraish and Bakry, 2006)

- Three studies were associated with academic centers: one in the USA (Geoffery, 2002), the other in Russia (Sergey, 2004), and the third in the UK (Al-Solbi, 2004);
- Three studies were supported by international organizations: one was supported by the UNDP (UNDP, 2004), another by the ITU (ITU, 2003), and the third by “infodev” of the Worldbank (Mohsen, 2003);
- Two studies were given by specialized firms: one by McConnell International (McConnell international, 2002), and the other by Bridges (Bridges, 2002);
- Two studies were concerned with e-readiness assessments in firms, with each supported by the government concerned (Leading Growth Firms Series, 2001 and Dawn, 2002).

STOPE model considered three levels to assess e-readiness factors in technology adoption (Al-Osaimi, Alheraish and Bakry, 2006).

- The first is the level of the main STOPE domains, which is the e-readiness “strategy”, “technology”, “organization”, “people”, and “environment”.
- The second is the level of the sub-domains, which are the main issues branching from each of the main STOPE domains; and
- The third is the level of sub-sub-domains, which includes issues associated with each of the sub-domains of the main domains.

According to Bakry (2005) all e-readiness factors influencing technology adoption are mapped and integrated in this model. Hence, could it be internal or external, e-readiness factors influencing e-commerce adoption are integrated in the model. It’s for this reason that I chose STOPE as a model for conducting e-readiness assessment on factors readiness of financial institutions for e-commerce adoption in Addis Ababa. In STOPE model factors are evaluated individually and collectively. Each factor, at any level, would be evaluated according to a scale of five grades.

STOPE model has been used in multiple e-readiness projects by various researchers. A research conducted in 2008 by Al-Osaimi, Alheraish and Bakry (2008) shows how the model can be practically used, and it also provides practical results that direct the organizations concerned toward enhancing their e-readiness in response to the current trend of globalizing e-business. They have conducted an e-readiness assessment in three Saudi organizations: a government organization, a bank, and a private sector company. They have developed an e-readiness assessment questionnaire, based on the STOPE model, has been designed considering critical e-readiness factors, and their distribution over the five domains.

STOPE model was used by Amare, Getachew and Philip (2014) to assess the Ethiopian health facilities readiness for the Implementation of Telemedicine. It has also been used to investigate information security readiness of businesses and its compliance with ISO 17799-2005 (Saleh, Alrabiah and Bakry, 2007). The model further used by A. Bakry & S. Bakry (2005) to explore the readiness of businesses for ERP system adoption.

Developers of STOPE model strongly argued that it can be used to investigate the readiness businesses/ countries to adopt ICT projects such as e-commerce. The model has been used in a number of e-readiness assessment projects and it went out successful. There are articles

published by various scientific journals which used STOPE as their model. The model has been tested repeatedly and it provided a satisfactory result.

## **Review of E-readiness factors influencing e-commerce adoption**

The following pages discuss about e-readiness factors influencing e-commerce adoption. There are a number of researches conducted in the past related to e-commerce readiness. Different researchers came up with their own definition of e-readiness. E-Readiness from a business perspective can be defined as a measure of its e-business environment, a collection of factors that indicate how amenable a market is Internet-based opportunities. According to The Bridges Organization (2005), conducting e-readiness assessment for technology solutions such as e-commerce is useful as it facilitates concrete planning and posters positive changes for country which is useful starting point for developing countries (Ali and Alrayes, 2014).

According to Molla and Licker's Perceived E-Readiness Model (PERM) (2005), e-readiness factors for e-commerce adoption can be classified generally into two groups: Perceived Environmental E-Readiness (PEER) and Perceived Organizational E-Readiness (POER). PERM borrowed concepts from STOPE model which was developed earlier by Bakry, and will be used in this research. In PERM there are four major e-readiness factors known as innovational, managerial, organizational, and environmental; these e-readiness factors classified into POER and PEER

POER by itself has four components: awareness (innovation context), commitment (managerial context), resources (organizational context) and governance (organizational context).

- Awareness: - refers to an organization's perception, comprehension, and projection of the benefits and risks of e-commerce.
- Resource: - refers to the level of human, technological, and business resources of a firm. Resource provision affects the capacity of an organization to respond to the challenges and opportunities in e-commerce adoption.
- Commitment: - refers to support by key members of the organization, especially its CEO, to champion e-commerce. Top management's commitment to the implementation of e-commerce is a critical success factor.

- Governance: - refers to the strategic, tactical, and operational model that defines the way organizations structure to establish objectives, allocate resources and make decisions.

PEER refers to the readiness of government, support- giving agencies, and market forces for e-commerce adoption (Molla and Licker, 2005).

- Government E- Readiness: - A government can encourage a country's private sectors in the process of e-commerce adoption through provision of supportive infrastructure, legal and regulatory frameworks, and e-commerce use directives.
- Market Forces E- Readiness: - refers to the application and use of e-commerce by a firm's competitors, customers, suppliers, and other business partners.
- E- Readiness of Supporting Industries: - These are the availability and affordability of services from the IT industry, the institutionalization and development of the financial sector, and the penetration and reliability of carrier and transportation facilities. (Molla & Licker, 2005).

Another researcher named UZoka (2008) has studied Organization related e-readiness factors by using UTAUT model. The study result showed that gender impacts negatively on the adoption of e-commerce, while organization size, management support, communications and information availability contribute positively to the adoption of e-commerce. In his study UZoka argued that developed countries seem to have technological and organizational infrastructure for enabling the development of e-commerce, while developing ones (especially in Africa) are still grappling with a number of technological, sociopolitical, cultural and behavioral hindrances to the adoption of e-commerce. Moreover, the readiness levels of these countries are very low as compared to the USA, Europe, and Australia. However, it is noted that Africa has one of the highest percentage growth rates in internet usage, which is a precursor to e-commerce adoption. UZoka utilized the following variables in determining e-readiness: connectivity and technology infrastructure, business environment, consumer and business adoption, legal and policy environment, social and cultural infrastructure, and supporting e-services.

Gibbs, Kraemer, and Dedrick (2003) presented e-readiness factors as enablers and barriers. Enablers facilitate growth whereas inhibitors prevent or limit growth. Their framework posits that the adoption of e-commerce is driven by forces intermediated by the national environmental and national policy factors. The national environment e-readiness factors include a country's

demographic, economic and financial resources, information infrastructure, industry structure and competition, and payment methods. The national policy e-readiness factors include liberalization of telecommunications and IT markets, government promotion initiatives for e-commerce, and e-commerce legislation.

Kshetri (2007), categorized e-commerce's e-readiness factors into three groups namely; economic, sociopolitical and cognitive. Economic and sociopolitical e-readiness factors are similar to environmental e-readiness factors that Molla and Licker specified (Molla and Licker, 2005). Sociopolitical barriers can be explained in terms of formal and informal institutions. They often tend to be more difficult and time consuming to overcome than technology related e-readiness factors. Political e-readiness factors include lack of laws that provide legal validity of digital and electronic signatures. Legal e-readiness factors are among the major hindrances of e-commerce in the developing countries. Lack of government regulations such as concern about privacy and security, lack of business laws for e-commerce, inadequate legal protection for Internet purchases and concern over Internet taxation are among the reasons of low e-commerce adoption in developing countries.

Economic related e-readiness factors, such as lack of electrical supply, a low tele – density and lack of purchasing power resulted in a low rural internet usage, example Tanzania. Lack of ICT products manufacturer in the developing countries affect the readiness for e-commerce adoption. Unavailability of credit cards is also a major hurdle, Example: B2C E-Commerce in Russia, India, and Latin America. Rapid growth of E-Commerce in the US can be attributed to infrastructure already in place and an easy availability of a physical delivery system. Such systems are rare in developing countries. In the Caribbean region, logistics challenges are among major barriers to E-Commerce diffusion. It's difficult for small developing countries to attract FedEx, UPS, and so on (Kshetri, 2007).

Japhet and Usman (2010) identified specific infrastructural e-readiness factors that can hinder e-commerce adoption in developing countries. They stated that readiness factors for e-commerce adoption can be different from business to business, and country to country. However, they generally categorized e-readiness factors as follows:

- E-Readiness factors related to Infrastructure, which include technology, network, availability of ICT skills, qualified personnel.

- E-Readiness factors related to cost, which include costs of ICT equipment and networks.
- E-Readiness factors related to security and trust, which include uncertainty of payment methods, and legal frameworks.
- E-Readiness factors related to logistics.

In general, e-readiness factors for e-commerce adoption can vary from country to country, or from business to business. According to literatures discussed above and many more, there are numerous e-readiness factors that influence the adoption for e-commerce. Since a research shall be guided by some sort of framework/ model, this research chose to follow STOPE model to assess the readiness of financial institutions for e-commerce adoption. The research emphasis more on e-readiness factors included in the STOPE model. The research tries to assess the relationship between factors because there are some dependencies between factors.

## CHAPTER THREE: RESEARCH METHODOLOGY

### Overview

Research is the process of collecting, analyzing, and interpreting data in order to understand a phenomenon (Leedy and Ormord, 2001). The English dictionary defines a research as the systematic investigation and study of materials and sources in order to establish facts and reach new conclusions. Bhawna and Gobind (2015) defined a research as Systematic investigative process employed to increase or revise current knowledge by discovering new facts. Based on these definitions, there is a consensus that a research is about the extraction of new facts/knowledge in a systematic way. They classified a research in two general categories.

1. Basic research is inquiry aimed at increasing scientific knowledge, and
2. Applied research is effort aimed at using basic research for solving problems or developing new Processes, Product or techniques.

The research process is systematic in that defining the objective, managing the data, and communicating the findings occur within established framework and in accordance with existing guidelines. The frameworks and guidelines provide researchers with an indication of what to include in the research, how to perform the research, and what types of inferences are probable based on the data collected (Williams, 2007).

This research uses STOPE model to assess the readiness of financial institutions for e-commerce adoption in Addis Ababa, Ethiopia. According to Catherine Dawson researchers must describe the following five questions before the actual research starts. The questions are, what?, why?, who?, where?, and when? (Dawson, 2002).

What is this research about?

- This research is about assessing the readiness of Ethiopian financial institutions for e-commerce adoption. This research basically assesses the readiness of these institutions using a STOPE model.

Why does this research relevant?

- According to different literatures, the 21<sup>st</sup> century is leading by Information and Communication Technology (ICT). The growth and development of ICT has been providing a new way of life, and one of these provisions is the e-commerce. The digital divide created the gap between developed and developing countries in utilizing ICT, more specifically in their use of e-commerce. It's known that e-commerce has become a multi-billion dollar business, and it has a huge contribution in the GDP of countries. However, most developing countries including Ethiopia don't benefit much from it because of various reasons. Ethiopia like the rest of the developing world is very far from adopting and utilizing e-commerce. This study contributes to the overall effort of e-commerce adoption in the country.

Who are the participants?

- People who are decision makers in the selected financial institutions. The detail about the number of participants is discussed next.

Where does the research conduct?

- The study conducts in selected financial institutions in Addis Ababa.

When does the research conduct?

- The total time for this project is four to five months; time is allocated for major tasks in the research process. Major tasks in this research are problem identification, literatures review, development of research questions, methodology selection, development of questionnaires and interviews, data analysis, and conclusions and recommendations.

## **Research Approach**

Williams (2007) explained that there are three common approaches to conduct a research. These are quantitative, qualitative, and mixed methods. Researchers typically select the quantitative approach to respond to research questions requiring numerical data. Quantitative research is specific in its surveying and experimentation, as it builds upon existing theories (Leedy and Ormrod, 2001). Researchers typically select the qualitative approach to respond to

research questions requiring textual data. Qualitative research enables the researcher to develop a level of detail from being highly involved in the actual experiences (Creswell, 2003). The mixed methods approach for research questions requiring both numerical and textual data. Johnson and Wuegbuzie (2004) argued that the mixed methods approach to research provided researchers with an alternative to believing that the quantitative and qualitative research approaches are incompatible and, in turn, their associated methods “cannot and should not be mixed”. With the mixed methods approach researchers incorporate methods of collecting or analyzing data from the quantitative and qualitative research approaches in a single research study (Tashakkori and Teddlie, 2003).

This research is mostly a quantitative type of research; however, it also examines qualitative data such as interviews. Therefore, it uses mixed methods to collect and analyze data for the study. The research uses survey research method to capture quantitative data from participants of three financial institutions (banks, MFIs and Insurances). And it uses semi-structured interview to gather qualitative data. Due to time and budget constraints, the research won't interview all of the participants; rather it involves only selected participants from selected institutions.

## **Research Design**

In general the research is guided by on the STOPE model, and the research questionnaire is adopted from previous study. As I described on the literature review section of this paper, Amare, Getachew, and Philip (2014) have developed a research questionnaire using STOPE model and used it to assess the readiness of Ethiopian Health Facilities for the Implementation of Telemedicine. They have done a wonderful job and they managed to publish their findings on a scientific Journal called Communications of the Association for Information Systems. They developed questionnaire considering all the factors specified at the STOPE model, hence, this instrument will be very relevant for studies with similar objective. I have adapted and customized this instrument for the purpose of assessing the readiness of financial institutions for e-commerce adoption. Most of the questions included in their questionnaire are objective - based questions, which make them easily adoptable in any study related to e-readiness. The questions are easy and written with simple English. It doesn't take more than 30 minutes to answer all the questions in the questionnaire.

Both the questionnaire and an interview consider the five domains and sub – domains of a STOPE model. Below are the details about the five domains and their sub – domains. STOPE model consisted of five main domains that an organization or a country must consider before e-commerce adoption (Al-Osaimi, Alheraish and Bakry, 2006).

Strategy: - “Direction, commitments, and plans toward ICT development and utilization for e-commerce adoption”. The sub-domains are associated with ICT Leadership and Future Development Plans. Factors included in ICT Leadership for e-commerce adoption are Vision, Government Support, Commitment, and Managers’ Responsibilities. Factors included in the Future Development Plans are Technology (e-commerce) Plan, Organization e-commerce Plan, and e-commerce HR Plan, and Non – e-commerce plan.

Technology: - “Current state of issues concerned with ICT facilities for e-commerce adoption”. The issues are Basic Communication & Information Infrastructure, e-Services Infrastructure, ICT provisioning for e-commerce adoption, and ICT support for e-commerce adoption. The Factors included in Basic Communication & Information Infrastructure are Availability and Performance. Factors included in e-Service Infrastructure are Government and Business/Organizations. Factors included under ICT Provisioning are Products/ Market and Performance. Factors included under e-commerce Support are Standards and Operations & Maintenance.

Organization: - “Current state of issues concerned with ICT regulations and management for e-commerce adoption”. The issues are ICT Government and Regulations for e-commerce adoption, ICT cooperation for e-commerce adoption, and ICT Management for e-commerce adoption. Factors included in ICT Government and Regulations are Basic e-commerce Regulations, Internet Service Regulations, and E- Business Services Regulations. Factor included under ICT Cooperation is Partnership/ Services. Factors included in ICT Management are Measures, Change, Quality, and Cost/ Affordability.

People: - “Current state of issues concerned with ICT users and skills for e-commerce adoption”. The issues are ICT Awareness for e-commerce adoption, and ICT Education and Training for e-commerce adoption. Factors included in ICT Awareness are ICT literacy, Education System Support, and Media Support. Factor included in ICT Education & Training is availability of e-commerce related courses.

Environment: - “Current non – ICT issues surrounding and affecting the current state of ICT for e-commerce adoption”. The issues are Knowledge, Resource & Economy, Organization, and Infrastructure. Factors included in Knowledge are culture and Education & Training. Factors included in Resource & Economy are Revenues/ Profitability, Trade and Income. Factors included in Organization are Government Regulations, Cooperation, Management, and Basic Services such as Electricity/ Transportation/ Postal System.

## **Data Collection**

The research uses two data collection techniques, questionnaire and semi- structured interview. Using survey research method the research tries to address the following research objectives:

- Identify the e-readiness factors for e-commerce adoption in the financial institutions
- Determine the status of e- readiness of selected local financial institutions from STOPE perspective.

Due to time and budget constraint, the research won't interview all of the participants that completed the questionnaire; rather it involves only selected representatives from selected institutions. The research uses purposive sampling to select representatives for interviews. Representatives selected based on the following justifications.

- Commercial Bank of Ethiopia (CBE) is the biggest retail bank in Ethiopia, and among the first banks to adopt related technology solutions such as e- payment. This research includes CBE as a representative of the banking sector for the qualitative aspect of the study. Two senior – managements (one from IT division and another from E- Banking division) are participated on interviews.
- Association of MFIs (AEMFI) selected on behalf of the MFIs operating in Ethiopia. The association provides technical and operational support for MFIs, and it's the right place to get general information about the challenges and opportunities related to ICT and e-commerce. Two senior – managements (one from IT division and another from Operation division) are participated on interviews in order to address the qualitative aspects of the research objectives related to MFIs.

- Ethiopian Insurance Corporation is the largest insurer in the country, and it's known for its adoption of technology based solutions. In order to get qualitative data related to challenges and opportunities of Insurance providers in the adoption of e-commerce two senior – managements from this institution are participated on interviews. These are from ICT and Insurance divisions.

Therefore, there are a total of six persons participated on the interview. Interview questions are different from the questionnaire, and it focuses on the challenges, processes, and practices of e-commerce in the financial industry. Using semi-structured interview questions the research tries to address the following research objectives.

- Explore the challenges related to e-commerce adoption in the local financial institutions.
- Characterize the existing e-commerce processes and practices in the financial institutions.

## Sampling

The basic idea of sampling is that by selecting some of the elements in a population, we may draw conclusion about the entire population. In this research the population of interest is the financial institutions, banks, insurances and MFIs, specifically the Information technology and e-banking unit. The sampling method that the research uses to select institution from the population is simple random sampling method. In this research, simple random sampling which is the simplest form of probability techniques was used. Simple random sample is considered a special case in which each population element has a known and equal chance of selection (Uma, 2003). The research also uses purposive sampling to select individuals from selected institutions. The research assesses the readiness of financial institutions for e-commerce adoption; hence, individuals that have role associated to e-commerce or similar responsibilities in the financial institutions are considered for the study, in addition ICT director or managers are purposively selected for the study. The details about sampling presented on the following pages.

Currently there are 18 banks (16 private and 2 government), 17 insurances (16 private and 1 government) and 35 Microfinance Institutions (MFIs). To participate in the survey 6 banks of which 1 is a consortium of banks, 5 insurances and 6 MFIs of which 1 is the association of MFIs are selected. This is achieved as per the following calculations.

Below is the formula used to calculate the sample size. This formula perfectly aligned with this study because it's specified in most statistics textbooks as a method of finding sample size for inferential statistics dealing with probability.

*Note:* Calculate the sample size using the infinite population formula first. Then use the sample size derived from that calculation to calculate a sample size for a finite population.

$$\text{SS for infinite population} = \frac{Z^2 * (P) * (1 - P)}{C^2}$$

*Note:* We use Sample Size for Infinite population when we the population is greater than 50,000.

$$\text{SS for finite population} = \frac{\text{SS}}{(1 + (\text{SS} - 1)/\text{Pop})}$$
, where Pop is Population

Hence, sample size for the banks by considering 90 % of Confidence levels and confidence interval of 30, with a population of 18 is as follows:

$$\text{Sample Size for infinite population} = \frac{1.645^2 * (0.5) * (1 - 0.5)}{(0.30)^2} = 7.52$$

Where:

Z = Confidence level or Z value (e.g 1.645 for 90 % confidence level)

P = percentage of population picking a choice, expressed as decimal, since it unknown use p = 0.5 which assumes maximum heterogeneity (i.e. a 50/50 split)

C = Confidence interval, expressed as decimal, 0.30 for +/- 30.

Correction for finite population size

$$\text{Sample Size for finite population} = \frac{7.52}{1 + (7.52 - 1)/18}$$

$$\text{Sample Size for finite population} = 5.5 \approx 6$$

Based on the above formula six banks are randomly selected for the study. However, I have randomly selected five banks. And I have purposively included a financial institution called Premier Switch Solutions (PSS), which is a consortium of six banks to provide ePayment services for their customers. In addition to five banks this study assesses the readiness of PSS for e-commerce adoption. Therefore, a total of six financial institutions in the banking sectors included in the study. Simple Random Sampling is used to select the five banks out of the eighteen banks. I have used Microsoft Excel RAND () function to randomly select the five banks.

S/N	Random Numbers	Banks	Ownership
1	0.021694959	Berhan International Bank	Private
2	0.095717877	Enat Bank S.C	Private
3	0.133632912	Commercial Bank of Ethiopia	Government
4	0.175766406	Awash International Bank	Private
5	0.192676034	Wegagen Bank	Private
6	0.269986647	Dashen Bank	Private
7	0.421815628	Lion International Bank	Private
8	0.533724083	Nib International Bank	Private
9	0.535615403	Abay Bank S.C	Private
10	0.682767192	Zemen Bank	Private
11	0.705364262	Development bank of Ethiopia	Government
12	0.740417601	Oromia International Bank	Private
13	0.744621194	United Bank	Private
14	0.828256614	Bank of Abyssinia	Private
15	0.86323907	Bunna International Bank	Private
16	0.880012129	Addis International Bank S.C	Private
17	0.913699972	Cooperative Bank of Oromia	Private
18	0.960017374	Debut Global Bank S.C	Private

Table 2: Banks included in the Study

The same calculation is used to find the sample size for insurance institutions. Currently, there are a total of seventeen insurance institutions operating in Addis Ababa, considering 90 % of Confidence levels and confidence interval of 30, the sample size for infinite population is:

$$SS \text{ for infinite population} = \frac{Z^2 * (P) * (1 - P)}{C^2}$$

$$\text{Sample Size for infinite population} = \frac{1.645^2 * (0.5) * (1 - 0.5)}{(0.30)^2} = 7.52$$

Correction for finite population size

$$\text{Sample Size for finite population} = \frac{7.52}{1 + (7.52 - 1)/17}$$

$$\text{Sample Size for finite population} = 5.43 \approx 5$$

As per the above result, five insurance institutions are included in the study. I have used Microsoft Excel RAND () function to randomly select the five insurance institutions. The following diagram presents the five insurance institutions that are included in the study.

S/N	Random Number	Insurance institutions	Ownership
1	0.030311417	NIB Insurance Company	Private
2	0.057967882	Berhan Insurance S.C.	Private
3	0.087115896	Bunna Insurance S.C.	Private
4	0.127469015	Ethiopian Insurance Corporation	Government
5	0.139606828	Tsehay Insurance S.C.	Private
6	0.151912232	The United Insurance S.C.	Private
7	0.151954006	Ethio-Life and General Insurance S.C.	Private
8	0.170890138	Nile Insurance Company S.C	Private
9	0.180982833	National Insurance Company of Ethiopia S.C.	Private
10	0.263777512	Lion Insurance Company S.C.	Private
11	0.303356442	Africa Insurance Company S.C	Private
12	0.523893647	Global Insurance Company S.C.	Private
13	0.609649415	Oromia Insurance Company S.C.	Private
14	0.639890582	Abay Insurance Company	Private
15	0.798385588	Nyala Insurance Company S.C	Private
16	0.918456796	Lucy Insurance S.C.	Private
17	0.952993299	Awash Insurance Company S.C	Private

Table 3: Insurances included in the Study

Although there are 35 Microfinance Institutions (MFIs) in the country, only seventeen are operating in Addis Ababa. Hence, the population size for MFIs is seventeen. By using the above formula the Sample Size for infinite population is equal to 7.52 the same as the banks and insurances since we are using the same confidence level (90 or 1.645) and confidence interval (0.30 or +/- 30). And the Sample Size for finite population is equal to five because the population size is seventeen similar to the insurance institutions. In addition, I have purposively included an association of MFIs called AEMFI, which can provide in-depth information about the challenges and opportunities of e-commerce adoption in the MFIs. Based on the result, five MFIs are included in the study. I have used again Microsoft Excel RAND () function to randomly select the five MFIs. The following diagram presents the five MFIs that are also included in the study.

S/N	Random Numbers	MFIs
1	0.12167258	Vision Fund
2	0.133591354	Harbu
3	0.14409072	Wasasa
4	0.152193224	Aggar
5	0.1682054	Meklit
6	0.175412414	Metemamen
7	0.299611751	Lefeyeda
8	0.328335551	Bussa Gonfa
9	0.456340809	Dynamic
10	0.479206864	Digaf
11	0.558112773	Nisir
12	0.602180936	SFIP
13	0.611586903	Eshet
14	0.615345674	OCSSCO
15	0.633057554	Letta
16	0.81483251	Addis
17	0.992445079	PEACE

Table 4: MFIs included in the Study

In general Seventeen financial institutions (6 banks, 5 insurances, and 6 MFIs) are included in this study to assess their readiness for e-commerce adoption.

- To assess the readiness of banks for e-commerce adoption, senior managements and key personnel from ICT and e-payment divisions are participated in the study. These divisions are selected because they are key players in e-commerce adoption (Emishaw, 2017).
- To assess the readiness of Insurances for e-commerce adoption, senior managements and key personnel from ICT and general Insurance divisions are participated in the study. ICT division is selected because it's the major player in companies' readiness for technology adoptions, and general Insurance division is selected because it's the business-owner in the insurance companies that needed an e-commerce platform to sell products & services.
- To assess the readiness of MFIs for e-commerce adoption, senior managements and key personnel from ICT and Operations division are participated in the study. ICT division is selected because it's the major player for the MFIs' readiness for technology adoptions, and Operations division is selected because it's the key division in MFIs that executes crucial business operations which are related to the provisions of products and services to customers.

N.B: Division names could be slightly different from one institution to another, for example Berhan Bank and CBE use the name E- Banking whereas Awash Bank uses the name Digital Channels to describe their core divisions/ department. The same way Ethiopian Insurance Cooperation uses the name general Insurance and long term insurance whereas the Berhan Insurance S.C uses the names life Insurance, general Insurance and Travel Insurance to describe their core divisions/ departments. Despite name differences selected banks, insurances and MFIs have divisions/ departments similar to those mentioned at the top.

The following table presents the population size in each of the financial institution, which includes senior managements and key personnel from preferred departments/ divisions/ business units.

BANKS	Pop size	INSURANCE	Pop size	MFIs	Pop size
Berhan International	15	NIB Insurance Company	13	Vision Fund	7
Enat Bank S.C	14	Berhan Insurance S.C	10	Harbu	8
CBE	25	Bunna Insurance Company S.C	10	ADCSI	10
Awash International	18	Ethiopian Insurance Cooperation	9	Agar	8
Wegagen Bank	13	Tsehay Insurance S.C	14	Nisir	8
PSS	9			AEMFI	7
<b>Total</b>	<b>94</b>		<b>66</b>		<b>45</b>

Table 5: Population size in the selected departments of the financial institutions, source companies' websites and their organogram (Source: Own Survey, 2018)

The total population size would be 94 for banks, 66 for Insurances and 45 for MFIs. Due to time and budget constraints the total number of population wouldn't participate on the study. However, using the same sampling formula, I managed to determine the sample size for all institutions.

$$SS \text{ for infinite population} = \frac{Z^2 * (P) * (1 - P)}{C^2}$$

$$SS \text{ for finite population} = \frac{SS}{(1 + (SS - 1)/Pop)}, \text{ where Pop is Population}$$

For Example, the sample size for Berhan Bank using 90 % of Confidence levels and confidence interval of 30, with a population of 15 is as follows:

$$SS \text{ for infinite population} = \frac{1.645^2 * (0.5) * (1 - 0.5)}{(0.30)^2} = 7.52$$

Correction for finite population size

$$\text{Sample Size for finite population} = \frac{7.52}{1 + (7.52 - 1)/15}$$

$$\text{Sample Size for finite population} = 5.2 \approx 5$$

Similarly, the sample size for the rest of the institutions calculated. The following table presents sample sizes (SS) for all based on their population size. The respondents are purposively selected from each financial institution based on their job units and positions (Senior managements from e-payment, Insurance and Operations divisions).

BANKS	Pop size	INSURANCE	Pop size	MFIs	Pop size
Berhan International	5	NIB Insurance Company	5	Vision Fund	4
Enat Bank S.C	5	Berhan Insurance S.C	4	Harbu	4
CBE	6	Bunna Insurance Company S.C	4	Wasasa	4
Awash International	5	Ethiopian Insurance Cooperation	4	Agar	4
Wegagen Bank	5	Tsehay Insurance S.C	5	Meklit	4
PSS	4			AEMFI	4
<b>Total</b>	<b>30</b>		<b>22</b>		<b>24</b>

Table 6: Sample size for the study

Hence, the total sample size for quantitative data would be 76 individuals from banks, Insurances and MFIs.

The research also conducted interview with key people from each sector. I used purposive sampling to select people for the interview. Six key persons are participated on the interview in order to understand qualitative aspects of the readiness of financial institutions for e-commerce adoption. The detail about the selection and justification is discussed under data collection sub- topic of the research methodology.

## **Data Analysis Techniques**

This research uses two categories of data analysis techniques; namely quantitative data analysis and qualitative data analysis techniques. Quantitative data analysis techniques are mainly applied to quantify items from questionnaire. This is because quantitative research creates meaning through objectivity uncovered in the collected data (Williams, 2007). This research uses analysis techniques such as tables and charts to present summary information. The research uses SPSS V.20 to analysis the quantitative data. The mean values of the factors could be determined the readiness level of domains and sub- domains.

The responses from the interview are summarized and categorized into the five major STOPE constructs (Strategy, Technology, Organization, People, and Environment) and used to supplement the outcome of the quantitative analysis. Whenever the qualitative data did not quite agree with the survey result, I offered a possible explanation.

The research reviewed related documents from various financial institutions, and it examined secondary data and literatures made by other stakeholders.

## **Pre-assessment study**

The research adopted and customized a questionnaire developed before three years in 2014 by three scholars of Addis Ababa and Alabama University for their study of Ethiopian Health Facilities readiness for Implementation of Telemedicine. Their study published in a scientific journal called Communications of the Association for Information Systems.

## CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

### Overview

In this Chapter, data obtained from the respondents are analyzed, presented and discussed based on the specific objectives and in line with the existing model. The first section incorporates quantitative data analysis, presentation and discussion and the second part consists of the qualitative data analysis and discussion. The responses from the interview were summarized and categorized into the five major STOPE constructs (Strategy, Technology, Organization, People, and Environment) and used to cross – validate and supplement the outcome of the quantitative analysis. Whenever the qualitative data did not quite agree with the survey result, I offered a possible explanation. In the first section, characteristics of the respondents, the readiness of financial institutions in terms of the five constructs of a STOPE model analyzed, presented and discussed.

### Overview of the Research questionnaire and Interview questions

The research consisted of five domains and sixty four factors or variables. The questionnaire categorized in to six sections, and includes 5- scale Likert scale questions, yes or no questions, and some multiple – choice questions. A total of eighty-five survey questionnaires were distributed and seventy six usable questionnaires were returned. Data encoding, cleansing, and analysis were made using SPSS v.20. The Likert scale type responses used in this research have five categories or responses as strongly disagree, disagree, not sure, agree and strongly agree. The following table presents the domains and their corresponding variables.

Domains	# of variables	Variables Names & Range	Remarks
Strategy (SRXX)	12	SR1- SR12	
Technology (TRXX)	4	TR_Basic1 – TR_Basics4	Multiple – choice
	12	TR1 – TR12	Likert scale
Organization (ORXX)	12	OR1 – OR12	
People (PRXX)	12	PR1 – PR12	
Environment (ERXX)	12	ER1 – ER12	
Total	64		

Table 7: Domains and corresponding variables

The questionnaire I used in this study was developed and tested by other researchers by the name Amare, Getachew, and Philip (2014). However, I have edited a couple of questions

because of the specific interests related to this research. Hence, I have analyzed its reliability once again using SPSS, and I have conducted a pilot study to ensure whether the instruments are free of ambiguity and irrelevant bias. A pilot study was conducted with a sample of 17 purposively selected participants in order to test the validity and reliability of the questionnaire. The pilot survey participants were selected from all the financial institutions IT departments. All of the participants filled the questionnaire of the pilot study. Feedbacks from the participants were incorporated prior to disseminating the questionnaire to the respondents. Based on the pilot test feedbacks, the questionnaire was amended to improve the clarity of the questions.

I used Alpha model to analysis the reliability of the research questions. It was developed by Lee Cronbach in 1951 to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items with in the test. Internal consistency should be determined before a test can be employed for research or examination purposes to ensure validity. In addition, reliability estimates show the amount of measurement error in a test. Put simply, this interpretation of reliability is the correlation of test with itself. Squaring this correlation and subtracting from 1.00 produces the index of measurement error. For example, if a test has a reliability of 0.80, there is 0.36 error variance (random error) in the scores ( $0.80 \times 0.80 = 0.64$ ;  $1.00 - 0.64 = 0.36$ ). As the estimate of reliability increases, the fraction of a test score that is attributable to error will decrease (Mohsen and Reg, 2011).

According to Norman (2003, p.219), this coefficient ranges between 0 and 1, with a high value indicating a high level of consistency among the items. In view of that, the Cronbach's Alpha for the questionnaire in this study is 0.812, which is greater than 0.70 which is the minimal alpha value to prove the internal consistency and reliability. Hence, the items considered to have relatively high internal consistency. Figure 3 shows the analysis result of the research questionnaire.

**Case Processing Summary**

		N	%
Cases	Valid	11	64.7
	Excluded <sup>a</sup>	6	35.3
	Total	17	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.812	69

Figure 2: Reliability Analysis for research variables (Source: Own survey, 2018)

The questionnaire distributed to six banks, five insurances and six MFIs, which are randomly selected. Thirty questionnaires are collected from the banks; twenty two questionnaires are collected from insurances and twenty four are collected from MFIs. Hence, a total of seventy six questionnaires are collected from seventeen financial institutions. The selected survey respondents are Senior Managements from ICT, Operations, e- payment and Insurances divisions of selected institutions.

## Analysis, Presentation and Discussion

### Characteristics of the participants

The survey questionnaire consisted of demographic data in order to get some information about the participants. The demographic data is concerning about age, gender, institutions, and job department. In this section of the chapter, the characteristics of the sampled respondents are first discussed.

### Distribution of Respondents by Institutions

The data pertaining to the distribution of the respondents by institution/ organizations are shown in Figure 4. Around 39% of the respondents are from banks, 32% are from Microfinance Institutions, and 29% are from Insurance. In this study, there are six banks including a consortium of private banks called PSS; six MFIs including their association known as AEMFI;

and five insurances. The detail about sampling and selection is discussed on chapter three (Figure 4).

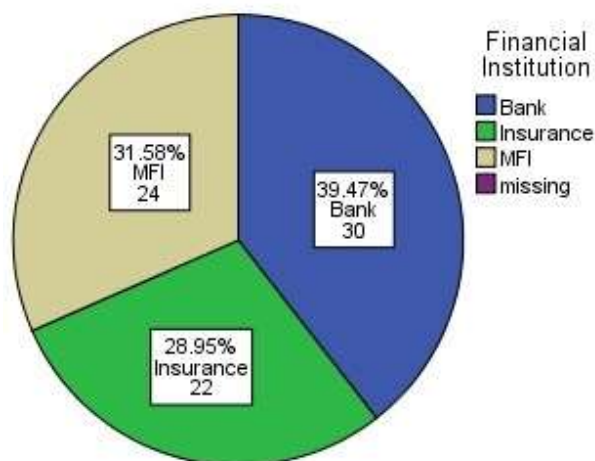


Figure 3: Distribution of the respondents by Financial Institutions

#### Distribution of Respondents by job unit

The distribution of the respondents with respect to their job's unit is depicted in table 8. Accordingly, around 46% of the respondents are from ICT department, which means on average two ICT personnel are participated in the study from each institution. Nearly 30% of the respondents are from operation departments, and around 16% of the respondents are e- payment experts from various banks. Respondents from insurance companies took a total share of 7.9%. This implies there is a good representation of each of the core departments based on the proportion size of the target population; which helps to get reliable information and minimize bias.

Job's Department	Frequency	Percent	Cumulative Percent
ICT	35	46.1	46.1
e- payment	12	15.8	61.8
Operations	23	30.3	92.1
General Insurance	2	2.6	94.7
Long- term Insurance	4	5.3	100.0
Total	76	100.0	

Table 8: Distribution of the respondents by job department/ unit

## Distribution of Respondents by Gender and Age

The following table provides the frequency and percentage of the survey demographic characteristics for age and gender. The majority of the respondents are between the age of 26 and 35. Nearly 60% are men.

Age			
Range	Frequency	Percent	Cumulative Percent
20 – 25	4	5.3	5.3
26 – 35	43	56.6	61.8
36 - 45	22	28.9	90.8
46 – 55	5	6.6	97.4
Above 55	1	1.3	98.7
Missing	1	1.3	100.0
Total	76	100.0	
Gender			
Gender	Frequency	Percent	Cumulative Percent
Male	45	59.2	59.2
Female	31	40.8	100.0
Total	76	100.0	

Table 9: Distribution of the respondents by Age & Gender

## E-readiness Analysis and Discussion

According to Amare, Getachew, and Philip (2014), all five factors are affected by e-government strategy, and e-commerce adoption is related to Strategy, Technology, Organization, People and Environment. The following figure shows the theoretical framework of the study developed by Amare, Getachew, and Philip (2014) based on the original work of Al-Osaimi, Alheraish and Bakry (2006).

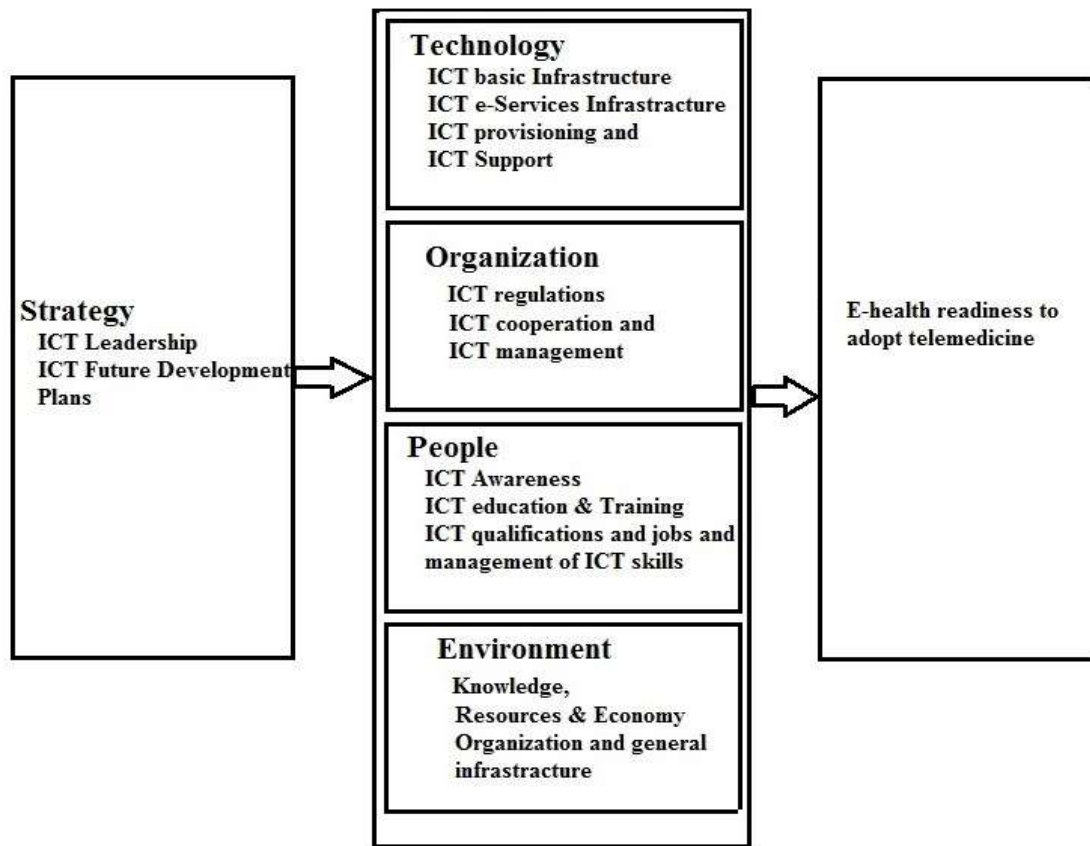


Figure 4: STOPE (Bakry, 2006) redrawn and used as a theoretical model

In the above model the perceived interrelationships in the STOPE model are clearly illustrated. The model was validated by a software package called Smart PLS 2.0 using an algorithm called Partial Least Square, and Structural Equation Modeling (SEM) to describe the relationships between the latent variables (strategy, technology, organization, people and environment). They used Correlation coefficients to test the hypothesis against the domain areas. I used the same model in this research. The research instruments (questionnaire and interview questions) are both developed based on the interrelationship of domains and sub – domains in this model. The data analysis, presentation and discussion of the research followed the same model.

The research uses SPSS V.20 to analysis the quantitative data. Tables and charts are used for presentation. The mean value of factors determined the readiness level domains and sub-domains. According to Al-Osaimi, Alheraish and Bakry (2006), the integrated factors of the STOPE model would need to be evaluated individually and collectively. For this evaluation, a

mathematical model has been developed, considering domains and sub-domains of a STOPE model. Each factor, at any level, would be evaluated according to a scale of five grades as follows 1 = None, 2 = Poor, 3 = Average, 4 = Good and 5 = Excellent.

Although this study used STOPE as a framework, it has also employed McConnell’s e-readiness assessment techniques. In the McConnell procedure, scores are averaged. As shown in Figure 5, depending on the average score, the responses are represented with traffic light colors: Red, Red-Amber, Amber, Amber- Blue, and Blue lights to visually indicate their e-readiness in each of the categories in the STOPE model (McConnell International, 2002). Amare, Getachew, and Philip (2014) used the same evaluation approaches; they took the mean of the manifest variables in order to grade the latent variables. Based on the mean of the manifest variables, they have developed five groups.

Traffic Light	Red	Red-Amber	Amber	Amber-Blue	Blue
Mean of Domain					
	[ 1 - 1.80 ]	[1.81 - 2.6]	[2.61 - 3.40]	[3.41 - 4.20]	4.2 - 5

Figure 5. McConnell International Tools of Traffic Light Colors

- Red [1 - 1.80], conditions for e- commerce adoption are very low and not ready.
- Red- Amber [1.81 - 2.6], conditions for e- commerce adoption are low and numerous improvements are needed
- Amber [2.61 - 3.40], conditions for e- commerce adoption are moderate but improvement is needed
- Amber – Blue [3.41 - 4.20], conditions for e- commerce adoption are high and could be considered ready.
- Blue [4.2 - 5], conditions for e- commerce adoption are very high and fully ready.

In this part of the research I analyzed the readiness of financial institutions in general. Following that I will discuss about individual sectors (Banks, Insurances and MFIs) in detail.

## Financial institutions’ e-readiness detail

### Strategic Readiness

In this study, there are twelve strategic readiness (SR) factors as described in the table 11. According to the respondents, five out of twelve factors are classified Amber - Blue (range 3.41

– 4.20), which means conditions for e- commerce adoption associated to these factors are high and could be considered ready. These factors are ‘availability of clear vision and mission (mean = 3.68)’, ‘ICT direction, commitment and plan (mean = 3.61)’, ‘availability of documented and communicated ICT policy (mean = 3.66)’, ‘availability of ICT’s future development plan (mean = 3.42)’, and ‘willingness to take additional responsibilities to strengthen e – commerce knowledge (mean = 3.87)’.

Six out of twelve factors classified as Amber (range 2.61 – 3.40), which means conditions for e- commerce adoption are moderate, however improvement is needed associated to these factors for fully realize the adoption. These factors are ‘availability of ICT awareness & training plan (mean = 3.11)’, ‘trade policies (mean = 2.63)’, ‘institutional polices (mean = 3.03)’, ‘Staff’s participation in ICT projects (mean = 3.07)’, ‘appropriate plan for e- commerce implementation (mean = 2.99)’, and ‘support from the management (mean = 3.29)’.

One out of twelve factors classified as Red- Amber (range 1.81 – 2.6), which means conditions for e- commerce adoption are low and numerous improvements are needed associated to this factor before the e- commerce adoption. This factor is ‘government support (mean = 2.57)’. The mean score of responses for the strategic readiness is equal to 3.24 in which conditions for e- commerce adoption are moderate, but improvement is needed on individual factors to fully realize the adoption.

<b>Strategy Variables</b>	<b>Number of Respondents</b>	<b>Mean</b>
Availability of clear vision and mission	76	3.68
ICT direction, commitment and plan	76	3.61
Availability of documented and communicated ICT policy	76	3.66
Availability of ICT’s future development plan	76	3.42
FI’s willingness to take additional responsibilities to strengthen e – commerce knowledge	76	3.87
Availability of ICT awareness & training plan	76	3.11
government support	76	2.57
Trade policies	76	2.63
Institutional polices	76	3.03
Staff’s participation in ICT projects	76	3.07
Appropriate plan for e- commerce implementation	76	2.99
Support from the Management	75	3.29
Average Strategy Readiness		3.24

Table 10: Strategic e- readiness of the financial institutions for e- commerce

In general the strategic readiness of financial institutions for e-commerce adoption needs improvement. However, there are some promising situations related to the strategic readiness of the financial institutions in the country related to the e-commerce. The National Bank of Ethiopia (NBE) has developed a national strategy for modernization of the national payment system in Ethiopia in 2016. One component of the strategy is to implement e-commerce services in the financial institutions. And individual institutions are expected to develop their own strategy for e-payment and e-commerce adoption (National Bank of Ethiopia, 2016). In addition, the country as a whole has developed a National e-government strategy and implementation plan which also included the adoption of e-commerce in businesses such as the financial institutions. The national e-commerce and e-signature laws have been prepared, and the national e-commerce standard and deployment platform and implementation strategy are ongoing (MCIT, 2011).

The mean score of two of the strategic variables (government support and availability of trade policies) showed that there is little support that is being given by the government and that it is difficult to say there is such a support from the government. The interview respondents in one of the financial institutions said, “The government didn’t take the lead in promoting e-commerce in the country and more specifically in the financial institutions. The government is responsible to produce a National strategic roadmap for e-commerce so that financial institutions and other businesses could adopt it. And it must facilitate a favorable environment for e-commerce adoption. However, the support given for financial institutions by the government is not satisfactory.” On the other hand, there were also respondents who argued that the government provided various forms of support such as enacting laws that are related to the matter. It is also establishing institutions such as Information Network Security Agency (INSA) to ensure online data security. It supported the establishment of a core banking system in the country which would support the growth of e-commerce in and outside of the financial institutions.

The mean of responses for banks is 3.61, classified as Amber - Blue (range 3.41 – 4.20), which means conditions associated to strategic readiness are high and could be considered ready for e-commerce. The mean of responses for Insurances (mean = 2.99) and MFIs (mean = 3.10) are classified as Amber (range 2.61 – 3.40), which means conditions associated to strategic readiness are moderate but improvement is needed to fully realize the adoption (Figure 6).

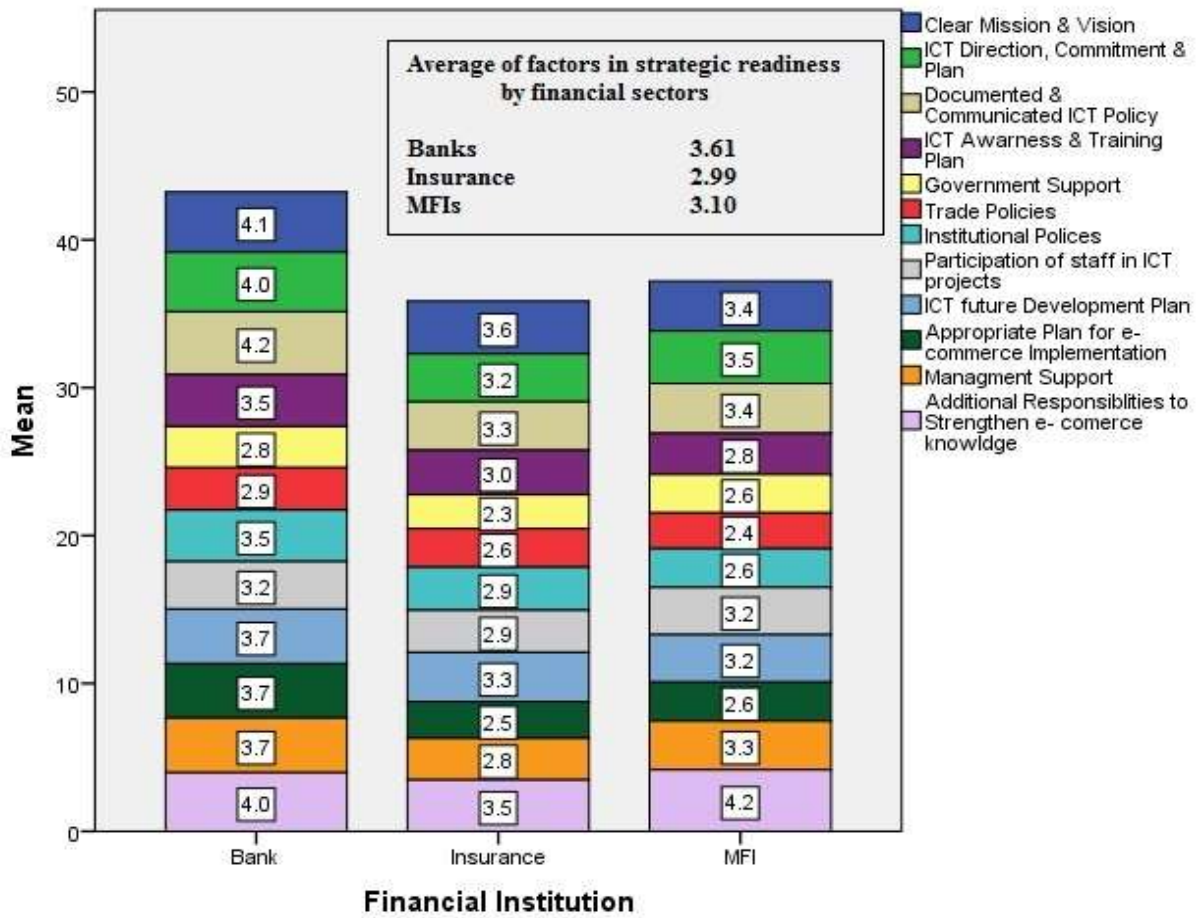


Figure 6: Strategic e- readiness of the financial institutions for e- commerce adoption by sectors

### Technological Readiness

As Molla and Licker (2005) argued technological readiness is very vital for the initial adoption and institutionalization of e- commerce in businesses. It's concerned about the current state of issues concerned with ICT facilities. In this study there are sixteen technology related variables grouped under two groups. The first four variables are about the readiness of basic ICT facilities in the financial institutions such as connectivity and availability of websites. The next twelve variables are associated with four of the technological sub- domains: "ICT basic information infrastructure", "ICT e-service infrastructure", "ICT provisioning", and "ICT support".

## Availability, affordability and reliability of Internet connection in the financial institutions

The availability, affordability and reliability of an internet connection in the finance institutions are supposed to be an indicator for measuring the level of technology readiness. The following table summarizes information pertaining to the levels of internet availability, affordability and reliability. Currently, all of the financial institutions participated in this study are having an internet connection in their offices. There could be slight differences in the statistics if the study was conducted in the financial institutions operating outside of Addis Ababa. Accordingly, the facts presented indicate that of seventy-six respondents, fifty-two (68.4%) confirmed that broadband internet is available in their respective financial institutions, twelve (15.8%) confirmed that CDMA (3G or 4G) internet is available in their respective financial institutions, and twelve (15.8%) respondents don't know the type of internet connection in their respective financial institutions (Table 12).

<b>Technology Readiness - Type of Internet</b>			
Type	Frequency	Percent	Cumulative Percent
Broadband	52	68.4	68.4
CDMA	12	15.8	84.2
Don't Know	12	15.8	100.0
Total	76	100.0	

Table 11: Type of internet in the financial institutions

Only 35.5 % of the respondents agreed that the speed of the internet connection in their financial institution is suitable for servicing business requirements. The majority of the respondents (39.5%) don't agree about the suitability of their internet connection for servicing the business requirements. As in the internet speed the majority of the respondents (42.1%) don't agree about the affordability of the internet connection; they believed the cost of the internet connection is expensive and it's not affordable by the financial institutions. And around 45% the respondents believed that the internet connection in their institution is not reliable. In general, the majority of respondents are not satisfied with the speed, affordability and reliability of the internet connection in their respective institutions (Figure 7).

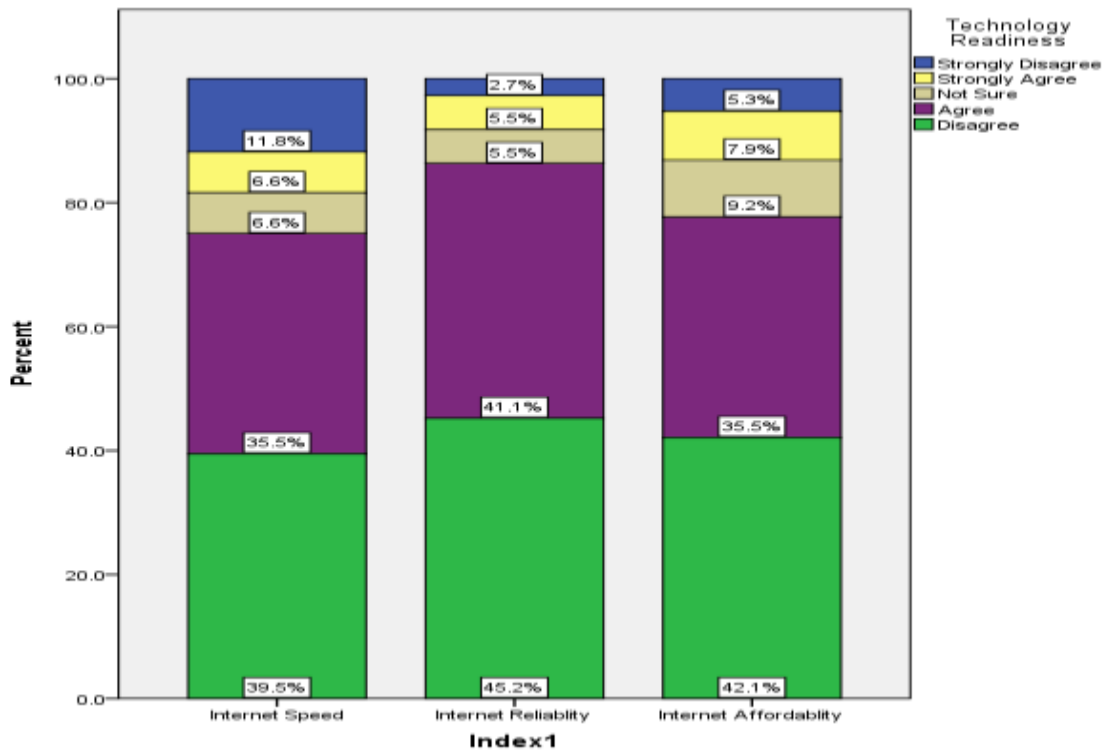


Figure 7: Speed, Affordability and Reliability of internet connection in the financial institutions

Nearly 65% of the respondents confirmed that their financial institution has official website for the purpose of information sharing with their customers. Around 24% of the respondents confirmed that their financial institution doesn't have official website, and nearly 12% of the respondents don't know whether their respective financial institution has official website or not.

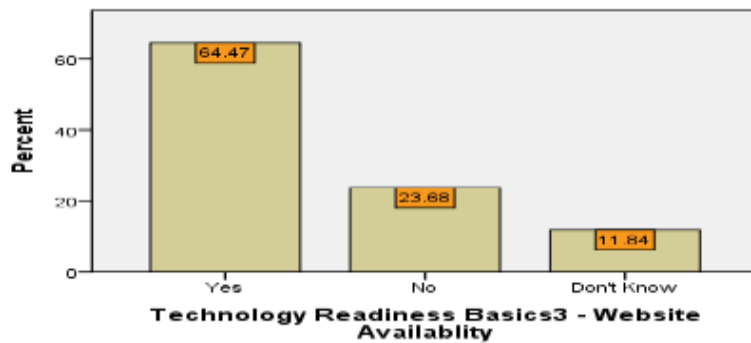


Figure 8: Availability of official websites in the financial institutions

Nearly 33% of the respondents believed the costs of ICT maintenance is high in the country, and 25% of them believed it's very high (Figure 9).

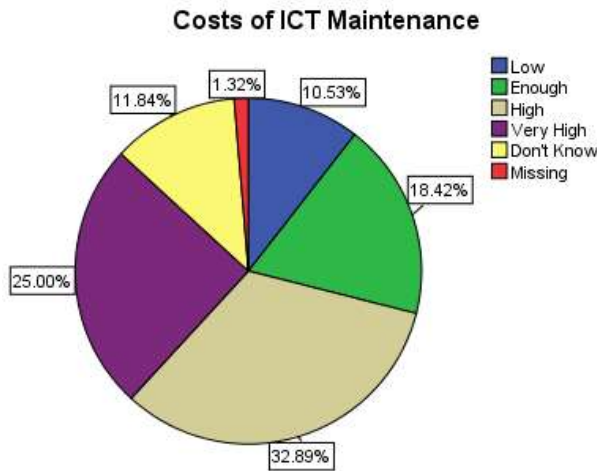


Figure 9: Availability of official websites in the financial institutions

According to the survey respondents, three out of twelve factors in the technology readiness are classified Amber - Blue (range 3.41 – 4.20), which means conditions associated to these factors are high and could be considered ready for e- commerce (Table 13). These factors are ‘information exchange between FIs (mean = 3.74)’, ‘availability of telephone/ internet/ bandwidth in the financial institutions (mean = 3.51)’, and ‘affordability of telephone/ internet/ bandwidth in the financial institutions (mean = 3.68)’.

Nine out of twelve factors in the technology readiness classified as Amber (range 2.61 – 3.40), which means conditions associated to these factors are moderate but improvement is needed for fully realize e- commerce adoption (Table 13). These factors are ‘hardware and software affordability by FIs for e- commerce implementation (mean = 3.32)’, ‘availability of standards for ICT support in the financial institutions (mean = 3.33)’, ‘speed of internet connection (mean = 2.86)’, ‘reliability of internet connection (mean = 3.01)’, ‘affordability of internet connection (mean = 2.99)’, ‘availability of hardware and software in the local market (mean = 3.09)’, ‘availability of technical people in the local market (mean = 3.13)’, ‘availability of on – time support (mean = 3.18)’, and ‘effectiveness of support providers (mean = 3.16)’.

The mean score of responses for the technology readiness is equal to 3.24 in which conditions related to technology readiness are high and could be considered ready but

improvement is needed for fully realize the adoption. There are critical issues related to technology readiness that need to be addressed.

<b>Technology Variables</b>	<b>Number of Respondents</b>	<b>Mean</b>
Information exchange between FIs	76	3.72
Affordability of Hardware and Software	76	3.32
Availability of telephone/ internet/ bandwidth in the FIs	76	3.51
Affordability of telephone/ internet/ bandwidth by the FIs	74	3.68
Availability of standards for ICT support in the FIs	76	3.33
Speed of internet connection	76	2.86
Reliability of internet connection	73	3.01
Affordability of internet connection	76	2.99
Availability of hardware and software in the local market	76	3.09
Availability of technical people in the local market	76	3.13
Availability of on – time support	76	3.18
Effectiveness of support providers	76	3.16
Average Technology Readiness		3.24

Table 12: Technology e- readiness of the financial institutions for e- commerce adoption

The survey results were supplemented with the interview responses. Out of six interview participants two replied there is no technological readiness for e- commerce adoption in the financial institutions while the others stated that there is a technological readiness to the development of e- commerce in the financial institutions in Addis Ababa. Then the respondents elaborated the readiness of financial institutions regarding to technology.

One of the participants out of the four that participated from one of the institutions explained there is an emerging and vibrant economy that encourages and calls for e- commerce. The current generation is a ‘digital’ generation with a positive attitude towards e- commerce. Moreover, the explosion of mobile banking and internet banking are signs of the technological readiness that are available in the financial institutions. Another official also explained that the latest e-payment systems including the ATM and M- birr, the automation of registration and licensing systems, and the e-taxing coupling e- systems are indicators of technological readiness for e-commerce adoption.

The interview respondent from MFIs stated that currently, there is a technology to facilitate saving and loan using m-birr or mobile payment, which indicates there are promising initiatives to promote technology readiness for e-commerce adoption in MFIs. The representative of insurance institutions stated that there are technology products currently operating in various insurance companies, which could pave the way to adopting e-commerce. The technology product they are using allows insurance customers to check their policy online and look at the expiry date of their insurance policy. It also allows clients with claim to check the status of their claim application. This clearly shows that insurance companies are working on technology readiness to fully utilize e-commerce.

Four of the six interview respondents were of view that - “The ICT infrastructure is now better. There is a lot of improvement in technological progress, especially in the past couple of years. Financial institutions in Ethiopia should not be isolated from the rest of the world. They should be able to meet international standards to engage with their clients. And it’s time for financial institutions to check their readiness to adopt e-commerce so that they may continue doing business by staying competent against other financial institutions across the globe.”

Among the interview participants whom said there is no technological readiness for e-commerce adoption in the financial institutions, one explained that there are various limitations related to technology including the issue of interoperability between systems in the financial institutions. Currently, the ability for different systems to connect with one another in various institutions is not fully realized. In addition to the technical aspects there are issues related to governance and business arrangement, which hindered the realization of technological readiness in the financial institutions.

Other than interoperability, there are technology related factors which could hinder e-commerce’s adoption and promotion, such as inadequacy of ICT in the financial institutions, lack of security infrastructure such as PKI (Public Key Infrastructure) and low level of telecommunication. He also added that, the current telecom infrastructure cannot adequately support e-commerce. The internet capacity or bandwidth of networks needs to be upgraded. There are challenges in the financial institutions related to the reliability, affordability and speed of the internet connection. Unavailability of high-speed internet connection, limited access to internet for customers and low level of internet penetration are among challenges of e-commerce adoption in the financial institutions. There is a shortage of skilled and competent experts in the

country related to technology and more specifically e-commerce. The country is mainly consumer of products and services from abroad, the creation and development of locally tailored technology products, hardware, and software is at its early stage. There are challenges related to the availability of timely and cost effective support in the local market for technology solutions such as e-commerce.

The other respondent who stated that there is no technological readiness for the adoption of e-commerce in the financial institutions, did not give any elaboration why he thought the technological conditions were not ready.

Previous literatures also showed that in developing countries, there are some impeding factors to adopting electronic services such as e-commerce. In addition to those mentioned by the interview respondents, limited bandwidth, slow connectivity, lack of on-time support, lack of technical people, and inadequate electricity coupled with frequent power outages conspire to make adoption of e-commerce harder (Amare, Getachew, and Philip, 2014).

Regarding the issue of interoperability between banks there are positive startups such as Premier Switch Solutions (PSS) and Ethio-switch. PSS is a banking technology services platform owned by six commercial banks; namely Awash International Bank, Nib International Bank, Berhan International Bank, Addis International Bank, and Cooperative Bank of Oromia. Established in 2009, PSS enabled interoperability and realized delivery of electronic payment services among members with a shared system. It officially commenced operation on July 5, 2012 with 165 million birr capital. PSS provides a complete solution for e-commerce processing for merchants to accept payment over the internet <sup>2</sup>.

There is another operator called EthSwitch S.C., owner and operator of the national electronic retail payments switch of Ethiopia (in short “the National Switch”), is legally established with the main purpose of providing electronic retail payment switching and clearing, card issuance and management, and related infrastructure services for a wider implementation and use of electronic retail payment services in the financial sector and the country at large <sup>3</sup>.

The mean of responses for banks for technology readiness is 3.44, classified as Amber - Blue (range 3.41 – 4.20), which means conditions associated to the technology readiness are high and could be considered ready for e-commerce adoption. On the other hand, the mean of responses for Insurances (mean = 3.18) and MFIs (mean = 3.10) are classified as Amber (range

2.61 – 3.40), which means improvement is needed associated to these factors for e-commerce adoption (Figure 10).

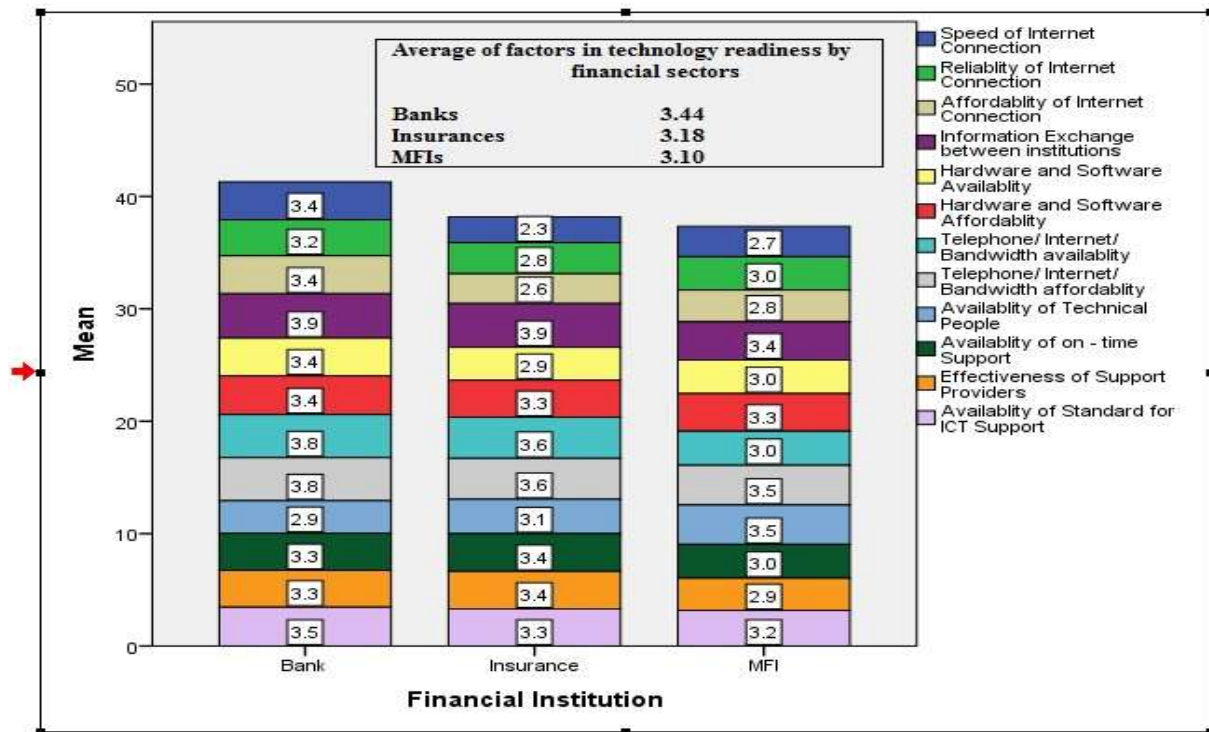


Figure 10: Technology e-readiness of the financial institutions for e-commerce adoption by sectors

### Organizational Readiness

Organization readiness focuses on the current issues concerned with ICT regulations and management. It has three sub-domains: ICT government & regulations, ICT cooperation and ICT management. The sub-domains consisted of various factors such as basic ICT regulations, ICT business regulations, Internet service regulations, e-business services regulations, knowledge sharing, change management, quality management and cost management (Al-Osaimi, Alharaish and Bakry, 2006).

In this study, there are twelve organization readiness (SR) factors as described in table 14. Seven out of twelve factors classified as Amber (range 2.61 – 3.40) which means conditions associated to these factors are moderate but improvement is needed for e-commerce adoption. These factors are ‘the need for additional ISP (mean 3.33)’, ‘investors’ motivation for e-commerce adoption (mean = 2.71)’, ‘The benefit of e-commerce for the FIs (mean = 3.19)’, ‘the

effect of lack of internet liberalization on e-commerce adoption (mean = 2.84)', 'knowledge and innovation sharing in the financial institutions (mean = 2.62)', 'understanding of e-commerce by the ICT management (mean = 2.71)', and 'availability of adequate legal framework for cyber security in the country (mean = 2.66)' (Table 14).

Five out of twelve organization readiness factors classified as Red – Amber (1.81 – 2.6) which means conditions for e-commerce adoption are low and numerous improvements are needed associated to these factors before the e-commerce adoption. These factors are 'availability of legal framework for e-commerce adoption (mean = 2.56)', 'availability of polices in the financial institutions related to e-commerce (mean = 2.45)', 'e-commerce's vision is well-communicated among the financial institutions' staff (mean = 2.33)', availability of adequate legal framework for cyber-security in the country (mean = 2.66)', and 'availability of e-business regulations and standardization in the financial institutions (mean = 2.12)'.

The mean score of responses for the organizational readiness is equal to 2.62, which means conditions associated to the organization readiness for e-commerce adoption are moderate but improvements are needed as it is slightly greater than the range of Red – Amber (1.81 – 2.6). Hence, financial institutions and other government entities in the country should give emphasis in order to improve factors related to organization readiness (Table 14).

<b>Organization Variables</b>	<b>Number of Respondents</b>	<b>Mean</b>
The need for additional Internet Service Provider/s	76	3.33
Availability of legal framework for e-commerce adoption	70	2.56
Investors' motivation for e-commerce adoption	76	2.71
The benefit of e-commerce for the FIs	75	3.19
Availability of polices in the FIs related to e-commerce	76	2.45
The effect of lack of internet liberalization on e-commerce adoption	76	2.84
Knowledge and innovation sharing in the FIs	73	2.62
Understanding of e-commerce by the ICT management	75	2.71
FIs shared their vision of e-commerce among staff	75	2.33
Availability adequate legal framework for cyber-security in the country	76	2.66
Availability of standards for Cyber Security in the FIs	76	2.33
Availability of e-business regulations and standardization in the FIs.	75	2.12
Average Organization Readiness		2.62

Table 13: Organization e-readiness of the financial institutions for e-commerce adoption

Regarding organizational readiness and more specifically the condition of the current legal and institutional frameworks and their adequacy to regulate e-commerce in Ethiopia, it was

gathered from the study that, respondents generally think it's inadequate. However, one respondent stated that it's too early to judge their capacity in regulating e-commerce. According to this respondent, e-commerce is a new phenomenon in the country. Moreover, the proclamation enacted to regulate cyber related issues and the institution mandated with the power to prosecute computer crimes, namely, Information Network Security Agency (INSA), are new. Therefore, it's too early to evaluate or judge both the legal and institutional frameworks as adequate or inadequate. The respondent noted that the government and financial institutions need to create a more favorable policy and legal environment.

In the words of another respondent: "the online business relies on a comprehensive and conducive legal foundation, but the current legal system lags behind technology. Questions and uncertainties concerning the validity, legal effect and enforceability of transactions conducted through electronic means and other issues including taxation, customs duties, intellectual property rights, data protection, and consumer protections, as well as liability issues are not adequately addressed. The roles of financial institutions in e-commerce must be clearly set out by law. Furthermore, the lack of enforcement of laws, including judgments, was raised as another gap in the legal framework. The lack of awareness of consumers regarding their legal rights in e-commerce related matters also makes them vulnerable to cheating, fraud and other illegal practices." She argued that the existing legal frameworks are designed to facilitate paper-based transactions and they don't accommodate technological changes.

As one of the respondents argued the major gap raised in the present institutional framework is the absence of a single institution to oversee or regulate e-commerce. There is no institution that has, so far, taken the matter of regulating e-commerce within its power. Finally, it was stated by one respondent that the senior officials and all concerned parties in the financial institutions are not committed enough to make e-commerce a reality.

From interview responses, it can be gathered that the representative of financial institutions are not confident enough in the organization readiness especially in the current legal and institutional frameworks.

All of the interview respondents agreed about the need of additional Internet Service Providers (ISPs) in the country. They believed the lack of internet liberalization could affect innovations such as e-commerce. The growth and expansion of internet by the current service

provider (Ethio-telecom) would also be another success factor in the adoption of e-commerce by the financial institutions.

As presented on figure 11, banks (mean = 2.76) have greater organization e-readiness than insurances (mean = 2.53) and MFIs (mean = 2.31). Although the readiness of banks respective to the organizational factors classified as Amber (range 2.61 – 3.4), there are some variables which needed improvements. The organizational e-readiness for Insurances and MFIs showed Red- Amber (range 1.81 – 2.6), which means conditions associated to the organizational readiness are low and numerous improvements are required before the adoption e-commerce.

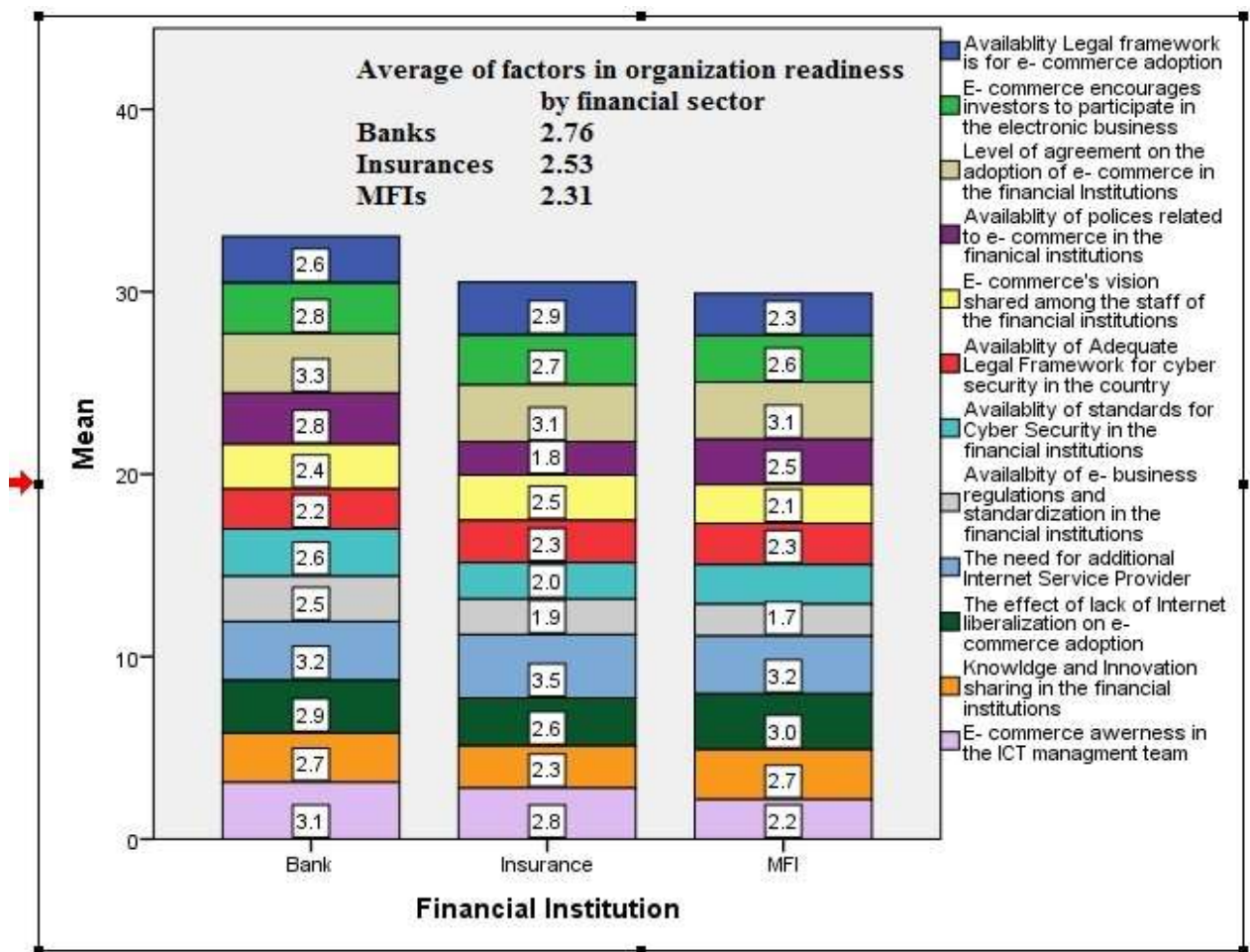


Figure 11: Organization e-readiness of the financial institutions for e-commerce adoption by sectors

## People Readiness

The e- readiness related to people is one of the critical components in a STOPE model. It's concerned about the current state of issues with ICT users and skills. The domain mainly consisted of four issues/ sub- domains: ICT Awareness, ICT Education & Training, ICT qualifications & jobs, Management of ICT skills (Al-Osaimi, Alheraish & Bakry, 2006) (Amare, Getachew & Philip, 2014).

In this research, there are about twelve variables related to people e- readiness for e-commerce adoption. As it's presented in the table 15, according to the survey respondents, there are six factors classified as Red - Amber (range 1.81 - 2.6), which means conditions associated to these factors are low and numerous improvements are needed before the adoption of e-commerce. These factors are 'institutional access to ICT training (mean = 2.43)', 'availability of adequate education in colleges/ universities related to technology (mean = 2.43)', 'level of agreement about ICT's role in business decisions (mean = 2.54)', 'level of agreement about policy makers' understanding of e- commerce (mean = 2.38)', 'level of agreement about the success of e- commerce over traditional- commerce (mean = 2.33)' and 'availability of e-commerce related courses in colleges and universities (mean = 2.22)'.

There are three factors in the people e-readiness classified as Amber (range 2.61 – 3.40) in which conditions associated to these factors are moderate but improvement is needed for e-commerce adoption. These factors are 'availability of ICT skills in the financial institutions (mean = 3.03)', 'level of agreement about staff's satisfaction in working with financial institutions (mean = 3.13)', 'availability of adequate ICT skills management (mean = 3.26)', and 'availability of the required ICT skills in the management team (mean = 3.03)' (Table 15).

There are also three factors classified as Amber – Blue (range 3.41 – 4.20) which means the conditions associated to these factors are high and could be considered ready for e-commerce adoption. These factors are 'level of agreement about consumers' satisfaction using e-commerce (mean = 3.57)', and 'level of agreement about the comfort in using ICT for customer support (mean = 3.46)' (Table 15).

The mean score for factors related to people e- readiness showed 2.82, which means conditions associated to the people readiness are moderate but improvement is needed for e – commerce adoption since it is slightly greater than the range of Red – Amber (1.81 – 2.6).

Hence, financial institutions and other government entities in the country should give emphasis in order to improve factors related to people readiness.

<b>People Variables</b>	<b>Number of Respondents</b>	<b>Mean</b>
Level of agreement about consumers' satisfaction using e- commerce	76	3.57
Level of agreement about the comfort in using ICT for customer support	76	3.46
Availability of adequate ICT skills management	76	3.26
Institutional access to ICT training	76	2.43
Level of agreement about ICT's role in business decisions	76	2.54
Availability of ICT skills in the financial institutions	75	3.03
Level of agreement about staff's satisfaction in working with FIs	76	3.13
Availability of the required ICT skills in the management team	76	3.03
Availability of adequate education in colleges/ universities related to technology	76	2.43
Level of agreement about policy makers' understanding of e- commerce	76	2.38
Level of agreement about the success of e- commerce over traditional-commerce	75	2.33
Availability of e- commerce related courses in colleges and universities	76	2.22
Average People Readiness		2.82

Table 14: People e- readiness of the financial institutions for e- commerce adoption

The survey results related to people e-readiness were supplemented with the interview responses. The majority of the interview participants believed there is a growing demand from the consumer for a better, faster and easier means of doing business. Moreover, the respondents explained the number of literate people is rapidly growing and the expansion of higher education institutions and secondary level schools is creating a favorable condition for the development of e- commerce in the financial institutions as well as the country.

One respondent stated, “Large number of educated youngsters that are being produced by higher institutions of the country will not only be users but also operators of e- commerce. However, he doesn't believe higher educations are currently producing equipped man-power especially in science and technology. He mentioned the country didn't start producing technology products by its own rather it's dependent on other countries products such as China and India. One reason for the dependency could be lack of quality education in the country especially in science and technology. Technology adoption is less likely to be successful without skilled man- power. He also mentioned ICT skills are scarce in the financial institutions, and it's not adequately managed.”

The majority of respondents also believed there is lack of adequate awareness and knowledge of e- commerce and ICT in the society and policy makers. There is a huge gap in the society about the benefit of e- commerce. The society may lack trust in e- transactions and its policy makers' responsibility to maximize awareness related to the e- commerce.

As presented on figure 12, banks have better people e- readiness as compared to insurances and MFIs with a mean of responses is equal to 2.83. Insurances and MFIs scored a mean of 2.70 and 2.81 respectively. All the sectors are classified as Amber (range 2.61 – 3.40), which means conditions associated to the people readiness is moderate but improvement is needed for e – commerce adoption.

Previous studies such as the ones by Amare, Getachew & Philip (2014) indicated the country has shortages of skilled man – power in technology driven professions. Improvements are expected before the actual implementation of e- commerce in the financial institutions.

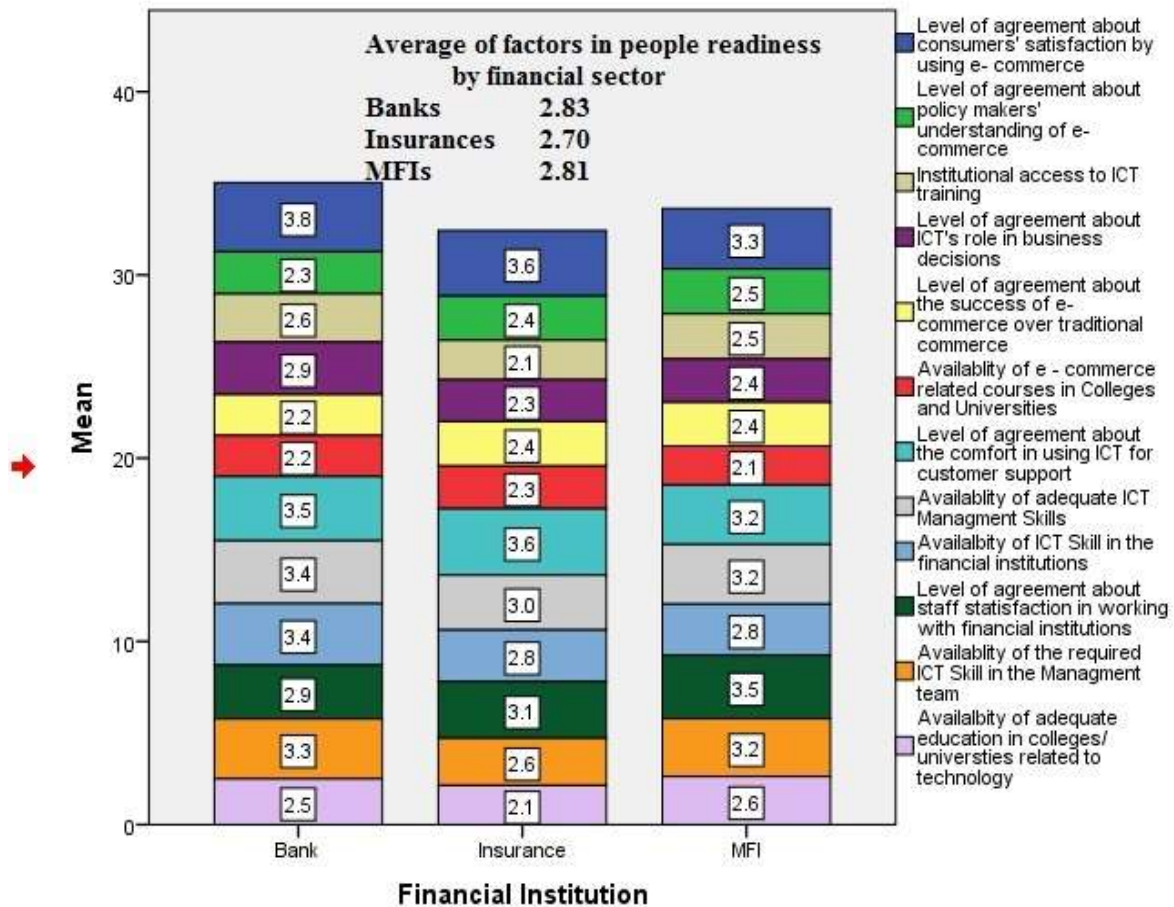


Figure 12: People e- readiness of the financial institutions for e- commerce adoption by sectors

## Environment Readiness

The last domain in the STOPE model is the readiness of the environment. It's predominantly concerned about non- ICT issues surrounding and affecting the current state of e-commerce. There are basically four sub- domains which are Knowledge, Resources & Economy, Organization, and Infrastructure (Al-Osaimi, Alheraish and Bakry, 2006) (Amare, Getachew & Philip, 2014).

In this study, there are about twelve factors related to environment readiness for e-commerce adoption. As the table 16 below illustrated, there is one factor (availability of technology parks & incubators for research and development) with a mean response of 1.54 and classified as Red (1.0 – 1.80), which means conditions associated to this factor are very low and not ready e- commerce adoption.

There are four variables classified as Red – Amber (range 1.81 – 2.6). These factors are 'Availability of modern knowledge management practices in the financial institutions (mean = 2.50)', 'availability of adequate infrastructure services (mean = 2.58)', 'productivity & profitability (mean = 2.18)', and 'adoption of technological changes (mean = 1.93)'. These factors need additional work to maximize their readiness.

The majority of the variables showed Amber with a mean in a range of 2.61 – 3.40; there are six variables in this category:, 'Financial institution's staff culture of technology acceptance (mean = 3.32)', 'availability of change management plan (mean = 2.70)', 'training expenses coverage (mean = 3.07)', 'educational institutions contributions to e- commerce (mean = 2.67)', 'level of agreement about government regulations in promoting business opportunities (mean = 2.70)', and 'the effect of language proficiency on e- commerce adoption (mean = 3.11)'; moderate numbers of conditions associated to these factors are suitable for e – commerce adoption but improvement is needed.

Only one variable is classified as Amber - Blue in which conditions associated to this factor is high and could be considered ready for e- commerce adoption. This factor is about 'the cooperation between financial institutions using ICT (mean = 3.67)'. The mean of responses for all the factors related to the environment readiness is equal to 2.66 and classified as Amber

(range 2.61 – 3.40). Although moderate numbers of conditions are suitable for e – commerce adoption, improvement is needed (Table 16).

<b>Environmental Variables</b>	<b>Number of Respondents</b>	<b>Mean</b>
Cooperation between financial institutions using ICT	76	3.67
Financial Institution’s staff culture of technology acceptance	75	3.32
Availability of modern knowledge management practices in the FIs.	76	2.50
Availability of change management plan	76	2.70
Coverage of training expenses	76	3.07
Educational institutions contributions to e- commerce	76	2.67
Availability of adequate infrastructure services such as electricity.	76	2.58
Level of agreement about government regulations in promoting business opportunities	76	2.70
The effect of language proficiency on e- commerce adoption	76	3.11
Productivity & profitability	76	2.18
Adoption of technological changes	76	1.93
Availability of technology parks & incubators for research and development	76	1.54
<b>Average Environmental Readiness</b>		<b>2.66</b>

Table 15: Environmental e- readiness of the financial institutions for e- commerce adoption

Interview respondents provided different answers about their perception of the environment readiness for e- commerce adoption. Two of the respondents stated that there is no favorable environment for e- commerce while the other three contrarily stated that there are favorable conditions. The six one held both opinions that there are favorable conditions as well as unfavorable ones.

In the words of one respondent: “When I say there is no favorable environment that is suitable for e- commerce in the financial institutions, the first thing that comes to my mind is the lack of adequate infrastructures such as electricity, transportation, and postal system throughout the country. To have an effective e- commerce system, the infrastructure of the country should be developed first. There are no incentives from the government for those who are involved in e- commerce. And education institutions don’t train their students in a way that they can practice innovating technology products.”

Another respondent stated that technology adoption is difficult in the financial institutions because of staff’s resistance to change, and lack of change management practices. She also mentioned that language could be a barrier in technology adoption inside the financial

institutions and among customers. The majority of the interview respondents agreed about the availability of cooperation between the financial institutions as they are working under the one governing institutions, National Bank of Ethiopia (NBE). They also agreed that the country in general and more specifically the financial institutions lacked research and development practices, which could hinder the adoption of technology products such as e-commerce. All the respondents agreed that e-commerce can maximize productivity and profitability.

As presented in the figure 13, banks (mean = 2.83) have greater environmental e-readiness than insurances (mean = 2.52) and MFIs (mean = 2.57). The mean value for banks classified as Amber (range 2.61 - 3.40) in which moderate numbers of conditions related to environmental e-readiness are suitable for e-commerce adoption. However, the mean value for insurances and MFIs classified as Red – Amber (range 1.81 – 2.6) in which conditions associated to environmental readiness for the specified sectors are low and numerous improvements are needed before the adoption of e-commerce. The government and financial institutions should work together to improve the readiness of environmental variables so that e-commerce could be adopted by the financial institutions.

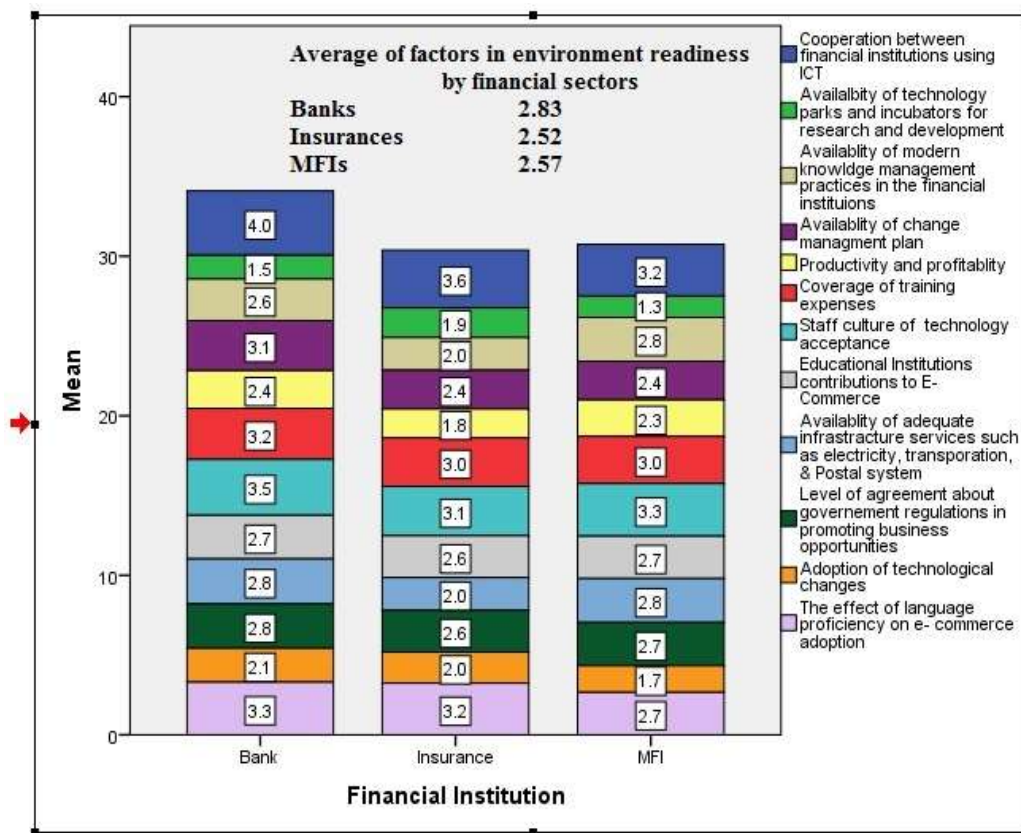


Figure 13: Environmental readiness of the FIs for e-commerce adoption by sectors

## Summary of the Financial Institutions' Readiness for e- commerce adoption

The summary of results of the five domain categories of the research model is presented in the Table 17. Based on the information from the table, all the domains (Strategy, Technology, Organization, People, and Environment) showed a mean value of Amber (range 2.61 – 3.40), which means conditions for e- commerce adoption are moderate but improvement is needed. The overall cumulative mean (2.92) is also indicated Amber. Some of the factors in each of the five domains have moderate readiness for e- commerce adoption. Hence, the financial institutions should start implementing e- commerce in their business while doing their homework of improving the readiness of the rest of the factors. The government together with other stake holders should engage more on the readiness of the five domains and their factors in order to realize the adoption of e- commerce in the financial institutions and other businesses.

No.	Domain Category	Mean	Color- Code	Remarks
1	Strategy	3.24	Amber	conditions for e- commerce adoption are moderate but improvement is needed
2	Technology	3.25	Amber	conditions for e- commerce adoption are moderate but improvement is needed
3	Organization	2.62	Amber	conditions for e- commerce adoption are moderate but improvement is needed
4	People	2.82	Amber	conditions for e- commerce adoption are moderate but improvement is needed
5	Environment	2.66	Amber	conditions for e- commerce adoption are moderate but improvement is needed
Cumulative Mean		2.92	Amber	conditions for e- commerce adoption are moderate but improvement is needed

Table 16: Summary of Analysis Results in the Domain Categories of the Research Model Adoption

It's merely the responsibility of all the stake holders including financial institutions, government agencies, and educational institutions to improve the readiness of the five domains in a STOPE model so that e- commerce could be successfully implemented and promoted in the country, and more specifically in the financial institutions.

## Summary of findings in light of the Research Objectives and Questions

This research aimed to address three research questions and one general objective, which has four specific objectives. The details about findings are already discussed in the analysis and discussion section of the study. Next, I summarize the findings based on the research questions and objective. The general goal/ objective of the research were to assess the readiness of the Ethiopian Financial Institutions for e-commerce adoption. The research evaluates factors readiness for e-commerce adoption in the selected financial institutions in Addis Ababa by using STOPE model. Seventeen institutions from three financial sectors (Banks, Insurances and MFIs) are included in the study. A total of eighty-five survey questionnaires were distributed and seventy six usable questionnaires were returned. In addition to that Semi – structured interviews were conducted among representative of the financial institutions. Six senior officials from three financial institutions and their relevant departments were selected for the interview. The detail about population size, sampling, and selection criteria presented on Chapter 3.

In this research I adopted and customized a research questionnaire originally developed to assess the readiness of health institution for telemedicine implementation. Most of the questions are used in this study as they were used in the original study; however, there were some questions that are sector specific and amended to be more meaningful to the financial sector. Furthermore, some more questions were added into the questionnaire based on the research questions.

The first two research questions focused more on the quantitative aspects of e- commerce readiness whereas the third one focused on the qualitative aspect of it. In order to answer the research questions the research needed a scientific model, a measurement tool, and a quantifiable instrument. The research used a well- known model for e – readiness assessment called STOPE, which encompasses the strategic, technological, organizational, people, and environmental readiness of the institutions.

Since the questionnaire used a Likert scale of five, it's easy to developed five groups in a range of 0.8. Previous studies that used the same model also applied the same technique to develop the five groups (Amare, Getachew & Philip, 2014) and (Al-Osaimi, Alheraish and Bakry, 2006). The research used color – codes for presentation purpose: Red [1 – 1.80], Red-

Amber [1.81 – 2.6], Amber [2.61 – 3.40], Amber – Blue [3.41 – 4.20], and Blue [4.2 - 5]. For Example, if the mean of the responses for the manifest variable is 2.7, the readiness of that variable showed Amber, because it is in the range of 2.61 to 3.40. The cumulative mean of the manifest variables showed the readiness of a specific domain, and cumulative mean of all the domains showed the overall readiness of financial institution for e- commerce adoption. Results were presented in two ways, financial institutions as a whole and by financial sectors.

The first two research questions asked whether the financial institutions in Addis Ababa are ready for e- commerce adoption or not. This question intended to answer the readiness of the financial institutions in a measurable, quantitative way. Table 18 presented the answer for this question. As it's shown in the table, the mean of responses for the strategic readiness for financial institutions as a whole is 3.24 (Amber), which means conditions related to the Strategy factors are moderate within the financial institutions and by other stake holders. The situation is the same for Technology, Organization, People, and Environment factors with mean values of 3.25, 2.62, 2.82, and 2.66 respectively. Although Organization, People and Environment domains classified in Amber (range 2.61 – 3.40) like Strategy and Technology, they are slightly greater than Red – Amber (range 1.81 – 2.6). Hence, numerous improvements are needed in these domains and their respective sub – domains/ factors.

Despite the fact that satisfactory results shown in some of the factors/ sub- domains, there are still some factors which need further improvements for successfully implement e- commerce in the financial institutions. Some of the factors might need the effort of financial institutions while others might need government's involvement. The cumulative mean of all the domains for the overall financial institutions showed 2.92 (Amber).

The table also presented the readiness for individual financial sectors (banks, insurances and MFIs). Banks have better readiness in all the domains than Insurances and MFIs. The mean values of the factors for banks are as follows: strategy, 3.61, technology, 3.44, people, 2.76, organization, 2.83, and environment, 2.83. And the mean of all the domains for banks showed 3.09 (Amber). Insurances have the following mean values of factors: strategy, 2.99, technology, 3.18, people, 2.53, organization, 2.70, and environment, 2.52. The mean of all the domains for insurances would be 2.78 (Amber). Finally, the mean values of factors for MFIs are equal to: strategy, 3.10, technology, 3.10, people, 2.31, organization, 2.81, and environment, 2.57. The mean of all the domains for MFIs is similar to Insurances, 2.78 (Amber).

<b>Domain</b>	<b>Overall Financial Ins.</b>	<b>Banks</b>	<b>Insurance</b>	<b>MFI's</b>
Strategy	3.24	3.61	2.99	3.10
Technology	3.25	3.44	3.18	3.10
People	2.62	2.76	2.53	2.31
Organization	2.82	2.83	2.70	2.81
Environment	2.66	2.83	2.52	2.57
<b>Mean</b>	<b>2.92</b>	<b>3.09</b>	<b>2.78</b>	<b>2.78</b>

Table 17: Quantitative summary of financial institutions readiness for e- commerce adoption

In general, the financial institutions in Addis Ababa, Ethiopia appeared to have a moderate readiness for e- commerce adoption; they showed satisfactory readiness in most of the domains. However, there are also gaps and limitations in all the domains which might affect the overall implementation and continuity of e- commerce. Hence, improvements are expected by the financial institutions, government entities and other stake holder such as academic and legal institutions.

The study identified that there are some financial institutions in the verge of implementing e- commerce. For example, Premier Switch Solution (PSS) currently provides e- commerce platform for external customers; a business can buy e- commerce platform from PSS so that it mainly focuses on the business. PSS incorporated electronic payment system as a module to the e- commerce platform.

Although in all of the domains and sub- domains improvements are expected, there are some which needed immediate improvements before the implementation of e- commerce in the financial institutions. As per the result of the quantitative analysis and the qualitative data, the following variables/ factors needed immediate improvements as the mean of responses for these variables showed Red- Amber in the range of (1.81 – 2.6) or slightly greater.

In general Strategy and Technology domains have better readiness as compared to the rest. However, government's support for e- commerce adoption (mean = 2.57) and country's trade policy (mean = 2.63) from the Strategy domain needed improvements. The stastical data for technology readiness showed good in all of the variables. However, some of the interview respondents from the financial institutions argued that there are situations which needed immediate actions because they can negatively influence e- commerce adoption. These factors are issues of interoperability (find the detail in the analysis section), lack of adequate IT security,

low level internet penetration, shortage of skilled man – power, and lack of timely and cost effective support in the local market.

A lot of improvements are needed in the Organization, People, and Environment domains as there are a number of factors in these domains which showed Red- Amber. The following are Organization related e- readiness factors that needed immediate actions: lack of adequate legal framework (mean = 2.56), lack of e- commerce polices in the financial institutions (mean = 2.45), lack of staff's participation in new initiatives (mean = 2.33), lack of adequate cyber – security framework in the country (mean = 2.26), lack of adequate cyber – security practice in the financial institutions (mean = 2.33), and lack of business regulations and standardization (mean = 2.12).

There are some readiness factors in People's domain which needed immediate actions: lack of institutional access to ICT training (mean = 2.43), the role of ICT in business decisions (mean = 2.54), lack of adequate education in technology (mean = 2.43), low understanding of e- commerce by policy makers (mean = 2.38), and lack of e- commerce related courses in the university (mean = 2.22), are some of the factors that needed improvements by the financial institutions and government.

Environmental factors are basically non- ICT issues that could influence e- commerce adoption. There are some factors in the Environmental domain which also needed immediate interventions by the financial institutions and government so that they may not negatively influence e- commerce adoption. These factors are: lack of modern knowledge management practices (mean = 2.50), productivity and profitability by using e- commerce (mean = 2.18), lack of quick adoption of technology changes (mean = 1.93), and lack of research and development in the country and financial institutions (mean = 1.54).

The third research question is about the challenges related to the adoption of e-commerce in the financial institutions. The study used semi- structured interview in order to understand the challenges of e- commerce adoption in the financial institutions. The following are some of the challenges based on STOPE model.

As per some of the interview respondents, the major challenges related to strategic readiness for e- commerce adoption in the financial institutions are:

- Lack of support from the government side.
- Support given by the government is not satisfactory.
- Lack of leadership role by the government in e- commerce adoption and promotion.
- Governmental institutions lacked collaboration and integration.
- Lack of clarity in mandate within government institutions.

There are lots of challenges in the financial institutions related to technological readiness. These are some of the challenges as specified by the respondents:

- Issue of interoperability between financial systems.
- Issues related to technology governance and business arrangement.
- Inadequacy of ICT in the financial institutions especially those outside Addis Ababa.
- Lack of security infrastructure such as Public Key Infrastructure (PKI).
- Low level of telecommunication or internet capacity.
- Issues related to affordability, reliability, and speed of internet connection in some of the financial institutions.
- Low level of internet penetration.
- Shortage of skilled and competent technology experts in the country.
- Lack of timely and cost – effective support.

These are some of the challenges related to organizational readiness:

- Lack of adequate legal and institutional framework related to e- commerce in the financial institutions and country.
- Lack of enforcement of laws, including judgments.
- Lack of awareness of consumers regarding their legal rights in e- commerce related matters.
- Absence of government institution to oversee or regulate e- commerce.
- Lack of commitment by senior officials in the financial institutions and concerned parties to make e- commerce a reality.
- Lack of alternate internet service provider (ISP) and internet liberalization.

Similarly, there are some challenges associated with People's readiness for e- commerce adoption in the financial institutions:

- Lack of equipped man – power in science and technology.
- Lack of adequate skills management in the financial institutions.
- Lack of awareness about e- commerce in the society.
- Lack of trust in e- transactions.
- Lack of ICT knowledge in the society
- Lack of sufficient understanding of e- commerce within the policy makers.

Finally, these are some of the challenges associated with environmental readiness for e-commerce adoption in the financial institutions such as:

- Lack of adequate infrastructures such as electricity.
- Lack of incentives from the government for those who are involved in e- commerce.
- Lack of innovation practices in the country.
- Resistance in adopting changes in the financial institutions.
- Lack of change management practices.
- Language barrier in technology adoption within the financial institutions and among customers.

## CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

This chapter presents conclusions drawn from the study, some recommendations based on the evidences presented and also suggestions for future research.

### Conclusion

In Ethiopia modern financial institutions started in the beginning of the 20<sup>th</sup> century. However, the financial industry was under-developed and operated traditionally for a long period of time. The advent of e- commerce has brought dramatic change globally in the way of doing business which led to economic growth and social transformations. The value proposition of e-commerce for the financial institutions extends to transform their business by marketing their products to customers, by creating business opportunities through the provision of new products and services for their customers, and by promoting effective and efficient business environment. As financial institutions adopt e- commerce, the benefit extends to brining profit, as it is also accelerates new methods of reaching the global markets. However, the transition from the traditional commerce to e- commerce is not easy journey, although there is a compelling need to transform to e- commerce.

This study tried to assess the readiness of financial institutions for e- commerce adoption using a STOPE e- readiness model. The research used both qualitative and quantitative research approaches to examine the strategic, technological, people, organizational and environmental factors influencing e- commerce adoption in seventeen financial institutions from three sectors (banks, Insurances and MFIs). The research used questionnaire and semi – structured interviews to assess quantitative and qualitative data respectively. More than seventy five participants from various financial institutions completed the questionnaires and six senior officers responded to the interviews. The qualitative data mainly focuses on the challenges of e- commerce adoption in the financial institutions while the quantitative data statistically described the readiness of the financial sectors from the perspective of five domains as described in the STOPE model.

Since the research questionnaire contained Likert scale type of questions, the research adopted a measurement tool from previous researches such as by Amare, Getachew & Philip (2014) and Al-Osaimi, Alheraish & Bakry (2006). They developed a measurement tool by taking

the mean value of the responses for each factor, and domain. I followed the same technique and color – coded the categories for the purpose of presentation. A mean value in the range (1 - 1.80) is Red, conditions for e- commerce adoption are very low and not ready; (1.81 - 2.6) is Red-Amber, which means conditions for e- commerce adoption are low and numerous improvements are needed; (2.61 – 3.40) is Amber, which means conditions for e- commerce adoption are moderate but improvement is needed; (3.41 - 4.20) is Amber – Blue, which means conditions for e- commerce adoption are high and could be considered ready; (4.2 – 5) is Blue, which means conditions for e- commerce adoption are very high and fully ready.

Two of the domains (Strategy & Technology) seemed to be moderately ready in the financial institutions with cumulative averages of 3.24 and 3.25 respectively. However, some of the interview's respondents argued that there are some critical factors related to Strategy and Technology which needed improvements in the financial institutions as well as the whole country. Two of the main challenges related to Strategy are lack of support from the government, and lack of leadership role by the government in e- commerce adoption and promotion. Some of the challenges related to technology are the issue of interoperability between financial systems, issues related to technology governance and business arrangement, inadequacy of ICT in the financial institutions, lack of security infrastructure such as PKI, and low level of telecommunication or internet capacity. Banks have better Strategy (average = 3.61) and Technology (average = 3.44) readiness than Insurances and MFIs. Insurances have an average of 2.99 for Strategy and 3.18 for Technology, whereas MFIs have an average of 3.10 for Strategy and 3.10 for Technology.

Regarding to organization, People and Environment readiness the financial institutions showed Amber similar to Strategy and Technology readiness with an average value of 2.62, 2.82, and 2.66 respectively. However, their mean value of slightly greater than the range of Red – Amber (1.81 – 2.6) which means there are still a number of factors which needed numerous improvements for e- commerce adoption. As in the Strategic and Technological readiness, banks have better readiness than insurances and MFIs in Organization, People and Environmental readiness. In all the domains banks readiness found to be better as compared to insurances and MFIs. Banks have an average of 2.76 for People, 2.83 for Organization, and 2.83 for Environment readiness; insurances have an average of 2.53 for People, 2.70 for Organization,

and 2.52 for Environment; MFIs have an average of 2.31 for People, 2.81 for Organization, and 2.57 for Environment.

In general, banks have a cumulative readiness of 3.09, which means the current situation seemed to be positive for banks to adopt e- commerce. Insurances and MFIs have a cumulative average of 2.78, which means satisfactory numbers of factors are ready for e- commerce. However, there are still factors which needed immediate interventions before the implementation of e- commerce in the financial institutions.

These are some of the challenges related to Organization readiness: lack of adequate legal & institutional framework, lack of enforcement of laws, lack of awareness of consumers regarding their legal rights in e- commerce related matters, absence of government institutions to oversee or regulate e- commerce, lack of commitment by senior officials, and lack of alternate internet service provider (ISP) and internet liberalization. Similarly, there are some challenges associated with People's readiness for e- commerce adoption in the financial institutions: lack of equipped man- power in science & technology, lack of adequate skills management, lack of awareness about e- commerce in the society, lack of trust in e- transaction, lack of ICT knowledge in the society, and lack of sufficient understanding of e- commerce among the policy makers. Finally, these are some of the challenges associated with Environmental readiness for e- commerce adoption in the financial institutions: lack of adequate infrastructure such as electricity, lack of incentives from the government for those who are involved in e- commerce, lack of innovation practices in the country, resistance in adopting changes in the financial institutions, lack of change management practices, and language barriers.

Overall, it's time for financial institutions in Ethiopia to start the process of implementing e- commerce in their business, despite the nitty-gritty of the adoption process. The government together with other stakeholders should develop a National Strategy and Road Map for e- commerce adoption including the financial institutions. The need for e- commerce has become very critical to the society; financial institutions are the key players in adopting e- commerce by being exemplary and creating favorable conditions for other businesses.

## Recommendations

Respondents from the various financial institutions believed that there are numerous challenges that should be overcome for the development of vibrant online business in the financial sectors. Some of the challenges are emerging from the financial institutions while others exist because of the environment. This document outlines various recommendations based on STOPE model in order to see successful e-commerce implementation in the financial institutions:

Recommendation one - in order to see Strategic readiness:

- Financial institutions and other government entities concerned with e-commerce should start collaboration and integration for a better outcome.
- The government should take the lead in e-commerce adoption by establishing a new institution which can unify or assemble scattered regulatory mandates.
- The government should start providing adequate support for financial institutions which implement e-commerce adoption.
- Government institutions' roles and responsibilities related to e-commerce should be clear and communicate to customers such as the financial institutions.

Recommendation two: - in order to see Technological readiness

- Technological and governance issues related to interoperability between financial systems should be resolved. Government institution such as the National Bank of Ethiopia (NBE) should take the responsibility in solving these issues.
- ICT should be developed in the financial institutions. Most of the financial institutions especially outside of Addis Ababa, and insurances and MFIs even in Addis Ababa have inadequate ICT infrastructure such as LAN, WAN and Security.
- The government and/or the ISP should work on maximizing the internet capacity.
- Currently, the cost of internet, its reliability and speed is not acceptable by most of the financial institutions; the respective government institution should work on improving the situation.
- The ISP should work to maximize the level of internet penetration within the society, because they are the key players in e-commerce's success.

- The government together with the educational institutions should emphasis on science and technology so that the number of local experts who can operate technology products might increase.
- The government should support the local IT companies and help to maximize their capacity in order to assist the local needs.

Recommendation three: in order to see Organization readiness

- The government should take the initiative to develop adequate legal and institutional framework and make sure they are successfully executed by the concerned entities.
- The financial institutions together with government offices should develop a platform to create awareness about e- commerce within the society, and consumers' legal rights in using e- commerce. Social - Medias, television - broadcasts, mass- advertisements and printed materials could be the best way to create awareness and promote e- commerce within the society.
- Establish a government institution which can oversee the development of e- commerce in the country.
- Senior officials in the financial institutions and government offices should be committed to make e- commerce a reality.
- The government should start thinking for additional Internet Service Provider/s as it has become very critical in the readiness of most technology products. The government should take off its hand from unnecessary controlling of the internet connection.

Recommendation four: - in order to see People readiness

- E- commerce related courses should be provided in colleges and universities as it impacts many areas of business and disciplines of business management studies. There are a number of issues (legal, marketing, IT, logistics, and many more) related to e- commerce; e- commerce should have its own department in the universities so that issues can be studied in-depth to come up with local solutions.
- Financial institutions should properly manage their ICT skill so that they can effectively allocate their human resources.
- Financial institutions and other concerned bodies should work to develop trust within the society related to e- transactions.

- The government is responsible to develop the ICT skill of its society. The government should provide ICT training/ courses in the mainstream educational institutions or vocational schools. The process of acquiring a skill is not a one- time job; hence, the government should come up with a strategic plan to expand basic computer skills in the society.
- Currently, policy makers in the financial institutions and government bodies are not well informed about the benefit, challenges and prospects of e- commerce. Hence, the government should take the lead in introducing e- commerce within policy makers.

Recommendation five: in order to see Environmental readiness

- The key behind the success or failure of e- commerce adoption is the availability of adequate infrastructures such as electricity. The government has a responsibility to provide a reliable power to various institutions and its citizens. The government of Ethiopia has been working hard to realize the provision of electricity to most parts of the country. However, there are still issues related to the electricity, and it's affecting other infrastructures such as telecom and Data- centers. The government should provide additional emphasis on the matter since it's very crucial for the successful implementation and development of e- commerce in the financial institutions and country as a whole.
- Businesses involved in e- commerce should get incentives from the government as they are taking a number of risks in promoting the new platform within the society. Currently, there are financial institutions struggling to promote e- commerce in their business; the government should listen to their cry for support.
- Government and private institutions should encourage innovations in their business because business continuity is highly dependent on innovative practices.
- Staff in the financial institutions should adopt e- commerce before they send it out to the public.
- Financial institutions should manage and properly record changes related to technology such as e- commerce.
- Language barrier could hinder e- commerce adoption within the society. Hence, e- commerce platforms should be developed by local languages or customized to local context.

## Recommendations for future research

As part of further future researches, the following are the researcher's suggestions.

- This research provides general insights on the readiness of the financial institutions. Each of the five domains on the STOPE model could be studied individually to find the detail readiness of sub – domains and sub-sub-domains. Hence, I encourage future researchers to study the readiness of individual domains for e- commerce adoption in the financial institutions.
- The financial sectors included in this study could be studied individually by focusing more on the qualitative aspects of e- commerce readiness. I have understood that there are a lot of qualitative issues that could hinder e- commerce adoption. These issues didn't cover fully as this research aimed more on the quantitative aspects of e- commerce readiness than qualitative aspects. Hence, future researchers can study more on the qualitative aspects of e- readiness for e- commerce adoption.
- The research focused on financial institutions that operate in Addis Ababa. Therefore, the result might not indicate 100% the situation in the whole country. Hence, it's highly recommended to conduct additional studies considering financial institutions outside of Addis Ababa.
- Legal issues are the main problem for adopting e- commerce which is not fully captured by STOPE model. Hence, further study emphasizing the legal aspects for e- commerce could be considered.

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# Appendices

## Appendix A: Letter of Request

አዲስ አበባ ዩኒቨርሲቲ  
የተፈጥሮ ሳይንስ ኮሌጅ  
የኢንፎርሜሽን ሳይንስ ት/ቤት



ADDIS ABABA UNIVERSITY  
College of Natural Science  
School of Information  
Science

Date April 16, 2018

Ref: -SIS/18/2018

### To Whom It May Concern

Student **Simeneh Tadesse** (ID.No. GSE/0348/08) is a graduate student at the School of Information Science, Addis Ababa University. He is currently conducting a MSc. thesis research under the title "Assessment of Ethiopian Financial Institutions Readiness for E-Commerce Adoption in Addis Ababa".

I would like to thank you in advance for all the assistance that you would provide to the student.

With Regards

  
Martha Yifru (Rtd)  
Head, School of Information Science

☎: 1176

☎: +251-(11)-122-91-91 ☎: 2122- 91-92

## Appendix B: Questionnaire Survey

**Addis Ababa University**  
**School of Graduate Studies College of Natural Science**  
**Department of Information Science**

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Dear Sir/ Madam

My name is Simeneh Tadesse, a postgraduate student at Addis Ababa University, school of Information Science. In Partial fulfillment of the program requirement, I am undertaking a research on “**Assessment of Ethiopian Financial Institutions (Banks, Insurances & Micro Finance Institutions (MFIs)) readiness for e-commerce adoption in Addis Ababa**”. I have accordingly prepared this survey questionnaire. The objective of the survey is to investigate strategy, technology, organization, environment and people related factors that are influencing the readiness of financial institutions for e-commerce adoption in Addis Ababa.

This research is believed to produce results that can improve the growth of e-commerce in the financial institutions in Addis Ababa, Ethiopia. Your honest responses to each question and statement are extremely valuable to the outcome of this research. The questionnaire survey will take approximately 35 minutes to complete and the results of the survey will be used for the purpose of academic research only. Hence, all responses will be kept in strict confidentiality and hence would not affect any one in any case.

I would like to thank you in advance for your kind participation, genuine and on-time response to the questionnaire. For clarification, please use the following contact information.

Telephone: +251 911827065

Email: [Simeneh.hideat@gmail.com](mailto:Simeneh.hideat@gmail.com)

Thank you!

Simeneh Tadesse

Section I – Demographic Characteristics, please circle on the appropriate response

1. Age  
A) 20 – 25    B) 26 – 35    C) 36 – 45    D) 46 – 55    E) Above 55
2. Gender    A) Male    B) Female
3. Organization?  
A) Bank    B) Insurance    C) MFI
4. Job’s department?  
A) ICT    B) e- payment    C) Operations    D) General Insurance  
E) Long – term Insurance

**General Instruction**

Please click on the box (☒) on the appropriate response to the questions using the following Likert

Scale:

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Section II – Strategy Readiness (SR): The following questions are about your perception of strategic readiness of your institution for e- commerce adoption.

S/N	Question Code	Questions	Responses				
			1	2	3	4	5
1	SR1	Your institution has a clear articulated mission and vision about ICT.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	SR2	Your institution has a direction, commitment, and plan toward ICT for e- commerce development & utilization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	SR3	Your institution has “a documented and communicated ICT policy”.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	SR4	Your institution has ICT awareness and training plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	SR5	The government provides support for ICT/ e- commerce related projects in your institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	SR6	Government policies of trade are in place to promote and manage the use of e- commerce in financial institutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	SR7	Institutional policies are in place to promote and manage the use of e-commerce in financial institutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	SR8	User groups among staff in your institution have been involved in planning for the new ICT project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	SR9	Your institution has a future development plan for ICT and information infrastructure, and e- service infrastructure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	SR10	Your institution has an appropriate plan for implementation of e-commerce initiatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	SR11	In planning for the new e- commerce project, an individual or a group has taken responsibility for planning in order to get top management support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	SR12	In order to strengthen the capacity of e-commerce knowledge, your organization will be willing and committed to accept additional responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section III – Technology Readiness (TR): The following questions are about your perception of technology readiness of your institution for e- commerce adoption.

Please circle on the appropriate response

TR\_Basics 1. Your organization has Internet access? A) Yes B) No

TR\_Basics 2. If you answer “yes” in No. 1, indicate the type of internet

A) Dial up B) Broadband C) Satellite D) CDMA E) Don’t Know

TR\_Basics 3. Your organization has a website A) Yes B) No C) Don’t know

TR\_Basics 4. To your knowledge, the cost of ICT maintenance is

A) Low B) Enough C) High D) Very High E) Don’t know

S/N	Question Code	Questions	Responses				
			1	2	3	4	5
1	TR1	The speed of Internet connection is suitable for servicing business requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	TR2	The Internet connection in your organization is reliable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	TR3	The Internet connection in your organization is affordable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	TR4	Do you agree that your institution uses internet for information exchange with another financial institutions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	TR5	Hardware and software required for e- commerce are readily available at your institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	TR6	Hardware and software required for e- commerce are affordable at your institution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	TR7	The required ICT (telephone/ internet/ bandwidth) is easily available in your institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	TR8	The required ICT (telephone/ internet/ bandwidth) is easily affordable in your institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	TR9	Availability of technical people will be a problem if e-commerce technology adopted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	TR10	Support is available within a reasonable time frame for the proposed use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	TR11	Support is available to address most of the problems related to e- commerce.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	TR12	Do you agree that your institution has a standard for ICT support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section IV – Organization Readiness (OR): The following questions are about your perception of organization readiness of your institution for e- commerce adoption.

S/N	Question Code	Questions	Responses				
			1	2	3	4	5
1	OR1	The country has adequate legal framework for e- commerce adoption?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	OR2	Do you agree that e- commerce encourages individuals and investors to participate in the electronic business?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3	OR3	Do you think the financial institutions in Addis Ababa will benefit from e- commerce?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	OR4	Institutional policies are in place to promote and manage the use of e- commerce in business?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	OR5	Your institution's vision related to the e-commerce adoption is widely communicated throughout the institution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	OR6	Do you agree that the country has adequate legal framework for cyber security?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	OR7	Your institution has standards for cyber security.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	OR8	Your institution has e-business services regulation and standardization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	OR9	Do you agree that the country needs additional Internet Service Providers (ISPs)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	OR10	Do you agree that lack of internet liberalization affects the adoption and growth of e- commerce?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	OR11	Your institution has knowledge and innovation sharing practices with similar institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	OR12	Your institution has ICT management who are well – informed about e- commerce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section V – People Readiness (PR): The following questions are about your perception of people readiness of your institution for e- commerce adoption

S/N	Question Code	Questions	Responses				
			1	2	3	4	5
1	PR1	Do you think that e- commerce can maximize consumers' satisfaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	PR2	Policy makers identify and prioritize to create awareness about e- commerce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	PR3	Institutional access to ICT training are place to train the users for proposed projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	PR4	The capacity of ICT is adequate to make business decisions in your organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	PR5	Do you believe that policy makers, government officials, and financial institutions leaders prefer e- commerce over the traditional way of doing business/ trade?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	PR6	Do you agree that there must be e- commerce trainings/ courses in colleges and universities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	PR7	There is general comfort in using ICT/ Internet among staff in your institution for the purpose of customer support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	PR8	Do you agree that there is adequate management of ICT skills in your institution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	PR9	Do you agree that ICT skill for e- commerce adoption is available in your institution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	PR10	Staffs in your institution are satisfied by their activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	PR11	Managements in your institution acquired the required level of qualification in ICT.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	PR12	Do you believe that the country has adequate education system in technology?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section VII – Environment Readiness (ER): The following questions are about your perception of environmental readiness of your institution for e- commerce adoption

S/N	Question Code	Questions	Responses				
			1	2	3	4	5
1	ER1	Currently, there is cooperation between your institution and other financial institutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	ER2	Do you believe there are technology parks & incubators for research and development?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	ER3	Do you believe your institution has modern knowledge management practices?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	ER4	Do you believe your institution has change management plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	ER5	Do you think your institution could be productive and profitable by using e- commerce?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	ER6	Does your institution cover training expenses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	ER7	There is a culture of easily accepting technology products in your institution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	ER8	Educational institutions can contribute to the quality of e-commerce in the society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	ER9	Do you agree that basic infrastructure services such as electricity, transportation, and postal system are adequately available in Addis Ababa?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	ER10	Do you agree government regulations promote business opportunity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	ER11	Do you believe that customers of financial institution can easily adopt technological changes such as e- commerce?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	ER12	Do you agree that the lack of English language proficiency in the society can affect e- commerce adoption?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix C: Interview Outline

1. How do you see the overall readiness of financial institutions for e- commerce adoption?
2. Do you think that there is a favorable condition for the adoption of e- commerce in the financial institutions?
3. Do you think that local institutions and the country have adequate strategic readiness for e- commerce adoption? If so, what are these readinesses?
4. Do you think that local institutions and the country have adequate technological readiness for e- commerce adoption? If so, what are these readinesses?
5. Do you think that local institutions and the country have adequate organizational readiness for e- commerce adoption? If so, what are these readinesses?
6. Do you think that local institutions and the country have adequate people readiness for e-commerce adoption? If so, what are these readinesses?
7. Do you think that local institutions and the country have adequate environmental readiness for e- commerce adoption? If so, what are these readinesses?
8. What do you think are the challenges of e-commerce adoption in the financial institutions related to strategy, technology, organization, people and environment?
9. Which factors could hinder the readiness of the financial institutions for e- commerce adoption?
10. What kind of initiatives does your institution or the government makes to ensure e-commerce adoption?