ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

MARKETING MANAGEMENT GRADUATE PROGRAM

FACTORS AFFECTING ADOPTION OF E- BANKING IN ETHIOIAN BANKING INDUSTRY (IN CASE OF FIVE SELECTED BANKS)

BY

ATNKUT AYAL

Thesis Submitted to Addis Ababa University School of commerce Marketing Management Graduate Program in Partial Fulfillment of the Requirements for the Degree of Mater of Art (MA) in Marketing Management

JUNE, 2018

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Approved by the Board of Examiners:

_____	_____	_____
Adviser	**Date**	**Signature**
_____	_____	_____
Internal Examiner	**Date**	**Signature**
_____	_____	_____
External Examiner	**Date**	**Signature**

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of MesfinWorkineh (PhD). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Declared by: **Confirmed by Adviser**

Name Atnkut Ayal **Name MesfinWorkineh (PhD)**

Signature —————————— **Signature ——————————**

Date —————————— **Date ——————————**

Place and date of submission: Addis Ababa University, School of commerce June, 2018.

ENDORSEMENT

This thesis has been submitted to Addis Ababa University, School of Commerce, Marketing Management Post Graduate program Unit for examination with my approval as a university advisor.

_____ _____

Advisor Signature & Date

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Abstract

This research project aims to explore factors that affect the adoption of e- banking in Ethiopian banking industry. The study was conducted based on the data gathered from five banks in Ethiopia; four private banks (Dashen bank, Awash bank , United bank, and Abay bank) and one state owned bank (commercial bank of Ethiopia).

In order to achieve the objective of this study and answer the research questions, the researcher adopted mixed research design (both descriptive and explanatory research design).The study was conducted based on the data gathered from the following five banks in Ethiopia; commercial bank of Ethiopia, Dashen Bank, United Bank, Awash Bank and Abay bank. The data collected was analyzed using descriptive statistics by using spss version 20. A research framework developed based on the Technology - Organization - Environment (TOE) framework and Technology Acceptance Model (TAM) was used to guide the study.

The study revealed the following major driving factors in adopting e- banking among commercial banks in Ethiopia; technological factors(perceived risk),from organizational factor, human and financial resources , from environmental factors, national ICT infrastructure, lack of legal and regulatory frame work, lack of government support and lack of completion from foreign banks, from demographical factors, gender, age and education level, and finally lack of awareness and lack of trust on the system are major factors.

The study recommended banks should launch campaigns to create direct awareness to potential adopters, issues such as fear of the lack of privacy and security, together with relative advantages of using E-banking products and continuously review and upgrade the existing system of security to the level that minimize risk ,while the government should support banking sector by facilitating sufficient ICT infrastructure development and National Bank of Ethiopia, (NBE) needs to urgently establish a comprehensive legal and regulatory frame works on the use of technological innovation.

Keywords: *Banking industry, Adoption, E-Banking*

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List of Acronyms

AB	Awash bank
ANOVA	Analysis of Variance
ATM	Automated Teller Machine
CBE	Commercial Bank of Ethiopia
DB	Dashen bank
DOI	Diffusion of Innovation
E-banking	Electronic Banking
E-commerce	Electronic Commerce
ECX	Ethiopian Commodity Exchange
EFT	Electronic Fund Transfer
E-payment	Electronic Payment
GSM	Global System for Mobile Communication
ICT	Information and Communication Technology
IT	Information Technology
NBE	National Bank of Ethiopia
PC	Personal Computer
POS	Point of Sale
S.C	Share Company
SMS	Short Messaging Service
SPSS	Statistical Package for Social Scientists
TAM	Technology Acceptance Model
TOE	Technology-Organization-Environment
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UB	United bank

UNIT ONE

1. INTRODUCTION

1.1 Background of the study

The reduction of barriers in information technology occasioned by the introduction of the telecommunications networks and the computer system persist to shape the way banks and their corporate relationships are structured worldwide. The pressure of globalization, consolidation, deregulation and rapidly changing technology has made it necessary for banks to re-examine their service delivery systems and cope up with suitable human skill in order to suitably position them within this dynamism of information technology (Woherem, 2000).

In order to provide efficient and effective services, Banks currently uses latest technology, financial resource and human resources to achieve its predetermined goals and objectives. Among those resources, technology is one of a competitive advantage for the banking industry to ease delivery of the intended service, to make timely decision, exploit resources user friendly, achieve the objectives of the organization as planned and contribute for the enhancement of the overall development.(Abebe Zeleke ,2016).In rapidly changing and highly competitive environment success in the banking industry especially depends on having use of the appropriate technology along with retention of well trained and motivated employees who have the capacity to exploit the Bank's existing technology as well as look for better advancement(Abebe Zeleke ,2016).

The financial services market is continuing to change rapidly, which brings into question whether traditional banks, as they are now structured, will actually continue to exist by the end of the decade or even survive through the next years (Olga lustsik, 2003). The evolution of e-banking started from the use of Automatic Teller Machines (ATMs) and Finland is the first country in the world to have taken a lead in e-banking (Mishra, R. and J. Kiranmai (2009) in order to provide efficient and effective service to their customers. Electronic banking has been widely used in developed countries and is rapidly expanding in developing countries. However, the slow diffusion of e-commerce to African countries has been attributed to a number of issues some of which may be unique to the African Continent (Darley, W. K, 2001). Electronic banking

is nothing but e-business in banking industry. It may also be referred as internet banking. The internet is transforming the banking and financial industry in terms of the nature of core products /services and the way these are packaged, proposed, delivered and consumed (Sathye, 1999). The computer applications are paramount concern to the banks in today's business environment and internet has become the major platform for all financial, banking and commercial transactions in the present scenario (Magembe, B A S and Shemi A P (2002).

It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness (Kamel, 2005 and Nath, Shrick and Parzinger, 2001). Banks and other businesses alike are turning to Information Technology (IT) to improve business efficiency by delivering the service with minimum cost, service quality and attract new customers (Nath et al, 2001). Technological innovations have been identified to contribute to the distribution channels of banks. The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine(ATM),Debit card ,credit card ,visa card, Phone- banking, Tele-banking, PC-banking and most recently internet banking. The paperless banking has become inevitable (Goi, 2005).

Information and communications technologies (ICTs) have changed the way of conducting business transactions and meeting the growing demands of customers for most organizations. The promise of ICTs in the banking sector has been seen in terms of its potential to increase customer base, reduce transaction costs, improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitate self-service and service customization, and improve customer communication and relationship.

The banking industry is constantly responding to changes in customer preferences and needs; increasing competition from non-banks, changes in demographic and social trends, information technology advances, channel strategies, and government deregulations of the financial service sector (Byers &Lederer, 2001).

The rapidly growing information and communication technology is knocking the front door of every bank in the world, where Ethiopian banks would never be exceptional. Electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries. In Ethiopia, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an evolving stage. In the face of rapid expansion of electronic payment systems throughout the developed and the developing world, Ethiopia's financial sector cannot remain an

exception in expanding the use of the electronic banking. In this context, the study wouldattempt to trace the factors affecting E- banking.

1.2Background history of E- banking in Ethiopia

The appearance of E-banking in Ethiopia goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced the service for local users with its eight ATMs located in Addis Ababa (Gardachew, 2010), and CBE has had Visa membership since November 14, 2005. But, due to lack of appropriate infrastructure it failed to reap the fruit of its membership. Despite being the pioneer in introducing ATM based payment system and acquired visa membership, CBE Lagged behind Dashen bank, which worked aggressively to maintain its lead in E-payment system. As CBE continues to move at a snail's pace in its turnkey solution for Card Based Payment system, Dashen Bank remains so far the sole player in the field of E-Banking since 2006 (Gardachew, 2010).

Dashen Bank has begun accepting MasterCard in addition to Visa cards. Dashen won the membership license from MasterCard in 2008. Harnessing its leadership with advanced banking technology, Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce in April 21, 2009. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions (Amanyehun 2011). Although Dashen new technology is one step ahead in that it allows transfer of funds from one account to others, the first ever E-banking gateway was signed between Ethiopian Commodity Exchange (ECX) and Dashen Bank and CBE. The E-banking system being developed with both banks is designed to give a secure electronic data sharing gateway between clients, banks and ECX, by facilitating a smooth transaction **(**Abiy 2008)

United Bank S.C is the first to introduce tele-banking - including text messages or SMS by the end of 2008. Currently, United Bank starts to deliver E banking services like ATM, internet, mobile and agent banking. (United Bank SC web report, 2015)

Wegagen Bank is introducing a Core Banking System as of July 2000 that helps to connect its Head Office & all branches through network. Through its versatile ISO Standard Core Banking System, the Bank is now delivering more efficient services to its customers. The system has also

enabled the Bank to provide technology-based banking services such as Card payment services (through ATM & POS), internet banking as well as mobile banking services. (Wegagen Bank SC Web report, 2015) Zemen Bank has launched prepaid bank cards which can be used without opening a deposit account at the bank. The cards will have preloaded funds, which can be withdrawn from ATMs or used to make purchases from POS terminal. The prepaid cards will be given to the cardholders with a PIN to withdraw the cash. The prepaid cards can be used as gift cards or employee salary or expense cards, which can avoid the need to carry around a large amount of cash. The cards can be preloaded with a minimum of 100 Br. And a maximum of 50,000.00 Br. and reloaded after the previous funds have been fully utilized. The bank will take a commission each time a card is loaded (Fortune, 2012).

Currently, there are only a few agreements in place to share ATM resources. The first was the Premium Switch Solutions (PSS), which was established by three banks in 2009 namely Awash International Bank S.C., Nib International Bank S.C and United Bank S.C., with a capital of 165 million Br, and now has six member banks, including Awash International Bank S.C., United Bank S.C., Nib International Bank S.C., Berhan International Bank S.C., Addis International Bank S.C and the Cooperative Bank of Oromia S.C. It is the first certified Third Party Payment Processor by the regulatory party, National Bank of Ethiopia and starts its operations in July 2012. Moreover, PSS has made its system certified by VISA, Master Card and Union pay. Hence, members connected to PSS network can issue and acquire cards with these brands. Per the plan of PSS, there will be one ATM at every branch of the consortium banks, all domestic airports serviced by commercial service, shopping complexes and merchants. The agreement is the first significant cooperation between competing banks in Ethiopia, which others should be encouraged to follow as there is no single bank in Ethiopia that can afford to provide extensive geographical coverage and access (Gardachew,2010).

1.3. Statement of the problem

The number of commercial banks in Ethiopia has reached 18, out of which 16 are private, and the remaining 2 state-owned. The total Branch net work in the country reached 3,187 as a result, the Bank branch to population ratio becomes 1 to 28,240 people (NBE annual report, 2015/2016, pp.41). Moreover, the current numbers of population of Ethiopian reached over 90 million of which 80 percent are living in rural areas where financial institutions have not yet reached to

majority of those people. According to NBE 2015/2016 annual report, Ethio telecom by the year 20115/16 end able to register the following performance: the number of mobile subscribers surged by 18.4 percent and reached 45.96 million from 38.8 million a year ago. Similarly, the number of fixed line subscribers increased by 33.2 percent to 1,115,561from 837,766. Meanwhile, the number of internet subscribers surged by 44.00 percent on annual basis and reached 13.6 million from 9.4 million recorded. Even though the penetration of internet access and mobile phones among the population increased, out of 18 commercial Banks in Ethiopia, only few Banks introducedintroduce e-banking services (NBE annual report 2015/2016).

The absence of formal banking to the population who live under low income category makes them vulnerable to traditional modes of parking their savings in land, buildings, bullions, etc which in turns has its own regressing effect towards capital formation in the Country. Besides, such population is exposed to the informal channels of credit like family, friends and moneylenders as a result of which entrepreneurial spirit of the masses to increase outputs and prosperity in the countryside would be compromised. Last but not least, a considerable amount of money that is meant to the poor does not actually reach to the intended parties as it passes though large system of government bureaucracy and is exposed to money leakage. Even though E-bankinghave a lot of benefit in delivering service to customers, in Ethiopia customers were missed to enjoy with the technological advancement in banking sector which has been entertained elsewhere in Africa and the rest of the world. This is due to lack of awareness or competition among banking industries. The modern E-banking methods like ATMs, Debit cards, Credit cards, Tele banking, Internet banking and Mobile banking are new to the Ethiopian banking sectors. E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, and to pay bills, or to obtain commercial information and advices are not well known in Ethiopia (Ayana, 2012).

Considering the low extent of development of ICT infrastructure in developing countries, when compared with the developed countries E-banking has not really been able to diffuse into society given the low rate of internet access (Banji& Catherine 2004). These phenomena have a large effect on e- banking diffusion and lead the population unbanked.

The banking industry in Ethiopia is underdeveloped and therefore, there is an all immediate need to embark on capacity building arrangements and modernize the banking system by employing the state of the art of technology being used anywhere in the world. (Gardachew 2010)

In order to encourage further E-banking adoption in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao, AL, 2008). By gaining an in-depth understanding of the factors and conditions that influence developing country's ability to fully adopt and realize its benefits, strategic implications can be generated for the researchers and practitioners regarding how to promote the growth of E-banking in the developing countries.

Therefore this study would assess factors affecting adoption of Electronic Banking system in Ethiopian Banking industry based on the research problems discussed above.

1.4Researchquestions

To explore and assess the factors affecting adoption of Electronic banking in Ethiopia banking industry, this study wouldprovides an answer to the following main and sub research questions.

1.4.1Main research Question

Main research question of the study would be;

What are the factors affecting adoption of Electronic banking in Ethiopia?

1.4.2 Sub research Questions

The research would be the following sub questions;

1. How technological factors affect the adoption of electronic banking?
2. How environmental factors affect the adoption of electronic banking in Ethiopian banking industry?
3. Does an organizational factor affect the adoption of electronic banking?
4. How lack of awarenessaffect the adoption of electronic banking?
5. How demographic factors affect the adoption of electronic banking?
6. How trust on the systemaffect the adoption of electronic banking?

1.5 Aim and Objectives of the study

1.5.1 Aim of the study

The aim of this study is to explore the factors affecting adoption of Electronic banking in Ethiopia banking industry.

1.5.2 Objectives of the study

Specific objectives of the study would be;

1. To explore the influence of technological factors on the adoption of e-banking and service among commercial banks customer in Ethiopia.
2. To identify the influence of environmental factors on the adoption of e-banking service among commercial banks customer in Ethiopia.
3. To identify the influence of organizational factors on the adoption of e-banking service among commercial banks customer in Ethiopia.
4. To show the influence of lack of awareness on the adoption of e-banking service among commercial banks customer in Ethiopia.
5. To identify the influence of demographic factors on the adoption of e-banking service among commercial banks customer in Ethiopia.
6. To identify the influence of trust on the system on the adoption of e-banking.

1.6Significance of the study

The outcomes and results of this research would have potential value to financial institutions, particularly banksmanagers and National Bank of Ethiopia to identify challenging factors that hinder the adoption of Electronic banking in order to increase the use of service as well as to encourage the general acceptance of new IT services and to monitor the development and growth of E-banking. In addition, this study expected to help other researchers who will be interested to conduct further study regarding the issue under investigated by providing use full information. Finally based on the factors found to be influencing bankers' decision on E-banking system, the study may provide recommendations for banks about changes needed to accelerate the practice of the system to deliver service to customers through technological innovation.

1.7Scope of the study

The study was focused to investigate the major challenges of adoption of E-banking in the banking industry of Ethiopia. The study was limited to selectfive commercial banks namely commercial bank of Ethiopia, United bank, Abay bank, Dashen bank, and Awash bankand their branches that are located only in Addis Ababa and excluded financial institutions other than bank. The reasons for this are Ethiopia is too large for the researcher to travel all over the country. From the total population five banks are selected based on banks that are partly implemented E-banking and large customer base.

There are many factors affecting adoption of E- banking. But I would try to see the following factors only and other factors are excluded. From technological factors perceived benefits and perceived risks, from environmental factors legal frame work, national ICT infrastructure, competitive pressure and government support, from organizational factors, financial and human recourses, from demographic factors gender, age, and educational level, and finally trust on the system are the factors under studied.

1.8Limitation of the study

While conducting the study, the sample is taken only from one state owned bank and four private commercial banks; and the researcher will uses non probability sampling technique and it have its own drawbacks like Unknown proportion of the entire population is not included in the sample group i.e. lack of representation of the entire population, Lower level of generalization of research findings compared to probability sampling and Difficulties in estimating sampling variability and identifying possible bias. Hence the generalizations may not be applicable to them. However, in order to get a more reliable representation, respondents should be gathered from all banks that use e-banking. It is also faced that respondents were not properly responded to the whole content of the questionnaire due to misunderstandings, lack of knowledge, or commitment to the subject matter. However, to minimize these problems, the researcher used interceptive interviewing technique and some of the questionnaire which are distributed to the Bank's customer are selectively distributed for those individuals the researcher believe that they have the potential, ability and capacity to respond the questioner properly.

1.9Organization of the paper

The research paper is divided into five units. Unit one presents the introduction part, which contains, back ground of the study, statement of the problem, research questions, objectives of the study, research method adopted, scope & limitations of the study and significance of the research paper. Unit two presents the literature review, unit three presents research methodology, the research results and discussion is presented in unit four. The final part unit five summarizes the findings, concludes the paper, and forwards some recommendations.

1.10Definition of operational terms

1. **Electronic Banking** is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul, 2009).
2. **Internet banking:** refers to systems that enable bank customers to access accounts and general information on bank products and services through a personal computer (PC) or other intelligent device (Booz, Allen & Hamilton, 1999).
3. **ATM:** It is a machine where cash withdrawal can be made over the machine without going in to the banking hall. It also sells recharge cards and transfer funds; it can be accessed 24 hours/7 days with account balance enquiry (Fenuga, 2010).
4. **Adoption** is the acceptance and continued use of a product, service or idea. Consumers go through a process of knowledge, persuasion, decision, implementation and confirmation before they are ready to adopt a product or services Rogers and Shoemaker (1971).
5. **Mobile banking**means performing banking activities which primarily consist of opening and maintaining mobile/regular accounts and accepting deposits; furthermore, it includes performing fund transfer or cash-in and cash-out services using mobile devices (NBE Directive, FIS-01-2012).
6. **POS:** A Point-of-Sale service is an electronic payment type that allows credit/debit cardholders make payments at sales/purchase outlets. It allows customers to perform the following services: Retail Payments, Cashless Payments, Cash Back Balance Inquiry, Airtime Transaction, Printing mini statement etc. (Kumaga, 2010).
7. **Credit Card: Credit** Card can be called as an equivalent of a loan sanctioned by the bank to its customers. Credit card facilitates and makes it possible to "Use First and Pay Later" the specified amount of credit as per the agreed terms of sanction (Fenuga, 2010).

UNIT TWO

2.REVIEW OF RELATED LITERATURE

2.1 Introduction

2.1.1Types of E-banking

E-banking can defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or touch tone telephone (Alagheband 2006). According to Alghaeband, there are different types of E-banking and some of the basic are discussed as follow:

1. Automated Teller Machines (ATM) - It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. To withdraw cash, make deposits or transfer funds between accounts, a consumer needs an ATM card and a personal identification number (PIN).

2. Point-of-Sale Transfer Terminals (POS) - The system allows consumers to pay for retail purchase with a check card, a new name for debit card. This card looks like a credit card but with a significant difference. The money for the purchase is transferred immediately from account of debit card holder to the store's account (Malak 2007).

3. Internet / extranet banking- It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers.

4. Mobile banking- Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS).

2.1.2Benefits of Electronic banking

Electronic banking services are becoming the preferred way of making transactions in the developed world due to the fact that they understand the benefits very well through long years of using them in their economy (Dawd, 2004). The benefits of having electronic banking system can be seen from different perspectives as follows.

A. Benefits to Customers

E-Banking offers substantial advantagesto customers in the form of convenience, time saving and easy access to the banking services. The customers can transact in their account at any time and any where throughout the country or outside the country. There is no time and place restriction. The customers need not visit a branch for each and every transaction and no need to wait in the long queue. By this they can save the time. The customers can avail 24 hours a day and 7 days a week access to banking services at anywhere. With the help of e-banking, the easy access to the banks will be another advantage to the customers.

Thus the e-banking provides sophisticated services to the customers (Devamohan, 2002). Dawd (2004) also argued that cardholders can be benefited from the safe and convenient nature of using cards for payment. Moreover, payment cards can make life easy for people who want to travel abroad as it minimizes the volume of cash one needs to carry and the associated risk of theft. From merchants' point of view, those merchants who accept cards enable to increase their sales as card holders prefer merchants who can accept their card for payment. Moreover, by reducing the amount of cash on hand, merchants can manage to reduce risks as well as costs related to cash management.

B. Benefits to Banks

The first benefits for the banks offering electronic banking services is better branding and better responsiveness to the market. In this competitive world, E-banking helps the banks to attract more number of customers and tackle the competition from other banks. According to Olga (2003), those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, those banks that provide the service can enhance the customer satisfaction through sophisticated services.

By providing secured e-Banking services, the banks can also avoid fraudulent activities. With the help of e-banking, banks can save time and hence they can increase the number of transactions and business (Devamohan, 2002). The other benefits of e-banking are possible to measure in monetary terms. The main goal of every company is to maximize profits for its owners and banks are not an exception. In this regard, automated e-banking services offer a perfect opportunity for maximizing profits (Olga, 2003).

C. Benefits to the Economy

As e-banking provide opportunity to banking sector to enlarge their customer base, it has a consequence to increase the volume of credit creation which in turn results in better economic condition. The positive impacts of electronic banking are immense for economic development of a nation. Some of the economic benefits of e-banking as identified by Dawd (2009) are as follow:

1. Reduction of the cost for printing cash notes and its related distribution

In a cash based economy, governments are required to invest a great deal of fund on printing of cash notes and distributing same to the public. In the case of electronic payment systems the transaction values are transferred from one account to another using electronic means, reducing the need for cash note distribution. Thus, by encouraging acceptance of payment cards, governments can achieve huge cost saving for their economy in terms of reducing cash note printing and related expenditure (Dawd, 2009).

2. Enhancement of Aggregate Deposit

When people start to increase the proportion of their saving compared to their daily consumption, the saved money can be utilized for investment purposes that in turn will create employment opportunities. This is a great benefit for the economy as a whole. However, individual savings could not bring this kind of impact. The benefit can only be obtained when savings are made in a banking system whereby the saved fund can be deployed to the economy in the form of loan to encourage the required investment (Dawd, 2009).

In an electronic payment card infrastructure people do not need to carry cash notes for their day to day expenditures as well as contingencies. They rather are encouraged to deposit their fund in the banking system and obtain a single plastic to access this fund at any time of the day when the need arises. This implies that unused funds are always in the banking system that helps to facilitate economic growth (Dawd 2009).

3. Banking the un-banked

While the electronic payment card infrastructure is diversified, payroll for employees can be handled through this system. Besides creating ease and convenience, both for the employer as well as the employee, it enables individuals to enter into the banking system which they may not be interested otherwise (Dawd, 2009). Such impact of banking the unbanked population also has a benefit in increasing aggregate deposits as indicated above.

4. Increasing the potential for hard currency generation

Especially in developing economies, earning of hard currency is very essential to manage a country's balance of payment. The payment card system can bring a good potential of enabling economies to earn more foreign currency. This can be realized by attracting tourists and by encouraging them to spend more. In today's world, availability of payment card infrastructure is one of the criteria that tourists set while they decide which country to visit. As a result countries that maintain a developed electronic payment card system has a better potential of being visited by tourists than those which do not establish the infrastructure. Hence, more tourists and increased hard currency as a result of diversifying payment card business (Dawd, 2009).

Furthermore, due to the fact that travelers can access their account at home easily while staying in another country, where the payment card infrastructure is established, their chance of spending more is great. Travelers, being outside of their home country, feel more unsafe and uncomfortable to carry bulk amount of cash while on travel. Thus, they can be forced to spend only to the extent of the limited cash on hand during a certain period of stay in another country.

2.1.3Challenges of Electronic Banking

Electronic bankingdespite its numerous benefits, there are challenges in the implementation of e-bankingapplications. Some of the identified challenges as revealed by previous research works include Technological factors, security, infrastructure, regulatory and legal issues and Socio-Cultural challenges.

2.1.3.1 Technological factors

Successful electronic banking implementation requires effective technology management. The limited access to financial services is attributed to three main challenges: limited scale (outreach), depth and the high cost of providing financial services. Essentially, the provision of financial services to many more people, especially in the depth of rural areas, using traditional branch networks entails high costs (Helms, 2006). In an attempt to overcome these challenges, financial service providers in a growing number of countries are finding innovative ways of delivering financial services. The use of ICT is indeed providing a means to increasing scale and depth, while reducing costs in the provision of financial services. Studies suggest that technology plays a significant role in improving financial access by taking financial services in a sustainable way to under-served and un-served areas (Stegman. Rocha, & Davis, 2005Claessens,

2006).Studies also reveal that technologies such as ATMs, mobile phones and points-of-sale (POS) devices are increasingly being used to reduce costs and increase access for low-income clients (Ivatury, 2006). These technologies are providing alternative delivery channels for the delivery of financial services.

2.1.3.2 Security

One of the biggest challenges and the basic requirements of e-banking are ensuring its security. Securing the process in e-banking involves authenticating data of the customer and banker and protecting the information to be transmitted from interception. This authentication can be done using user ID and passwords. In addition a means must be provided that prevent repudiation both by the merchant and customer once the payment process has taken place (Barnes and Hunt, 2001).

According to Worku (2010), e-banking systems must also take into account the need of multilateral security keys i.e. security needs of all participating parties in the e-banking system. An e-payment system that is not secured may not get trust from its users. Trust is one of the crucial factors to ensure the acceptance of e-banking system by users. Martina (2005) also indicated that e-banking applications represent a security challenge as they highly depend on critical ICT systems that create vulnerabilities in financial institutions, businesses and potentially harm customers. It is imperative for banks to understand and address security concerns in order to leverage the potential of ICTs in delivering e-banking applications. Software failures can also be considered as security challenges as it destroy entire portions of a network and bring huge losses. According to Tadesse and Kidan (2005), some of the major security challenges include the following.

A. Disclosure of private information

In e-payment there are many ways in which private information may be accessed by attackers. For instance hackers may intercept network traffic to get confidential data. It is also possible to access private data stored on a computer connected to the internet. This data could be used to make fraudulent transactions that could lead to a loss of money.

B. Counterfeiting

Counterfeiting is the creation of new data or duplication of existing data, which are technically valid but not legally admissible. Cloning of e-money for double spending and creation of fake accounts are example of counterfeiting. One popular form counterfeiting attacks is duplication of

electronic data from a payment cards (e.g. ATM card) is creating duplicate cards and withdraw money from the accounts.

C. Illegal alteration of payment data

Illegal modification of payment information may result in loss of money. This may again results in the loss of customer confidence. Alterations could be made to the transaction account numbers resulting in misdirected payments, to the payment amounts or to electronic balances on electronic. Another challenge in e-payment includes usage of a fraudulent web site by an attacker to collect credit card number and other personal and/or financial information.

According to Taddesse and Kidan (2005), the most common method of securing e-banking services is using cryptographic based technologies such as encryption and digital signatures. However, applying these technologies will reduce its efficiency by making it slower and as a result some sort of compromising has to be made between security and efficiency.

2.1.3.3 Infrastructure

The other challenge for the adoption of e- banking is proper infrastructure. For the effective deployment of e-banking, it is necessary to have a reliable and cost effective infrastructure that can be accessible to the majority of the population.

The most common communication infrastructure for e-banking is computer network such as Internet. Most e-banking systems use internet to communicate with their customers. The other communication infrastructure available for e-banking users is the mobile network used for mobile phone. Automating the banking activities is another prerequisite for e-banking system. Closed financial network that links banks and other financial institutions is necessary. This network is usually used between banks or other financial institution for clearing and payment confirmation.

According to Kumaga (2010), low level of internet penetration and poorly developed telecommunication infrastructure impede smooth development and improvements in e-commerce in developing countries. In this regard, a study made by Microfinance Nigeria (2010) indicated that efforts made by the Nigerian government and other financial and ICT stakeholders to move Nigeria's payment system from a cash-dependent platform to the globally acceptable electronic-driven alternative way is impeded by shortage of well developed telecommunication infrastructure. Another major problem that relates to this is frequent electric power disruption. This will create lot of problems in e-banking activities which are basically depending on power

supply. It will force the banks to depend on generators results in high operational cost. These problems are considered as obstacles for the expansion of e-banking services.

2.1.3.4 Regulatory and Legal Issues

National, regional or international set of laws, rules, and other regulations are important prerequisites for successful implementation of e-banking services. Some of the main elements include rules on money laundering, supervision of commercial banks and money institutions by supervisory authorities, payment system oversight by central banks, consumer and data protection, cooperation and competition issues (European Central Bank, 2002).

According to Mishra (2009), the virtual and global nature of e-payment also raises legal questions such as which jurisdiction will be competent and about applicable laws in disputed cases, validity of electronic data, electronic contracts, and electronic signature.

Moreover, a legal and regulatory framework that builds trust and confidence supporting technical efforts to meet the same is another important issue that needs to be addressed. In this regard legislative support is essential for protecting the interests of customers and banks in various areas relating to e-banking and payment systems. Some of the main issues like liability for loss in case of fraud, allocation of loss in case of insolvency, cheque truncation, evidence and burden of proof, preservation of records, prevention of fraud, etc. are to be cleared in the legislation (ECB, 2002). This can be done by adopting model laws at global level such as UNCITRAL Model law on E-commerce (1996), UNCITRAL Model law on E-signatures (2001) and at regional level such as the SADC Model law on Electronic Transaction and Data protection (Mishra, 2009).

2.1.3.5 Socio-Cultural Challenges

Cultural and historical differences in attitudes and the use of different forms of money (e.g. use of credit card in North America and use of debit cards in Europe) complicate the task of developing an electronic payment system that is applicable at international level. Difference in the degree of the required security and efficiency among peoples of different cultures and level of development aggravates the problem (Tadesse and Kidan, 2005).

2.2 Theoretical Review

There are different factors that affect the practice and adoption of technological innovation in general and specifically E-banking. There are many theories for the adoption of IT. The most

used theories for technology adoption are the technology acceptance model (TAM) (Davis F. 1989), theory of planned behavior (TPB) (Ajzen 1985, Ajzen 1991), unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.* 2003), diffusion of innovation (DOI) (Rogers 1995), technology organization environment (TOE) framework (Tornatzky and Fleischer 1990), institutional theory and Iacovou et al. (1995) model. From these IT adoption models while TAM, TPB and UTAUT are individual level models, DOI, TOE, institutional theory and Iacovou et al. (1995) models are at the firm level (Tiago and Maria 2011). The following section will discuss some of the above IT adoption models in detailfor the adoption and practice of new technology.

2.2.1 **Technology- organization- Environment (TOE) framework**

TOE framework was proposed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, et al, & Ellis 2009; Chang et al 2007, Zhu & Kraemer 2006). According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment. Even though theses paper is trying to assess the practice of e-banking it is also including the implementation and adoption of e-banking. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).While the organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system. The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services. For each context, various factors have been identified from the literature but only those that are considered relevant for E-banking adoption are included in the framework. Details of factors considered in this study are discussed below.

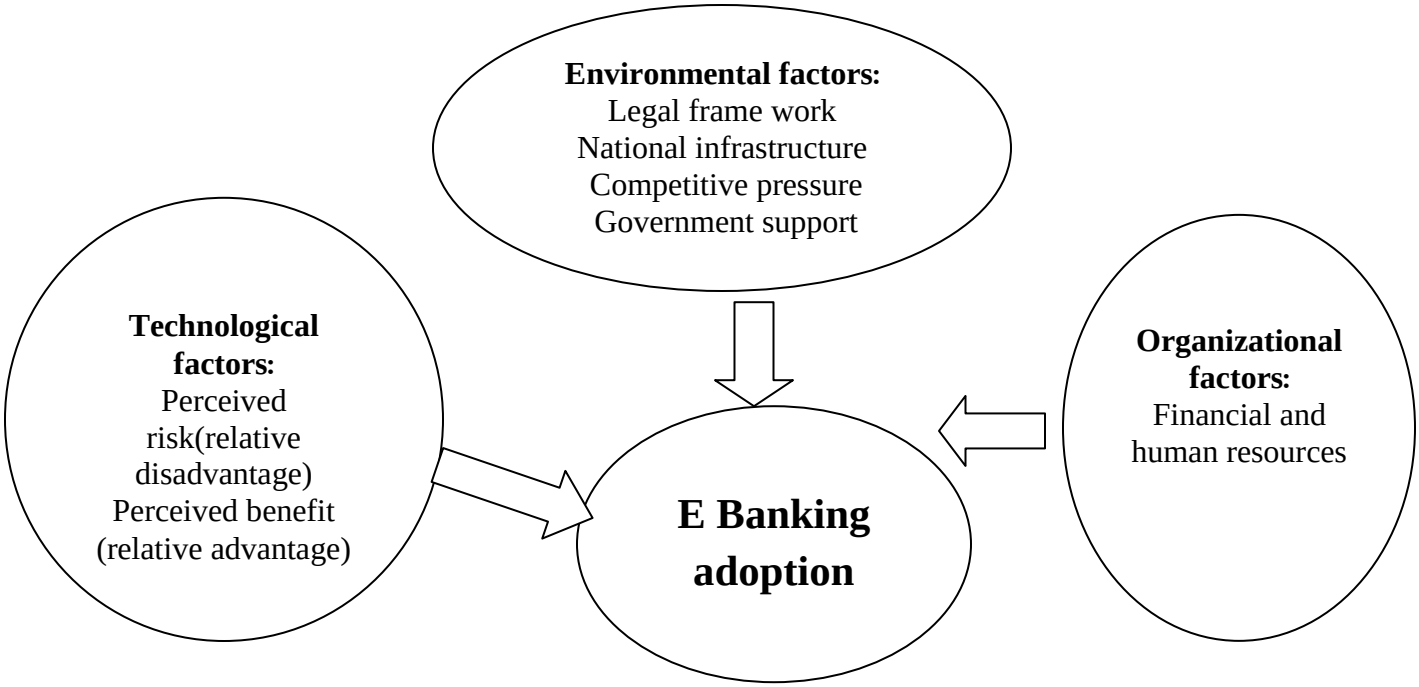


Figure 2.1 Technology-Organization-Environment (TOE) frameworks

Source: Ayana (2012)

Technological Factors

It appears that there is a lack of consensus on what factors belong to this context. For example, one study (Salwani 2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in this context, while other studies (Ellias 2009 & Chang 2007) consider some relevant characteristics of technology. To avoid overlapping between technology and organizational contexts, researcher chooses two basic factors related to technology competence, which have relevant to the organizational factors, i.e. perceived benefits and perceived risks are considered in this study from the technological factors.

1. Perceived benefits: - Perceived benefits of E-banking cover both direct and indirect benefits for the banking industry as well as for the consumers. Direct benefits include the savings on operational cost, improved organizational functionality, productivity gain, improved efficiency and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer's satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Lu et al. 2005; Kuan & Chau 2001 &Iacovou 1995)

2. Perceived risks: - One of the important risks faced by banking institutions in offering E-banking services is the customers' resistance to use the services which significantly hinder the growth of E-banking (Zhao et al. 2008 & Laforet 2005). Issues related to security have always been a concern

when dealing with technologies related to online transactions such as E-banking (Chang 2007 & Rogers 2003). Therefore, the perception of the risks regarding E-banking is expected to influence its adoption and further growth.

Organizational Factors

Organizations are different in their preference to adopt technological innovation (Iacovou 1995 & Grover 1993) influenced by a number of factors, like firm size, top management support and financial and human resources. In the framework for this study, researcher uses one basic organizational factor as discussed below.

Financial and human resources: - Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Kuan 2001 &Iacovou 1995).Therefore, it is expected that the availability of financial resources within the adopting firms is important for E-banking practice. These resources enable banking institutions to obtain human related resources including the required skills and expertise to develop and support provision of E-banking services.

Environmental factors

Researcher identified factors related to the environmental context that play a crucial role in technology adoption and some factors in this category are arguably more influential than others, especially when countries under study have an authoritative government leadership. The Four factors relevant for E-banking adoptions included in this study are:-

1. Legal Frameworks: - The existence and maturity of E-commerce legal frameworks within a country influence the diffusion of online transactions including E-banking as demonstrated in various studies (Tan & Wu 2002; Martinson &Trappey 2001).

2. The National ICT infrastructure: - National ICT infrastructure is a major factor that supports the adoption of E-bankingas the case for other E-commerce initiatives. Without an adequate development level and quality of a nation's ICT infrastructure, E-banking adoption and use cannot do well (Efendioghu 2004 & Scupola 2003).

3. Competitive pressure: - Competitive pressure can strongly influence any bank to develop and adopt E-banking initiatives and it may affect the bank's perception towards E-banking system. As implied in previous studies (Quaddus & Hofmeyer 2007; Gibbs, Kraemer & Dedrick 2003).

4. Government Support:-Government can either directly or indirectly affect the adoption of E-banking in terms of creating a favorable environment and impetus for banking institutions and their customers so that the services can be diffused with the community (Kuan 2001 &Iacovou 1995)

Generally these theory discuss different variables associated with the adoption of E- banking and i.e. from technological factors perceived benefits and perceived risks, from organizational factors human and financial resources and from environmental factors legal frameworks, national ICT infrastructures, competitive pressure and government support and this theory used to test does this variables affect the adoption of E- banking in Ethiopian banking industry.

2.2.2 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), is probably one of the most influential theories used to explain human behavior (Venkatesh et al., 2003). Simply put, according to this theory, the behavioral intention can be explained by the attitude towards behavior and subjective norm. The attitude towards behavior is defined as "an individual's positive or negative feelings (evaluative effect) about performing the target behavior" (Fishbein and Ajzen, 1975, p. 216). Subjective norm refers to perception that most people who really matter to the individual think that he either should or should not perform the behavior in question" (Fishbein and Ajzen, 1975, p.302). Attitude towards behavior, in turn, can be explained by the salient beliefs in the behavior.

This theory is give high emphasis to human behavior, norms and beliefs and used to investigate customers behavior, beliefs and norms about the adoption of E- banking in Ethiopian banking industry.

2.2.3 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was proposed by Ajzen (1985) as an extension of TRA (Fishbein and Ajzen, 1975) for situations where people do not have complete control over their behavior. Basically, TPB adds a determinant to the behavioral intention and the attitude towards behavior constructs which is the perceived behavioral control. This construct reflects how people perceive the internal and external limitations to their behavior. On more formal terms, it refers to how easy or difficult people believe it would be to perform certain behaviors (Ajzen, 1985).

In TPB, behavior itself is a function of both the behavioral intention and the perceived behavioral control. Behavioral intention, in turn, is influenced by the attitude towards behavior, the subjective norm and the perceived behavioral control. The determinants of intention (attitude,

subjective norm, and perceived behavioral control) are established by the structure of the underlying (attitudinal, normative and control) beliefs.

Strengths of theory of planned behavior

The theory of planned behavior can cover people's non-volitional behavior which cannot be explained by the theory of reasoned action.

An individual's behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete. By adding "perceived behavioral control," the theory of planned behavior can explain the relationship between behavioral intention and actual behavior.

Several studies found that the TPB would help better predict health-related behavioral intention than the theory of reasoned action Ajzen, I. (1989) The TPB has improved the predictability of intention in various health-related fields such as condom use, leisure, exercise, diet, etc.

In addition, the theory of planned behavior as well as the theory of reasoned action can explain the individual's social behavior by considering "social norm" as an important variable.

Limitations of theory of planned behavior

Some scholars claim that the theory of planned behavior is based on cognitive processing, and they have criticized the theory on those grounds. More recently, some scholars criticize the theory because it ignores one's needs prior to engaging in a certain action, needs that would affect behavior regardless of expressed attitudes. For example, one might have a very positive attitude towards beefsteak and yet not order a beefsteak because he is not hungry. Or, one might have a very negative attitude towards drinking and little intention to drink and yet engage in drinking as he's seeking group membership.

Also, one's emotions at the interviewing or decision-making time are ignored despite being relevant to the model as emotions can influence beliefs and other constructs of the model. Still, poor predictability for health-related behavior in previous health research seems to be attributed to poor application of the model, associated methods and measures. Most of the research is

correlation, and more evidence based on experimental studies is welcome although experiments, by nature, lack external validity because they prioritize internal validity Sniehotta, F.F. (2009).

Theory of planned behavior also give high emphasis to human behavior, norms and beliefs and used to investigate customers behavior, beliefs and norms about the adoption of E- banking in Ethiopian banking industry.

2.2.4 Technology Acceptance model (TAM)

According to Davis (1989) TAM assume two sets of beliefs, i.e. Perceived Ease of Use (PEoU) and Perceived Usefulness (PU) to look at individual's technology acceptance. TAM proposes perceived usefulness (PU) and perceived ease of use (PEOU) as fundamental determinants of technological adoption where an individual's intention to use an application is predicted and explained by once perception of the technological usefulness and its simplicity (Hart O. et al, 2012).

Perceived Ease of Use refers to the level of degree where an individual believes that using a particular system would be free of physical and mental effort. It measures the prospective user's assessment of the mental efforts required of the use of the target applications (Davis, 1993). Opia (2008) claimed that innovations with perceived complexities of user interface and steep learning curve, which thought risky to adopt. Empirical findings confirm the positive relationships between attitude towards use and ease of use (Venkatesh& Davis, 2000) and show that PEOU is a proven key determinant of users' intention to accept IT (Venkatesh, 2000). Thus, ease of use is a powerful determinant of intention to accept innovation(s) (Hart O. et al, 2012).

Perceived Usefulness on the other hand is related to users' perception of the degree to which using a system will be beneficial (Alsabbagh & Molla, 2004). It provides diagnostic lenses into how actual use and intention to use or attitude towards using are influenced. The near-term results are synonymous with postulates of PU; and the long-term consequences refer to consequential results in one's career or social image, which reflects Rogers' (1995) important motivation for adoption of innovation. The attainment of perceived near-term usefulness paves way for long-term usefulness (Hart O. et al, 2012). It relates with the cost and time saving and it considered from the perspective of improving service delivery and creating more access to users. Decomposing PU as (Triandis, 1980) and (Chau, 1996) did explicitly provides more specific lenses into understanding user perception of Information Technology's usefulness.

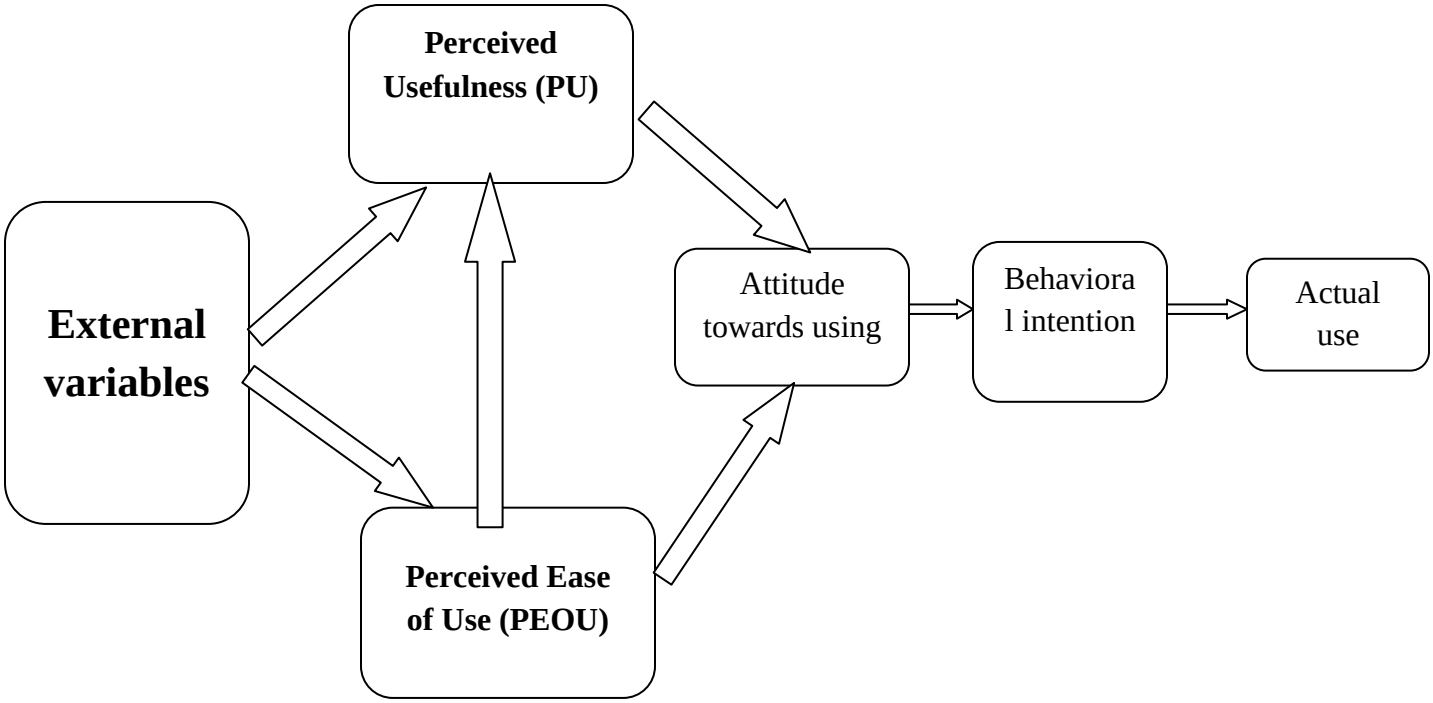


Figure 2.2Technology Acceptance Model (TAM)

Source: Davis &Venkatesh (1996)

The reasons for the popularity of TAM as the theoretical framework is that, TAM is a theory specifically developed for ICT implementation and adoption research. It is a theory owned by the IS research community, a field, in which theories are scarce Lee, Y., Kozar, K. A., & Larsen, K. R. T., (2003). TAM provides a clear and tested framework for ICT adoption and implementation research Yousafzai, S. Y., Foxall G. R., & Pallister, J. G., (2007).The other strength of TAM is its simplicity Davis, F. D. (1989) which has been achieved by leaving social and organizational factors outside the scope of the theory.

On the other hand, looking at the weaknesses, TAM has left out social and organizational factors in its construct, which are very instrumental in influencing technological innovation and ICT adoption. Also, extending TAM to achieve other variations of TAM such TAM2 or other different models and independent variables may cause a theoretical confusion in which, it may become unclear which version of the many iterations of TAM is the commonly accepted one (Benbasat, I. & Barki. H. (2007)Also, the many extensions of TAM did not succeed in deepening the theory in the sense of explaining the essential concepts in greater depth Whetten, D. A., (1989),for example, by explaining exactly what perceived usefulness or ease of use means Bagozzi, R. P., (2007). Criticisms of TAM as a "theory" include its questionable heuristic value,

limited explanatory and predictive power, triviality, and lack of any practical value (Chuttur 2009). Benbasat and Barki suggest that TAM "has diverted researchers' attention away from other important research issues and has created an illusion of progress in knowledge accumulation. Furthermore, the independent attempt by several researchers to expand TAM in order to adapt it to the constantly changing IT environments has lead to a state of theoretical chaos and confusion (Benbasat and Barki 2007). This is the reason why this study found TAM and its extension unsuitable.

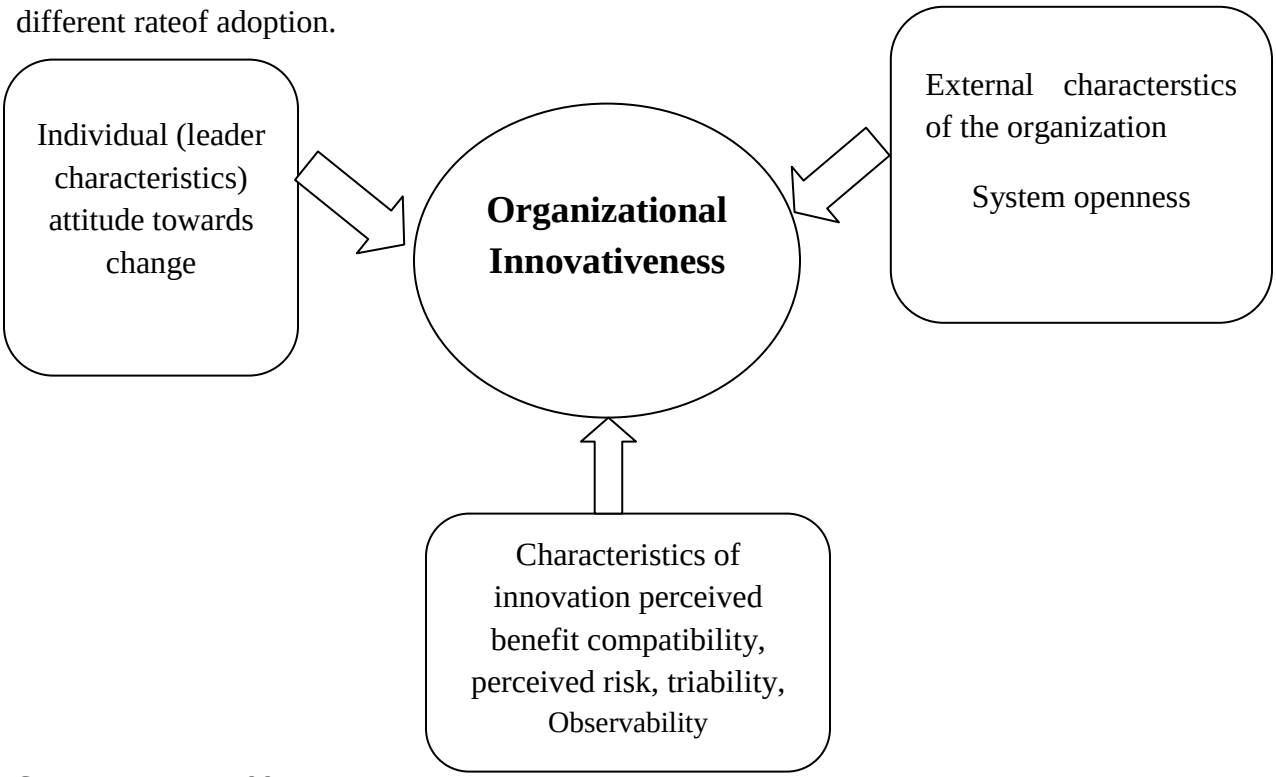
This model is associated with the adoption of e- banking because using of technology have its own advantage and disadvantage (risk) i.e. perceived usefulness and perceived ease of use and TAM is used to elaborate perceived usefulness and perceived ease of use associated with the use of IT technology in general and adoption of E- banking in Ethiopian banking industry.

2.2.5 Diffusion of Innovation (DOI)

As Rogers explained DOI is a theory of how, why, and at what rate new ideas and technologyspread through cultures, operating at the individual and firm level. DOI theory sees innovationsas being communicated through certain channels over time and within a particular social system.Individuals are seen as possessing different degrees of willingness to adopt innovations, and thusit is generally observed that the portion of the population adopting an innovation isapproximately normally distributed over time. Breaking this normal distribution into segmentsleads to the segregation of individuals into the following five categories of individualinnovativeness (from earliest to latest adopters): innovators, early adopters, early majority, latemajority, laggards (Rogers 1995). The innovation process in organizations is much morecomplex. It generally involves a number of individuals, perhaps including both supporters andopponents of the new idea, each of whom plays a role in the innovation-decision (Rogers 1995).

Based on DOI theory at firm level, Rogers stated innovativeness is related to such independentvariables as individual (leader) characteristics, characteristics of innovation, and externalcharacteristics of the organization. As shown in Figure 2, individual characteristics describe theleader attitude toward change. Characteristics of innovation include relative advantage(perceived benefit), compatibility, perceived risk, trial ability and observability. As

Roger statedthe characteristics of innovations, as perceived by individuals, help to explain their different rateof adoption.



Source: Rogers, 1995

Figure 2.3 Innovation of diffusion

Rogers explained the independent variables as follows:

Relative advantage (perceived benefit) is the degree to which an innovation is perceived asbetter than the idea it supersedes. The degree of relative advantage may be measured ineconomic terms, but social-prestige factors, convenience, and satisfaction are also oftenimportant components. It does not matter so much whether an innovation has a great deal of"objective" advantage. What does matter is whether an individual perceives the innovation asadvantageous. The greater the perceived relative advantage of an innovation, the more rapid itsrate of adoption is going to be.

Compatibility is the degree to which an innovation is perceived as being consistent with theexisting values, past experiences, and needs of potential adopters. An idea that is not compatiblewith the prevalent values and norms of a social system will not be adopted as rapidly as aninnovation that is compatible. The adoption of an incompatible innovation often requires theprior adoption of a new value system...

Perceived risk is the degree to which an innovation is perceived as difficult to understand anduse. Some innovations are readily understood by most members of a social system; others aremore complicated and will be adopted more slowly.

Trial ability is the degree to which an innovation may be experimented within a limited basis.New ideas that can be tried on the installment plan will generally be adopted more quickly thaninnovations that are not divisible.

Observability is the degree to which the results of an innovation are visible to others. The easierit is for individuals to see the results of an innovation, the more likely they are to adopt. Suchvisibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter askhim or her for innovation-evaluation information about it. External characteristics of organization refer to system openness.

Strength and weakness

DOI theory has the following strengths: DOI represents important advancement over earlier limited effects theory. It drew from existing empirical generalizations and synthesized them into a coherent, insightful perspective. It was consistent with most findings from effects surveys and persuasion experiments, and above all, it is very practical. It laid the foundation for numerous promotional communication and marketing theories and the campaigns they support even till today.

The weakness of DIO theory is linear and source dominated because it sees communication process from the point of view of elite who has decided to diffuse information or an innovation. This theory also underestimates the power of media. They mainly create awareness of the new innovations. It assigns a very central role to different types of people critical to the diffusion process. The theory simply says that the media influence innovators or early adopters who influence opinion leaders who in turn influence everyone else. Rogers failed to realize that the media can also be used to provide a basis for group discussions led by change agents. Another fall out of this theory is that it stimulates adoption by groups that do not want the innovation.

In the adopters' categories of this theory, it is noted that the category of a set of adopters is omitted. Rogers didn't realize that some adopters may have the features of innovators/early adopters but may not quickly adopt an innovation.

Diffusion of innovations theory is often simplified to focus solely on a product or innovation, disregarding the complex societal, cultural, economic and other factors that determine how the product is adopted into society. Diffusion research focusing on a few select innovations often fails to advance and draw important conclusions on the larger theory.

Finally Diffusion of innovation theory discuss factors affect the adoption of information technology in general and E- banking adoption in particular factors like relative advantage, compatibility, perceived risk(complexity), trial ability and observability and this theory used to test does this factors affect the adoption of E- banking in Ethiopian banking industry.

2.2.6 Rational Choice Theory

The basic idea of rational choice theory is that patterns of behavior in societies reflect the choices made by individuals as they try to maximize their benefits and minimize their costs. In other words, people make decisions about how they should act by comparing the costs and benefits of different courses of action. As a result, patterns of behavior will develop within the societies that result from those choices. Rationality, interpreted as wanting more rather than less of a good, is widely used as an assumption of the behavior of individuals in microeconomic models and analysis. It attaches wanting more to instrumental rationality, which involves seeking the most cost-effective means to achieve a specific goal without reflecting on the worthiness of that goal (Blume& Easley 2008). Rational choice theory uses a specific and narrower definition of rationality simply to mean that an individual acts as if balancing costs against benefits to arrive at action that maximizes personal advantage. In rational choice theory, all decisions, crazy or sane, are postulated as mimicking such a rational process. Thus rationality is seen as a property of patterns of choices, rather than of individual choices. According to the Rational Choice Theory, human beings are prompted by their own goals and preferences. Human actions are regulated primarily by the information regarding the conditions under which a particular individual is going to work and would try to achieve his or her goal. It is almost impossible for the human beings to get what they desire. According to the Rational Choice Theory, an individual should

have a proper understanding of his or her own selection of goals and the consequences of that selection. Rational people always choose only those options that can offer good results (Peter, 2004).

Rational choice theory mainly focuses on human behavior of choice in order to maximize benefit and minimize risk of choice decision. This is the main input for the study of factors affecting theadoption of E- banking in Ethiopian banking industry because it investigate the behavior of customers and their choice decision.

2.3 Empirical Review

2.3.1 Technological factors and adoption of E- banking

It appears that there is a lack of consensus on what factors belong to this context. For example, one study (Salwani 2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in this context, while other studies (Ellias 2009 & Chang 2007) consider some relevant characteristics of technology. To avoid overlapping between technology and organizational contexts, researcher chooses two basic factors related to technology competence, which have relevant to the organizational factors, i.e. perceived benefits and perceived risks are considered in this study from the technological factors.

1. Perceived benefits: - Perceived benefits of E-banking cover both direct and indirect benefits for the banking industry as well as for the consumers. Direct benefits include the savings on operational cost, improved organizational functionality, productivity gain, improved efficiency and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer's satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Lu et al. 2005; Kuan & Chau 2001 &Iacovou 1995)
2. Perceived risks: - One of the important risks faced by banking institutions in offering E-banking services is the customers' resistance to use the services which significantly hinder the growth of E-banking (Zhao et al. 2008 &Laforet 2005). Issues related to security have always been a concern when dealing with technologies related to online transactions such as E-banking (Chang 2007 & Rogers 2003). Therefore, the perception of the risks regarding E-banking is expected to influence its adoption and further growth.

H1: There is a relationship between Technological factors and adoption of E banking.

2.3.2 Environmental factors and adoption of E- banking.

Environmental factors mainly relates to different facilitating and inhibiting factors in areas of operations (Al-Qirim, 2006). The arena in which a firm conduct its business in adopting technological innovations; its industry, competitors, access to resources supplied by other externals and dealings with government are claimed to be covered under environmental contexts (Kvin Z. et al. 2004). Legal frameworks, the National ICT infrastructure, Competitive pressure and Government supports are amongst significant factors to be considered in the study (Ayana, 2012) as described here under.

1. **Legal Frameworks: -** The existence and maturity of legal frameworks on the e-commerce within a country to influence the diffusion of online transactions including electronic banking as indicated in various studies (Tan & Wu, 2002 and Martinson, 2001).
2. **National ICT Infrastructure: -** National ICT infrastructure is a major factor that supports the adoption of e-banking system as the case for other initiatives. Without an adequate development and quality of a national ICT infrastructure, e-banking adoption and use cannot do well (Efendioghu 2004 &Scupola 2003).
3. **Competitive pressure: -** Competitive pressure can strongly influence any bank to develop and adopt e-banking initiatives and it may affect the bank's perception towards innovation (Quaddus & Hofmeyer 2007). Intense competition stimulates the adoption of innovation (Mansfield et al. 1977).
4. **Government Support:-**Government can either directly or indirectly affect the adoption of E-banking in terms of creating a favorable environment and momentum for banking institutions and their customers so that the services can be diffused with the community (Kuan 2001 &Iacovou 1995)

H2: There is a relationship between Environmental factors and adoption of E-banking

2.3.3 Organizational factors and adoption of E- banking

Organizational factor captures firm's business scope, organizational culture, top management support, complexity of organizational structure measured in terms of centralization, vertical differentiation, and formalization, the quality of human resource, and size related issues such as specialization and internal slack resources (Jeyaraj A. Et al, 2006). Iacovou (1995) and Grover (1993) also argued that organizations influenced by a number of factors, like firm size, top

management support and financial and human resources in their preference to adopt technological innovation. As per Kvin Z. et al. (2004) and Tornatzky and Fleisher (1990) it is defined in terms of several descriptive measures: firm size and scope; the formalization, centralization and complexity of its managerial structure; the quality of its human resources and the amount of internally available slack resources. Accordingly, the researcher considered the financial and human resources as the organizational factor in the framework for the study as discussed below.

Financial and Human Resources: - Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Iacovou 1995 and Kuan 2001). The availability of financial resources and costs related with adoption of innovations has paramount importance and deserves consideration. Human resources that enable banks to obtain the required technical and managerial skills and expertise to adopt and implement technological innovations like electronic banking system are also found important to consider as factors without disregarding the customer sides.

H3: There is a relationship between Organizational factors and adoption of E banking.

2.3.4 Lack of awareness

Octovian and Daniela (2006) mentioned that Romanian customers were not adopting internet banking services because of unawareness and sufficient information about internet banking. In a parallel the study by Octovian and Daniela (2006) and Omar et al. (2011), it was discovered that most of the bank customers are still not aware of internet banking services, although customers would possibly adopt internet banking due to their willingness to accept change and innovation, and to appreciate ease of navigation on banks website with resulting time savings.

Devadevan V (2013) conducted a survey on 65 respondents, and found that 84.6% of the same had tested the mobile banking facility while the rest were unaware of the same. Laforet S, Xiaoyan Li, (2005) points out a low level of awareness in China as far as mobile banking was concerned. In view of the same, Laukkanen T, Kiviniemi V (2010) tested the impact of information and guidance offered by the bank. They found that the information and guidance offered by a bank has the most significant effect on perceived functional usability of mobile banking and also significantly increases the positive image associated with the innovation. The results also suggested that information and guidance significantly increase the perceived value added provided by mobile banking and decrease the perceived risks related to the innovation.

However, information and guidance have no significant impact of psychological barriers like tradition.

H4: There is a relationship betweenlack of awareness and adoption of E banking.

2.3.5 Demographic factors and adoption of E- banking

Demographic factors have a great impact on consumer attitudes and behavior towards new technology acceptance such as e-banking. Age, gender, educational level, income and occupation are among the most influential demographic variables affecting e-banking usage. The empirical studies related to these important demographic factors from the perspective of e-banking usages are discussed;

Gender

Gender refers to the difference in the adoption and usage of new technology such as e-banking between male and female. The impact of gender on customers' e-banking usage behavior has been validated by a number of scholars as explained below.

A study conducted by Alagheband (2006) to identify factors affecting the adoption of e-banking services indicated that men represent the segment with the highest use of e-banking. Similarly, Alafeef et al. (2011) on their study regarding the influence of demographic factors on e-banking adoption discovered that gender has strong effects on the adoption level of e-banking applications in which males have greater e-banking usage experience as compared to females. Azouzi (2009) also discovered that gender is a crucial variable impacting the customers, attitude towards the adoption of e-banking. Similarly, Muzividzi et al. (2013) on their study shown that e-banking is popular with men than women. This may be because men have the courage to take up new technology even with little information about it. Men usually are keen to experiment than women. However, Ismail et al. (2012) AndIzogo(2012) found that there is no significant association between e-banking usages with gender. Besides, Sheshadri et al. (2014) Found that gender does not have an effect on the customer adoption of electronic banking. Both genders have equivalent level of adoption of these services as now a day's both genders are employed and so they have their individual bank accounts and have their own practice of these technological services. Both genders have a diverse knowledge on these services presented by their banks. Therefore, they conclude that gender does not play a role in link with the technology adoption as both males and females are qualified in today's situation.

Age

A study conducted by Abenet (2010) concerning the determinants of e-banking adoption in Ethiopia revealed that the young age group is more computer literate and finds it easy to accept and use new technologies. Poon WC (2008) and Azouzi D (2009) on their study also supports that young and computer literate respondents are using or are willing to use electronic banking. The hypothesis tested to diagnose the relationship between age and e-banking preference by Yitbarek et al. (2013) shows a gradual but steady decline in the percentage preference of e-banking as the age group increases. This means that the percentage preference for e-banking for the 18 to 25 years age group is greater than the percentage preference for e-banking for the above 60 years age group. This makes it quite clear that the younger the age group, the greater their preference for electronic banking.

Educational Level

The impact of education on bank customers' e-banking usages practice is discussed below by reviewing various previous studies. For example; a study conducted by Abenet (2010) in Ethiopia found that e-banking usage practice is greater among those peoples who are in a better educational level as compared to others, so educational level has positive impact on e-banking adoption. This finding is in line with Edwin et al. (2014) who found that consumers' level of education and ICT knowledge impacts their acceptance of e-banking services. A number of the respondents were ICT literate and used it in their everyday transactions, which shows a fair amount of ICT knowledge. Further a study conducted by Izogo (2012), Alafeef et al. (2011) and Margaret et al. (2013) concerning the impact of demographic factors on e-banking adoption among bank customers using Chi-Square Test found that educational status has significant effect on customers' adoption and usage of e-banking. They discovered that the education level is the strongest positive factor that influences the adoption level of e-banking whereby the younger generations are highly educated. In line with this Tater et al. (2011) on their study identified that customers with post-graduate and graduate qualifications are mostly adaptors of IT banking services such as e-banking. This implies that higher qualification is associated with bringing attention towards new technology banking services and qualification is a factor found to be relevant.

H5: There is a relationship between Demographical factors and adoption of E banking.

2.3.6 Trust on the system and adoption of E- banking

Trust plays an important role in the business-to-consumer relationships involving unknown risks (Gefen, D., Karahanna, E. and Straub, D. (2003); Jarvenpaa, S.L., Tractinsky, N. and Saarinen, L. (1999). With the advent of the virtual marketplace, the role of trust has become more predominant and attracted the attention of academicians and practitioners. With respect to online shopping and online banking, potential uncertainties come from multiple sources such as vulnerability of Internet, Internet communication platforms and the technical capability of the vendors. In Internet banking environment, consumers attach more importance to trust than branch banking (Ratnasingham, 1998). This may be due to the absence of the physical contact between the service employee and consumer in the service delivery process. Fears of hackers and privacy invasion compound the uncertainty surrounding online services (Hoffman Hoffman, D.L., Novak, T.P. and Peralta, M.A. (1999); Yoon, 2002). Hence, the uncertainty and risk are inherent in the online banking environment. Research has shown that risk and trust are inseparable components in decision-making (Morrison and Firmstone, 2000). Previous studies suggest that trust is an antecedent of perceived risk (Manzano, J.A., Navarre, C.L., Mafe, C.R. and Blas, S.S. (2009),Kesharwani and Bisht, 2012). In environments such as Internet banking, trust is the most effective strategic method to reduce uncertainty and risk (Gefen, 2000; Hart and Saunders, 1997). Customers trust in M-Banking service, reliability of different M-banking services such as funds transfer, pay bill and application of loan have been found to be positively affecting adoption of e- banking services Hannah Wangari and Willy (2014).

In view of this, following hypotheses are proposed:

H6: There is a relationship between trust and adoption of E banking.

2.4Conceptual framework

The figure below depicts the dependent and independent variables of the research and the relationship among them. The independent variables include Technological factors, Organizational factors, Environmentalfactors, and Demographic factors, Lack of awareness and Trust on the system. Perceived risk and perceived benefit indicate technological factors, financial and human resource indicate organizational factors, legal frame work, national ICT infrastructure, competitive pressure and government support indicate environmental factors, age, sex, and education indicate demographic factors. On the other hand, use of paying bill, account

balance enquiry, buying airtime, use of internet banking, use of ATM and POS machine, use of mobile banking and funds transfer service indicate adoption of E-Banking service.

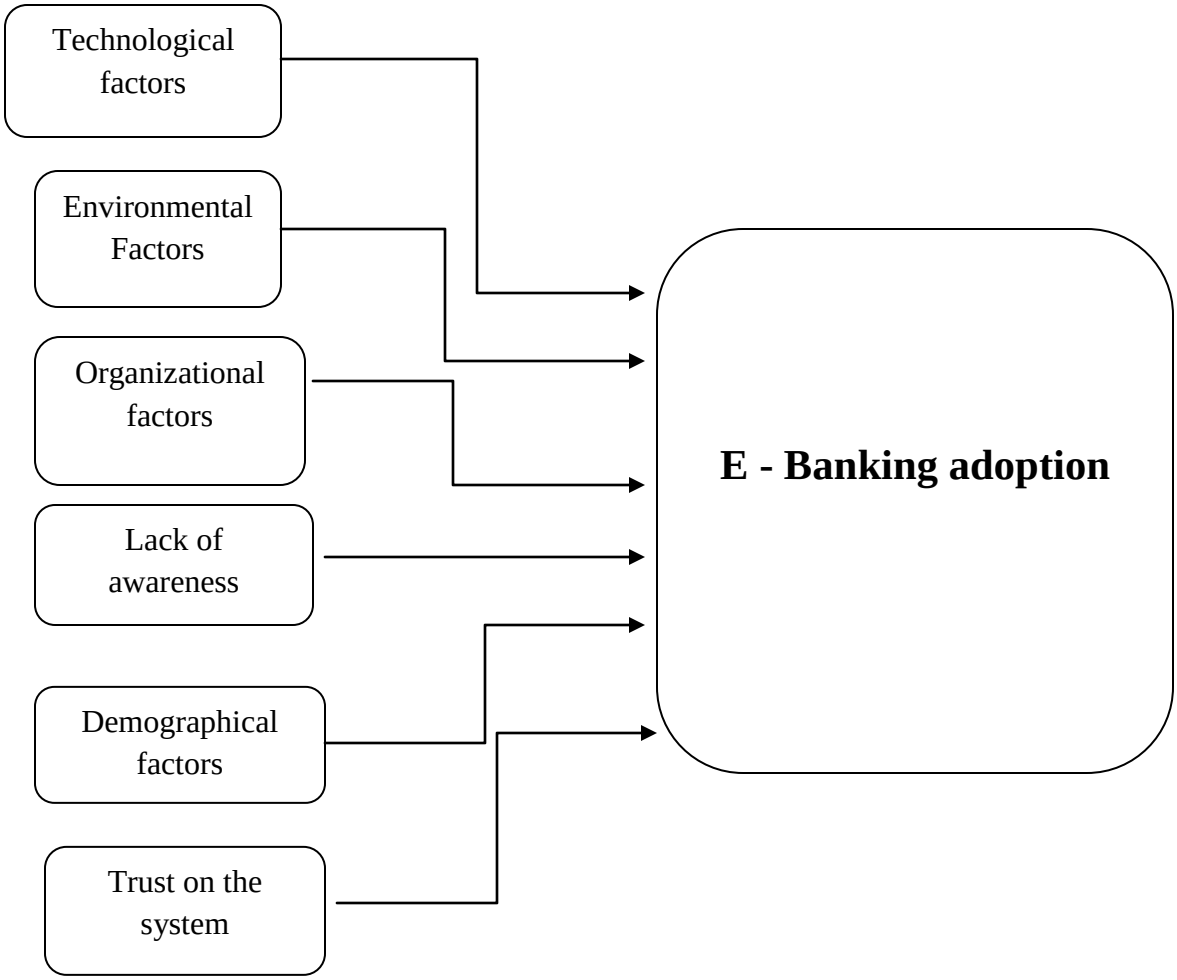


Figure 2.4 conceptual frame works

Source Adapted from Tornatzky and Fleischer (1999)

UNIT THREE

3. METHODOLOGY

3.1Introduction

This section will presents the detail methodology that was applied to obtain representative data from sampled banks and contains seven major components; research design, definition of target population, sampling technique and size, inclusion and exclusion criteria, data collection methods and sources, method of data analysis and presentation and ethical consideration.

3.2Research Design

The purpose of this thesis would be to conduct mixed research design (both descriptive and explanatory). The goal of descriptive research is to describe some aspect of customer's attitude about e- banking in Ethiopian banking industry, i.e., the status of e- banking. It can help understand a topic and lead to causal analysis.The desire to know "why," to explain, is the purpose of explanatory research. It is a continuation of descriptive research and builds on exploratory and descriptive research and goes on to identify the reasons for something that occurs. The researcher goes beyond merely describing the characteristics, to analyze and explain why or how a customer does not adopt e- banking in Ethiopia. Thus, explanatory or analytical research aims to understand phenomena by discovering and measuring causal relations ofindependent variables like technological factors, environmental factors, and organizational factors, lack of awareness, demographical factors and trust on the system with adoption of e- banking.

3.3Definition of target population

The target population of the study is banks in Ethiopia which started to implement E-banking. As there are 18 banks in Ethiopia, the researcher selected 5 banks which started to give E-banking services. Based on the preliminary investigation there are 399 individual customers in the five banks and questionnaire was distributed to all of them. Individual customers are those customers who use e- banking. Those respondents were targeted because, they are deemed to be knowledgeable about E-banking system and could provide important perspectives on its implementation.

3.4Sample size and technique

Sampling is the process of choosing, from a much large population, a group about which wish to make generalized statements so that the selected part represent the total group (Leedy, 1989). Commercial banks have been operated and the additional banks which make an initial public offering to begin their operation were taken as population, and purposely draw a sample from the total to get rich evidence. The total number of Commercial Banks which is operated in the year 2017 is 16 private banks and 2 state-owned banks. The population for this study was Individual customers selected from one government owned and four private banks. These categories are chosen because members of each category significantly contribute to the use and provision of electronic banking services. The Commercial banks are further stratified by size and by whether they are well established banks and number of customers using e- banking. In this regard, Commercial bank of Ethiopia (CBE), Dashen Bank (DB), Awash Bank (AB), and united bank (UB) and Abay bank would be selected.In addition these banks are purposely selected for the reason that the researcher has got willing and cooperative individuals who can assist in providing the relevant information on electronic banking services. Moreover, the researcher selected commercial bank of Ethiopia for the reason that he is conducting his job in CBE; where he has enough experience, information obtained from personal observation, the bank have the pioneer bank to introduce e-banking system in Ethiopia and almost half of the branch networks, ATM and POS machines are covered by this huge bank and where he assumes to have easy access to get the required information.Individual customers are selected using convenient sampling techniques.

Yamane (1967) suggested another simplified formula for calculation of sample size from a population which is an alternative to Cochran's formula. According to him, for a 95% confidence level and $p = 0.5$, size of the sample should be

$$n = \frac{N}{1 + N(e^2)}$$

Where, N is the population size is sample size and e is the level of precision.

Let this formula be used for our population, in which N =116,930 with ±5% precision.

Assuming 95% confidence level and p =0.5, we get the sample size

$$n = \frac{116{,}930}{1+116{,}930(.05^2)} = 399$$

Based on the above formula, three hundred ninety nine (399) individual customers are included in the sample as respondents for the questionnaire.

The proportional allocation method was originally proposed by Bowley (1926). In this method, the sampling fraction$\frac{n}{N}$is same in all strata. This allocation was used to obtain a sample that can estimate size of the sample with greater speed and a higher degree of precision. The allocation of a given sample of size *n* to different stratum was done in proportion to their sizes. I.e. in the

$$i^{th}\text{stratum}, \boldsymbol{n_{i=}\, n\ \frac{Ni}{N}}\ i = 1, 2, 3.$$

Where *n* represents sample size, *Ni* represents population size of the i^{th}strata and *N* represents the population size. In our study, *N* = 116,930; *n*= 399.Based on the above assumption the sample from each bank should be;

1. Commercial bank of Ethiopia

$$\boldsymbol{N_1 = n\ \frac{N1}{N}} = 399\ \frac{\mathbf{36{,}555}}{\mathbf{116{,}930}} = \mathbf{125}$$

2. Abay bank s.c.

$$\boldsymbol{N2 = n\ \frac{N2}{N}}\quad 399\ \frac{\mathbf{18{,}905}}{\mathbf{116{,}930}} = \mathbf{64}$$

3. Dashen bank s.c.

$$\boldsymbol{N3 = n\ \frac{N3}{N}}\quad 399\ \frac{\mathbf{20{,}990}}{\mathbf{116{,}930}} = \mathbf{72}$$

4. Awash bank s.c.

$$\boldsymbol{N4 = n\ \frac{N4}{N}}\quad 399\ \frac{\mathbf{21{,}535}}{\mathbf{116{,}930}} = \mathbf{73}$$

5. United bank s.c.

$$\boldsymbol{N5 = n\ \frac{N5}{N}}\quad 399\ \frac{\mathbf{18{,}945}}{\mathbf{116{,}930}} = \mathbf{65}$$

3.5Inclusion and exclusion criteria

Inclusion: the study covered the banking industry of Ethiopia and includes all banks that are registered by National Bank of Ethiopia (NBE) and customers that have the knowledge of electronic banking and potential, ability and capacity to respond the questioner properly.

Exclusion: this study excludes from the sample banks that are not implement at least one electronic banking product and financial institutions other than bank and customers who have not able to writing and reading.

3.6Data collection method and source

In order to collect sufficient data that can answer the research questions, researcher designed two surveys; the first was a questionnaire to get quantified results. The second survey was interviews aimed to collect data from E-payment/IT managers. In addition to questionnaire and interview, data collected from different published and unpublished materials has been also used.

3.6.1 Questionnaires

As indicated in the above, the customers of the purposely sampled five commercial banks will be included in the survey. A questionnaire was distributed to all 399samples of five purposely sampled commercial banks customers. Questions present in the form of affirmative statements, relating to the concepts on E-banking to identify their intention on the factors affecting the adoption of E- banking, in such a way to enable measurement of the respondent's opinions.The questionnaires were structured in close-ended type and responses to the questions were measured on a five Likert rating scale where: Strongly Agree (SA) = 5; Agree (A) = 4; Neutral (N) =3, Disagree (D) = 2; and Strongly Disagree (SD) = 1; the use of Likert scale is to make it easier for respondents to answer question in a simple way. In addition, this research instrument was permitting an efficient use of statistics for the interpretation of data. Moreover, the central issue to argue that likert scales is that it produce ordinal data. Johns (2010) noted that in statistical terms the level of measurement of the likert response scale is ordinal rather than interval: that is, we can make assumptions about the order but not the spacing of the response options. Thus, the permissible descriptive statistics that can perform on ordinal data is mean (or average response) and mode (or more frequent responses) (Hole 2011).

3.6.2 Interviews

In the qualitative strategy, semi-structured interviewwill be conducted with one manager from each of the five chosen banks to have sufficient information regarding the research problem and with the relevant body at National Bank of Ethiopia (NBE). The major purpose of this interview was to corroborate certain facts that the investigator already thinks have been established (Yin, 1989; pp. 89). Therefore, the semi-structured interviews will be conducted to enhance and supplement the results of questionnaires.

3.7Method of data analysis and presentation

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study (Yin, 1989). The researcher would beanalyzed the data collected through survey to statistical population concerning the factors affecting the adoption of E-banking. The data collected via questionnaires was analyzed with descriptive statistics using statistical package for social scientists (SPSS version 20).

Wolcott (1994) cited in Creswell (2003), suggested that qualitative research is fundamentally interpretative i.e. the researcher makes an interpretation of the data. Thus, the data that was collected from the interview and reviews of documents were interpreted qualitatively. The qualitative type of data analysis technique was used based on the data gathered from experts of various institutions mentioned above with narration and systematic summery. Analyzing qualitative data typically involves immersing oneself in the data to become familiar with it, then looking for patterns and themes, searching for various relationships between data that help the researchers to understand what they have, then visually displaying the information and writing it up (Westbrook, 1994).

In analyzing the data from interviews, narrative approaches were used. Moreover, linear regression analysis was used to test the developed hypotheses.

3.8Validity and Reliability

According to Hair et al. (2003), validity and reliability of the measures need be assessed for the instrument.

Table 3.1 Cronbach's Alpha-Reliability Test

Cronbach's Alpha	*No of item*
0.890	*30*

Source: survey result, 2018

As shown in the above table the Cronbach's Alpha is 0.890, which is very high and showing a very strong internal consistency among the measurement items. According to George & Mallery (2003), the value of alpha should be greater than 0.7 so as to accept the instrument. And the closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale.

Moreover, to secure the content validity of the instrument, the researcher referred previous researcher's questionnaires that fit the purpose and let different scholars and supervisory staff of the sampled bank in the work place to review the instrument before distributing to the respondents and taking an advice from advisor. Accordingly, they had critically examined and forwarded some modifications on the instrument; hence, their expertise feedback has been incorporated.

Furthermore, pre-test were conducted using a total of 5 samples i.e. 1 pre-test from each sample group. Based on the findings of the pre-test, the researcher tries to rephrase some questions that are not clear without affecting the basic context of the instrument. And, it was confirmed that the questionnaires that pass the pre- test become effective to meet the objective of the study before distributed to the respondents.

3.9 Ethical consideration

Ethical clearance was primarily obtained from Addis Ababa University School of commerce and then permission from each target organization. Finally informed written and verbal consent will obtained from the study subjects and data collection was undertaken on the basis of their voluntarily participation. Participating respondents was ensured that information obtained will be strictly confidential.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1Introduction

This chapter contains the findings and analysis of the research study based on interpretation of the data collected. The researcher distributed a total of 399 questionnaires to five purposely sampled commercial bank customers; Commercial bank of Ethiopia (125 questionnaires), Dashen Bank (72 questionnaires), United Bank (65 questionnaires), Awash bank (73 questionnaires) and Abay bank (64 questionnaires) who have commenced both e- banking and agency banking services in Ethiopia. Out of the total 399 questionnaires, 339valid and useable questionnaires were obtained to enable a meaningful analysis of the data with 85% response rate. The research findings relate to the results of the effects of awareness, organization factors, environmental factors, technological factors, demographic factors, and trust on the system variables in the adoption of E- banking.

Additionally, the effects of awareness, organization factors, environmental factors, technological factors, demographic factors, and trust on the system with respect to adoption of E banking are determined and scrutinized based on detailed elements of the measurements. Furthermore, the study findings are subjected to statistical analysis, which are discussed in more details. For example, linear regression analysis was used for test of the hypothesis to indicate the extent to which the relationship of the determinants in the adoption of E banking services were explained through the use of the mentioned factors in the survey questionnaires under each determinant. Hence, the research results that were collected through the survey questionnaires were analyzed using descriptive statistics and linear regression inferential statistics with the help of SPSS 20.0 software and the results are presented and discussed in the following sections.

4.2Respondent Demographic Profile

The study participants on survey questionnaire have different personal information; besides these differences they introduce different responses towards E-banking usage, and the factors that

influence E-banking adoption. The following discussion shows these differences. The demographic profile of respondents, participated in this study was shown in table 4.1 as follow.

Table 4.1 Respondents demographic profile

Variable	Classification of variable	Frequency	Percentage
Gender	Male	**164**	**48.4**
	Female	**175**	**51.6**
Age	Below 20	**16**	**4.7**
	20 to 30 years	**278**	**82**
	31 to 40 years	**45**	**13.3**
	41 to 50 years	**-**	**-**
	Above 50 years	**-**	**-**
Educational level	Grade 12 and below	**24**	**7.1**
	Diploma holder	**68**	**20.1**
	First Degree holder	**193**	**56.9**
	Masters Degree	**54**	**15.9**
	Above Masters Degree	**-**	**-**
Monthly income	Less than birr 2,000.00	**28**	**8.3**
	Birr 2,000.00 -3,999.00	**61**	**18.0**
	Birr 4,000.00 – 4,999.00	**92**	**27.1**
	Birr 5,000.00- 9,999.00	**108**	**31.9**
	Above 10,000.00	**50**	**14.7**

Survey result, 2018

As it is shown on the above table, the highest percentage of participants in this study was females who represent 51.6% of respondents. In the case of classification of respondents by age 82% of the respondents are young (20-30 years old). Regarding the educational level of the study 56.9% of the respondents are BA degree holders. On the other hand, 31.5% of the respondent has monthly income ranges between 5,000.00 to 9,999.00 Ethiopian birr. So the respondents of the survey are majority of them are female, young, BA degree holder and relatively middle income level.

4.3Factors affecting adoption of e- banking in Ethiopia

Questions were asked to identify perceptions of the sampled customer with respect to factors affecting the adoption of E-banking services. The following sections discuss about the responses of the respondents regarding factors affecting the adoption of E banking service in Ethiopian banking industry. Respondents' response towards factors of the services were identified based on the research model that use the two basic frameworks, technology- organization- environment (TOE) frame work and technology acceptance model(TAM) with some modification.

4.3.1Technological factors

Results obtained from survey respondents of five selected bank customers regarding factors affecting the adoption of E banking under determinant technological factors that focus mainly on perceived risk and perceived usefulness aspects of the service are depicted below using descriptive statistics:-

4.1.1.1 Perceived risk

The perception of the risks regarding e-banking is expected to influence the adoption and further growth. Table 4.2 shows participant responses on perceived risk of e-banking service.

Table 4.2 perceived risk

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
Security aspects considered as barrier for implementing of E-Banking.	21 6.2%	8 2.4%	24 7.1%	141 41.6%	145 42.8%	4.12	1.067
Customers do not trust the technology of e- banking.	32 9.4%	16 4.7%	57 16.8%	163 48.1%	71 20.9%	3.66	1.143
Customers fear risk of new technology innovation.	17 5.0%	24 7.1%	16 4.7%	199 58.7%	83 24.5%	3.91	1.010
Customers do not trust the technology provided by the banks	24 7.1%	69 20.4%	48 14.2%	126 37.2%	72 21.2%	3.45	1.228

Source: survey result, 2018

As shown in the above table, the responses were scored on a scale of 1 – 5, with 1 representing the respondents' strong disagreement and 5 representing strong agreement with each of the factors.As the above table indicates that the respondents were agree and strongly agree with Security aspects considered as barrier for implementing of E- Banking with the mean score of

4.12 and standard deviation of 1.067, Customers do not trust the technology of e- banking is also barrier for implementing of e- banking with mean of 3.66 and standard deviation of 1.143, Customers fear risk of new technology innovation is barrier for adoption of e- banking with mean of 3.91 and standard deviation of 1.010 and similarly the response of respondents as shown on the above table Customers do not trust the technology provided by the banks is another factor for e-banking adoption with the mean of 3.45 and standard deviation of 1.228. Moreover, interview with the key informant staff also support the result of questionnaires and indicate that all factors in this categories have significant impact on adoption of the service. Accordingly, they pointed out that making awareness to the customer of the bank on how the risk associated with the adoption of E banking mitigated by the bank may build their trust and confidence that ultimately reduce perceived risk towards E banking services provided by the bank. Therefore this study identified that Lack of availability of physical security are the major factors faces the banking industry in adopting E-banking service. The study result appeared to be somehow consistent with the findings of Sathye (1999); Howcroft et al. (2002); Poon (2008); Aldas-Manzano et al. (2009); and Chong et al. (2010), who found security concerns to be the major factor discouraging the adoption of E-banking services. Moreover, the result is consistent with the findings of Khalfan et al. (2006), Wondwossen and Tsegai (2005), Zhao et al. (2010), and that of Laukkanen (2008).

4.3.2Environmental Factors

Results obtained from survey respondents of five selected branch customers regarding factors affecting the adoption of E banking under determinant environmental factors that focus mainly on ICT infrastructure, legal frameworks, government support and competition are depicted below using descriptive statistics:-

4.3.2.1 National ICT infrastructure

Despite the recent improvements made on the national infrastructure, the overall ICT infrastructure in Ethiopia remains inadequate. Table 4.3 shows the study results.

Table 4.3 National ICT infrastructure

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
My bank has adequate ICT infrastructure to conduct e-banking.	169 49.9%	146 43.1%	10 2.9%	8 2.4%	6 1.8%	1.63	0.805
The quality of internet connection and mobile network significantly affects e- banking.	39 11.5%	24 7.1%	8 2.4%	58 17.1%	210 61.9	4.11	1.398
Ethio Telecom provided high speed internet and mobile connection.	194 57.2%%	40 11.8%	28 8.3%	36 10.6%	41 12.1	2.09	1.472

Source: survey result, 2018

As portrayed in the Table 4.3 above respondent Disagree that my bank has adequate ICT infrastructure to conduct e- banking (Mean = 1.63 and std. Dev 0.805) and Ethio Telecom provided high speed internet and mobile connection (Mean = 2.09 and std. Dev 1.472).Respondents agree and strongly agree with the question of the quality of internet connection and mobile network significantly affects e- banking (Mean 4.11 and std dev 1.398). So the response of the respondents implies that national ICT infrastructure is back bone of both e- banking services.On the other hand an interview conducted with IT managers /E-payment manager of sample banks stated that, unavailability of well-functioning ICT infrastructure and poor internet service affect the smooth functioning E-banking service. But recently, Ethiopian government were doing on improvement of national infrastructure, it will encourage our bank to practice different technological innovation.

4.3.2.2 Legal and regulatory frame work

Table 4.4 shows that the response of study participant regarding the legal and regulatory framework for adoption of E- banking service.

Table 4.4 Legal and regulatory framework

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
My bank has regulatory guidelines on e-banking	31 9.1%	92 27.1%	56 16.5%	120 35.4%	40 11.8%	3.14	1.204
It is difficult to perform E-banking because of absence of suitable legal and regulatory framework for e-commerce and e-payment.	17 5.0%	41 12.1%	60 17.7%	138 40.7%	83 24.5	3.68	1.120

Source: survey result, 2018

As shown table 4.4 the responses of the participants agree and strongly agree with the questionMy bank has regulatory guidelines on e-banking (Mean 3.14and std dev.1.204) and the participants agree with It is difficult to perform E-banking because of absence of suitable legal and regulatory framework for e-commerce and e-payment.(Mean 3.68 and std dev. 1.120).As the survey result shown in the above lack of legal and regulatory frame work affect the adoption of e- banking. Similarly, an interview conducted with one of the payment and settlement department manager at national bank of Ethiopia (NBE) also prove that, Ethiopia does not have special rule on the use of E-banking system or it is not yet included in the banking regulation except the regulation related with mobile banking.

4.3.2.3 Government support

Government can either directly or indirectly affect the adoption of E-banking in terms of creating a favorable environment and impetus for banking industry and their customers so that the services can be diffused with the community. The below table shows the questionnaire results about the Government support.

Table 4.5 Government support

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
The Government promotes e-banking for its citizens.	169 49.9%	86 25.4%	21 6.2%	44 13.0%	19 5.6%	1.99	1.260
The government providing necessary infrastructural facilities (road, electric power, telecommunication and etc) to remote area of the country in order to facilitate e-banking adoption.	187 55.2%	96 28.3%	12 3.5%	16 4.7%	28 8.3%	1.83	1.222

Source: survey result, 2015

Majority of the respondents disagree with the Government promotes e- banking for its citizens (Mean 1.99 and std dev. 1.260) and also disagree with the statement the government providing necessary infrastructural facilities (road, electric power, telecommunication and etc) to remote area of the country in order to facilitate e-banking adoption (Mean value of 1.83 and std dev. 1.222). Based on the survey result lack of government support has an effect on adoption of e-banking.

4.3.2.4 Competitive pressure

The competition from both foreign and domestic private banks appears to be the most important driver for banking industry to adopt and develop e-banking. Table 4.6 shows that the questionnaire response on lack of competitive pressure between local and foreign banks.

Table 4.6 competitive pressure

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
There is high competition between local banks on e-banking services.	33	51	8	188	59	3.56	1.218
	9.7%	15.0%	2.4%	55.5%	17.4%		
Absence of competition from foreign banks has influence on e-banking.	12	43	13	123	148	4.04	1.142
	3.5%	12.7%	3.8%	36.3%	43.7%		

Source: survey result, 2018

The responses of the participants as captured in the table 4.6 above agreed on issues related with there is high competition between local banks e- banking services with the mean value of 3.56and std dev. 1.218. The respondents also agreed that Absence of competition from foreign banks has

influence on e-banking with the mean value of4.04 and std dev. 1.142. This implies that absence of competition from foreign banks has an effect on adoption of e- banking.

4.3.3 Organizational Factors

Results obtained from survey respondents of five selected sample bank customers regarding factors affecting the adoption of E banking under determinant organizational factors that focus mainly on finance and human aspects of the service are depicted below using descriptive statistics:-

4.3.3.1 Financial resource

Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Kuan 2001 &Iacovou 1995). Table 4.7 shows the response of study participants regarding unavailability of financial resource.

Table 4.7 financial resources

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
Implementing technological innovation requires high investment cost.	8	3	24	155	149	4.28	0.826
	2.4%	0.9%	7.1%	45.7%	44.0%		

Source: survey result, 2018

Table 4.7 shows that the majority of the respondents agree and strongly agree 155 and 149 respectively with statement of implementing technological innovation requires high investment cost having the mean score of 4.28 and standard deviation of 0.826. The finding result of the study shows that the unavailability financial resources hinder the adoption of e-banking services.

4.3.3.2 Human resources

In addition to financial resource, human resources also important factors in adoption of new technology. The results of the study presented in table 4.8 regarding human resource on adoption of e- banking services.

Table 4.8 Human resources factors

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
Banks require skilled human resource in order to implement e- banking.	13	16	25	119	166	4.21	1.029
	3.8%	4.7%	7.4%	35.1%	49.0%		
Banks require skilled IT personnel's in implementing technological innovation.	3	16	16	122	182	4.37	0.848
	0.9%	4.7%	4.7%	36.0%	53.7%		
Technical and managerial skills of staffs on using technological innovation have influence on adoption e- banking.	15	17	21	113	173	4.22	1.062
	4.4%	5.0%	6.2%	33.3%	51.0%		
Unavailability of competent and skilled employee in related with e banking is the challenge for banks to practice e-banking.	15	21	28	104	171	4.17	1.100
	4.4%	6.2%	8.3%	30.7%	50.4%		

Source: survey result, 2018

Result reported on table 4.8 shows that mean score of 4.21 and standard deviation of 1.029 for the question of banks require skilled human resource in order to implement e- banking. Banks require skilled IT personnel's in implementing technological innovation with the mean of 4.37 and standard deviation of 0.848 in which 36% and 53.7% of the study participant responds that they are agree and strongly agree respectively, Technical and managerial skills of staffs on using technological innovation have influence on adoption e- banking with the mean of 4.22 and standard deviation of 1.062 in which 33.3% and 51.0% of the study participant responds that they are agree and strongly agree respectively, Unavailability of competent and skilled employee in related with e banking is the challenge for banks to practice e-banking with the mean of 4.17 and standard deviation of 1.100 in which 30.7% and 50.4% of the study participant responds that they are agree and strongly agree respectively. As the above survey indicates that human resource have an effect on adoption of e- banking.

4.3.4Lack of awareness

Result obtained from survey respondents of five sampled banks customer regarding their perception towards awareness associated with adoption of E banking service using descriptive statistics are depicted below:

Table 4.9 Awareness of customers about e- banking

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
I have enough information about electronic banking services.	130	193	2	12	2	1.71	0.706
	38.3%	56.9%	0.6%	3.5%	0.6%		
The bank provides help (demo) on its website to use e- banking.	67	114	44	87	27	2.68	1.268
	19.8%	33.6%	13.0%	25.7%	8.0%		

Source: survey result, 2018

As the above table indicates that the respondents were strongly disagreeing and disagree on the statement I have enough information about electronic banking services with the mean score of 1.71and standard deviation of 0.706. Similarly respondents were strongly disagreeing and disagree on the statement the bank provides help (demo) on its website to use e- banking with the mean score of 2.68 and standard deviation of 1.268. Based on the survey result majority of the customer have not awareness about e- banking services and the bank does not provide help (demo) on its website to use e- banking. The study results are consistent with the findings of Amola Bahatt (2016); and Alex Alecheni O. Peterwho found lack of awareness has an effect in adoption of E banking services.

4.3.5Demographical factors

Results obtained from survey respondents of five selected sample bank customers regarding factors affecting the adoption of E banking under determinant demographical factors that focus mainly on age, gender and educational level are depicted below using descriptive statistics:-

Table4.10 Demographical factors

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
Relatively Male customers of the bank use E- banking services than female.	37	16	61	181	44	3.53	1.123
	10.9%	4.7%	18.0%	53.4%	13.0%		
High rates of illiteracy affect the easy practice of E-banking.	16	13	33	82	195	4.26	1.089
	4.7%	3.8%	9.7%	24.2%	57.5%		
Young customers of the bank use e- banking services than old customers.	12	21	33	126	146	4.10	1.044
	3.5%	6.2%	9.7%	37.2%	43.1%		
Customers level of education affect the adoption of e-banking.	16	12	8	73	230	4.44	1.037
	4.7%	3.5%	2.4%	21.5%	67.8		

Source: survey result, 2018

Responses captured in the above table shows that, the respondents asked on the demographical factors Relatively Male customers of the bank use E- banking services than female, , High rates of illiteracy affect the easy practice of E-banking, , Young customers of the bank use e- banking services than old customers, Customers level of education affect the adoption of e- banking and towards the agreement in the Likert scale as the average response of the respondents' gave an average result of 3.82 in the Likert scale where respondent were agreed on the issue, therefore demographic factors is found to be one of the possible factor that hinder adoption of e- banking in the country. The study results are consistent with the findings of Tater et al. (2011), Izogo (2012), Alafeef et al. (2011) and Margaret et al. (2013), Abenet (2010), Poon WC (2008) and Azouzi D (2009), Muzividzi et al. (2013) and Azouzi (2009) who found demographical factors such as gender, age, and education level have an effect in adoption of E banking in Ethiopian industry.

4.3.6Trust on the system

Results obtained from survey respondents of five selected sample bank customers regarding factors affecting the adoption of E banking under determinant trust on the system service are depicted below using descriptive statistics:-

Table 4.11 Trust on the system

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
Customers have high degree of trust on the bank and are satisfied with security of electronic banking service provided by the Bank.	158	86	44	20	31	2.06	1.278
	46.6%	25.4%	13.0%	5.9%	9.1%		

Source: survey result, 2018

As indicated in the above table the respondents did not agree that Customers have high degree of trust on the bank and are satisfied with security of electronic banking service provided by the Bank as the mean value is found to be 2.06 and standard deviation of 1.278. So lack of trust on the system is an effect on the adoption of e- banking. The study results are consistent with the findings of Siriluck Rotchanakitumnuai, Mark Speece, (2003), Carlos Flavián, Miguel Guinalíu, Eduardo Torres, (2006), Peter Tobbin, (2012) , and Francisco Muñoz-Leiva, Teodoro Luque-Martínez, Juan Sánchez-Fernández, (2010) who found that trust on the system has an effect on adoption of e- banking services.

The interview depicts that the basic factors affecting adoption of E-banking after introduction are High rates of illiteracy, low level of internet penetration, poorly developed infrastructure, lack of suitable legal and regulatory framework for e-banking, frequent power interruption, fear of risk and unavailability of competent and skilled employee, culture of the society, customers reluctant to change and lack of awareness.

4.4 Benefit of Adopting E- Banking

It should be noted that E-banking can bring about various benefits for banks and their customers as well. It is obvious that cost savings, efficiency, gaining new segments of customers, improvement of the banks reputation and better customer services and satisfaction are primary benefits to banks (Jayawardhena & Foley, 2000). E-banking is really beneficial to customers in terms of cost savings, no limit on time and space, quick response to customer complaints, and better services/products. Such benefits are believed to elevate customer satisfaction.

4.3.4 Perceived Usefulness

Perceived usefulness has long been found to have a significant influence on attitude and intention to use or adopt an innovation (Yuttapong et al., 2009; Sheikhshoaei and Oloumi, 2011; Zhou, 2011). It is the extent to which a user believes that a particular system would improve their performance (Hosein, 2010). Table 4.12 shows the result of the study with regards to perceive usefulness of e- banking.

Table 4.12 Perceived usefulness

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
E- Banking services are convenient in terms of time saving.	16	4	17	103	199	4.37	0.987
	4.7%	1.2%	5.0%	30.4%	58.7%		
E-banking services are accessible without time limit.	12	25	33	131	138	4.06	1.057
	3.5%	7.4%	9.7%	38.6	40.7%		

. **Source: survey result, 2018**

As indicating in the above table The respondents agree and strongly agreed that e- banking service is convenient in terms of time saving mean 4.37 and standard deviation value of 0.987 and similarly they agree and strongly agree E-banking services are accessible without time limit mean 4.06 and standard deviation of 1.057. These result implies, that using e- banking system helps to perform banking activities within a short period of time. This were in line with the study of Karjaluoto et al. (2002), which identifies time saving as a major benefit of adopting online banking system (Ayana, 2012).

4.5Likelihood of E-banking Adoption

The respondents were asked to state to what extent their use of e- banking to consider adopting of e- banking. The results are shown in Table 4.13

Table 4.13 likelihood of adopting e- banking

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
I have used electronic banking.	93	106	4	124	12	2.92	1.504
	27.4%	31.3%	1.2%	36.6%	3.5%		
I strongly recommend the use of electronic banking.	57	24	12	146	100	3.61	1.408
	16.8%	7.1%	3.5%	43.1%	29.5%		
I will increase my use of electronic banking.	41	-	-	101	197	4.22	1.275
	12.1%	-	-	29.8%	58.1%		

Source: survey result, 2018

For the question that were asked to do you have used electronic banking, large number of the respondents (58.7%) were replies that disagree and strongly disagree, 1.2% neutral, 36.6% agree and 3.5% strongly agree with mean of 2.92 and std deviation of 1.504.

Moreover, the average responses of the participants agreed that they strongly recommend the use of e- banking with the mean value of 3.61 and standard deviation of 1.408 and also majority of the respondents agree they will increase their use of e- banking with the mean of 4.22 standard deviation of 1.275.The study result shows that majority of the customers do not use e- banking due to different factors discussed above but because of their benefit they recommend to use e-banking and if the government and other concerned body avoided or minimize the above factors they promise to increase their use of e- banking.

4.6 Normality test

Table 4.16 Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Awareness	.194	339	.000	.929	339	.000
Environmental factors	.164	339	.000	.931	339	.000
Organizational factors	.235	339	.000	.774	339	.000
Technological factors	.139	339	.000	.886	339	.000
Demographic factors	.153	339	.000	.840	339	.000
Trust on the system	.200	339	.000	.919	339	.000

a. Lilliefors Significance Correction

Source: survey result, 2018

The above table presents the results from two well-known tests of normality, namely the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. We Shapiro-Wilk Test is more appropriate for small sample sizes (< 50 samples) but can also handle sample sizes as large as 2000. For this reason, we will use the Shapiro-Wilk test as our numerical means of assessing normality. If p < then 0.05, reject the H0 because the test is significant. In our survey result p < 0.05 due to these we reject H_0 and accept HA.

4.7Multicolinarity test

Multicolinarity is viewed here as an interdependency condition. It is defined in terms of a lack of independence, or of the presence of interdependence – signified by high intercorrelations within a set of variables, and under this view can exist quite apart from the nature, or even the existence of a dependency relationship between X and a dependent variable Y. Multicolinarity is not important to the statistician for its own sake. Its significance, as contrasted with its definition, comes from the effect of interdependence in X on the dependency relationship whose parameters are desired. Multicolinarity constitutes a threat -- and often a very serious threat -- both to the proper specification and to the effective estimation of the type of structural relationships commonly sought through the use of regression techniques.

Table 4.17 summary of co linearity test

Coefficients

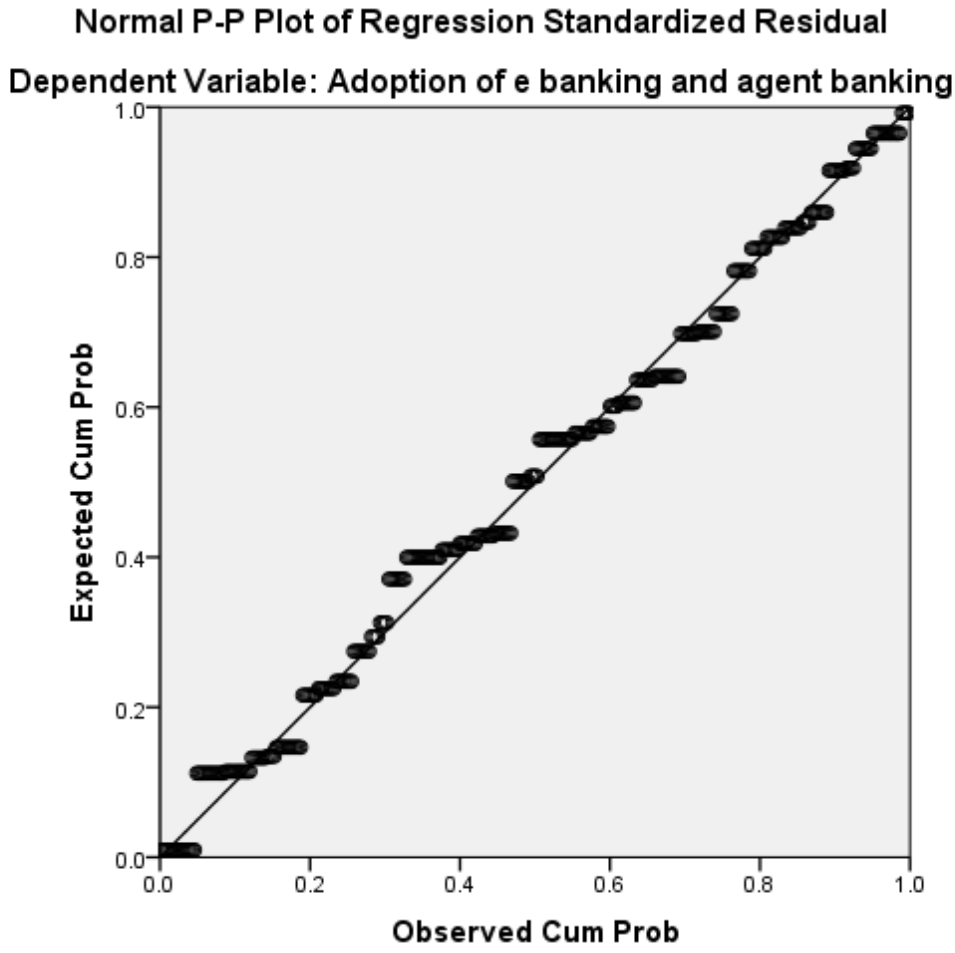
Model		Un standardized Coefficients		Standardized Coefficients	t	Sig.	Co linearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.336	.428		.786	.433		
	Awareness	.431	.065	.420	6.606	.000	.464	2.155
	Environmental factors	-.012	.134	-.005	-.087	.930	.478	2.092
	Organizational factors	.277	.110	.220	2.506	.013	.244	4.101
	Technological factors	.110	.122	.064	.903	.367	.368	2.717
	Demographic factors	-.185	.099	-.133	-1.873	.062	.373	2.684
	Trust on the system	.308	.089	.247	3.452	.001	.366	2.733

a. Dependent Variable: Adoption of e banking

Source: survey result, 2018

If tolerance is more than 0.2 and variance inflation factor (VIF) less than 10 there is no Multicolinarity problem. So the result of the above table results show tolerance greater than 0.2 and VIF less than 10 and it is no Multicolinarity problem.

4.8 Linearity Test

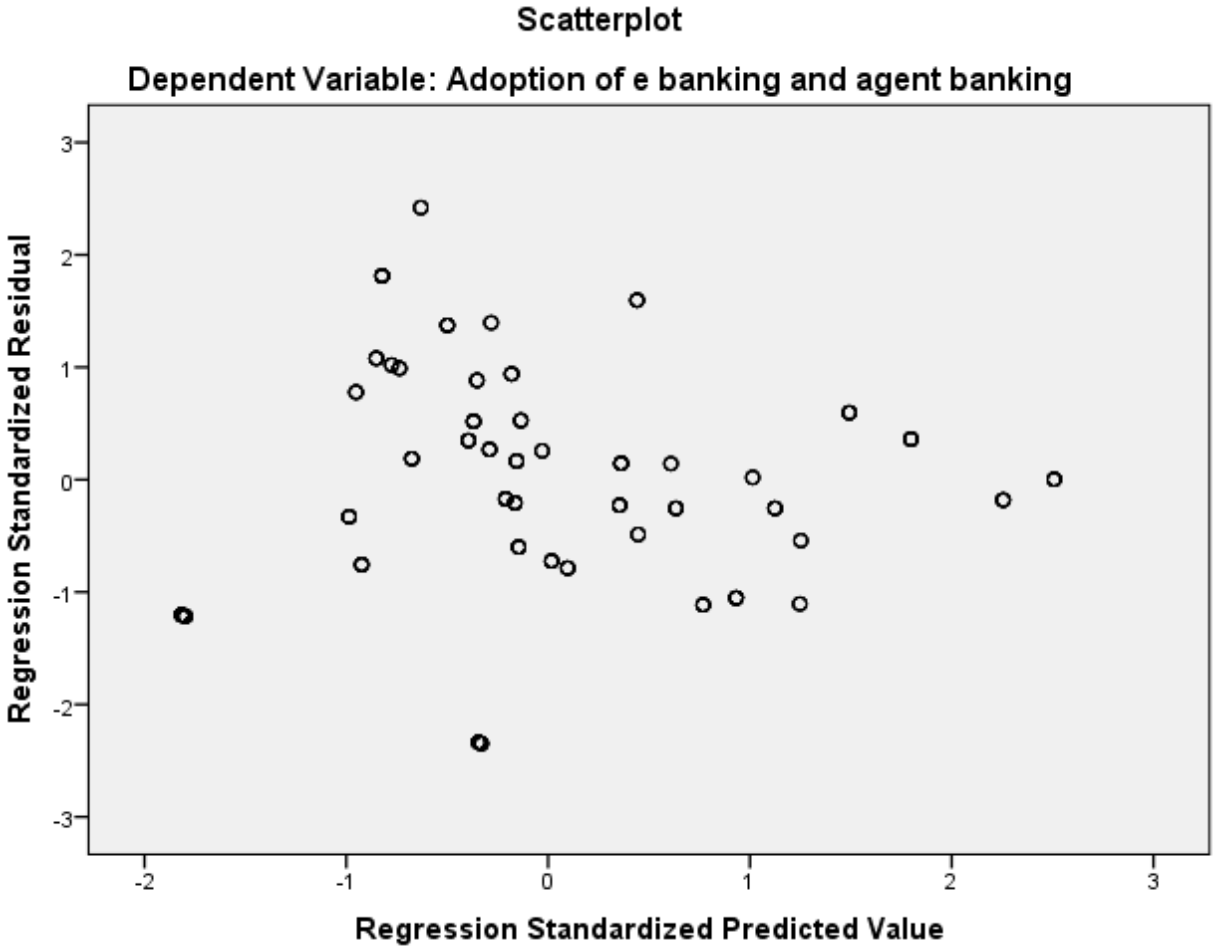


Source: survey result, 2018

Figure 4.1 P-Plot graphs

If the little circles will follow the normality line, the data is normally distributed.

The next assumption to check is homoscedasticity. Ideally, you will get a plot that looks something like the plot below. The data looks like you shot it out of a shotgun—it does not have an obvious pattern, there are points equally distributed above and below zero on the X axis, and to the left and right of zero on the Y axis.



Source: survey result, 2018

Figure 4.2 scatter plot

4.9 Correlation Analysis

Correlation Analysis is a measure of association between two continuous variables. Correlation measures both the size and direction of relationships between two variables. The squared correlation is the measure of the strength of the association (Tabachnick and Fidell, 1989). Correlation analysis is the relationship between two variables. The value of correlation "r" value is always in between minus one and plus one (-1 and +1).The sign of the correlation coefficient determines whether the correlation is positive or negative. The magnitude of the correlation coefficient determines the strength of the correlation.

Table 4.18 Correlation analysis

		Awareness	Environmental factors	Organizational factors	Technological factors	Demographic factors	Trust on the system
Awareness	Pearson Correlation	1	.634	-.048	-.150	.070	.436
	Sig. (2-tailed)		.000	.374	.006	.197	.000
	N	339	339	339	339	339	339
Environmental factors	Pearson Correlation	.634	1	.096	.142	.208	.536
	Sig. (2-tailed)	.000		.077	.009	.000	.000
	N	339	339	339	339	339	339
Organizational factors	Pearson Correlation	-.048	.096	1	.757	.775	.591
	Sig. (2-tailed)	.374	.077		.000	.000	.000
	N	339	339	339	339	339	339
Technological factors	Pearson Correlation	-.150	.142	.757	1	.628	.493
	Sig. (2-tailed)	.006	.009	.000		.000	.000
	N	339	339	339	339	339	339
Demographic factors	Pearson Correlation	.070	.208	.775	.628	1	.574
	Sig. (2-tailed)	.197	.000	.000	.000		.000
	N	339	339	339	339	339	339
Trust on the system	Pearson Correlation	.436	.536	.591	.493	.574	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	339	339	339	339	339	339
Adoption of e banking	Pearson Correlation	.495	.396	.291	.206	.248	.513
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	339	339	339	339	339	339

Correlation is significant at the 0.01 level (2-tailed)

Source: survey result, 2018

There are no hard and fast rules for describing correlation strength; hesitatingly offer these guidelines:

$0 < |r| < .3$ weak correlation

$.3 < |r| < .7$ moderate correlation

$|r| > 0.7$ strong correlation

From the above correlation matrix adoption of e- banking have positive correlation with the entire variables i.e weakly correlate with technological factors, organizational factors, and demographic factors and moderate correlation with environmental factors, lack of awareness and trust on the system.

4.10Regression Analysis

Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data. Regression clearly indicates the cause and effect relationship between the variables. In regression, the variable corresponding to cause is taken as independent variable and the variable corresponding to effect is taken as dependent variable. The results of data analysis are presented in the thesis. Regression analysis is the relationship between dependent variable and independent variable. Regression equation is y = a0 + b1 X, where y is the dependent variable, a0 is constant, b1 is slope of the regression line, X is independent variable. Below are the results of the several tests conducted with the help of regression analysis.

Regression Analysis: Technological factors

Table: 4.19 Regression Technological factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.206[a]	.042	.039	.635

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

The result summary table 4.19 shows that value of R=0.206 which is less than 0.50 indicates that there is a weak correlation between the dependent variable and the independent variable (Technological factors) with effect on the dependent variable 4.2% (R-Square=.042).

The ANOVA table here below shows that there is a relationship between adoption of E Banking and organizational factors as the result of significant value or P value is less than 0.05.

Table 4.20 ANOVA- Technological factors

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.990	1	5.990	14.859	.000[b]
	Residual	135.854	337	.403		
	Total	141.845	338			

a. Dependent Variable: Technological factors

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H1: There is a Relationship between technological factors and adoption of E banking Services"*** is supported.

Regression Analysis: Environmental factors

Table 4.21 Summary of linear regression results- Environmental factors

Summary of linear regression result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.396[a]	.157	.154	.476

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

The result summary table 4.21 shows that value of R=0.396 which is less than 0.50 indicates that there is a moderate correlation between the dependent variable and the independent variable (Environmental factors) with effect on the dependent variable 15.7% (R-Square=.157).The ANOVA table here below shows that there is a relationship between adoption of E Banking and environmental factors as the result of significant value or P value is less than 0.05.

Table 4.22 ANOVA- Environmental Factors

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.209	1	14.209	62.724	.000[b]
	Residual	76.342	337	.227		
	Total	90.552	338			

a. Dependent Variable: Environmental factors

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

Per the result of the regression analysis above, the research hypothesis ***"H2: There is a relation between environmental factors and adoption of E banking services"*** is supported.

The results are consistent with the findings of Gardachew (2010); Tan & Wu (2002); Martinson (2001); Trappey et al. (2001); Wondwossen and Tsegai (2005); Efendioglu (2004); Scupola (2003); Quaddus & Hofmeyer (2007); Gibbs et al. (2003); and Kuan 2001; and Iacovou (1995) who found environmental factors such as low internet access, lack of government support, lack of available ICT infrastructure, limited legal framework, and competitions that hinders the adoption of E- banking in one way or another.

Regression Analysis: Organizational factors

Table 4.23 Summary of linear regression results- Organizational factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.291[a]	.085	.082	.842

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

The result summary table 4.23 shows that value of R=0.291 which is less than 0.50 indicates that there is a weak correlation between the dependent variable and the independent variable (Organizational factors) with effect on the dependent variable 8.5% (R-Square=.085).

The ANOVA table here below shows that there is a relationship between adoption of E Banking and organizational factors as the result of significant value or P value is less than 0.05.

Table 4.24 ANOVA- Organizational factors

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.094	1	22.094	31.147	.000[b]
	Residual	239.049	337	.709		
	Total	261.143	338			

a. Dependent Variable: Organizational factors

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

Per the result of the regression analysis above, the research hypothesis ***"H3: There is a relationship between organizational factors and adoption of E banking Services."*** is supported.The study results are consistent with the findings of Daghfous and Toufaily (2007); Ayana(2010); Wondwossen and Tsegai (2005); and Gardachew (2010) who found organizationalfactors such as financial and human aspects have an effect in adoption of E banking.

Regression Analysis: Lack of awareness factors

Table 4.25 Summary of linear regression results- Awareness factor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.495[a]	.245	.243	.939

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

The result summary table 4.25 shows that value of R=0.495 which is less than 0.50 indicates that there is a moderate correlation between the dependent variable and the independent variable (Awareness) with effect on the dependent variable 25% (R-Square=.245).

The ANOVA table here below shows that there is a relationship between adoption of E Banking and awareness factors as the result of significant value or P value is less than 0.05.

Table 4.26 ANOVA- Awareness factors

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.305	1	96.305	109.231	.000[b]
	Residual	297.120	337	.882		
	Total	393.425	338			

a. Dependent Variable: Awareness

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

Per the result of the regression analysis above, the research hypothesis ***"H4: There is aRelationship between lack of awareness and adoption of E banking Services."*** is supported

Regression Analysis: Demographic factors

Table 4.27 Summary of linear regression results- Demographical factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.248[a]	.062	.059	.771

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2015

The result summary table 4.28 shows that value of R=0.248 which is less than 0.50 indicates that there is a weak correlation between the dependent variable and the independent variable (Demographical factors) with effect on the dependent variable 6.2% (R-Square=.062).

The ANOVA table here below shows that there is a relationship between adoptions of E Banking And Demographical factors as the result of significant value or P value is less than 0.05.

Table 4.29.ANOVA- Demographical factors

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.160	1	13.160	22.147	.000[b]
	Residual	200.253	337	.594		
	Total	213.413	338			

a. Dependent Variable: Demographic factors

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H5: There is aRelationship between demographical factors and adoption of E banking Services."*** is supported.

Regression Analysis: Trust on the system factors

Table 4.30 trust on the system

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.513[a]	.263	.261	.765

a. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

The result summary table 4.30 shows that value of R=0.513 which is greater than 0.50 indicates that there is a moderate correlation between the dependent variable and the independent variable (trust on the system) with effect on the dependent variable 26.3% (R-Square=0.263).

The ANOVA table here below shows that there is a relationship between adoptions of E Banking And trust on the system as the result of significant value or P value is less than 0.05.

Table 4.31.ANOVA- Trust on the system

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.320	1	70.320	120.224	.000[b]
	Residual	197.113	337	.585		
	Total	267.433	338			

a. Dependent Variable: Trust on the system

b. Predictors: (Constant), Adoption of e banking

Source: survey result, 2018

Per the result of the regression analysis above, the research hypothesis ***"H6: There is aRelationship between trust on the system and adoption of E banking Services"*** is supported.

Regression Analysis: Summary of variables that affect adoption of e- banking

Table 4.32 Summary of linear regression result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614[a]	.377	.365	.882

a. Predictors: (Constant), Trust on the system, Awareness, Demographic factors, Environmental factors, Technological factors, Organizational factors

Source: survey result, 2018

The result summary table 4.32 shows that value of R=0.614 which is greater than 0.50 indicates that there is a moderate correlation between the dependent variable and the independent variable with effect on the dependent variable 37.7% (R-Square=.0377).

The ANOVA table here below shows that there is a relationship between adoption of E-Banking and independent variables as the result of significant value or P value is less than 0.05.

Table 4.33 ANOVA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	155.938	6	25.990	33.439	.000[b]
	Residual	258.037	332	.777		
	Total	413.976	338			

a. Dependent Variable: Adoption of e banking

b. Predictors: (Constant), Trust on the system, Awareness, Demographic factors, Environmental factors, Technological factors, Organizational factors

Source: survey result, 2018

Table 4.34 Adoption -Coefficients

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.336	.428		.786	.433
	Awareness	.431	.065	.420	6.606	.000
	Environmental factors	-.012	.134	-.005	-.087	.930
	Organizational factors	.277	.110	.220	2.506	.013
	Technological factors	.110	.122	.064	.903	.367
	Demographic factors	-.185	.099	-.133	-1.873	.062
	Trust on the system	.308	.089	.247	3.452	.001

a. Dependent Variable: Adoption of e banking

Source: survey result, 2018

The model coefficient table reports the coefficients for technological factors, environmental factors, and organizational factors, lack of awareness, demographical factors and trust on the system along with the significance value. The model Coefficients are used in the construction of regression equation. A low significance value of less than 0.05 for technological factors, environmental factors, and organizational factors, lack of awareness, demographical factors and trust on the system indicates that there is a strong relationship between independent factors and adoption of e- banking. The regression equation for the above data is: Adoption of e- banking = 0.336+0.431 (0.420) - 0.012 (- 005) + 0.277 (0.220) + 0.110 (0.64) – 0.185 (- 0.0133) + 0.308 (0.247). The above equation is the calculated contribution for the tested elements to adoption of e- banking. From the regression equation it is observed that except environmental and Demographical factors all the factors has a positive impact on adoption of e- banking.

CHAPTER FIVE

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1Introduction

The primary purpose of this study is to explore factors affecting adoption of electronic banking in Ethiopian banking industry in case of five selected Banks namely commercial bank of Ethiopia, Dashen bank s.c., Awash bank s.c., United bank s.c., and Abay bank s.c.. To explore the factors affecting the adoption of e- banking the researcher try to prepare different questionnaire and filled by the respondent and the result of summary is discussed in chapter four. This chapter, based on the discussion in chapter four, presents the summary finding, conclusions and recommendations of the study.

5.2Summary of Findings

The research project objective was to explore factors that affect the adoption of e- banking system in Ethiopia under the cursory of integrated Technology-Organization-Environment (TOE) framework and Technology Acceptance Model (TAM) with some modification the study accordingly described a number of barriers and benefits/drivers in adopting e-banking .

Security risks and lack of trust on the technological innovations used by banking industry are described in the study as technological barriers. Most barriers in adopting e- banking system conferred in this study come from the external environments like; lack of ICT infrastructure including poor network and internet connectivity, lack of legal framework that enforce banking industries to adopt such technological innovation, lack of sufficient government support and absence of competition from foreign banks. Financial and human resources are considered in the study as organizational factors. Respondents agreed on Implementing technological innovation requires high investment cost; Banks require skilled human resource in order to implement E-banking and lack of technical and managerial skills to implement e-banking system as barriers for the adoption of e- banking in Ethiopia.

Lack of awareness about e- banking is another barrier to adopt e-banking services. Customers have not enough information about e-banking services and the bank does not have provided help (demo) on its website is considered as a factor affecting e- banking services. Demographical factors like gender, age, and education level also affect the adoption of e-banking in Ethiopian banking industry. Finally lack of trust on the system is considered as a major factor to adopt e-banking in Ethiopian banking industry.

The study also identified benefits of e-banking adoption, such as saving time and cost of users, increased productivity of bank, improves customer service, create wider market coverage, simplify banking activity for staff, reduce bank hall queue, accessible without time limit and enhance access to the bank service by both existing and new customers.

5.3 Conclusion

The study findings revealed that the banking sector in Ethiopia is eager to adopt the e-banking system as an alternative service delivery channel by identifying its main barriers and drivers. The e- banking system presents an opportunity for speedy expansion at lower cost by leveraging on the existing investment of retail agents through implementation of information and communication technology.

E- banking are not well adopted by Ethiopian banking industry due to lack of suitable legal frameworks, low level of ICT infrastructure, lack of customers trust, lack of government support and awareness towards the technology and customers' fear to use the technologies that holds banking industry to adopt the system. Improvements are required to enhance client confidence towards the system. Lack of competitions from foreign banks is also another challenge in adopting the e- banking in the country. The prevailing technical and managerial skills available in the Ethiopian banking industry towards adopting the e-banking, culture of the society, reluctant to change, high level of illiteracy are found to be limited to influence the technological adoption rate.

In general, the findings of the study highlight factors influencing the adoption of e- banking in Ethiopian Banking industry. Barriers identified in this study while adopting the e-banking services may help to cursor the best alternative course of actions to enhance its development. It will also be valuable by increasing awareness and understanding towards the system.

5.4Recommendations

Based on the above conclusion the researcher recommends the following points that will help the banking industry of Ethiopia in minimizing the factors that face the adoption of e-banking;

- Without an adequate development level and quality of a national ICT infrastructure, E-banking adoption and use cannot do well, so the government has to support banking industry by investing on ICT infrastructure development, providing necessary infrastructure like electricity, road and telecom services especially rural area of the country and the government supports the banking industry by introducing financial education program.
- Banks should launch campaigns to create direct awareness to potential adopters, issues such as fear of the lack of privacy and security, together with relative advantages of using E-banking products and continuously review and upgrade the existing system of security to the level that minimize risk .
- National Bank of Ethiopia, (NBE) needs to urgently establish a comprehensive legal and regulatory frame works on the use of technological innovation and the use of third party retail agents in banking sector.

5.5 Limitations and Further Research Areas

This study was conducted to explore factors affecting the adoption of e-banking Service targeting to five sampled banks namely commercial bank of Ethiopia, Awash bank s.c., Dashen bank s.c., United bank s.c., and Abay bank s.c. customer found at Addis Ababa. Hence, the following could be considered for future research:-

- ✓ The study on factors affecting adoption of E-banking service focusing on the five selected Addis Ababa Branches and extended to a more comprehensive study that incorporate upcountry (Outside of Addis Ababa).
- ✓ The study can also be extended to include all other Commercial Banks found in Ethiopia so that the findings can be useful to conclude about E-banking services in Ethiopian context.

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APPENDICES

Appendix - A

Addis Ababa University School of Commerce

Marketing Management Post graduate Program

Questionnaire

Dear Respondent,

I am a graduate student at Addis Ababa University School of commerce. I am undertaking a survey on **factorsaffecting the Adoption of Electronic Banking in Ethiopian Banking Industry**, in partial fulfillment of the requirement for the award of a Master of Art (MA) in Marketing Management.

I, therefore request for your kind assistance in completing the attached questionnaire to the best of your knowledge. The information you give will be treated with strict confidence and is solely will be used for academic purposes. A copy of the final report will be availed to you upon request. I would like to express my sincere appreciation for your time, honest and prompt responses.

Thank you.

Atnkut Ayal

For further information please contact the student researcher.

Telephone **+251913846015/+251938752386**

Email **atnkutayal10@gmail.com**.

General Instructions

☐*no need of writing your name.*

☐*in all cases, where answers to options are available, please circle the appropriate choice.*

☐*for questions that demand your opinion, please try to honestly describe your responses on the space provided.*

Part I: Demographic Details

Please indicate the following by ticking (√) on the spaces in front of the response options:

1. Gender:

Male ☐ Female ☐

2. Age:

Below 20 ☐

20 to 30 years ☐ 31 to 40 years ☐

41 to 50 years ☐ above 50 years ☐

3. Educational level:

Grade 12 and below ☐ Masters Degree ☐

Diploma holder ☐ Above Masters Degree ☐

First degree holder ☐

4. Monthly Income:

Less than Birr 2000 ☐ Birr 2000 to Br 3999 ☐

Birr 4000 to Birr 4999 ☐ Birr 5000 to Br 9999 ☐

Above Birr 10000 ☐

Part II: Factors affecting adoption of e- banking in Ethiopian banking industry.

Below are lists of statements pertaining to factors affecting adoption of E-banking? Please indicate by circling your choices from the options that range from strongly agree to strongly disagree.

1 Strongly Disagree (**SD**) **2**-Disagree (**D**) **3**- Neutral (**N**) **4**- Agree (**A**) **5**- Strongly Agree (**SA**)

1. AWARNESS		**SD**	**D**	**N**	**A**	**SA**
		1	**2**	**3**	**4**	**5**
AW1	I have enough information about electronic banking services.	**1**	**2**	**3**	**4**	**5**
AW2	The bank provides help (demo) on its website to use e- banking.	**1**	**2**	**3**	**4**	**5**
2. ENVIROMENTAL FACTORS						
EF1	My bank has adequate ICT infrastructure to conduct e-banking.	**1**	**2**	**3**	**4**	**5**
EF2	The quality of internet connection and mobile network significantly affects e- banking.	**1**	**2**	**3**	**4**	**5**
EF3	Ethio Telecom provided high speed internet and mobile connection.	**1**	**2**	**3**	**4**	**5**

EF4	My bank has regulatory guidelines on e-banking.	**1**	**2**	**3**	**4**	**5**
EF5	It is difficult to perform E-banking because of absence of suitable legal and regulatory framework for e-commerce and e-payment.	**1**	**2**	**3**	**4**	**5**
EF6	The Government promotes e- banking for its citizens.	**1**	**2**	**3**	**4**	**5**
EF7	The government providing necessary infrastructural facilities (road, electric power, telecommunication and etc) to remote area of the country in order to facilitate e-banking adoption.	**1**	**2**	**3**	**4**	**5**
EF8	There is high competition between local banks on e- banking services.	**1**	**2**	**3**	**4**	**5**
EF9	Absence of competition from foreign banks has influence on e-banking.	**1**	**2**	**3**	**4**	**5**
3. ORGANIZATIONAL FACTORS						
OF1	Implementing technological innovation requires high Investment cost.	**1**	**2**	**3**	**4**	**5**
OF2	Banks require skilled human resource in order to implement e-banking.	**1**	**2**	**3**	**4**	**5**
OF3	Banks require skilled IT personnel's in implementing technological innovation.	**1**	**2**	**3**	**4**	**5**
OF4	Technical and managerial skills of staffs on using technological innovation have influence on adoption e-banking.	**1**	**2**	**3**	**4**	**5**
OF5	Unavailability of competent and skilled employee in related with e banking is the challenge for banks to practice e-banking.	**1**	**2**	**3**	**4**	**5**
4. TECHNOLOGICAL FACTORS						
TF1	Security aspects considered as barrier for implementing of E-Banking.	**1**	**2**	**3**	**4**	**5**
TF2	Customers do not trust the technology of e- banking.	**1**	**2**	**3**	**4**	**5**
TF3	Customers fear risk of new technology innovation.	**1**	**2**	**3**	**4**	**5**
TF4	Customers do not trust the technology provided by the banks	**1**	**2**	**3**	**4**	**5**
TF5	E- Banking services are convenient in terms of time saving.	**1**	**2**	**3**	**4**	**5**
TF6	E-banking services are accessible without time limit.	**1**	**2**	**3**	**4**	**5**
5. DEMOGRAPHIC FACTORS						
DF1	Relatively Male customers of the bank use E- banking services than female.	**1**	**2**	**3**	**4**	**5**
DF2	High rates of illiteracy affect the easy practice of E-banking.	**1**	**2**	**3**	**4**	**5**
DF3	Young customers of the bank use e- banking services than old Customers.	**1**	**2**	**3**	**4**	**5**
DF4	Customers level of education affect the adoption of e- banking.	**1**	**2**	**3**	**4**	**5**

6. TRUST ON THE SYSTEM						
TR1	Customers have high degree of trust on the bank and are satisfied with security of electronic banking service provided by the Bank.	**1**	**2**	**3**	**4**	**5**
7. ADOPTION						
AD1	I have used electronic banking.	**1**	**2**	**3**	**4**	**5**
AD2	I strongly recommend the use of electronic banking.	**1**	**2**	**3**	**4**	**5**
AD3	I will increase my use of electronic banking.	**1**	**2**	**3**	**4**	**5**

Any Suggestions that you would like to give on e- banking?

አባሪ - ሀ

የአዲስ አበባ ዩኒቨርሲቲ የንግድ ሰራ ትምህርት ቤት

የገበያ ጥናት አስተዳደር የድህረ ምረቃ ፕሮግራም

መጠይቅ

ውድ ተሳታፊዎች

እኔ በአዲስ አበባ ዩኒቨርስቲ የሁለተኛ ዲግሪ ማርኬቲንግ ማኔጅመንት (MA) ሶስተኛ አመት ተማሪ ስሆን የመመረቂያ ጽሁፌን በኢትዮጵያ የባንክ ኢንዱስትሪ ውስጥ የኤሌክትሮኒክ ባንኪንግ ተፅኖ ፈጣሪ ሁነቶች, **(Factor Affecting The Adoption Of Electronic Banking In Ethiopian Banking Industry**) ላይ ጥናት በማካሄድ ላይ ነኝ:: ስለዚህ ከታች ተዘረዘሩት መጠይቆች ባለዎ የእውቀት ደረጃ በመሙላት እንዲተባበሩኝ እየጠየኩ የሚሰጡት መረጃ ለጥናቱ አልግሎት ብቻ የሚውሉ ይሆናሉ፡፡ የመጨረሻም ሪፖርት ግልባጭ በጠየቁ ጊዜ ይመለስልዎታል:: ለጊዜዎ, ለታማኝነት እና ለፈጣን ምላሽዎ ያለኝን ልባዊ ምስጋና መግለጽ እፈልጋለሁ::

አመሰግናለሁ.

አትንኩት አያል

ለተጨማሪ መረጃ እባክዎን በዚህ ቁጥር ይጠቀሙ

ስልክ **+ 251913846015 / + 251938752386**

ኢ ሜይል **atnkutayal10@gmail.com.**

አጠቃላይ መመሪያዎች

- *ስምዎን መፃፍ አያስፈልግም.*
- የምርጫ ጥያቄዎችን እባክዎ ትክክለኛ መልሶን በማክበብ ይመልሱ
- ማብራሪያ ለሚያስፈልጋቸው ጥያቄዎች እባክዎ ተሰጡት ክፍት ቦታዎች በማብራራት በትክክል የሚሰማዎትን በግልፀኝነት ሃሳቦን ይግለፁ ::

ክፍል 1: ስለ ራስ መጠይቅ

እባክዎ ምላሽዎን ፊት ለፊት ባሉት ክፍት ቦታዎች (√) ላይ ምልክት በማድረግ ያመልክቱ

1. *ፆታ*:

ወንድ ☐ ሴት ☐

2. ዕድሜ:

ከ 20 በታች ☐ ከ 20 እስከ 30 ዓመት ☐

ከ 31 እስከ 40 አመታት ☐ ከ 40 እስከ 50 አመታት ☐

ከ 50 ዓመት በላይ ☐

3. የትምህርት ደረጃ:

12 ኛ ክፍል እና በታች ☐ ሁለተኛ ዲግሪ ☐

የመጀመሪያ ዲግሪ ያለው / ያላት ☐ ሁለተኛ ዲግሪ በላይ ☐

4. ወርሃዊ ገቢ:

ከ 2,000 ብር በታች ☐ ከ ብር 2,000 እስከ 3,999 ☐

ከ ብር 4,000 እስከ 4,999 ☐ ከ ብር 5,000 እስከ 9,999 ☐

ከ 10,000 በላይ ☐

ክፍል ሁለት -የወኪል ባኪንግ እና ኤሌክትሮኒክ ባንኪግ በኢትዮጵያ የባንክ ኢንዱስትሪ ላይ ተፅዕኖ ፈጣሪ ሁኔቶች፡፡

ከዚህ በታች የወኪል ባኪንግ እና ኢ-ባንኪግ በተመለከተ የተዘረዘሩ አረፍተ ነገሮች ምን ያህል እንደሚስማሙበት ከቀረቡት አማራጮች ውስጥ ይህን (√) ምልክት በመጠቀም ያሳውቁ፡፡

1 በከፍተኛ ደረጃ አልስማማም **(አል) 2** -አልስማማም **(አ) 3** - ገለልተኛ (**ገ**) **4** - እስማማለሁ (**እ**) **5** - በከፍተኛ ደረጃ እስማማለሁ (**ከአ**)

	1. ስለ ኢ-ባንኪንግ ያለዎት እውቀት	**SD**	**D**	**N**	**ሀ**	**SA**
		1	**2**	**3**	**4**	**5**
AW 1	ኤሌክትሮኒክ ባንኪንግ አገልግሎትን በተመለከተ በቂ መረጃአለኝ፡፡	**1**	**2**	**3**	**4**	**5**
AW2	ባንኩ ደንበኞች ኢ- ባንኪንግ መጠቀም እንዲችሉ እገዛ (ማሳያ) በድህረገጽ ላይ ይሰጣል፡፡	**1**	**2**	**3**	**4**	**5**
	2. አካባቢያዊተግዳሮቶች					
EF 1	እኔ ምጠቀምበት ባንክ ኢ-ባንኪንግን ለመተግበር በቂ የቴክኖሎጂ መሰረተልማት አለው	**1**	**2**	**3**	**4**	**5**
EF 2	የመረጃመረብግንኙነት(Internet)ጥራትበኢ-ባንክንግአገልግሎትላይከፍተኛተፅህኖአለው፡፡	**1**	**2**	**3**	**4**	**5**
EF3	የኢትዮጵያ ቴሌኮምኒኬሽን ከፍተኛ ፍጥነት ያለው የኢንተርኔት አገልግሎት እየሰጠ ይገኛል፡፡	**1**	**2**	**3**	**4**	**5**
EF4	የእኔ የምጠቀምበት ባንክ የኢ-ባንኪንግን አገልግሎትን በተመለከተ የቁጥጥርመመሪያዎች አሉት፡፡	**1**	**2**	**3**	**4**	**5**

EF5	ተስማሚ የኤሌክትሮኒክ ግብይትና ክፍያ የህግእንዲሁም የቁጥጥር ማዕቀፍ ባለመኖሩ ምክንያት ኢ- ባንኪንግን ተግባራዊ ለማድረግ አስቸጋሪ ነው፡፡	**1**	**2**	**3**	**4**	**5**
EF 6	ዜጎች ኢ- ባንኪንግን እንዲጠቀሙ መንግስት ያበረታታል፡፡	**1**	**2**	**3**	**4**	**5**
EF7	መንግስት አስፈላጊ መሰረተልማቶችን (የመንገድ, የኤሌክትሪክኃይል, የቴሌኮሙኒኬሽን እና ወዘተ) በገጠር የሃገራችን ክፍሎች በማዳረስ ህብረተሰቡ የኢ-ባንኪንግ አገልግሎትን ተጠቃሚ በማድረግ ላይ ነው፡፡	**1**	**2**	**3**	**4**	**5**
EF 8	የኢ-ባንኪንግ አገልግሎት አሰጣጥ ላይ በአገር ውስጥ ባንኮች መካከል ከፍተኛ ውድድር አለ፡፡	**1**	**2**	**3**	**4**	**5**
EF9	ከውጭ ባንኮች ጋርውድድር አለመኖሩ በኢ-ባንኪንግ አገልግሎት አሰጣጥ ላይ ተጽእኖ ያሳድራል፡፡	**1**	**2**	**3**	**4**	**5**
	3. ድርጅታዊ ተግዳራቶች					
OF1	የቴክኖሎጂ ፈጠራን ተግባራዊ ማድረግ ከፍተኛ የኢንቨስትመንት ወጪ ይጠይቃል፡፡	**1**	**2**	**3**	**4**	**5**
OF2	ባንኮችን የኢ-ባንኪንግ አገልግሎትን ለመስጠት የተማረ (የሰለጠነ) የሰውሀይል መጠቀም ይጠበቅባቸዋል፡፡	**1**	**2**	**3**	**4**	**5**
OF3	ባንኮችየኢ ባንኪንግንተግባራዊለማድረግበኢንፎርሜሽንቴክኖሎጂየትምህርትመስክየሰለጠነየሰውሀይልመጠቀምአለባቸው፡፡	**1**	**2**	**3**	**4**	**5**
OF4	የሰራተኞች የቴክኒክ እና የአስተዳደር ክህሎቶች በቴክኖሎጂ ፈጠራዎችን አጠቃቀም ደረጃ በኢ-ባንኪንግ አገልግሎት አሰጣጥ ላይ ተፅዕኖ ያሳድራሉ፡፡	**1**	**2**	**3**	**4**	**5**
OF5	በኢ-ባንኪንግ ዕውቀትና ክህሎት ያላቸው ሰራተኞች አለመኖራቸው ኢ-ባንኪንግን ለመተግበር ፈታኝሁኔታ ይፈጥራል፡፡	**1**	**2**	**3**	**4**	**5**
	4. የቴክኖሎጂ ተግዳሮቶች					
TF1	የደህንነት ሁኔታዎች ኢ-ባንኪንግን ለመተግበር እንቅፋትይሆናሉ፡፡	**1**	**2**	**3**	**4**	**5**
TF2	ደንበኞች ባንኩ በሚሰጠው የኢ-ባንኪንግ ቴክኖሎጂ ላይ እምነት የላቸውም ፡፡	**1**	**2**	**3**	**4**	**5**
TF3	ደንበኞች አዳዲስ የቴክኖሎጂዎችን ለመጠቀም አይፈልጉም(ይሰጋሉ)፡፡	**1**	**2**	**3**	**4**	**5**
TF4	ደንበኞች በባንኮች የሚቀርቡላቸውን ቴክኖሎጂዎችን አያምኑም፡፡	**1**	**2**	**3**	**4**	**5**
TF5	የኢ-ባንክ አገልግሎቶች በጊዜ ቆጠባ ረገድ አመቺ ናቸው፡፡	**1**	**2**	**3**	**4**	**5**
TF6	የኢ-ባንኪንግ አገልግሎቶች የጊዜ ገደብ የላቸውም፡፡	**1**	**2**	**3**	**4**	**5**
	5. ስነህዝባዊ ተግዳሮቶች					
DE1	በተነጻጻሪነት ወንዶች ከሴቶች በተሻለ የኢ-ባንክ አገልግሎት ተጠቃሚዎች ናቸው፡፡	**1**	**2**	**3**	**4**	**5**
DE2	በከፍተኛ ደረጃ ማንበብና መጻፍ የማይችሉ ህብረተሰብ መብዛት በኢ-ባንኪንግ ተግባራዊነት ላይ ተጽዕኖ ይፈጥራል፡፡	**1**	**2**	**3**	**4**	**5**
DE3	የባንኩ ወጣት ደንበኞች በዕድሜ ከገፉት በተሻለ የኢ- ባንኪንግ አገልግሎት ተጠቃሚ ናቸው፡:	**1**	**2**	**3**	**4**	**5**
DE4	የደንበኞች የትምህርት ደረጃ በኢ-ባንኪንግ አገልግሎት ተጠቃሚነት ላይ ተፅዕኖ ያሳድራል ::	**1**	**2**	**3**	**4**	**5**
	6. በአሰራር ላይ ያለውእምነት					
TR1	ደንበኞች ባንኩ በሚሰጠው የኤልክትሮኒክ ባንክ አገልግሎት ላይ ከፍተኛ የሆነ እምነት ዋስትና እና እርካታ አላቸው፡፡	**1**	**2**	**3**	**4**	**5**
	7. አቀባበልን በተመለከተ					
AD1	የኢ-ባንኪንግ ተጠቃሚ ነኝ፡፡	**1**	**2**	**3**	**4**	**5**
AD3	ሌሎች ሠዎች የኢ-ባንኪንግ ተጠቃሚ እንዲሆኑ በሰፊው እመክራለሁ	**1**	**2**	**3**	**4**	**5**
AD5	የኢ-ባንኪንግ አጠቃቀሜን ለመጨመር ዝግጁ ነኝ፡፡	**1**	**2**	**3**	**4**	**5**

Appendix - B

Interview

Section one: Interview questions designed for the managers of the five selected banks.

1. In your opinion what are the major factors in your institution to practice E-banking.
2. Do you think that government policy have impact on the practice of E- banking system? (Please Specify/explain)
3. What sort of support would you expect from the government in relation to the E-banking improvement in Ethiopia?
4. If you have a comment

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Section two: Interview questions designed for the NBE

1. Is there any legal framework at central bank to enforce banking industries to use E-banking system?
2. Is there any special rule that guide banking industries in implementation of E- banking system?
3. Why Ethiopian government did not allow foreign banks to operate in the country? Do you think it discourage Ethiopian banking industry, from the adoption of technological innovation and compete with foreign banks?
4. Is there any motivation factor which is set by government to start E-banking?
5. If you have a comment

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