ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACTORS AFFECTING THE ADOPTION OF MOBILE AND INTERNET BANKING SERVICES IN ADDIS ABEBA:

(IN CASE OF SELECTED COMMERCIAL BANKS)

BY

ESHETU ENDALE

June, 2017

Addis Ababa, Ethiopia

FACTORS AFFECTING THE ADOPTION OF MOBILE AND INTERNET BANKING SERVICES IN ADDIS ABEBA:

(IN CASE OF SELECTED COMMERCIAL BANKS)

BY

ESHETU ENDALE

SGS/0081/2008A

ADVISOR:

DR. AREGA SEYOUM

A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MASTERS OF GENERAL BUSINESS ADMINISTRATION

JUNE, 2017

ADDIS ABABA, ETHIOPIA

FACTORS AFFECTING THE ADOPTION OF MOBILE AND INTERNET BANKING SERVICES IN ADDIS ABEBA:

(*IN CASE OF SELECTED COMMERCIAL BANKS*)

BY

ESHETU ENDALE

APPROVED BY BOARD OF EXAMINERS

Dean, Graduate Studies	**Signature**
Advisor	**Signature**
External Examiner	**Signature**
Internal Examiner	**Signature**

Declaration

I the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Arega Seyoum. 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.

Name	**Signature**
St. Mary's University, Addis Ababa	**June, 2017**

Endorsement

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

_____	_____
Advisor	**Signature**
St. Mary's University, Addis Ababa	**June, 2017**

Table of Contents

Acknowledgements

First, I am most grateful and thankful to Almighty God who through His infinite mercy and love guided me through the duration of the program.

I would like to express my special gratitude to my advisor Dr. Arega Seyoum for his suggestions, assistance and invaluable advice from the start to the end of the study.

I would like also to thank staff members of Commercial bank, Dashen bank and Nib bank as well as directors of E-banking for their co-operation while distributing and collecting the questionnaires as well as interviews.

I am greatly indebted to my family, who supported and encouraged me to succeed in my academic endeavor.

Lastly but not the least, my warmest appreciation and thanks goes to all my friends for their support and encouragement while doing this paper.

List of Tables

List of Figures

Acronyms & Abbreviations

ATM	Automatic Tellers Machine
BT	Banking Technology
CBE	Commercial Bank of Ethiopia
DB	Dashen Bank S.C
NIB	Nib international bank s.c
OTP	One time password
E-banking	Electronic Banking
EBS	Electronic Banking Service
IB	Internet Banking
ICT	Information Communication Technology
IT	Information Technology
Mag-stripe	Magnetic Stripe
MB	Mobile Banking
MIS	Management Information System
M-Wallet	Mobile Wallet
NBE	National Bank of Ethiopia
PC	Personal Computer
PDA	Personal Digital Assistant
PIN	Personal Identification Number
POS	Point of Sale
S.C.	Share Company
SMS	Short Message Service
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior

Abstract

Electronic banking is the application of information technology which helps to facilitate the information and services over public standards based networks. This paper aims to examine factors affecting the adoption of mobile and internet banking in Addis Ababa. The study was conducted based on the data gathered from one state owned bank and two private banks in Addis Ababa; Commercial bank of Ethiopia, Dashen bank and NIB International bank s.c. To answer the research questions mixed research approach was utilized. The study statistically analyses data obtained from the survey questionnaire and interview. The questionnaire data were analysed using descriptive statistics and data from interview were interpreted qualitatively. The study identified basic drives to accept the adoption of mobile and internet banking service. The perceived convenience for the banks and clients were found that mobile and internet banking service save time, minimizes inconveniences, provides up to date information, increases operational efficiency and minimizes the cost of transaction. The result of the study indicated that, the major factors affecting the adoption of mobile and internet banking were lack of awareness, lack of customer trust, lack of confidence on security and privacy, high cost of internet, poorly developed telecommunication infrastructure and network failures were also other key factors, lack of competition among local and foreign banks and the absence of government support to enhance and encourage mobile and internet banking technology. The study recommended that, enhancing customer awareness to use mobile and internet banking facilities, gives more attention to privacy and security issues, staffing skilled man power for both business and technical side, Recommended to amend current policies of NBE and the government should also support the banking industry by investing on ICT infrastructure.

Key Words: *Adoption, Factors affecting, Infrastructure, Mobile and Internet banking*

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

There have been significant developments in the e-financial services sector in the past 30 years. According to Devlin (1995), until the early 1970s functional demarcation was predominant with many regulatory restrictions imposed. One main consequence of this was limited competition both domestically and internationally. As a result there was heavy reliance on traditional branch based delivery of financial services and little pressure for change. This changed gradually with deregulation of the industry during 1980s and 1990s, whilst during this time, the increasingly important role of information and communication technologies brought stiffer competition and pressure for a faster pace of change (Shah & Clarke, 2009).

Banking has always been a highly information intensive activity that relies heavily on information technology (IT) to acquire, process, and deliver the information to all relevant users. Not only is IT critical in the processing of information, it provides a way for the banks to differentiate their products and services. Banks find that they have to constantly innovate and update to retain their demanding and discerning customers and to provide convenient, reliable, and expedient services (Sara, 2007).

Driven by the challenge to expand and capture a larger share of the banking market, some banks invest in more bricks and mortar to enlarge their geographical and market coverage. Others have considered a more revolutionary approach to deliver their banking services via a new medium: the Internet. Since the introduction of the Internet in 1969, it has evolved from the sole domain of the computer nerd and the academic to a mainstream channel of communication (Nehmzow, 1997).

Recently, it has been rapidly gaining popularity as a potential medium for electronic commerce (Crede 1995; Ooi 1999; U.S. Department of Commerce 1999). The rapid growth of the Internet has presented a new host of opportunities as well as threats to business. Today, the Internet is well on its way to become a full-fledged delivery and distribution channel and among the consumer-oriented applications riding at the forefront of this evolution are electronic financial products and

services. For more than 200 years, banks were using branch based operations but the advent of multiple technologies and applications changed the nature of financial services delivered to customers.

Among the different technologies which have been adopted in banks to deliver banking services to their customers' mobile technology is the popular one both in developed and developing world this is related to the growth of mobile telephone users in the world. According to the report released by Global Systems Mobile Associations (GSMA), mobile-cellular subscriptions reach almost 7.4 billion (GSMA, 2016). The increase is mostly due to growth in the developing world where mobile-cellular subscriptions account for 81 per cent of the world's total. In Ethiopia the number of mobile customers is rapidly increasing it has reached above 38 million subscribers (ethio telecom, June, 2015).

The internet is an international computer network connecting people and organizations around the world. This technology has profoundly impacted society, culture, employment, communication and even the global economy. The internet, together with e-commerce, is reshaping how businesses deliver value to customers. Online financial activity has increased steadily as more internet-capable households use internet banking. The adoption and usage of information technology is becoming an essential feature in today's development, especially in the banking sector. The use of internet banking allows customers to access their accounts, make necessary enquiries and undertake banking transactions (Crede 1995; Ooi 1999; U.S. Department of Commerce 1999).

1.2 Statement of the Problem

Based on the National Bank of Ethiopia's report currently there are 18 commercial banks in Ethiopia. Which are 17 commercial banks and one development/Investment/ bank among most of them are providing mobile and Internet banking services. Mobile and Internet banking service gives beneficiary for both the customers as well as the banks. E-banking provides a various services which are account balance enquiry and transaction, making fund transfers between a customer's own and others local account, effecting payment to third parties, both mobile and internet banking can view local and foreign accounts, internet banking have an access to download and

print both local and foreign account statements, view exchange rate, cheque book request, stop payments on cheque, applying for a letter of credit, and more (Shah & Clarke, 2009*).*

Currently CBE has more than 13.3 million account holders and the number of Mobile and Internet Banking users also reached 1,352,000 as of September 30th 2016 (68% active users)(*https://www.combanketh.et*). Dashen has more than 1.4 million account holders reached at the end of June 30th, 2016 and the number of mobile and internet banking users reached 206,550 as of June 30th, 2016 *(https://www.dashenbanksc.com).* Nib has more than 486,000 account holders and the number of mobile and internet banking users are not more than 20,000 as of December 31th, 2016 (*https://www.nibbank-et.com/index.php*). Among this mobile and internet banking users 82% of the users are around Addis Ababa. So this number indicates banks in Ethiopia has a few progress on mobile and internet banking so banks should work harshly to attract early and new customers and it creates a cashless society requires not only providing e-banking services to customers.

E-banking services are at an infant stage in Ethiopia; even though expansion of E- banking throughout the developed and the developing world is rapid, Ethiopia's financial sector remain behind in expanding the use of the service. Certainly, the banking industry is not well developed with a growing number of international trades; increase the demand of the customer and international relations. The today's banking system has problems of offering efficient and dependable services (Garedachew, 2010).

While there are many research works conducted worldwide, there are very few or limited published works that tried to investigates about E-banking services in Addis Ababa.

The following are few of the studies done regarding issues related with e-banking particularly to Ethiopia: (Ayana, 2012) the result of the study indicated that, the major barriers Ethiopian banking industry faces in the adoption of Electronic banking are, security risk, lack of trust, lack of legal and regulatory frame work, lack of ICT infrastructure and absence of competition between local and foreign banks. (Michael, 2013) the result of the study indicated that the major challenges for the development of electronic banking in Dashen and Nib International Banks were lack of information, security risk, lack of trust, lack of legal and regulatory framework, lack of infrastructure and lack of awareness. On the other hand, a study by Yitbarek & Zeleke (2013) revealed that atti-

tude, subjective norm, perceived behavioral control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users' intention to use E-banking service channels. Etsibel(2014) indicated that there are positive and strong relationships exists between infrastructure, security, trust, perceived ease of use, subjective norms, perceived behavioral control and perceived usefulness with customers' adoption of E-banking. But, security was a better predictor of customers' adoption of E-banking followed by trust and infrastructure. Similarly, a study by Worku (2015) found out that perceived usefulness and perceived ease of use have positive relationship with the adoption of mobile banking whereas perceived risk has negative relationship with the adoption of mobile banking. Esayas (2016) the result showed that perceived usefulness and trust as most significant factors affecting customers' intention towards using e-banking services.

The researchers couldn't find research work conducted specifically with regard to mobile and internet banking services. In Addis Ababa currently mobile and internet banking services are among the main E-banking products but most banks report indicates that there is a few progress on customer adoption on the service so in order to fill this gap, this study attempted to dig deep to identify the major factors that affect the adoption of mobile and internet banking services so that to suggest viable solution to the problems.

Understanding the factors which affect mobile and internet banking adoption is vital for the growth of mobile and internet banking services. In addition most of the previous related studies conducted did not consider consistency of service which means mobile and internet banking service should work any time without interruption 365/24/7. Therefore, in this study the researcher tried to assess the influence of consistency on the intention of customers to adopt mobile and internet banking services.

This study is, therefore, initiated because of the absence of studies in the area of mobile and internet banking adoption, its factors, drives to accept that could explain its adoption in Addis Ababa. In addition to this the researcher also working at E-banking it motivates the researcher to conduct on this issue.

1.3 Research Questions

This study tried to provide answers to the following research questions;

1. What are the factors affecting the adoption of mobile and Internet banking services by individuals and corporate banking customers in Addis Ababa?
2. What are the factors that drive the adoption and acceptance of the services?
3. What influences do Income, Knowledge, Age, Occupation, Culture and Consistency have on the adoption of mobile and internet banking services?
4. What are the solutions for banks to improve the acceptance of mobile and Internet banking services?

1.4 Objectives of the Study

1.4.1 General Objective

The research was aimed to investigate the factors affecting the adoption of mobile and Internet banking services in Addis Ababa.

1.4.2 Specific Objectives

Specifically, the study assumes the following specific objectives;

I. To investigate the factors affecting the adoption of mobile and Internet banking services by individual and corporate banking customers.
II. To establish the factors that drives the adoption and acceptance of the services.
III. To determine the effect of income, knowledge, age, occupation, culture and consistency on the adoption of mobile and Internet banking services.
IV. To recommend solutions for banks which will improve the acceptance of mobile and Internet banking services.

1.5 Scope and Limitations

The general aim of the study is the factors affecting the adoption of mobile and internet banking service in Addis Ababa. Primarily the study was confined itself to surveying and interviewing of the purposely selected banks, three commercial banks were purposely selected, one state owned

bank & two private banks in Addis Ababa and it excluded other financial institutions to explore the intent of the study. Those banks are selected among 17 commercial banking institutions based on their familiarity with technological innovations in Ethiopia. The study limited to Addis Ababa to dig deep to give a better recommendation. Any way the purposive sampling procedure decreases the generalizability of findings and this study might not be generalizable to all areas of financial institutions.

1.6 Significance of the Study

The outcomes of this research have potential value to financial institutions, particularly banks to understand the factors affecting related with adoption of new technology and its advantages in providing service to their customers. In addition, this study is expected to benefit other researchers who was interested to conduct further study regarding the issue under investigated by providing use full information and academician's to. Finally based on the result financial institutions and customers benefited from the study motivates them to adopt in the mobile and internet banking services and serve their customers in order to compete to other competitors and the study may provide recommendations for banks about changes needed to accelerate adoption of the system to deliver service to customers through technological innovation.

1.7 Structure of the Study

The research paper is divided into five chapters. Chapter one presents the introduction part, which contains, back ground of the study, statement of the problem, research questions, objectives of the study, scope and limitations of the study and significance of the research paper and structure of the paper. Chapter two presents the literature review regarding the definition of mobile and internet banking, theoretical analysis of mobile and internet banking system, frameworks for the research and sets out some empirical studies regarding the issues under investigated. Chapter three presents research methodology, which contains research design, research approach uses in the study and the research method adopts. The research results and discussion is presented in chapter four. The final part chapter five organized by summarizes the findings, concludes the paper, and forwards some recommendations

CHAPTER TWO: LITRATURE REVIEW

2.1 Definition of Electronic Banking

Electronic banking technologies have led banks and financial institutions to improve effectiveness of distribution channels through reducing the transaction cost and increasing the speed of service. Electronic banking is the application of information technology which helps to facilitate the information and services over public standards based networks. E-banking is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network"" (Yang, 1997, p.2). There are different forms of electronic banking like; Internet banking, mobile banking, telephone banking, Automated Teller Machine (ATM), Point of Sales (POS),agent banking…etc.

2.1.1 Mobile Banking

Mobile Banking (also known as M-banking) is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA).Mobile banking is defined in different ways by different writers but for this research project we use the definition by Rajnish Tiwari (2006). "Mobile Banking refers to provision and making available of bank-related financial services with the help of mobile telecommunication devices. There are two main types of technologies available for use in mobile Banking: Wireless Application Protocol (WAP) and Wireless Internet Gateway (WIG). WAP is an application environment and set of communication protocols for wireless devices designed to enable manufacturer, vendor, and platform independent access to the Internet and advanced telephony services. WIG is a Short Message Service (SMS)-based service, in which a menu of available banking options is initially downloaded from the bank to the phone device (Brown et al. 2003). This enables users to browse bank accounts and conduct other banking related tasks (Shah & Clarke, 2009).

The earliest mobile banking services were offered over SMS, a service known as SMS banking. Mobile banking is used in many parts of the world with little or no infrastructure, especially re-

mote and rural areas. This aspect of mobile commerce is also popular in countries where most of their population is un-banked. In most of these places, banks can only be found in big cities, and customers have to travel hundreds of miles to the nearest bank. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, and others by using of short text message (SMS) through phone or personal digital assistant(PDA). An example of a mobile phone banking system is reported by Geach (2007). Named M-pessa, the system is developed by mobile phone operator Safaricom in Kenya. It was launched to improve the efficiency of Microfinance by using mobile technology to make financial transactions cheaper, quicker and accessible to much wider population than currently was the case.

M-Pessa is a fully operational service available to phone users in Kenya. The ideas and systems were adopted from South Korea and proved to be especially useful for people with no access to banking or Internet through their computers. Basically, M-pessa is a financial services application installed on a mobile phone. A new generation SIM card is needed with M-pessa software embedded. Upgrades to older SIM cards are available free of charge and works on most mobile phone sets so users don't have to buy a new handset to access it.

2.1.2 Internet banking

Internet banking 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 (Malak, 2007). Internet banking system and method in which a personal computer is connected by a network service provider directly to host computer system of a bank such that customer service requests can be processed automatically without need for intervention by customer service representatives. Due to the increased use of personal computers to access the internet and World Wide Web, the internet has provided an easy channel for accepting orders and become a handy medium for delivering products and services to the entire customers. This innovation has been increasing radically in recent times. This kind of banking is commonly known as internet banking. Internet technology can make a significant contribution to a company's value chain. It can improve a company's relationship with vendors and suppliers, its internal operations and its customer relations,

and offers the prospect of reaching an expanding customer base. The Internet also promises to dramatically lower communications costs by eliminating obstacles created by geography, time zones, and locations (Tan & Teo, 2000).

2.1.3 ATM (Automated Teller Machine)

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). 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). Generally, ATM machines provides the same services, such as money withdrawal, fund transfer, balance enquiry, mini statement, and money transfer from one account to the other.

2.1.4 POS (Point of Sale)

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). POS also sometimes referred to as point of purchase (POP) or checkout is the location where a transaction occurs. A "checkout" refers to a POS terminal or more generally to the hardware and software used for checkouts, the equivalent of an electronic cash register. A POS terminal manages the selling process by a salesperson accessible interface. The same system allows the creation and printing of the receipt. POS systems record sales for business and tax purposes (Shittu, 2010).

2.1.5 Agent Banking

Agent banking means the conduct of banking business on behalf of a financial institution through an agent using various service delivery channels as permitted under these directives *(Directives No. FIS /01/2012).*

A banking agent is a retail or postal outlet contracted by a financial institution or a mobile network operator to process clients' transactions. Rather than a branch teller, it is the owner or an employee of the retail outlet who conducts the transaction and lets clients deposit, withdraw, and transfer

funds, pay their bills, inquire about an account balance, or receive government benefits or a direct deposit from their employer. Banking agents can be pharmacies, supermarkets, convenience stores, lottery outlets, post offices, and many more. Banking agents are usually equipped with a combination of POS card reader, mobile phone, barcode scanner to scan bills for bill payment transactions, PIN pads, and sometimes personal computers (PCs) that connect with the bank's server using a personal dial-up or other data connection (Wiki for banking agent, 2015).

2.1.6 Telephone and pc banking

Telephone and PC banking is a facility that enables customers, via telephone calls, find out about their position with their bankers by merely dialing the telephone numbers given to them by the banks. In addition, the computers on the phone would require special codes given to the customers as a means of identification of authentic users before they can receive any information they requested for. Telephone and PC banking brings the bank to the doorstep of the customer, it does not require the customer to leave his premises (Shakila & Faira, 2012).

2.2 Benefits of Mobile and Internet Banking Service

E-banking is fast becoming a norm in the developed world, and is being implemented by many banks in developing economies around the globe. The main reason behind this success is the numerous benefits it can provide, both to the banks and to customers of financial services (Shah & Clarke, 2009).

The Internet as a channel for services delivery is fundamentally different from other channels such as branch networks, telephone banking or Automated Teller Machines (ATMs). Therefore, it brings up unique types of challenges and requires innovative solutions (Shah & Clarke, 2009).

Mobile banking brings significant benefits to customers and banks in this regards (R. Chandra, 2014).

- **Choice and Convenience for Customers**

In modern business environments, customers want greater choice. They want the traditional range of banking services, augmented by the convenience of online capabilities and a stronger focus by banks on developing personal relationships with customers (Shah & Clarke, 2009).

- **Attracting High Value Customers**

E-banking often attracts high profit customers with higher than average income and education levels, which helps to increase the size of revenue streams. Most of them are using online channels regularly for a variety of purposes, and for some there is no need for regular personal contacts with the bank's branch network, which is an expensive channel for banks to run Berger & Gensler (2007).

- **Enhanced Image & Increased Revenues**

E-banking helps to enhance the image of the organization as a customer focused innovative organization. Increased revenues as a result of offering e-channels are often reported, because of possible increases in the number of customers, retention of existing customers, and cross selling opportunities (Shah & Clarke, 2009).

- **Easier Expansion**

Traditionally, when a bank wanted to expand geographically it had to open new branches, thereby incurring high start- up and maintenance costs. E-channels, such as the Internet, have made this unnecessary in many circumstances. Now banks with a traditional customer base in one part of the country or world can attract customers from other parts, as most of the financial transactions do not require a physical presence near customers living/working place (Shah & Clarke, 2009).

- **Load Reduction on Other Channels**

E-Channels are largely automatic, and most of the routine activity such as account checking or bill payment may be carried out using these channels. This usually results in load reduction on other delivery channels, such as branches or call center's (Shah & Clarke, 2009).

- **Time and Cost Reduction**

The main economic argument of E-banking so far has been reduction of overhead costs of other channels such as branches, which require expensive buildings and a staff presence. It also seems that the cost per transaction of E-banking often falls more rapidly than that of traditional banks once a critical mass of customers is achieved (Shah & Clarke, 2009).

- **Organizational Efficiency**

To implement E-banking, organizations often have to re-engineer their business processes, integrate systems and promote agile working practices. These steps, which are often pushed to the top of the agenda by the desire to achieve e-banking, often result in greater efficiency and agility in organizations (Shah & Clarke, 2009).

2.3 Evolution of Mobile and Internet Banking

Electronic innovation in banking industry can be traced back to 1970, when the computerization of financial institutions gained momentum (Malak, 2007). Innovative banking has grown since then, aided by technological developments in the telecommunications and information technology industry E-banking dates back to the end of the 1990s when the German company Pay box, in collaboration with Deutsche Bank, launched the first service. Initially, it was deployed and tested mostly in European countries: Germany, Spain, Sweden, Austria, and the United Kingdom. Among developing countries, Kenya was the first to introduce a text-based m-banking service, M-Pesa, in 2007. By 2012, there were more than seven million registered M-Pesa users in Kenya. As Veijalainen et al. (2006) argues the main driving force for the rapid acceptance of small mobile devices is the capability they offer for obtaining services and running applications at any time and any place, including while on the move.

The early decade of the 1990s witnessed the emergence of automated voice response (AVR) technology. By using the AVR Technology, banks could offer telephone banking facilities for financial services. With further advancements in technology, banks were able to offer services, through PC owned and operated by costumers at their convenience, through the use of intranet propriety software. The users of these services were, however, mainly corporate customers rather than retail ones (Sohail & Shanmugham 2003).The term of E-banking often refers to online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services (Furst & Nolle 2002, p.5). The security first network bank was the first Internet banking in the world that was built in 1995 in USA. After that some famous banks introduced their internet banking one after another, such as Citibank and bank of America. With the help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week.

2.4 E-banking Service in Ethiopia

The appearance of E-banking in Ethiopia goes back to the late 2001, when the largest state owned bank, Commercial Bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. However, it was Dashen Bank which stays as the sole player in the field of E-banking since 2006 (Gardachew, 2010). Dashen bank, a forerunner in introducing E-banking in Ethiopia, has installed ATMs and POS terminal at convenient locations for its own cardholders.

Currently, Dashen Bank ATMs and POSs welcome international cards including Visa, MasterCard, Union Pay and American Express. During 2015/16, 65,921 customers joined the card banking service, which raised the total number of cardholders by 18% to 433,490. Number of internet and mobile banking users are currently 206,550. Accordingly at the end of June 2015/16 the number of Dashen's ATM and PoS machine terminal had reached 220 and 953 respectively. Presently both the ATM and the PoS machines receive international cards including Visa, MasterCard, Union Pay and American Express (June 2016, Annual Report). In addition Dashen Bank is the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions in April 2009 (Amanyehun, 2011). However, the first ever E-banking gateway was signed between Ethiopian Commodity Exchange (ECX) and Dashen Bank and CBE so as to give a secured electronic data sharing gateway among clients, banks and ECX, by facilitating a smooth transaction (Abiy, 2008).

Although, Dashen Bank is pioneer in harnessing new technology, the younger United Bank was the first to introduce telephone and Internet banking systems – including text messages (SMS) - by the end of 2008. Wegagen Bank also busy in the same year to introduce the payment system and installation of a network of ATMs. (Abiy, 2008) Another milestone that has played significant role in the development of e-banking was the agreement signed by three private commercial banks to establish an ATM network called Fettan ATM network, in February 2009.The Banks which entered into agreement includes -Awash International Bank S.C., Nib International Bank S.C. and United Bank S.C. The agreement is the first significant cooperation among competing banks in Ethiopia (Binyam, 2009).

The full-blown internet banking service was launched by Zemen Bank in the year 2010 (Asrat, 2010).

Available services on Dashen Bank ATMs are: Cash withdrawal, Balance Inquiry, Mini statement, Fund transfer between accounts attached to a single card and Personal Identification Number (PIN) change. Currently, the bank gives debit card service only for Visa cards. Dashen bank clients can withdraw up to 5,000 birr in cash and can buy goods and services up to 8,000 to 13000 birr per day.

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. According to the agreement, iVery Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank. Dashen's Mod birr users can transfer 500 birr to other Modbirr users in 24 hours a day. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions (Amanyehun 2011). Although Dashen's new technology is one step ahead in that it allows transfer of funds from one's account to others, the first ever E-banking gate way 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). By the end of 2008 Wegagen Bank has signed an agreement with Technology Associates (TA), a Kenyan based information technology (IT) firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008,

Zemen Bank, the only Ethiopian bank anchored in the idea of single branch banking, by launching full-blown internet banking, a service which is new to Ethiopian banking industry in the year 2010. The bank tested the venture through its first phase of the online service, and now it is already started the full-fledged version, which enable customers to make online money transfer freely. Previously, the online banking service, delivered by the bank, only gave access to bank statements and exchange rate information. The new and never-been-tried service proposed by the bank is to include free account money transfer, corporate payroll uploading system where employers could upload payroll to the system and make payments to individual worker's accounts online and online utility bill settlement system, when utility companies are ready (Asrat, 2010). The agreement signed by three private commercial banks to launch ATM and POS terminal network, in February 2009 is welcoming strategy to improve electronic card payment system in Ethiopia. Three private commercial banks - Awash International Bank S.C., Nib International Bank S.C. and United Bank S.C. have agreed in principle to establish an ATM network called Fettan ATM network. If everything goes as planned, Fettan ATM will install over 140 ATM machines and over 340 POSs across Ethiopia. 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 (Binyam, 2009).

According to the agreement, iVeri Payment Technologies has licensed its Gateway and MiCard e-payment processing solution to Dashen Bank. Dashen's *Modbirr* users can transfer up to Birr 500 of funds to other *Modbirr* users in 24 hours a day. This would make Dashen Bank the first bank in Ethiopia to acquire e-commerce and mobile merchant transactions (Worku G, 2010). Although Dashen's new technology is one step ahead in that it allows transfer of funds from one's account to others, United Bank was the first to introduce telephone and Internet banking systems - including text messages (SMS) - by the end of 2008. Thereafter, Wegagen Bank has signed an agreement with Technology Associates (TA), a Kenyan based IT firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008. Currently, Wegagen Bank is providing electronic banking services through '*Agar Visa Card'* in selected branches of the Bank. Zemen Bank, which follows a single branching strategy, has also providing electronic payment services through ATMs located in various locations of the country.

Some of the available services on Zemen Bank ATMs are: Cash withdrawal, Balance Inquiry, Mini statement, Fund transfer between accounts attached to a single card and PIN (Personal Identification Number) change. Currently, the bank gives debit service only for Visa cards.

Three private commercial banks to launch an Automated Teller Machine (ATM) and Point of Sale terminal (POS) network, in February 2009 is welcoming strategy to improve electronic card payment system in Ethiopia. Three private commercial banks - Awash International Bank S.C., Nib International Bank S.C and United Bank S.C. – have established a joint company called Premiere Switch Solutions (PSS). During its first year of operation, PSS installed over 60 ATM machines and over 300 POSs across Ethiopia. If everything goes as planned, 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 (Tamene, 2009).

Nib International Bank, one of the founding member banks of PSS, is providing the service starting from July 2012. Available services on Nib International Bank ATMs are: Cash withdrawal, Balance Inquiry, Mini statement, Fund transfer between accounts attached to a single card and Personal Identification Number (PIN) change. NIB clients can withdraw up to Birr 6,000 in cash per day. Currently, the bank gives debit card service only for NIB Card holders. In addition, it has got the principal membership license from Visa International and MasterCard to accept international payment cards (Michael, 2014).

2.5 Theoretical Framework

Theoretical framework is a conceptual model of how one theorizes or makes logical sense of the relationships among the several factors that have been identified as important to the problem (Sekaran, 2003). This will help the researcher: to understand the relationship among the different variables of interest to the research and to develop testable hypothesis to examine if the theory formulated is valid or not.

Adoption: is defined as the act or process of beginning to use something new or different (M. Webster). Technology adoption is thus the process of beginning to use new technology or different technology by customers, organizations etc. As result of the dynamism of the information and communications technology innovative technological products are released. And the growth of nations, organizations and individuals is highly dependent on how best they adopt the technology in their operations. In order to understand how people can accept or adopt technology various models are developed and used.

Several theories and models have been developed to explain information systems from a social psychology standpoint. Rogers (1962) developed the Diffusion of Innovations (DOI) or Innovations Diffusion Theory (IDT) to explain why and how people adopt new technologies and the rate at which they do so. (Fishbein & Ajzen ,1975) propose the Theory of Reasoned Action (TRA), which has been variously validated and proven to be successful in explaining adoption behaviours of consumers towards various technology systems. Davis´ (1989) Technology Acceptance Model (TAM) is an information system model that shows how users accept and use technology. This model was further developed by (Venkatesh & Davis, 2000) into the Unified Theory of Acceptance and Use of Technology (UTAUT).

2.5.1 Diffusion of Innovation Theory (DOI)

Having its origins in sociology, the Diffusion of Innovations (DOI) theory has been used since the 1960s to explore a variety of innovations, ranging from agricultural tools to organizational innovation (Rogers, 1995). DOI theory stated that innovations would be communicated through various channels over time and within a particular social system (Rogers, 1995). Since consumers would possess different degrees of willingness to adopt innovations, Rogers (1995) segregated consumers into five categories of individual innovativeness starting from early to late adopters: innovators, early adopters, early majority, late majority and laggards.

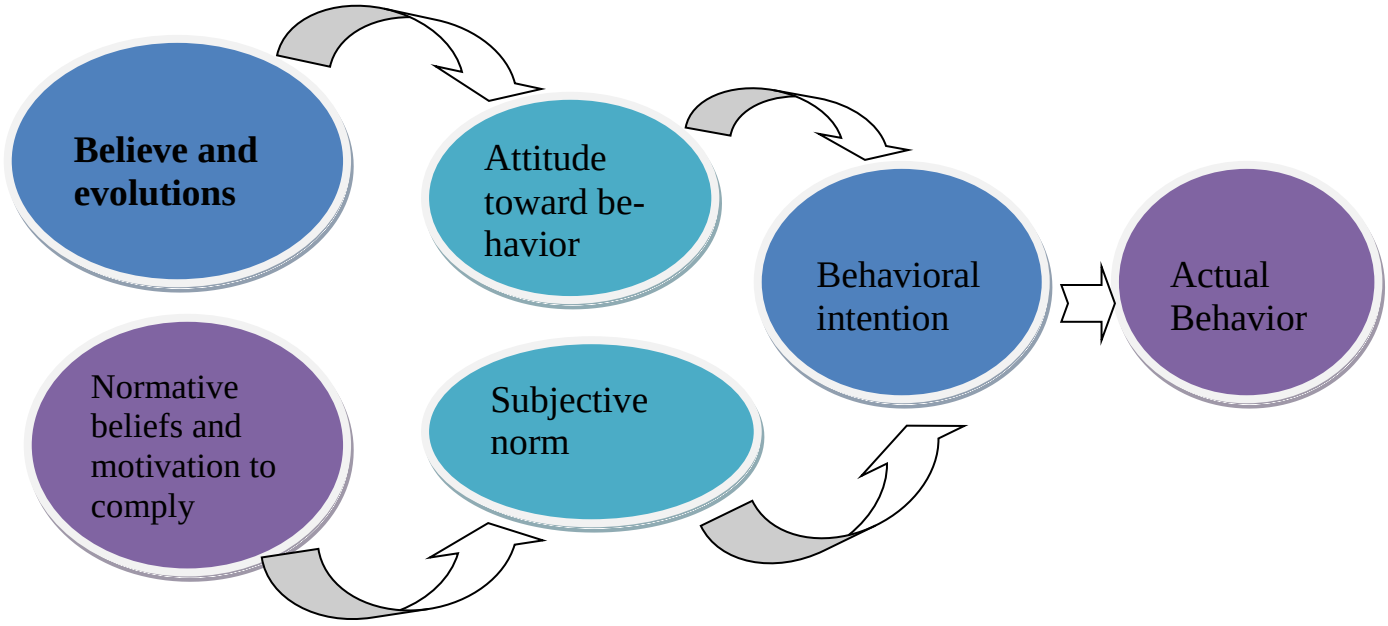
Additionally, Rogers (1995) identified five factors determining the rate of adoption of innovations: relative advantage, compatibility, trial ability, observability, and complexity. While the first four factors would generally positively correlate with rate of adoption, complexity would commonly negatively affect the diffusion rate (Rogers, 1995). Diffusion rates could, however, is impacted by other phenomena. For instance, changes in habits and individual needs could change the individu-

als' attitude towards an innovation over time. Similarly, a new innovation could affect the adoption rate of an existing innovation (Rogers 1995). Moore and Benbasat (1991) drew upon DOI theory to develop an instrument to measure the adoption of information technology. Support was found for the following factors impacting on the adoption of IT: relative advantage, ease of use, image, visibility, compatibility, results demonstrability and voluntariness of use (Moore & Benbasat 1991).

2.5.2 Theory of Reasoned Action (TRA)

Although not focusing on Information Systems specifically, the theory of reasoned action has been frequently used to explain the user intentions for deploying information systems (Hartwick et al., 1988; Bagozzi et al., 1989; Ajzen, 1991; Morris et al., 2003). The original theory was developed by Fishbein & Ajzen (1975) and is shown in Figure 1 below.

Figure 2.1: Theory of Reasoned Action (TRA)



Source: Adapted from Fishbein & Ajzen (1975)

TRA argued that individual behavior would be driven by behavioral intentions (Fishbein & Ajzen 1975). Fishbein & Ajzen (1975) defined attitude towards behavior "as the individual's feelings about performing a behavior". On the other hand, subjective norm was explained as "an individual's perception of whether the behavior should be performed". This would be driven by the motivation that an individual has to comply with opinions from people who are important to the individual (Fishbein & Ajzen 1975).

Behavioral intentions were assumed to indicate how hard people would be willing to try, of how much of an effort they would be planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance (Sheppard, Hartwick et al., 1988).

The TRA has been successfully applied to a large number of situations to predict the performance of behaviour and intentions. For example, TRA predicted turnover (Prestholdt et al., 1987); education (Fredricks & Dossett, 1983); and breast cancer examination (Timko, 1987).

2.5.3 Theory of Planned Behaviour (TPB)

Subsequent to the original TRA theory, Ajzen (1991) extended the TRA theory establishing theory of planned behaviour (TPB). TPB added a perceived behavioural control construct to the TRA. Ajzen (1991) argued that behavioural intention can find expression in behaviour only if the behaviour in question is under volitional control, (e.g. if the person can decide at will to perform or not perform the behaviour). In many instances behaviour would be influenced by non-motivational factors such as availability of resources (Ajzen 1991).

Bandera (1977) has provided empirical evidence that people's behaviour is strongly influenced by the confidence they have in their ability to perform the behaviour. The structural link from PBC to BI reflects the motivational influence of control on actual behaviour through intentions. The direct path from PBC to AB is assumed to reflect the actual control an individual has over performing the behaviour.

As with TRA, the relative importance of BI predictors varies with the behavioral domain. In some applications, it may be found that only ATB has a significant impact on BI; in others, ATB and PBC will be significant; in still others, ATB, SN, and PBC will contribute to the prediction of BI

(Ajzen, 1985). Similarly, their ability of PBC and BI to predict AB also will vary across behaviors and situations.

The Theory of Planned Behavior has been successfully applied to various situations in predicting the performance of behavior and intentions, such as predicting user intentions to use a new software (Matheson, 1991), to perform breast self-examination (Young et al., 1991), to avoid caffeine (Madden et al., 1992), to perform unethical behavior (Man, 1998), and to understand wastepaper recycling Madden et al. (1992), Man (1998), and Cheung et al. (1999) all found that TPB has a better predictive power of behaviour than TRA.

2.5.4 Technology Acceptance Model (TAM)

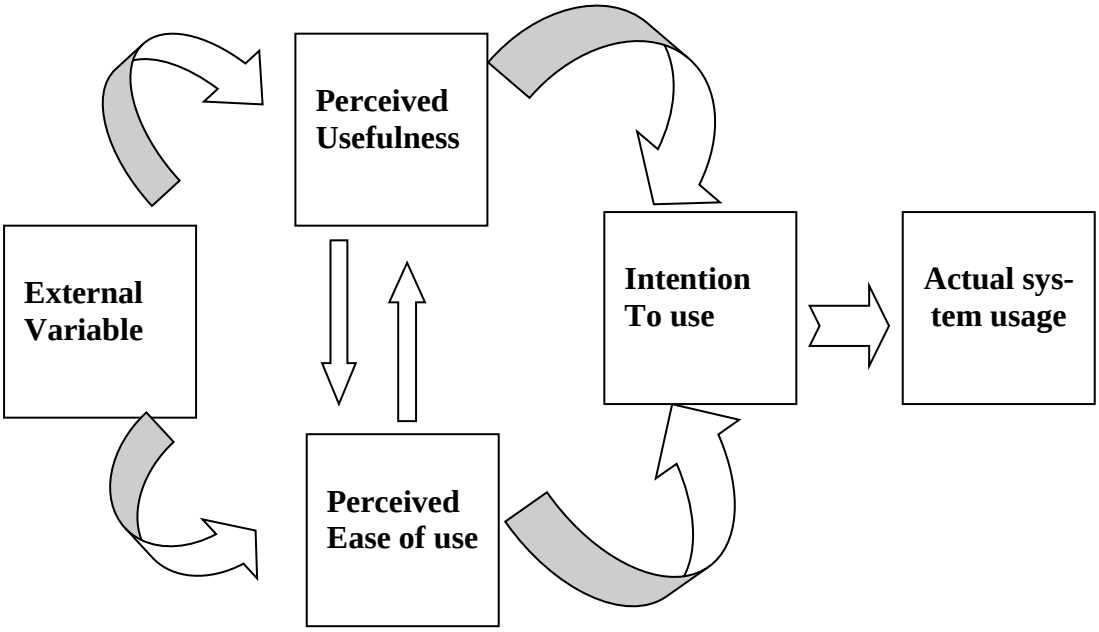
The Technology Acceptance Model (TAM) was developed from TRA by Davis (Davis, 1985). He proposed that systems use is a response that can be explained or predicted by users' motivation which in turn is directly influenced by an external stimulus consisting of the actual systems features and capabilities.

In his conceptual model Davis suggest that users' motivation can be explained by three factors: perceived ease of use, Perceived Usefulness, and Attitude toward Using the System. According to the model a potential user's overall attitude towards using a given system is hypothesized to be a major determinant of whether or not he actually uses it. Attitude towards using, in turn, is a function of two major beliefs: perceived usefulness and perceived ease of use perceived ease of use has causal effect on perceived usefulness. Design Features directly influence perceived usefulness and perceived ease of use and design features is an external variable hence it affects the attitude and behavior indirectly through perceived usefulness and perceived ease of use (Davis, 1985).

2.5.5 Refined TAM

Subsequent research by Davis (1989) and Venkatesh (1996) refined the TAM suggesting that the mediating effect of attitude could be excluded as empirical evidence found that the attitude element did not fully mediate the effect of perceived usefulness on intention to use. As result the model is looks like as shown in figure 2.2 below.

Figure 2.2: Refined Technology Acceptance Model



Source: Adapted from Davis (1989) and Venkatesh (1996)

TAM is widely used popular technology adoption model with regard to information technology. It has proven to be a theoretical model in helping to explain and predict user behavior of information technology (Legris, Ingham, & Collerette, 2003). The TAM suggests that two beliefs – perceived usefulness and perceived ease of use – are instrumental in explaining the variance in users' intentions. However, Davis (1989) noted, future technology acceptance research must address how other variables affect usefulness, ease of use and user acceptance. Therefore, perceived ease of use and perceived usefulness may not fully explain behavioral intentions towards the use of mobile and internet banking service, necessitating a search for additional factors that can better predict the acceptance of mobile and internet banking service.

2.5.5.1 Perceived Usefulness

Perceived usefulness suggests a user believes that using a particular IT will be beneficial. For the user to hold such a belief several conditions must be met. First, the user must have prior experience with the particular problem suggesting at least some understanding of the nature of the problem, even if the problem is not yet understood sufficiently to derive a solution. Generally, the user must also have experience with information technologies. This experience gives the user a basis

for evaluating the capabilities of information technologies and how and in what circumstances they may be useful. In the formation of initial opinions, the user will not have much hands-on experience, but may know of the capabilities of information technologies through the media like television and newspaper) or other communication channels like friends (Jihyune, 2003).

2.5.5.2 Perceived Ease of Use

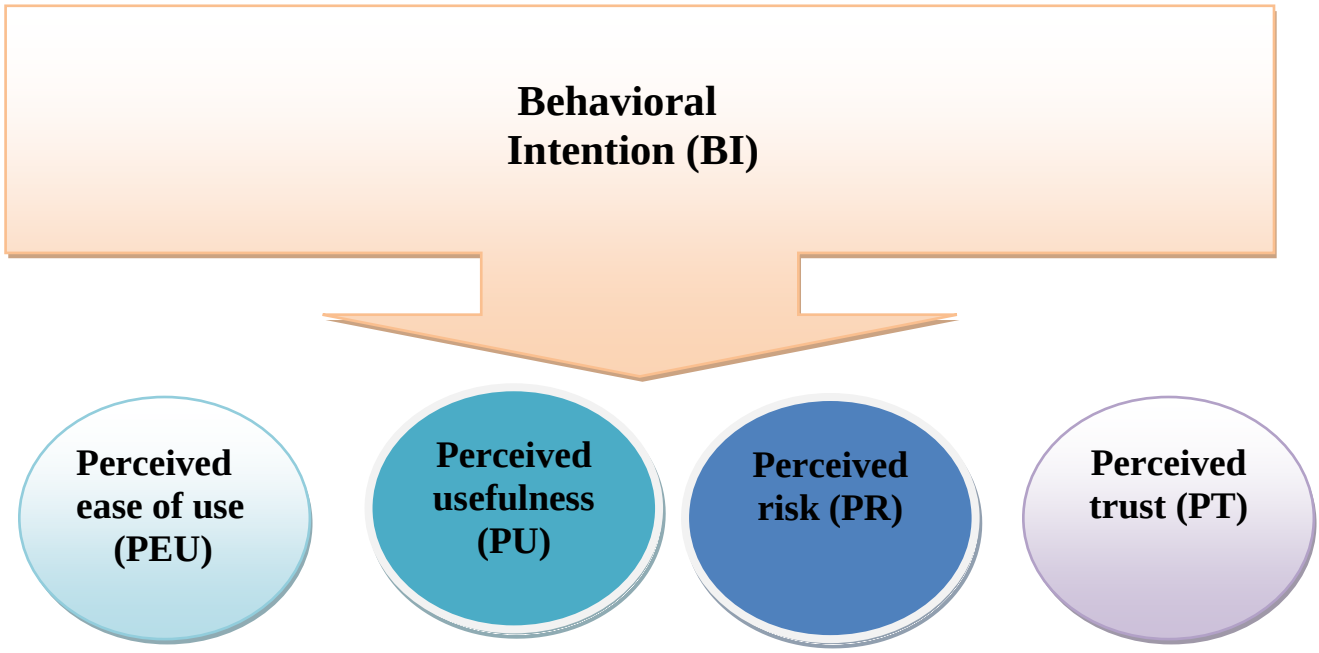
Perceived ease of use reflects "the degree to which an individual believes that using a particular IT would be free of effort, both physical and mental". Davis (1986) argued that all others things being equal, IT perceived to be easier to use than another are more likely to be accepted by the individual. Perceived ease of use has both a direct effect and an indirect effect on attitude toward using. Perceived ease of use is determined, at least in part, by prior experience in the use of IT as well as by the amount of training received by the user.

2.5.5.3 Perceived Risks

One of risk faced by bank institutions in offering e-banking services is the customers' resistance to use the services that significantly hinder the growth of e-banking Laforet, 2005; Zhao *et al*., (2008). Issue related to security is also 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 the e-banking is expected to influence its adoption Ayana (2012). Perceived risk is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly.

Karma (2014) in his study to identify key factors affecting the adoption of mobile banking adoption among bank customers in Sudan uses Technology acceptance model, however, like others researches it includes additional variables beyond the two original independent variables of TAM i.e., perceived usefulness and perceived ease of use as shown in figure six below. As result Karma added two additional important variables in the model as determinant variable these are perceived trust and perceived risk.

Figure 2.3: Conceptual Framework



Source: Adapted from Karma (2014)

Previous experience and training increase an individual's ability to use IT. For example, if an individual feels self-confident from prior experience with a particular IT; the individual will have a positive attitude toward the IT. This is the direct effect of perceived ease of use on attitudes. Davis (1986) also suggests a relationship between perceived ease of use and perceived usefulness. An increase in perceived ease of use may contribute to improved performance. The constructs, perceived usefulness and perceived ease of use, have been extensively investigated by researchers. These studies generally confirmed that perceived usefulness and perceived ease of use are important factors in affecting IT use.

2.5.5.4 Knowledge, Income, Age, Occupation, Culture and Consistency

- **Knowledge**

Education in its general sense is a form of learning in which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research. Education frequently takes place under the guidance of others, but may also be autodidactic. Any experience that has a formative effect on the way one thinks, feels, or acts may be

considered educational. It was expected that people who are highly educated may require less training in response to technological change if their general skills enable them to learn the new technology.

Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.

www.edu.uleth.ca/courses/ed3604/conmc/glsry/glsry.html

- **Income**

Income is the consumption and savings opportunity gained by an entity within a specified timeframe, which is generally expressed in monetary terms. However, for households and individuals, income is the sum of all the wages, salaries, profits, interests, payments, rents and other forms of earnings received in a given period of time. It was expected that customers with higher income have higher value of time than customers with lower income, so consumers with high income can create more benefits through adoption of mobile and internet banking (Margaret M, Ngoma MF, 2013).

- **Age**

Age is referred to: Ageing, which is the effect of time on a person? The time of life at which some particular qualification, power, or capacity arises or rests or it can be one of the stages of life the length of an existence extending from the beginning to any given time. Describe customer's age with the adoption of mobile and internet banking service at Addis Ababa, the study compared the demographics factors such as young age and old age propensity with the adoption of mobile and internet banking service. Since, it is expected that age affects the attitude of individuals towards the services of mobile and internet banking *Mayr, U. (Ed.). (2008).*

- **Occupation**

An activity that serves as one's regular source of livelihood; a vocation or an activity engaged in especially as means of passing time an avocation. It was expected that people in the certain occu-

pation preferred to adopt mobile and internet banking service compared to other occupations. Therefore, this study targeted a population of bankers and different types of bank customers with different occupations (Alafeef M, Singh D, Ahmad K., 2011).

- **Culture**

Hofstede (1997) defines culture as the collective programming of the mind which distinguishes the member of one human group from another. Shore and Venkatachalam (1996) stated that culture reflects individual core values and beliefs. These values and beliefs are formed through childhood and reinforced all through their life. Hofstede (1997) in his research put five culture dimensions. These dimensions are:

- Power distance (PD): the extent to which the less powerful member of the institution or organization within a country expects and accepts that power is distributed unequally. He indicated that the employees of the countries with high power distance believe that the power is distributed unequally. Hence, they tend to accept and complete duties assigned by them by the superior, even if they are unconfident of the superior's work ethics.
- Uncertainty avoidance (UA): the extent to which the member of a culture feel threatened by uncertain or unknown situation. People with low uncertainty avoidance are willing to take risks and to take individual decisions.
- Individualism vs. collectivism (IDV). Individualism stands for a society in which the ties between individuals are loose. Everyone is expected to look after himself or herself and his or her immediate family only. While collectivism stands for a society in which people from birth onwards, are integrated into strong, interrelated in a group which during people's lifetime, continue to protect them in exchange for unquestioning loyalty. He indicated that in low individualism cultures, people place higher importance on belonging to a group and respect opinion of the other members of the society.
- Masculinity vs. femininity (MAS). Masculinity stands for a society in which social gender roles are clearly different. While femininity stands for a society in which social gender roles overlap; both men and women are supposed to be modest, tender and concerned with quality of life. In this research the collectivism dimension of culture is considered. So culture affects the way that people in a society are interrelated and place higher importance on belonging to a group.

- **Consistency**

Crosby (1981) defined Quality as consistency with fixed specifications and this agrees with Karim's definition (1996), who defined Quality as anything that accords with the characteristics of the product to meet the external clients' needs. In addition, the product quality differs from that of a service as the earlier is tangible, whereas the latter is intangible. Consistency of the service implies always stand by for accessing accounts for whatever they need without any interruption whether technically or by external factor like network and internet disconnection simply a part of service quality. When we say the service is inconsistent not only mean the service stop working but it includes also the service should complete any transaction without any interruption.

2.6 Empirical Evidence

Recent literature has a narrow focus and ignores internet banking almost entirely; it equates internet money with the substitution of currency with internet gadget. For instance Freedman (2000) suggests that internet banking and internet money consists of three devices; access devices, stored value cards, and network money. Internet banking is simply the access to new devices and is therefore ignored. Internet money is the sum of stored value (smart cards) and network money (value stored on computer hard drives).

Santomero & Seater (1996), Prinz (1999) and Shy & Tarkka (2002) present models that identify conditions under which alternative payments substitute for currency. Most of these models indicate that there is at least a possibility for internet substitutes for currency to emerge and flourish on a wide scale depending on the characteristics of the various technology and those of the potential users.

Friedman (1999) intimated that internet banking presents the possibility that an entire alternative payment system not under the control of the Central Bank may arise. Today computers make it at least possible to bypass the payment system altogether, instead using direct bilateral clearing and settlement (Friedman, 1999). According to the research conducted by N.G. Karma, 2014 about

key factors affecting M-banking adoption among Bank customers in Sudan, customers of banks in Sudan will be more likely to adopt m-banking service if they find it easy to be used with no much required efforts Also; they will intend to use the service if the bank was trustable and provides them confidentiality and protection for their information.

In Kenya challenges affecting adoption and use of mobile banking are researched by N. Solomon et al. (2014). And "it was observed that relative advantage plays an important role in determining consumers' decision in mobile banking adoption; relative advantage in terms of mobility is animportant trigger in mobile banking adoption; relative advantage causes intention to use mobile banking; economic considerations are a challenge to mobile banking adoption; high payment can dissuade customers from adopting mobile banking; and also that, relative advantage influences attitude that results in behavioural intention to adopt mobile banking .customers from adopting mobile banking; and also that, relative advantage influences attitude that results in behavioural intention to adopt mobile banking".

In another study conducted by R.A. Oluoch (2012) in Kenya the findings regarding factors which affect the adoption of M-banking in Kenya in the case of Nakuru Municipality "perceived usefulness is the most important significant factor affecting the adoption of M-banking technology perceived risk hinders majority of bank customers from adopting mobile banking Mobile banking service providers should ensure security measures are enforced".

In a similar study conducted in Tanzania by A.R. Ishengoma (2011), adoption of mobile banking technology by customers is highly influenced by perceived value of the technology to the customers "the intention to use M-Banking service was brought forward by the perceived value of the M-Banking services, most were registered because of the belief in M-Banking that enabled them to access financial services in an easy way Also, the level of education, age and sex were determinants of usage behaviour of the M-Banking system." Mobile banking service allows customers to manage their accounts with ease.

(Mols, Bukh, & Neilsen, 1999) stated that the diffusion of electronic banking is more determined by customer acceptance than by seller offerings. Not enough is known regarding how customers perceive and evaluate electronicallydelivered services. Lee and Lin (2005) have also recently

highlighted the need for further research to measure the influence of e-service on customer-perceived service quality and satisfaction (Ibrahim et al., 2006).

Karma (2014) in his study to identify key factors affecting the adoption of mobile banking adoption among bank customers in Sudan uses Technology acceptance model, however, like others researches it includes additional variables beyond the two original independent variables of TAM i.e., perceived usefulness and perceived ease of use as shown in figure six below. As result Karma added two additional important variables in the model as determinant variable these are perceived trust and perceived risk regarding how customers perceive and evaluate electronically delivered services. Lee and Lin (2005) have also recently highlighted the need for further research to measure the influence of e-service on customer-perceived service quality and satisfaction (Ibrahim et al., 2006).

Different studies have been conducted on the related e-banking services. Specifically, (Wondwossen and Tsegai, 2005) (Gardachew, 2010), (Ayana, 2012) have conducted researches on the challenges and opportunities of E-banking in Ethiopia. The aims of their study were to analyze the status of e-banking in Ethiopia and investigate challenges and opportunities in implementation of same. Accordingly, they have spotted low level of internet penetration, poorly developed telecommunication infrastructure, lack of infrastructure for telecommunications, lack of suitable legal and regulatory framework for e-commerce and e-payment, inadequate banking system, political instabilities, high rates of illiteracy, high cost of internet, absence of financial institutions networks that link different banks and frequent power interruptions among the challenges.

In addition another study was conducted by Yitbarek et al. (2013) to analyse factors that influence customers' intention to adopt e-banking service channels in Bahir Dar city. A conceptual framework was developed by integrating six variables from theory of planned behaviour, technology acceptance model and previous empirical studies carried out in relation to perceived risk. The findings revealed that attitude; subjective norm, perceived behavioural control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users' intention to use e-banking service channels. (Michael, 2013) the study indicated that the major challenges for the development of electronic banking in Dashen and Nib International Banks are lack of information, security risk, lack of trust, lack of legal and regulatory framework, lack of infrastructure, shortage of skilled professionals and lack of awareness. The study also identified perceived ease of use and perceived usefulness as benefits for the development of E-banking in Ethiopia. The study suggests a series of measures which could be taken by the two private commercial banks and to

address various challenges identified in the study. (Etsebel, 2014) The this study indicates that there are positive and strong relationships exists between infrastructure, security ,trust, perceived ease of use ,subjective norms , perceived behavioural control and perceived usefulness with customers' adoption of e-banking. But, security was a better predictor of customers' adoption of e-banking followed by trust and infrastructure. Moreover, the correlation analysis reveals that there is a positive and strong relationship exist among independent variables(security, perceived risk, perceived ease of use, perceived behavioural control, trust, perceived usefulness, subjective norms and infrastructure) and customers adoption of e-banking, however, perceived risk has negative and strong effect on customers' adoption of e-banking followed by security in Commercial Bank of Ethiopia. (Meron, 2016) The result of the study indicated that, the major barriers Ethiopian banking industry faces in the adoption of Electronic banking are poor interconnectivity among banks, lack of technical and managerial skills to use and implement the system, lack of trust from customer side, lack of sufficient legal framework national level, lack of competition among local and foreign banks and the absence of government support to enhance and encourage E-banking adoption. Low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet, frequent power interruptions and network failures were also other key challenges. (Esayas, 2016) The Result showed that perceived usefulness and trust as most significant factors affecting customers' intention towards using e-banking services. In addition, attitude and perceived behavioural control positively affect the intention to use e-banking products. On the other hand, perceived ease of use and subjective norm negatively affect usage of electronic banking. Therefore banks should exert effort to develop trust of customers and also do necessary on the areas of perceived usefulness of e-banking services.

2.7 Conceptual Framework

Conceptual frameworks, according to educational researcher Smyth (2004), are structured from a set of broad ideas and theories that help a researcher to properly identify the problem they are looking at, frame their questions and find suitable literature. Most academic research uses a conceptual framework at the outset because it helps the researcher to clarify his research question and aims. Conceptual frameworks (theoretical frameworks) are a type of intermediate theory that attempt to connect to all aspects of inquiry (e.g., problem definition, purpose, literature review, methodology, data collection and analysis). Conceptual frameworks can act like maps that give coherence to empirical inquiry. Be-

cause conceptual frameworks are potentially so close to empirical inquiry, they take different forms depending upon the research question or problem (Botha, 1989). According to sociologists Haralambos and Holborn, a conceptual framework enables the researcher to find links between the existing literature and his own research goals. In respect to this particular study a conceptual framework provided below helps to show the relationship between independent and dependent variables.

Despite the growing interest by organizations to use technology in their business, user acceptance of the technology becomes a problem. The user technology acceptance has become main research topic in the last three decades. And various researchers develop various technology acceptance models and theories and among this technology acceptance model is one of the most important model (Worku, 2015).

Technology acceptance model is an information system theory that models how users come to accept and use a technology. According to Chuttur (2009) "Although many models have been proposed to explain and predict the use of a system, the technology acceptance model has been the only one which has captured the most attention of Information Systems Community". In related research Masinge (2010) stated that TAM has been extensively tested and validated and is widely accepted model, which can be modified and extended using other theories and constructs.

Theoretically and empirically this research project used refined Technology acceptance model Davis (1989) and Venkatesh (1996) as stated in document in which mediating effect of attitude could be excluded as empirical evidence found that the attitude element did not fully mediate the effect of perceived usefulness on intention to use.

(Ayana, 2012) Perceived benefit of adopting E-banking system considered in this study were classified based on technology acceptance model (TAM), as perceived ease of use (PEU) and perceived usefulness (PU). Also, Worku (2015) in his study focused on perceived ease of use and perceived usefulness may not fully explain towards the use of mobile banking, necessitating a search for additional factors that can better predict the acceptance of mobile banking.

However, as the many empirical research shows the two independent variables perceived ease of use and perceived usefulness are not enough to explain mobile bank adoption behaviour of customers. As result many researchers include other factors on top of the basic perceived usefulness and perceived ease of use such as perceived risk, trust, relative advantage etc. In this research pa-

per like other research works reviewed in the empirical literature review Karma (2014) and Oluoch (2015) additional variable namely perceived risk in addition to basic perceived usefulness and perceived ease of use is added and also multiple factors are included in the research work.

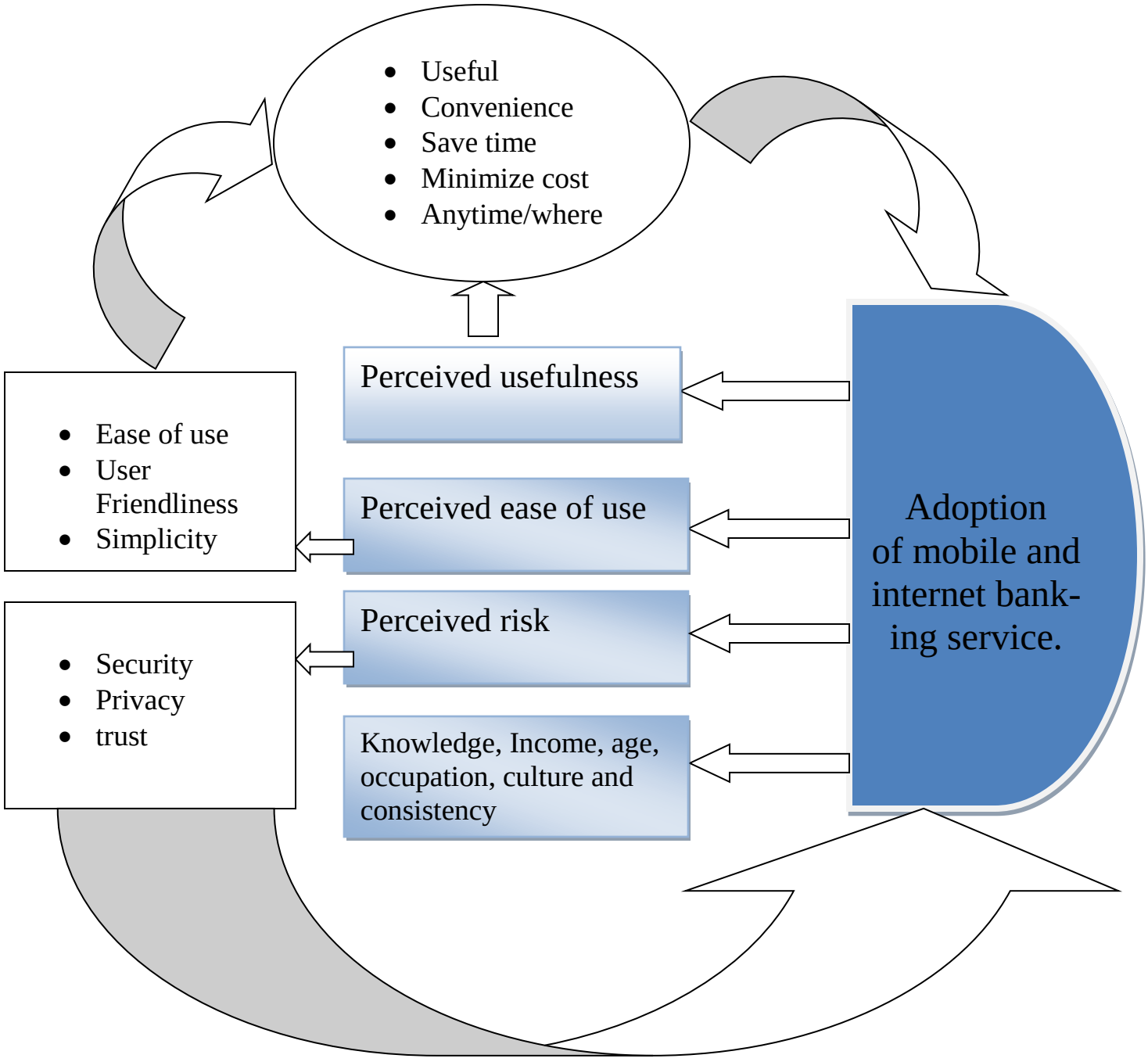


Figure 2.4 Conceptual frame works (researcher's construction)

2.8 Summary and Knowledge Gap

From the literature review, most research has taken place on e- banking and its adoption, which focuses on the usefulness, ease of use and risk of the technology as the prime determinant of adoption. As the field expanded over the years, it is not safe to say that usefulness, ease of use and risk of the technology can be the only determinant of an individual and corporate adoption behavior, however little has said on the factors that affect the adoption of mobile and internet banking in Addis Ababa. Various models have been developed and used in order to understand the information technologies, such as Mobile banking, Internet banking and around E-banking but due to time and space it is necessary to undertake a study on the factors affecting the adoption of mobile and internet banking since currently almost all financial institutions have adopted e-banking. Recently, (Ayana, 2012) Perceived benefit of adopting E-banking system considered in this study were classified based on technology acceptance model (TAM), as perceived ease of use (PEU) and perceived usefulness (PU). Also, Worku (2015) in his study focused on perceived ease of use and perceived usefulness may not fully explain towards the use of mobile banking, necessitating a search for additional factors that can better predict the acceptance of mobile banking. Previous researchers did not conducted study specifically on factors affecting the adoption of mobile and internet banking service at Addis Ababa in case of commercial bank of Ethiopia, Dashen bank and Nib international bank.

CHAPTER THREE: METHODOLOGY

3.1 Research Design

Research design is usually a plan or blue print which specifies how data relating to a given problem should be collected and analyzed (Kamuzora et al., 2008). It provides the procedural outlines for the conduct of any investigation. Kombo and Tromp (2003) define research design as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance research purpose. This research needs to describe the current situation of the problem, answer the research questions which are in the form of 'WHAT', and to highlight the most important factors affecting the adoption of mobile and internet banking service at Addis Ababa in case of selected commercial banks.

Therefore, descriptive research design was used to fulfil this approach. Descriptive research design was the correct choice for this type of study to deeply dig out analyzing a problem. In addition to this the research problem is known but not well defined so descriptive design was appropriate for this study.

3.2 Research Approach

Since the aim of this study is to examine the factors affecting the adoption of mobile and Internet banking services in Addis Ababa. Mixed research approach opens door to multiple methods of data collection and helps to generate the findings to a population and develop a detailed view of the meaning of a phenomenon or concept for individuals (Creswell, 2003; pp. 12-22). Employing this approach is used to neutralize or cancel the biases of applying any of a single approach and a means to offset the weaknesses inherent in a single method with the strengths of the other method (Creswell, 2003). So mixed research approaches has been selected based on the problem area and research questions to explore participant views with the intent of using these views to develop and test an instrument with a sample from a population and to obtain statistical, quantitative results from a sample and then follow up with a few individuals to probe or explore those results in more depth. The interview was analyzed in qualitative approach and the questioners were described in quantitative approach.

3.3 Sample Size, Techniques and Sample Size Determination

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; p. 158). The sampling design applied for the research is two level sampling. Initially Purposive sampling is used to select the banks based on the size of banking customers, data availability and their level of business activities. Then convenience sampling is used to select sample respondents from selected banks by way of approaching customers visiting the branch banks with the help of branch managers and their staffs. The procedure used for drawing the sample from the available lists was based on the banks currently use different technological instruments to deliver service to customers or based on their familiarity with technology and based on their customer size. The study used purposive sampling method to draw the sample from the banks and convenience sampling for target population. The purposely selected banks are one state owned bank (commercial bank of Ethiopia) and two private commercial banks (Dashen and Nib banks) where twelve branches were selected from CBE and nine other branches were selected from Dashen and Nib bank each and a total 120 customer respondent and 84 staff respondents selected from each branch.

$$n = N/ (1 + N (E2))$$

Where:

N = the population size

n = sample size

E = the level of precision

Table 3.1 Sample Size Determination

Variables	**n=N(1+N(E*E))**
N	1,290,580
E	0.07
E*E	0.0049
N(E*E)	6324.84
1+N(E*E)	6324.84
N/(1+N(E*E))	204.049

Source: Isreal G.D. (1992)

According to the MIS report of CBE, DASHEN and NIB bank as of Dec 31, 2016 indicates that there are a total number of 1,262,840 customers and 27,740 staffs in Addis Ababa. Therefore, a total of 216 respondents on the selected banks staffs and customers that means seventy two (72) respondents from CBE and 54 respondents from Dashen and Nib banks both were sampled to see their adoption on mobile and internet banking service in Addis Ababa . 12 questioners were added to compensate the missed questioners. The purposively selected banks are one state owned bank (commercial bank of Ethiopia) and two private commercial banks (Dashen and Nib bank) as a sample, because it is impossible or too much expensive to collect data from all the potential units. According to Graziano and Raulin (1997) the samples are not perfectly representative of the population from which they are drawn, therefore the researcher unlikely to be able to generalize the conclusions to the entire population. The purposive selection is based on their familiarity with technology, data accessibility and the large size of customers who use the services.

3.4 Data Source and Method of Data Collection Techniques

For better attainment of the objectives of the study; the researcher used both primary data and secondary data sources which are customers and professionals of the three banks selected namely selected commercial banks which is one state owned bank and two private banks.

3.4.1 Primary Data

Primary data are first-hand information data collected specifically for the research project being undertaken (Saunders et al., 2009). It can be collected through observation, interviews, or the use of questionnaires (Saunders et al., 2009).

The method of data collection techniques consists of Survey, interviews and document analysis. In order to gather the data from relevant sources, primary data collection instrument is advised. Primary data were collected through questionnaires, interview and the secondary data were collect books, internet and articles found in scholarly journals that discuss or evaluate someone else's original research. For this study, primary data were gathered through a questionnaire and interview.

3.4.1.1 Questionnaire

Questioners were administered on the actual staff and customers of purposely selected banks. Open and close ended questions are included on survey. In addition, 5-point Likert scales, ranging from 1 (strongly disagree) to 5 (strongly agree). 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.

With regard to survey, questionnaire was distributed to the staff and customers of three purposely selected banks (one state owned bank and two private commercial banks) to identify their intension on the adoption of mobile and internet banking systems.

3.4.1.2 Interview

Interviews were conducted with two E-banking managers of the purposely sampled banks found at Addis Ababa. Semi-structured interview is suitable for a better interest for the interviewee and to get better information. The major purpose of this interview was to corroborate certain facts that the investigator already thinks have been established (Yin, 1989; pp. 89).

Collecting of data by using questionnaire and interview were supported by different documents obtained from records and reports of the industry, from web site, books, articles and Journals.

3.4.2 Secondary Data

Secondary data were obtained through the already existing literature, from journals, internet, newspapers, textbooks and articles. The researcher used secondary data to validate the findings from analysis of primary data which was collected using questionnaires.

3.5 Validity and Reliability

The factors that are used to describe the factors affecting the adoption mobile and internet banking study were developed and adopted after thorough review is made on different researchers' work and detailed evaluation of technology adoption frameworks was done. Validity refers to the appropriateness, meaningfulness, and usefulness of the specific inferences" made from measures (Dooley,

2005). That means effectiveness of research instruments to measure what is intended to be measured like attitude, knowledge and practice

Table 3.1 Reliability Statistics for staffs and customers

Respondent	Cronbach's Alpha	No. of Items
Staff	**.806**	**31**
Customer	**.747**	**29**

Source: Pilot Survey, 2017

As indicated in the Table above, the Cronbach Alpha for staff is 0.806, and for customer is 0.747, both indicates very high consistency. It's 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.

3.6 Ethical Issues

Ethics is one of the major considerations in research. Hence the study has incorporated the following ethical considerations.

- Respondents were clearly communicated about the objective of the study before they were asked to give their answer.
- Respondents were not asked about their name, race and religion etc.
- The questionnaire was distributed after getting the consent of the banks.

3.7 Data processing and analysis techniques

The data analysis of this research paper is based on descriptive statistics such as frequency, percentage, mean and standard deviation. The descriptive statistics used mainly to understand the customers' profiles and the perception of customers towards the usefulness ease of use and risk of mobile and internet banking adoption which was help us to answer the research questions related to customers' perception.

Descriptive analysis is conducted using statistical software called Statistical Package for Social Science V20 (SPSS 20) and the statistical results are presented using tables

CHAPTER FOUR: RESULTS AND DISCUSSIONS

In the previous chapter, the overall methodology, which was focused on research design, research approach, data source and the specific method of data collection and data analysis used in the study, has been presented. On the other hand this chapter presents the results and analysis of data collected via questionnaire and interviews. The remaining part of this chapter is organized as follows. Section.4.1 presents the overview of the chapter and followed by information collected from the bank customers in section 4.2, Section 4.3 presents the information collected from the bank staffs and section 4.4 and 4.5 results collected from open-ended questions and results collected from interview respectively. Analyze information regarding to the perceived usefulness, perceived ease of use, perceived risk and other single factors (education, income, age, occupation, culture and consistency).

4.1 Introduction

As it is discussed in the methodology part of this study, data collected by using different techniques were analyzed in this chapter by using descriptive statics. A total of 216 questionnaires were distributed to three purposely sampled commercial bank customer and staffs, one state owned bank (commercial bank of Ethiopia) and two private banks (Dashen bank, Nib bank).Out of the total 216 questionnaires, 180 Useable questionnaires were obtained (83% response rate).which is 102 were from customer respondent and 78 were staff respondent on average 83% responses were collected. In addition to questionnaire, the researcher conducted an interview with only E-banking managers for the reason that it was not well-situated to interview all branch managers. In order to analyze the research results, Statistical Package for the Social Sciences (SPSS) software is used. SPSS is a computer program used for statistical analysis. SPSS fit with quantitative approach; SPSS has many features and properties which can provide appropriate results, these results lead to achieve research purposes. SPSS can provide several statistics for each element in the research questionnaire (De-Coster 2004). Descriptive measures of each questions response and an interview conducted with E-Banking managers of selected banks results are presented in the following sections.

4.2 Analysis based on data received from banks Customers

4.2.1 Demographics of Respondents

The descriptive analyses for demographics profile of respondents which indicated out of 102 respondents 37.3% were female and the rest 62.7% were male. This implies most of mobile and internet banking users are male. In terms of age as, table 4.1 below depicts 83.4% of 102 respondents were whose age was between 20 and 40. From the sample respondents there were only 2% respondents whose age were 51 and above. This implies adults are more mobile and internet users. Educational status results shows that 92.1% of the respondents current educational status is university degree and above. There were no respondents who were illiterate or less than diploma level. Type of customers which 82.4% were individual customer and 17.6% were corporate customer which means currently in Addis Ababa there are few corporate E-banking users compared with individual customers. Occupational results of the respondents showed that employee and business owner were the majority users which 82.4% &17.6% respectively. This implies most of the respondents were employees.

Table 4.1 Demographic Profile of Respondent

Variable	Classification of Variables	Frequency	Percentage
Gender	**Male**	**64**	**62.7**
	Female	**38**	**37.3**
Age	**20-30**	**38**	**37.3**
	31-40	**47**	**46.1**
	41-50	**15**	**14.7**
	51-60	**2**	**2**
	>60	**0**	**0**
Educational level	**Diploma**	**8**	**7.8**
	Bachelor degree	**71**	**69.6**
	Second degree	**10**	**9.8**
	Master's degree	**13**	**12.7**
	Other	**0**	**0**
Customer Type	**Individual customer**	**84**	**82.4**
	Corporate customer	**18**	**17.6**
	Other	**0**	**0**
Occupation	**Employee**	**84**	**82.4**
	Business Owner	**18**	**17.6**
	Other	**0**	**0**

Source: Survey result, 2017

4.2.2 Drives to the adoption and acceptance of mobile and internet banking services

4.2.2.1 Perceived Usefulness

Perceived Usefulness is a good factor to measure the success of E-banking adoption. Hoppe *et al.* (2001) indicated that perceived relative advantage has a positive influence on the adoption of mobile and Internet Banking and it is compatible with their values to be adopted by users.

As can be shown on the table 4.2 below, adoption of mobile and internet banking related with perceived usefulness with average mean value of 2.2549 and standard deviation value of 1.07801. This implies the mean greater than 2 indicates most of the respondents are agreed and standard deviation greater than 1 indicates the respondent's response different from one another. 61.8% of the respondents were indicated that they used mobile and internet for personal purpose daily on their phone and computers. Among the responses 51% of customer respondents agreed mobile and internet banking service are convenient since 24/7 is available. This implies that using mobile and internet banking is more convenient in terms of saving time and delivering of bank service to customer 24 hours a day and 7 days a week. In line with this finding Balachandher *et al. (*2010) suggests that, one of the implications of E-banking is that it should reduce the need to visit bank branches to get services. 43.1% and 37.3% of the respondents strongly agreed and agreed that mobile and internet banking service is more useful for banking needs (accessing bank accounts through mobile and internet banking products) respectively.

On the other hand, 51% of the respondents agreed that mobile and internet banking service is useful for making transactions quickly. It implies as per the response of customer believe using mobile and internet technology helped them making transaction quickly. Mobile and internet banking service allows doing banking activity at any time and any place this issue both agreed and strongly agreed by 40.2% of the respondents and 4.9% of the respondents disagreed on this issue. This implies that as per customer response currently in Addis Ababa banks working time is limited by time so this problem would be fixed by E-banking products like mobile and internet banking services.

Table 4.2 Perceived Usefulness

Questions on PU	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
I frequently use mobile and internet for personal purpose.	2.2549	1.07801	18.6	19	61.8	63	-	-	14.			5
Mobile and internet banking provides convenience since it is available 24 hours, 7 days of the week.	1.8431	.98247	39.2	40	51	52	-	-	5.9	6	3.9	4
I find Mobile and internet banking service useful for banking needs.	1.8824	1.01761	43.1	44	37.3	38	10.8	11	5.9	6	3	2.9
Using mobile and internet banking enables to perform banking transaction quickly.	1.8922	.91095	34.3	35	51.0	51	9.8	10	1.0	1	3.9	4
Mobile and internet banking allows to do banking activities anywhere /anytime.	1.9412	.99328	38.2	39	40.2	41	13.7	14	4.9	5	2.9	3

Source: Survey result, 2017

4.2.2.2 Ease of Use

One of the basic benefits related with the use of E-banking system is the perceived ease of use. Giglio (2002) suggests that adopting online banking services reduce the workload over the banking staff and it's easy to have more satisfied customers. On the other hand Robinson (2000) indicated that online banking provides convenience not only to bank and also to customers. The data obtained from the survey in this study also confirms the finding of Giglio (2002) and Robinson (2000) and the result were shown in table 4.3 below.

The mean and median responses of the question using mobile and internet banking services enables users to complete banking activities more easily were 2.5784 and 1.24627 respectively. It means that the largest number of respondents 38 (37.3%) out of the total was agreed and 21.6% agrees strongly. These result implies, that using mobile and internet banking system helps to perform banking activities within a short period of time. Clients can simply check their balance, transfer funds and pay their bills on their mobile phones or online on their personal computer with just a click of mouse and a touch of

button.

This study were consistent with the finding of Khalid et al. (2006) which shows that there is a clear agreement about the importance of making the E-banking service because of it is easy to deliver service to customers. On the other hand using mobile and internet banking is more convenient than other banking options like going to branch and phone banking terms of saving time and delivering of bank service to customer 24 hours a day and 7 days a week, were the mean and standard deviation value is 2.4314 and 1.07639, respectively. In line with this finding Balachandher et al. (2010) suggests that, one of the implications of E-banking is that it should reduce the need to visit bank branches to get services.

On the other hand on question 'I use mobile and internet banking because I have seen someone else using it'. 30.4% of the respondent agreed and 21.6% disagreed this issue it implies it's easy to adopt the technology with a once shown by somebody else. The other result shows on "Mobile and internet banking service provided by the bank is user friendly" 30.4% of the respondent agreed on this issue and 35.3% of the respondent disagreed. This implies mobile and internet banking services are not more of friendly because a lot of people have no computers on their house and mobile banking has a lot of processes. The other 2nd large respondent believes that mobile and internet banking service is friendly because of its allowed to use on any mobile for mobile banking and internet connected mobile/computer for internet banking service. On the other hand 'Awareness of the services that could be done by using branch & E- banking encourage me to accept the technology' agreed & disagreed by a large number of respondent 35.3% and 27.5% respectively. The result shown on the table 4.3 below also revealed that the median and standard deviation value for the last question is 2.7451 and .96150 respectively, which indicates that, e-banking and branch are try to aware their customer.

Table 4.3 Perceived Ease of Use

Questions on PEU	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
Using mobile and internet banking makes it easier for to conduct banking transactions.	2.5784	1.24627	21.6	22	37.3	38	7.8	8	28.4	29	4.9	5
Mobile and internet banking is more convenient than other banking options (e.g. phone banking and going to a Bank branch).	2.4314	1.07639	19.6	20	41.2	42	17.6	18	19.6	20	2	2
I use mobile and internet banking because I have seen someone else using it.	2.3431	1.07625	21.6	22	46.1	47	9.8	10	21.6	22	1	1
Mobile and internet banking service provided by the bank is user friendly.	2.7745	1.11610	14.7	15	30.4	31	18.6	19	35.3	36	1	1
Awareness of the services that could be done by using branch & E- banking will encourage me to accept the technology.	2.7451	.96150	8.8	9	35.3	36	28.4	29	27.5	28	-	-

Source: Survey result, 2017

4.2.3 Factors affecting the adoption of mobile and internet banking services

4.2.3.1 Perceived Risk

Here are factors influencing adoption of mobile and internet banking products in Addis Ababa. Results in Table 4.4 indicated that mean and standard deviation of the respondent 2.7647 and .91388 respectively. It indicates 38.2% respondents are not sure whether it's reliable or not. 29.4 % of the respondent believed that Mobile and internet banking service is reliable and 23.5% of the respondent

believes mobile and internet banking service is not reliable. It's seen on the table below majority of the respondent undecided. The second majority responded mobile and internet banking service is reliable. The result implies that as per the response reliability of the service were still questionable. On the other hand on the question 'Security and privacy issues doesn't influence the adoption of mobile and internet banking service, 38.2% of the respondents disagreed the security and privacy issue influences to the adoption of mobile and internet banking service and 32.4% of the respondent thinks it doesn't influence to the adoption of mobile and internet banking service. This study were in line with Taddesse & Kidan (2005) result indicated new technologies were not dominating the market until customers are confident that their privacy was protected and adequate assurance of security is guaranteed. The other question 'Using mobile and internet banking fits well with the way I like to control and manage my banking transactions' result indicates 46.1% of the respondents indicated that they like to control by themselves and 17.6% of them believes they are not feeling comfort with the service and they feel they can't manage as of their need. The last question 'Mobile and internet banking service have no many uncertainties so it can be trusted' 33.3% of the respondent believes mobile and internet banking service can be trusted for accessing funds and to make different types of transaction and 26.5% of the respondent thinks they can't trust the service.

Table 4.4 Perceived Risk

Questions on PR	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
Mobile and internet banking service is reliable.	2.9216	.98188	8.8	9	29.4	30	38.2	39	23.5	24	-	-
Security and privacy issues no effect on the adoption of mobile and internet banking service.	2.6275	1.04286	6.9	7	32.4	33	21.6	22	38.2	39	1	1
Using mobile and internet banking fits well with the way I like to control and manage my banking transactions.	2.7745	1.04272	11.8	12	46.1	47	21.6	22	17.6	18	2.9	3
Mobile and internet banking service have no many uncertainties so it can be trusted.	2.8039	.96513	12.7	13	33.3	34	27.5	28	26.5	27	-	-

Source: Survey result, 2017

4.2.4 Influences of IKAOCC on the adoption of mobile and internet banking services

4.2.4.1 Income, Knowledge, Age, Occupation, Culture and Consistency

With respect to education 39.2% of the respondent believes 'People with high education level become more mobile and internet banking service user'. This implies a person who has more education level more usage of mobile and internet banking service than less educated or uneducated. On the other hand 47.1% of the respondent thinks they are not aware of the service and 30.4% believes they have awareness about the service. While majority of the respondents are only aware of the conventional and traditional banking service. It means that people are lacking important information that is necessary to use electronic banking services.This issue is related with directly to the branch and e-banking on awareness creation may be in question. The other result shows People with high income level become more mobile and internet banking service user'. This implies that the more you have money high the more you can use mobile and internet banking service the percentage shows 53.9% of the respondent agreed on this question. So this implies the customer which individual or corporate

they believe money needs to use mobile and internet banking service. The table below shows that 44.1% of the respondents agreed currently mobile and internet banking service delivered at low cost. This implies those selected banks are delivering the service with zero cost or at a minimum cost. This shows us that the banks charge for provision of the service is relatively low. This result was consistent with (*Meron Tadesse, 2016*). The other result shows People with adult age have high tendency of mobile and internet banking service user'. This implies the more you become adult the more you can use mobile and internet banking service the percentage shows 68.6% of the respondent agreed on this question. This study was consistent with the above demographic section. On the other hand, 55.9% of the respondent believes that Customers of certain occupation use more mobile and internet banking service than others. This implies that occupation related with technology is more users of mobile and internet banking service compared with others. The other response on 'My decision to adopt mobile and internet banking is influenced by family, friend, media and financial institutions' the result indicates 45(41.1%) and 21(20.5%) of the respondent Agreed and strongly agreed respectively. The result implies that as per respondent's response to adopt on technology highly influenced by others like family, friend, media and financial institutions.

On the other hand, 42.2% the respondents believe that Internet connection and mobile network is not good enough to perform internet and mobile banking transactions. The other result describes majority of the sampled respondents replied that they have encountered problems while using electronic banking services. In this regard, they agreed that the internet connection & message pass which they used for mobile and internet banking service was very poor to perform electronic transactions. This implies respondents are unhappy with the slow network for mobile and internet connection provided by ethio Telecom. This study was consistent with the finding of (Michael, 2014) which shows that (76.9%) of the respondent replied that they have encountered problems while using electronic banking services. In this regard, they agreed that the internet connection which they used for electronic banking was very poor to perform electronic transactions. From this, it can be understood that using electronic banking is getting difficult due to low speed of connection and low internet access in the country. The last result indicates 49% and 20.6% of respondent disagreed and agreed respectively. That respondent believes that mobile and internet banking service currently delivered by selected banks are not consistent. This implies customers were not interested to use by different reasons.

Table 4.5 Income, knowledge, Age, Occupation and consistency

Questions on IKAOCC	mean	std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
People with high education level become more mobile and internet banking service user.	2.8333	.99587	5.9	6	39.2	40	22.5	23	30.4	31	2	2
I am having awareness how to use mobile and internet banking service.	2.2353	.99679	20.6	21	53.9	55	7.8	8	16.7	17	1	1
People with more income have high tendency of using mobile and internet banking service.	2.0980	.92821	24.5	25	53.9	55	9.8	10	10.8	11	1	1
It costs a few to use mobile and internet banking service.	2.4314	1.18997	20.6	21	44.1	45	15.7	16	10.8	11	8.8	9
People with adult age have high tendency to use mobile and internet banking service.	2.3431	.90647	8.8	9	68.6	70	2	2	20.6	21	-	-
Customers of certain occupation use more mobile and internet banking service than others.	2.3627	.96256	12.7	13	55.9	57	17.6	18	9.8	10	3.9	4
My decision to adopt mobile and internet banking is influenced by family, friend, media and financial institutions.	2.4314	1.17321	20.6	21	44.1	45	13.7	14	14.7	15	6.9	7
Internet connection and mobile network is good enough to perform internet and mobile banking transactions.	2.8922	1.07083	11.8	12	33.3	34	14.7	15	42.2	43	-	-
Mobile and internet banking service always consistent.	3.4412	1.23940	8.8	9	20.6	21	4.9	5	49.0	50	16.7	17

Source: Survey result, 2017

4.3 Analysis based on Data Collected from Banks' Staffs

As it is discussed in the methodology part of this study, data collected by using different techniques were analyzed in this chapter by using triangulation approach. A total of 78 questionnaires were distributed to four purposely sampled commercial bank staffs, one state owned bank (commercial bank of Ethiopia) and two private banks (Dashen bank and Nib bank). Out of the total 78 questionnaires, 68 Useable questionnaires were obtained (87% response rate). In addition to questionnaire, the researcher conducted an interview with only E-payment/IT managers for the reason that it was not well-situated to interview all bank managers; and reviews some bank documents regarding E-banking system. In order to analyze the research results, Statistical Package for the Social Sciences (SPSS) software is used. SPSS is a computer program used for statistical analysis. SPSS fit with quantitative approach and survey strategy which were adopted in this research; SPSS has many features and properties which can provide appropriate results, these results lead to achieve research purposes. SPSS can provide several statistics for each element in the research questionnaire (DeCoster, 2004). Descriptive measures of each questions response and an interview conducted with E-payment managers of selected banks results are presented in the following sections.

Table 4.6 Demographic Profile of Respondents

Variable	Classification of Varia-	Frequency	Percentage
Gender	**Male**	**49**	**62.8**
	Female	**29**	**37.2**
Age	**20-30**	**49**	**62.8**
	31-40	**27**	**34.6**
	41-50	**1**	**1.3**
	51-60	**1**	**1.3**
	>60	**0**	**0**
Educational Level	**Diploma**	**5**	**6.4**
	Bachelor Degree	**57**	**73.1**
	Second Degree	**13**	**16.7**
	Master's Degree	**3**	**3.8**
	Other	**0**	**0%**
Monthly income (ETB)	**Up-to 2000**	**0**	**0**
	2001-5000	**3**	**3.8**
	5001-10000	**50**	**64.1**
	Above 10000	**25**	**32.1**
Employer	**CBE**	**32**	**41**
	DASHEN Bank	**23**	**29.5**
	NIB Bank	**23**	**29.5**

Source: Survey result, 2017

4.3.1 Demographic analysis

As it is shown on the above table on 4.6, the highest percentage of participants in this study was males who form 62.8% of respondents. In the case of classification of respondents by age the highest percentage of participants were young (20-30 years old) who form 62.8% of total respondents. Regarding the educational level of the study participants, the highest percentage of them has Bache-

lor degree holders that form 73.1% of total participants. The largest percentage of participants was selected from the private banks that form 59% of total respondents. On the other hand, the highest percentage of participants has monthly income ranges between 5001 to 10000 Eth birr; their percentage in participation is 64.1%.

4.3.2 Factors that drive the adoption and acceptance of MB and IB service

The following section discusses the barriers and drivers to the adoption of E-banking system in Ethiopia. These barriers and drivers are identified based on the basic frameworks, technology acceptance model (TAM).

4.3.2.1 Perceived Usefulness

Perceived usefulness as the degree to which an individual believes that using a particular system would enhance his or her job performance. Hence, it is believed that an innovation perceived to be useful is more likely to be adopted and customers were took advantage of the innovation such as mobile and internet banking which they find useful to them. Perceived usefulness is one of the two most important factors affecting the acceptance of new technologies or information system.

Using mobile and internet banking is more convenient in terms of delivering of bank service to customer 24 hours a day and 7 days a week, were the mean and median value is 1.9487 and 1.22631, respectively which indicates that without visiting brick and mortar, customers can get bank service by using E-banking system. The result shown on table 4.7 below indicates that 50% of the respondents agreed on the 7/24/365 are convenience and only 11.5% of the respondents disagree on the convenience. In line with this finding Balachandher et al. (2010) suggests that, one of the implications of E-banking is that it should reduce the need to visit bank branches to get services.

The other result shows below on the table 4.8 about 55.1% & 32.1% of the respondents strongly agreed and agreed respectively on the usefulness of electronic banking as it help them get more banking services than the conventional type of banking services. It implies that mobile and internet banking service is more useful than conventional or traditional banking. On the other hand, as shown

on table 4.8 below, 37.2% &32.1% of the respondent strongly agreed and agreed respectively and they believe that Mobile and internet banking service is more accessible to users than visiting a bank. This implies respondents believe mobile and internet banking service made life easy and useful for day to day motion. The other result indicates 51.3% and 32.1% of the respondents strongly agreed and Agreed correspondingly on the notion that mobile and internet banking service increases productivity of the banks.(Michael, 2014) result also in line with this. They think mobile and internet banking service increases productivity and profitability of the bank by increasing service to the customer and by reduction of other channel. On the other hand, 46.2% and 35.9% of the respondents believe using mobile and internet banking enable to perform banking activities quickly. It implies that rather than going to branches physically they can access their account on their destination and they believe mobile and internet banking service significantly save their time and cost.

At last the result shown on table 4.8 below clearly revealed that mobile and internet banking allows doing banking activities anywhere/anytime. 38.5% and 40% of the staffs answered strongly agreed and agreed respectively. It implies that know they can use any place and any time conducting transaction and follow up their accounts regardless of their presence at bank this makes them comfortable as per their response.

Table 4.7 Perceived Usefulness

Questions on PU	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
Mobile and internet banking provides convenience since it is available 24 hours, 7 days of the week.	1.9487	1.22631	50.0	39	26.9	21	6.4	5	11.5	9	4.1	4
Mobile and internet banking useful for customers banking needs.	1.7564	1.14172	55.1	43	32.1	25	1.3	1	5.1	4	6.4	5
Mobile and internet Banking service is more accessible to users than visiting a bank.	2.1923	1.24898	37.2	29	32.1	25	11.5	9	12.8	10	6.4	5
Mobile and internet Banking service increases productivity of the bank.	1.8718	1.22059	51.3	40	32.1	25	2.6	2	6.4	5	7.7	6
Using mobile and internet banking enable to perform banking activities quickly.	1.8974	1.13492	46.2	36	35.9	28	5.1	4	7.7	6	5.1	4
Mobile and internet banking allows to do banking activities anywhere/anytime.	1.9744	1.06873	38.5	30	41.0	32	9.0	7	7.7	6	3.8	3

Source: Survey result, 201

4.3.2.2 Perceived Ease of Use

Hence the research finding indicated in table 4.8 below, on e-banking technology service providing bank staffs about 67.9% of the respondents agree the ease of e-banking in conducting transaction in banking industry . It is so easy for banks to make any transaction undergone, using e-banking interaction. This implies that it has no sophisticating and complication to work on e- banking, so custom-

ers can be satisfied by quick response and smart services. This is consistent with Giglio, (2002) that e- banking service is too easy to use and have more satisfied customers.

Moreover, pertaining to customer's perception of ease of use of e- banking technology application, using mobile and internet banking service makes easier to conduct banking activities. This finding indicate that about 41% and 42.3% of the staff respondents strongly agree and agreed about easier of mobile and internet banking service. The other result shows 'Our bank provides guidelines on the use of mobile and internet banking facility'. 21.8% and 46.2% of the staff replied strongly agree and agree respectively. This implies the selected banks had have a guideline how to use mobile and internet banking service this helps the customer to understand easily. On the other hand 29.5% and 47.4% of the respondent thinks from the bank perspective it is easy to use mobile and internet banking to accomplish banking tasks. It implies mobile and internet banking service decreases the employers work load by minimizing customer serving time. On the other hand 32.1% and 48.7% of the respondent replied mobile and internet banking is more convenient than other banking options (e.g. phone banking and going to a Bank branch). This result also consistent with Rahel, (2015). It implies as of the response it's more convenient than presence to branch and telephone banking those services is not allowed to get at any time. The other result indicates 'mobile and internet banking service provided by the bank is user friendly'. This result indicates 20.8% and 47.4% strongly agreed and agreed respectively. Those respondents believe the service is friendlier than other services because the service uses on our mobile and computer. On the other hand, Awareness of the services that could be done using branch & E- banking encourages many customers. 23.1% and 35.9% are strongly agreed and agreed respectively. This implies they think they continue awareness creation and they believe it changes the customer attitude towards the service.

Table 4.8 Ease of Use

Questions on PEU	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
Using mobile and internet banking service makes easier to conduct banking activities.	1.9103	1.04677	41	32	42.3	33	3.8	3	10.3	8	2.6	2
Our bank provides guidelines on the use of mobile and internet banking facility.	2.3333	1.10096	21.8	17	46.2	36	12.8	10	15.4	12	3.8	3
From the bank perspective it is easy to use mobile and internet banking to accomplish banking tasks.	2.0641	.98482	29.5	23	47.4	37	12.8	10	7.7	6	2.6	2
Mobile and internet banking is more convenient than other banking options (e.g. phone banking and going to a Bank	1.9744	.91132	32.1	25	48.7	38	9.0	7	10.3	8	-	-
Mobile and internet banking service provided by the bank is user friendly.	2.2308	.91059	20.5	16	47.4	37	20.5	16	11.5	9	-	-
Awareness of the services that could be done using branch & E- banking encourages many customers.	2.3974	1.07316	23.1	18	35.9	28	19.2	15	21.8	17	-	-

Source: Survey result, 2017

4.3.3 Factors affecting the adoption of mobile and internet banking service

4.3.3.1Technological factor (Perceived Risk)

As it is commonly known, people may not welcome every technological services, there may be resistances or even total rejection because the perceived risk related with that particular technology. Results in Table 4.9 indicated that mean and standard deviation of the respondent 3.0897 and 1.11874 respectively. It indicates most respondents (56.4%) are disagreed and they believed that Mobile and internet banking service is not reliable and 26.9% of the respondent agreed and replied mobile and internet banking service is reliable.it implies mobile and internet banking services are not reliable and its agreed with answers of the customer. On the other hand for the question 'Security and privacy issues has no effect on the adoption of mobile and internet banking service', 47.4% of the respondents disagreed that the security and privacy issues not influence the adoption of mobile and internet banking service; and 24.4% of the respondents think that it doesn't influence the adoption of mobile and internet banking service.it implies that security and privacy issue influences the adoption of mobile and internet banking service. The result obtained from the survey also consistent with the finding of Tadesse & Kidan (2005).

On the other hand, for the item 'Our bank online site can be trusted so that no body is afraid of financial data would be leaked during internet connection and message transmission', 38.5%, 23.1% and 24.4% of the respondents responded disagreed, neutral and agreed respectively.

A large portion of the respondents are disagreed and 24.4% of the respondents replied online site can be trusted and 23.1% of the respondents still they did not decided online site is trusted. It implies majority of the respondent fears to use banks website so it effects on the adoption.

Similarly, for the item 'using mobile and internet banking fits well with the way I like to control and manage my banking transactions', 43.6% and 24.4% of the respondent agreed and disagreed respectively. This implies that mobile and internet banking services can control without any interfering of the bank. The other result shows on the table 4.10 below 42.3% & 19.2% & 24.4% disagreed, neutral and agreed respectively. The previous result depends on this question 'Mobile and internet banking service have no many uncertainties so it can be trusted'. This implies three of the repliers are not that close to one another this means 42.3% not accepted the trust and but 19.2% are do not decide on this

idea and the other 24.4% accept as it is trusted. The result implies customer has big questions on the technology related with trust.

Table 4.9 Perceived Risk

Questions on PR	Mean	Std.	Responses									
			SA		A		N		D		S	
			%	F	%	F	%	F	%	F	%	F
Mobile and internet banking service is reliable.	3.0897	1.11874	10.3	8	26.	21	6.4	5	56.4	44	-	-
Security and privacy issues have no effect on the adoption of mobile and internet banking service.	2.9744	1.16189	14.1	11	24.4	19	12.8	10	47.4	37	1.3	1
Our bank online site can be trusted so nobody afraid financial data would be leaked during internet connection and message passing.	3.0128	1.09892	10.3	8	24.4	19	23.1	18	38.5	30	3.8	3
Using mobile and internet banking fits well with the way I like to control and manage my banking transactions.	2.5513	1.14696	16.7	13	43.6	34	11.5	9	24.4	19	3.8	3
Mobile and internet banking service have no many uncertainties so it can be trusted.	3.1026	1.11180	9.0	7	24.4	19	19.2	15	42.3	33	5.1	4

Source: Survey result, 2017

4.3.4 Influence of IKAOCC on the adoption of mobile and internet banking service

4.3.4.1 Income, Knowledge, Age, Occupation, Culture and Consistency

Regarding knowledge, 38.5% & 30.8% of the respondents strongly agreed and agreed 'People with high education level become more mobile and internet banking service user'. This implies the more you literate have high the more you can use mobile and internet banking service. On the other hand, 32.1% of the respondents were having the awareness as to how to support the customers. 24.4% of the respondents strongly agreed how to support and aware the customer and 20.5% of the respondents were not aware of how to support the customer and they don't know how to create awareness. So 20.5% of the respondents are only aware of the conventional and traditional banking service. It means that people are lacking important information that is necessary to use electronic banking services. This issue is related with human resource and benefit to conduct training to the branch to create awareness about the service and how to support the customer.

The other result shows People with high income level become more mobile and internet banking service user'. This implies the more you have money high the more you can use mobile and internet banking service the percentage shows 39.7% of the respondent agreed on this question. So this implies the staff believes money needs to use mobile and internet banking service. The other result shows People with adult age have high tendency of mobile and internet banking service user'. The table below shows that 53.1% of the respondents agreed currently mobile and internet banking service delivered at low cost. This implies that those selected banks were delivering the service with zero cost or at a minimum cost. This shows that the banks charge for provision of the service is relatively low. This result was consistent with (Meron, 2016). This implies that the more one become adult the more s/he can use mobile and internet banking services as agreed by 42.3% of the respondents included in the survey. This study was consistent with the above demographic section.

Furthermore, 44.9% of the respondents believe that Customers of certain occupation use more mobile and internet banking service than others .This implies occupation related with technology is more users of mobile and internet banking service compared with others. The other result shows 28.2% the respondent believes that Internet connection and mobile network is not good enough to perform internet and mobile banking transactions.

Majority of the sample respondents confirmed that they have encountered problems while using

electronic banking services. In this regard, they agreed that the internet connection & message transmission which they used for mobile and internet banking service was very poor to perform electronic transactions. This implies respondents are unhappy with the slow network for mobile and internet connection provided by Ethio Telecom. This study was consistent with the finding of (Michael, 2014). In this regard, they agreed that the internet connection which they used for electronic banking was very poor to perform electronic transactions. From this, it can be understood that using electronic banking is getting difficult due to low speed of connection and low internet access in the country. This implies that there are very persistent and serious challenges that have been encountered by private commercial banks in Ethiopia in the adopting e-banking technology. Generally, this finding is quite in the line with the study of (Gardachew, 2010) and Wondwossen & Tsegai, 2005).

The other result shows that 26.9% of the respondents disagreed that mobile and internet banking service currently delivered by selected banks are consistent. This implies that customers are not satisfied to use by different reasons like connection and internal problem of the banks.

Table 4.10 Income, Knowledge, Age, Occupation, Culture and Consistency

Questions on IKAOCC	Mean	Std.	Responses									
			SA		A		N		D		SD	
			%	F	%	F	%	F	%	F	%	F
People with high education level become more mobile and internet banking service user.	2.1795	1.24571	38.5	30	30.8	24	12.8	10	12.8	10	5.1	4
I have full information about how can I support branches and customers about mobile and internet banking system.	2.4744	1.18129	24.4	19	32.1	25	19.2	15	20.5	16	3.8	3
People with more income have high tendency of using mobile and internet banking service.	2.6154	.99650	11.9	15	39.7	31	25.6	20	21.8	17	1.3	1
It costs a few to use mobile and internet banking service.	2.3974	1.19891	17.9	14	53.8	42	10.3	8	6.4	5	11.5	9
People with adult age have high tendency to use mobile and internet banking service.	2.3205	1.09892	23.1	18	42.3	33	19.2	15	10.3	8	5.1	4
Customers of certain occupation use more mobile and internet banking service than others.	2.3333	.96250	17.9	14	44.9	35	25.6	20	9.0	7	2.6	2
Internet connection and mobile network is good enough to perform internet and mobile banking transactions.	2.9872	1.30427	16.7	13	21.8	17	20.5	16	28.2	22	12.8	10
Mobile and internet banking service always consistent.	3.1282	1.26243	9.0	7	26.9	21	25.6	20	19.2	15	19.2	15

Source: Survey result, 2017

4.4 Results collected from open-ended questions

The findings also contains open ended questions as the researcher tried to mention at methodology part two questions for bank customers and three questions for staffs which is related to policy and procedures of the NBE, consistency and if they went to raise other factors previously not asked by the researcher. From the respondent identified that lack of skilled man power on the position, lack of government support towards E-banking implementation, absence of legal framework towards electronic commerce, lack of competition among domestic and foreign banks, strict policy of the banks, low quality of telecommunication network and fear of risk by customers to make use and national bank of Ethiopia, culture of the customer, not friendliness of the technology and lack of legal framework that enforce banking industries to adopt technological innovations are the major obstacles faced by Ethiopian banks in implementing mobile and internet banking system.

- **Policy and Procedures**

According, government polices plays a vital role in successful implementation of mobile and internet banking and to use latest information and communication technologies. However, according to respondents response there is no proper policy for deployment of electronic banking services from the government of Ethiopia. In this regard, National Bank of Ethiopia (NBE) which is operating under government policies is responsible to develop regulatory frameworks for the successful implementation of mobile and internet banking. If we see daily limitations of mobile and internet bank service which is very small 6000 br for mobile and 10,000 br for personal internet banks and 100,000 br for corporate internet banking. Especially for corporate internet banking its very small which is they can made transaction up to 1,000,000,000 br per day and corporate users are not satisfied on this daily limitation.

Respondent also stated that National Bank of Ethiopia (NBE) is not providing legal framework to protect customer from fraudulent risks that might arise from using mobile and internet banking transactions. Respondent also stated that failure of laws and regulations can result in easy access of person's private and public information.

- **Network and internet Infrastructure**

Respondent states that electronic based banking services needs to be reliable and secure so that people can used it with willingness. As far as respondent mentioned, most of the time customers of the bank encounter frequent problems related with interruptions of internet connectivity.

According to their response, if a given customer wants to make transaction using channels of internet banking, the login time to connect to his account requires the customer to wait longer times due to slow connectivity. This might also happened when he tried to logout from his account. For this reason, customers are very unhappy and reluctant to use electronic banking because they think as they are wasting their time mainly due to the slow internet connection. The same is true network connection for mobile banking at the time of message transmission it's come up with error message due to bad network connection in this time the customer may feel insecure and afraid their account may affect during the process. In order to resolve such kinds of problems most banks use alternative ways of connectivity in order to provide the service to their customers which oblige banks to incur additional expenses. In the case of organizational factor human and financial capital and management support were considered. In addition to this, as per the response of corporate customers they were highly frustrated on ICT service.

- **Consistency of the Service**

Consistency means standing by always 24/365/7 without any interruption. The respondent thinks that mobile and internet banking service should consistent due to internal and external factor. As per the response mobile and internet banking service should work any time without interruption 24/7/365 and customers user always active unless the customers need to inactive the researcher seen as a reference CBE and NIB users 32% and 36% of the users are inactive respectively so the banks should give much more attention to activate those inactive users. When the user is inactive the customer try to use again and again finally they are uninterested on the service and lack of trust on the service) most of electronic banking services are not consistent especially mobile and internet banking services.

Internal factor includes managerial and technical issues when any interruption is happened on the service the manager should let know to the technical personnel and it should fix quickly but always any interruption happens, it is fixed after long days even more than week and months for in-

stance at NIB bank mobile banking service stopped for more than 6 month it indicates that co-operation between E-banking and technical department is poor. In this case customers don't have trust on the bank even they make awareness to the customers and staffs too after it is fixed. The respondent also added the service doesn't only stop working by service maintenance purpose but also the bank stops it for security purpose like currently Commercial bank of Ethiopia stops ATM service due to duplication of card by unknown persons. So in order to fix those issues three of the banks should give attention from the starting of the project up to deployment and follow-up. As per the corporate customer response they are worrying about the service whether it is work properly or not based on the service inconsistency.

4.5 Results Collected from Interview

For the purpose of accomplishing the objective of the study, two interviews were made with senior banks officials including one Division Head and one Department Manager from Dashen and Nib International Banks respectively.

The first interviewer was from commercial bank of Ethiopia who is working more than 15years in different supervisory positions who is currently working as division manager (Respondent -1).The second interview was also conducted with a senior official (Respondent-2) who is working as a division Manager in Nib International Bank previously been at dashen. He has been working in NIB for more than 15 years in different supervisory positions.

The third interview was conducted by a face to face interview conversation through detailed questionnaire with a senior official (Respondent–3) who is working as a Division Head in Dashen Bank. He has been working in Dashen for more than ten years. From the interview of the three respondents, a detailed description of the current scenario with respect to the subject matter is obtained. The respondents gave detailed information on the factors affecting the adoption of mobile and internet banking service. The respondents discussed factors like perceived usefulness & perceived ease of use, security & privacy, trust, awareness, occupation, age, income, government policies, infrastructure and technology.

4.5.1 Awareness on mobile and internet banking service

Regarding information on mobile and internet banking, (respondent -1) mentioned that information is the most important element for mobile and internet banking. The interviewee mentioned that the customer who wants to use mobile and internet banking must know all the basic information regarding the service. When information is provided to customers then it were motivated customers to use mobile and internet banking services and in this way they can save their time. The interviewee also mentioned that many bank websites are not providing clear information to customers; and when customers use banks' website, customers do not able to trust on the information that has been provided on the banks' website because it's not updated timely.

(Respondent -1) fortunately stated that when customers visit a bank branch, most of the time they only come to open an account, re-issue a cheque book, check their balance or deposit money in their accounts. They never ask about the information regarding mobile and internet banking. Almost half of the customers only come for some reason but few of them are interested in mobile and internet banking. He added that bank employees are very busy in their own work so they don't give much time to the customers.

From the above responses, it can be understood that not enough information regarding mobile and internet banking is provided to customers by bank clerks who are helping customers in completing the form; and brochure is given to customers that will help customers to use internet banking after reading such kind of supportive document. The respondent also admitted that, except the delivery of introductory training to customers, the bank is not providing continuous trainings to enhance the awareness level of customers. (Respondent-3) mentioned that in addition to the previous respondent's awareness is important thing to develop mobile and internet banking technology in Addis Ababa.

4.5.2 Perceived risk

Regarding the issue of Security and Privacy of mobile and internet banking the (Respondent-1) mentioned that the security of the transactions is very necessary in mobile and internet banking. (Respondent-1) mentioned that completion of transaction is very important from start till end.

When the transaction was successful it were created the trust of customer and customer can use this mobile and internet banking service reputedly and then adopted; but for this to happen, the transaction must be 100% percent secure and on time. As far as he is concerned, customers are very much sensitive to security and privacy issues especially in maintaining their user ID and Personal Identification Numbers (PIN) so much confidential .On the other hand customer also needs privacy on the transaction and the need to control transaction by them self this gives them a great believe on the service and bank too. Trust can be defined as the person perception about something and it can be based on the personal experience. (Respondent-1) mentioned that when there is a change in technology, this change brought new benefits and new risks to its customers; and without using the new service the customer cannot have trust on this new service. According to him, for customers the main risks are security and privacy and if customer has experienced successful transactions before then the customer were developed some trust on electronic banking services. (Respondent-2) mentioned that customers have some level of trust on bank employees mainly due to their attachment and social relationships but he added that customers have lots of hesitations on the technology and don't trust the technology provided by banks. (Respondent-2) also stated that that bank has assured and given guarantee that customer's important personal information was not be given to a third party who can use this information. (Respondent-3) describes trust developed on customers when they use mobile and internet banking service again and again. The other issue is the website of the bank is not enough to trust and relied on the service.

4.5.3 Perceived Usefulness and Ease of Use

According to respondent-1 perceived usefulness and perceived ease of use both are very important factors that can be seen as to adopt and accept the services of mobile and internet banking. He thinks that additional features can provide customers a chance to use mobile and internet banking. As per his response, such mobile and internet banking services offer substantial advantage to customers in the form of convenience, time saving and easy access to the banking services. Moreover, it makes life easy for people by providing 24/365/7 accesses to banking without the need to carry large amount of cash. Respondent-2 also stated that mobile and internet banking can abolish the problems of processing cash notes, cheques and waiting in the queues for hours. In addition, it

provides to the bank the opportunity to expand their customer base and organize a large amount of deposits and hard currency. Respondent-3 mentioned that mobile and internet banking service is convenience since it is allowed 24/7 and the transaction can made quickly.

4.5.4 Government Policies

As per the response of (Respondent-1) mentioned that NBE polices should be revised like legal framework and daily limitation. According to (respondent-2), government policies and procedure plays a vital role in successful implementation of mobile and internet banking services and to use latest information and communication technologies. However, according to him there is no proper policy for deployment of electronic banking services from the government of Ethiopia. In this regard, National Bank of Ethiopia (NBE) which is operating under government policies is responsible to develop regulatory frameworks for the successful implementation of mobile and internet banking services.

(Respondent-3) also stated that National Bank of Ethiopia (NBE) is not providing legal framework to protect customer from fraudulent risks that might arise from using mobile and internet banking service transactions. He also stated that failure of laws and regulations can result in easy access of person's private and public information.

4.5.5 Infrastructure

According to (Respondent-1), proper infrastructure is very necessary to provide a quality service within the electronic banking system. He said that proper infrastructure can attract customers to perform online transactions and use mobile and internet banking services. He mentioned that mobile and internet banking services based banking services needs to be reliable and secure so that people can used it without any hesitation. As far as (Respondent-1) is concerned, most of the time

customers of the bank encounter frequent problems related with interruptions of mobile network and internet connectivity.

According to him, if a given customer wants to make transaction using mediums of mobile and internet banking services, the login time to connect to his account requires the customer to wait longer times due to slow connectivity. This might also happened when he tried to logout from his account. For this reason, customers are very unhappy and reluctant to use electronic banking because they think as they are wasting their time mainly due to the slow internet connection. On the other hand the technology by itself is not friendly to the user because of it has long process especially on mobile banking has long process to make a transaction. In order to resolve such kinds of problems most banks use alternative ways of connectivity in order to provide the service to their customers which oblige banks to incur additional expenses.

According to (Respondent-2), the infrastructure of internet service is very poor which is becoming the major hindrance against the development of electronic banking in Ethiopia. He mentioned that, most commercial banks that are operating in the country are connected through WAN connections provided by Ethio Telecom. In this regard, fiber internet with a bandwidth of 4 Mbps and a wireless internet with a bandwidth of 512 Kbps are used by respondent-2's bank. The second connection is only used as an alternative especially in cases when the faster connection fails. He also added that, even if the infrastructure is available at satisfactorily level, it is not reliable so that's why people don't want to use electronic banking and the cost of being associated with internet is very high. So customers are not willing to carry out business over mediums of electronic banking that requires internet connection.

4.5.6 Technology

Currently commercial banks operating in the country are using a wide range of technologies. Information technology is also becoming the most vibrant sector. People want to stick into the latest technology and they enjoy it when there is something new in the latest technology and it can run the E-banking business very smoothly.

According to respondent-1, having the latest technology is one of the most important elements in the provision of electronic banking. Technology know-how is also important for the management

of E-banking businesses. According to him, having experienced staff with technology know-how is very important for a bank. Technology is useless without having professional skills in the respective field. IT professionals are those who are working in Banks positions like Database Administrator and System Administrator and Network Administrator. But he mentioned that, whenever a serious problem is encountered, it is other staffs who were assigned to handle the problems encountered who are not real professionals in IT; so that they are not able to resolve the problem and this is causing delays in the daily routine of electronic banking service.

According to (Respondent-2), there is another challenge for the development of electronic banking which is economical problem of individuals to buy personal computer which in turn requires a very high price. Due to financial constraints customers can't afford to buy personal computers or other devises that enable to use electronic based banking. In addition, an ordinary customer cannot afford the cost of broadband connections. According to (Respondent-2) customers can have the option of using a Dialup Connection which is much cheaper and affordable but the quality is very poor and it is unreliable for data communication.

CHAPTER FIVE: SUMMARY OF MAJOR FINDINGS, CONCLUSIONS & RECOMMENDATIONS

5.1 Summary of Findings

The study proposed to examine the factors affecting the adoption of mobile and internet banking service in Addis Ababa guided by technology acceptance model, technological factors (perceived risk) and multiple factors(income, knowledge, age, occupation, culture and consistency).

Technology acceptance model is an information system theory that models how users come to accept and use a technology. According to Chuttur (2009) "Although many models have been proposed to explain and predict the use of a system, the technology acceptance model has been the only one which has captured the most attention of Information Systems Community". In related research Masinge (2010) stated that TAM has been extensively tested and validated and is widely accepted model, which can be modified and extended using other theories and constructs. Technology acceptance model includes perceived usefulness and ease of use both customer and staff respondent accepts perceived usefulness and ease of use has a positive effect on the adoption of mobile and internet banking service.

The technological factors (perceived risk) are risks related with using mobile and internet banking technologies. Issue related to security is also 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 the E-banking is expected to influence its adoption (Ayana, 2012).perceived risk is the degree to which an innovation is perceived as difficult to understand and use. In this research the respondent disagreed mobile and internet banking technology is reliable, trusted, the website also not trusted as of their current response they think that it is fits well as they went to control.

The other factors is Age on consumers' mobile and internet banking usage practice is investigated by various previous scholars, a study conducted by (Abenet Y, 2010) concerning the determinants of e-banking adoption in Ethiopia revealed that the young age group is more computer literate and this study also improves that as per the customer and staff response.

Education level is the other factor respondent response indicates uses of mobile and internet banking service peoples who are in a better educational level as compared to others, so educational level has positive effect on mobile and internet banking adoption. This finding is in line with (Edwin et al). He found that consumers' level of education and ICT knowledge impacts their acceptance of e-banking services.

Income is one of strong effect on the adoption of mobile and internet banking service as per the respondent response. High income clients and those who have mobile and computer and internet literate are more likely to use mobile and internet banking services. Similarly, (Annin et al). Clearly indicate that monthly income level is among the socio-economic factors that significantly influence bank customers' decision to use e-banking.

Occupation has effect on the adoption of mobile and internet banking which means a type of occupation the customer belong affects to adopt on the service. With regard to occupation type, Alagheband P. (2006) on his study found that higher users' of e-banking has been evident for government employees rather than other types of employments. Further, (Mohammed) also investigated that graduated and employed male customers who belong from higher income category and having a bank account preferably in government banks are greatly emphasized to the use of IT based banking services. However, in contrary to these findings (Ismail et al and Munusamy et al), found that occupation has no significant impact on e-banking adoption.

Culture has another big effect on mobile and internet banking service. Hofstede (1997) defines culture as the collective programming of the mind which distinguishes the member of one human group from another. Shore and Venkatachalam (1996) stated that culture reflects individual core values and beliefs. These values and beliefs are formed through childhood and reinforced all through their life.

Consistency also has a major impact on customer adoption if the service is not allow at any time or the customer is interrupt using mobile and internet banking service it's hard to adopt as the researcher tried to describe on the statement of the problem currently greater than 30% of the users are inactive as of the respondent response they didn't agreed on the consistency of the service that provided by banks.

The other one is telecommunication infrastructure quality is questionable according to customer and staffs response internet connection is very slow and quality of telecommunication network and whether the available technology being compatible with expectations of the banks.

5.2 Conclusions

This research paper was used technology acceptance model (TAM), technological factor (perceived risk) and single factors like knowledge, income, age, occupation, culture and consistency to identified a number of factors and drivers for mobile and internet banking adoption. TAM is classified in to two factors to determine drive for the adoption of mobile and internet banking service.

The research established the factor that drives the adoption and acceptance of the services. It identified basic driving force a three of commercial banks and customers could get from the adoption of mobile and internet banking system. Those benefits were considered as a driving force for the adoption of the system. The drives were classified based on technology acceptance model (TAM) as perceived ease of use and perceived usefulness. Perceived ease of use is taken as a major drives for using mobile and internet banking system. At the same time this finding supports the study of Giglio(2002) and Robinson (2000).The other drive found in the study were based on its usefulness in terms of time, convenience, accessibility, productivity and activities done anywhere. These are basic benefits that drive banking industry to adopt technological innovations.

In general perceived ease of use is one of the basic benefits for E-banking, in which it enables banks and customers to perform banking activities in a simple way. The other driving force for the adoption of the system is perceived usefulness, in which, it is used for time saving, accessibility, productivity, convenience and use at any time. These benefits which are identified in the study were considered as a very great potential for banks to improve their public image.

The study investigated on factors affecting the adoption of mobile and Internet banking services by individuals and corporate banking customers in Addis Ababa. The technological factors, identified in this study were security and privacy risk, reliability and lack of trust on the technological innovation used by banking industries. The finding identified under technological factor were also consistent with other studies on technology adoption in different countries, Ghazi and Khalid (2012) & Sathye (1999), both of them found that security risk is the major factor for the adoption of E-banking system.

Security and privacy are the most important issues in electronic banking business. The findings of the study also reveal that customers are very much sensitive and highly concerned about the security of their account and privacy of their private information. However, they don't have enough knowledge about security features and user privacy policies. For this reason, they may not have full confidence to

use mobile and internet banking services and current users still have no confidence on this issue.

In the case of single factors age, income, education level, occupation and consistency is considered as a factor for as factor affecting the adoption of mobile and internet banking in Addis Ababa and it is contradict with the finding of (Beza, 2010).

On the other hand lack of technical and managerial skills to use and implement the system is considered as barrier for the adoption of E-banking in the country.

The other factors affect to adopt mobile and internet banking identified in this study were come from external Environments; specifically those are lack of legal framework regarding E-banking system at national level, lack of ICT infrastructure, and Absence of competition between local and foreign banks.

The study also revealed that the infrastructure required for successful implementation of mobile and internet banking is under developed. In this regard, especially the telecommunication infrastructure found to be poor to perform electronic based transactions and this becomes a serious encounter for the development of mobile and internet banking in Addis Ababa. Regarding this, the study indicated that there is a very slow internet connection and low distribution of internet network in the country.

In general the finding of the study depends on; drives for the adoption of mobile and internet banking, factors affecting the adoption of mobile and internet banking services and single factors age, income, education level, occupation and consistency is considered as a factor for as factor affecting the adoption of mobile and internet banking in Addis Ababa

5.3 Recommendations

E-banking system is a new financial evolution in Ethiopia, but it's an important issue, because it has a great impact on the whole banking system, at the same time it's difficult and need a lot of efforts to be adopted and accepted by the banking industry, so it need a lot of efforts to succeed. Based on the above conclusion, the researcher recommends the following points.

In order to successfully facilitate mobile and internet banking adoption in Addis Ababa, national bank of Ethiopia, (NBE) needs to amend policies that not convenience to the customer like daily limitation on mobile 6,000br, personal internet banking 10,000br, and corporate internet banking 100,000br. This daily limitation should be settled by the bank because there are many customers' needs to transact more than this amount per day.

For the successful implementation of mobile and internet banking system ICT infrastructure is a major prerequisite so government should support banking sector by investing on ICT infrastructure to satisfy individual and corporate customers. This recommendation also in line with Ayana, (2012) government, should support banking sector by investing on ICT infrastructure development.

Three of commercial banks should explain to their customers that mobile and internet banking technology has no risk like as we know Commercial bank of Ethiopia's ATM machines are stop the service due to duplication of fake card at may so as to make them feel more secure. Especially at this time we have to communicate our customer related with online site because more than 150 countries on the target of cyber-attack and the most targets are financial institutions more of banks. Besides the bank should introduce guarantees for customers, including compensating customers if any one loses his/her money while accessing mobile and internet banking systems.

Three of Commercial banks shall produce user guide for mobile and internet banking services using various means such as booklets, brochures, flyers, and in electronic means such as website based electronic documents to make use of mobile and internet banking easier for existing and potential customers. This advice also consistent with Michael, (2013) Proper awareness can produce more results by enhancing awareness level of people to use the electronic banking facility.

Currently three of commercial banks provide internet banking service only to Current account holders and corporate company's this may affect other type of account holders like saving and special

saving accounts so three of the banks should provide internet banking service to other account type holders to attract and to expand internet banking customer base. This increase the revenue generated from the service in the future.

At the interview time E-banking managers believed that there must be several infrastructural developments before adopting mobile and internet banking; was due to the fact that the interviewee complained about technical difficulties they experienced in using mobile and internet banking facilities. Consequently, three of the commercial Banks should communicate customers before go-live the product what type of product and what features are needed this makes comfortable to the customer.

Customer awareness can produce more results by enhancing awareness level of people to use the mobile and internet banking facility. In this regard, Commercial bank of Ethiopia, Dashen and Nib International Banks should promote the mobile and internet banking services in different media including their websites. Websites of banks play an important role to attract customers especially if the information provided is understandable and brief. Provision of demo also helps customers to use the electronic banking. Furthermore, three banks need to arrange successive training programs for enhancing the awareness level of individuals. These actions might aid to attract new customers to use mobile and internet banking which can result in considerable amount of profits at low transaction costs or free.

The bank should staffing skilled personnel with on both business and technical side to have high reliability from the starting, deployment up to follow-up phase needs more experienced employees. There should also be training for clients in order to use the service effectively and efficiently. This recommendation also consistent with Michael, (2013) it is also recommendable for the two commercial banks to hire well trained and experienced IT professionals to handle the business competently and who are capable of solving the problems with adequate knowledge.

5.4 Directions for Further Research

This study is new research area in the factors affecting the adoption of mobile and internet banking services in Addis Ababa. This study has been participated both customers and employees of the bank to give a full coverage Furthermore, the research conducted on Addis Ababa City only. Hence, the scope needs to be widened to cover the rest of the country and in all financial institutions.

References

Abenet Y (2010). Key factors that determine adoption of internet banking in Ethiopia. *Retrieved from JIBC Jan 2017, Vol. 22, No.S7 - 16 –*

Abiy, D 2008, *capital*, *weekly newspaper,* March, 17, 2008.

Adams, A.N. & Lamptey, A.O. (2009).Customer perceived value in internet banking in Ghana. Master's Thesis, Lulea University of Technology, Sweden and University of Education, Winneba, Ghana.

Adriana, C. (2006). Forms of electronic banking. *Journal of internet banking, Vol. 16(6), Bank of Slovenia, Narodna*

Ainin, S., Lim C.H., & Wee, A. (2005). Prospect and Challenges of E-banking in Malaysia. *The Electronic Journal on Information Systems in Developing Countries. . 3:1, pp. 5-19.*

Ajezen, I. (1991). *The theory of planned behavior, Organizational behavior and human decision processes, Vol. 50*

Aladwani, A. M. (2001). Online banking: a field study of drivers, development challenges and expectations. *International Journal of Information and Management, 2 (1), 213–225.*

Alageband, P. (2006) *Adoption of electronic banking services by Iranian Customers, MA thesis, Lulea University of Technology.*

Alafeef M, Singh D, Ahmad K (2011) Influence of demographic factors on the adoption level of mobile banking applications in Jordan. *Journal of Convergence Information Technology (JCIT) 6: 107-113.*

Amanyehun, R 2011, Mobile Commerce First from Dashen, Addis Fortune News, Available at: http//:www.addisfortune.com/archive/2011 /January/week4/, Viewed September 14, 2011.

A.R. Ishengoma (2011), *Adoption of mobile banking technology by customers.*

Ayana Gemechu(2012) Factors Affecting Adoption of Electronic Banking System in Ethiopian Banking Industry, *"Journal of Management Information System and E-commerce", Vol.1 No. 1*

Arber, S. 2001. *'Designing Samples', in N. Gilbert (ed.), Researching Social Life. London: Sage Publications.*

Asrat, S 2010 , Reporter, weekly newspaper.

Azouzi D (2009) the adoption of electronic banking in Tunisia: An exploratory study. *Journal of Internet Banking and Commerce 14: 1-11.*

Binyam, T 2009, *Daily Monitor*, February, 20, 2009

Barnett, V. 2002. *Sample Survey: Principles and Methods. London: Arnold*

Commercial Bank of Ethiopia (2016), MIS Report. Unpublished document, Addis Ababa, Ethiopia.

Czaja, S.J., & Lee, C.C. (2007). *Information technology and older adults.*

J.A. Jacko & A. Sears (Eds.), *The human-computer interaction handbook (2nd ed., pp. 777–792). New York: Erlbaum. A clearly written, user-friendly, and comprehensive review for readers who wish to expand their knowledge on technology and aging.*

Crede 1995; Ooi 1999; *U.S. Department of Commerce 1999.*

Donnelie K, Muzividzi DK, Mobizi R, Mukwazhe T (2013) *an analysis of factors that influence internet banking adoption among intellectuals: Case of Chinhoyi University of technology*

ethio telecom, June, 2015

E-banking management (2009): issues, solutions, and strategies / by Mahmood Shah and Steve Clarke.

Educational and Psychological Measurement 30: 607-610. Pallant J (2011) *SPSS Survival Manual a Step by Step Guide to Data Analysis Using SPSS (4thedn) Australia: Allen and Unwin.*

Edwin MA, Ailemen IO, Okpara A, Mike OA (2014) *Impediments to e-banking services marketing in developing economies – A case study of Nigerian banks. European Journal of Business and Social Sciences 3: 228-248.*

Estibel Tamiru(2014),*Factors Affecting on Electronic Banking Adoption of Customers In Commercial Bank of Ethiopia, Addis Ababa.*

Fisk, A.D., Rogers, W.A., Charness, N., Czaja, S.J., & Sharit., J. (2009). *Designing for older adults: Principles and creative human factors approach (2nd Ed.). Boca Raton, FL: CRC Press.*

Gardachew Worku (2010) Electronic-banking in Ethiopia practices, opportunities and challenges, *"Journal of Internet Baning and Commerce", Vol. 15, No. 2*

Hofstede, G. (1997). *Cultures and Organizations: Software of the Mind. New York: McGraw-Hill.*

Ismail MA, Osman MA (2012) Factors influencing the adoption of e-banking in Sudan: Perceptions of retail banking clients. *Journal of Internet Banking and Commerce 17: 1-16. Retrieved from http://www.arraydev.com/commerce/jibc/*

Israel, Glen D. (1992). *"Determining Sample Size." Program Evaluation and Organizational Development, IFAS, University of Florida. PEOD-6. National Science Foundation, Research and Development in Industry: 1992, NSF 95-324. Arlington, VA. Retrieved on 16/03/15, from: http://www.edis.ifas.edu/pdffile/pd/pdoo600.pdf*

ITU (2014) ICT Figures. http://www.itu.int/net/pressoffice/press_releases/2014/23 accessed December 19, 2014

Izogo EE, Nnaemeka OC, Onuoha OA, Ezema KS (2012) Impact of demographic variables on consumers' adoption of e-banking in Nigeria: *An empirical investigation. European Journal of Business and Management 4: 27-39.*

Joseph F, Hair J, Black WC, Babin BJ, Anderson PE (2010) Multivariate Data Analysis (7thedn) New Jersey: Pearson Prentice Hall. Krejcie R, Morgan D (1970) Determining sample size for research activities.

Lee E, Jinkook L, David E (2003). A two-step estimation of consumer adoption of technology-based service innovations. *The Journal of Consumer Affairs 37: 256- 282.*

Lu, Z. (2010). *An Empirical Analysis of Factors that Influence the Adoption of Internet Banking in China: A Case Study of Zhengzhou, Lincoln University Digital Thesis*

Mayr, U. (Ed.). *(2008). Cognitive plasticity in the aging mind [Special section]. Psychology and Aging, 23, 681–786.*

Mechael Adebeb,(2014) challenges and opportunities of electronic banking: a case dashen bank and nib international bank In Addis Ababa Ethiopia.

Meron Tadesse, (2016) The challenges and prospects of adopting electronic banking in selected private banks of Ethiopia.

Moser, C.A. and G. Kalton 1973. *Survey Methods in Social Investigation. London: Heinemann.*

Mohammed S (2012) Factors affecting ATM usage in India: An empirical analysis. *UTMS Journal of Economics 3: 1-7.*

Muzividzi D, Mbizi R, Mukwazhe T (2013) an analysis of factors that influence internet banking adoption among intellectuals: Case of Chinhoyi University of technology, Zimbabwe. *Interdisciplinary journal of contemporary research in business 4: 350-369.*

Ngoma MF (2013) Socio-demographic factors influencing adoption of internet banking in Zimbabwe. *Journal of Sustainable Development in Africa 15: 145-154.*

Poon WC (2008) Users' adoption of e-banking services: The Malaysian perspective. *Journal of Business and Industrial Marketing 23: 59-69.*

Rahel mulugeta, (2015) Barriers and Benefits of Electronic Banking System in Ethiopia.

Rea, L.M. and R.A. Parker. 2005. *Designing and Conducting Survey Research: A Comprehensive Guide. Chichester: Wiley.*

Salman, S & Kashif, S 2010, *Electronic banking & E-readiness adoption by Commercial Banks in Pakistan, Master's Thesis, Linnaeus University, School of Computer science, physics and mathematics.*

Salwani, et al. 2009, *„E-commerce usage and business performance in the Malaysian tourism sector: empirical analyses, Information Management & Computer Security. 17(2):166-185.*

Sara Naimi, 2007, Factors Influencing the Adoption of Internet Banking in Iran.

Sathye, M 1999, `Adoption of Internet banking by Australian consumers: an empirical investigation", *International Journal of Bank Marketing, 17 (7):324-34.*

Scupola, A 2003, „The Adoption of Internet Commerce by SMEs in the South of Italy: An Environmental, Technological and Organizational Perspective", *Journal of Global Information Technology Management, 6(1):51-71.*

Senait Mekete (2007) Prospects and challenges of E-banking, AAU, College of Business and Economics.

Shah, M, Branhganza, A, Khan, S, & Xu, M, 2005, *A survey of critical success factors in E-banking, research paper, European and Mediterranean Conference on information systems UK.*

Sheshunoff, A 2000, `Internet banking: an update from the frontlines", *ABA Banking Journal, 92(1):51-55.*

Silverman, D 2001,*interpreting qualitative Data, 2nd Ed. Sage Publication Ltd. London.*

Stockdale, R 2006, „A classification model to support SME E-Commerce adoption Initiatives", *Journal of Small Business and Enterprise Development, 13(3):381-394*

Sheshadri P, Rani SS (2014*) The influence of demographic variables on customer adoption of e-banking services.*

Tater B, Tanwar M, Murari K (2011) Customer adoption of banking technology in private banks of India. *International Journal of Banking and Finance 8: 72-88.*

Tan BP, Potamites RP, Chi WL (2012) Applying the TAM to understand the factors affecting use of online banking in the Pescadores: *ARPN Journal of Science and Technology 2: 1022-1028.*

Tabachnick B, Fidell L (2007) *Using multivariate statistics (5thedn) New York: HarperCollins.*

Wondwossen, T and Tsegai, G (2005), `E-payment: challenges and opportunities in Ethiopia', Economic commission for Africa, Addis Ababa Ethiopia.

Workumulualem(2015) , *Title: "factors affecting the adoption of mobile banking In the case of commercial bank addis ababa branches'.*

Yitbarek T, Zeleke S (2013) Analysis of factors influencing customers' intention to the adoption of e-banking service channels in Bahir Dar city, Ethiopia: *An integration of TAM, TPB and PR. European Scientific Journal 9: 402-417.*

Retrieved from *www.edu.uleth.ca/courses/ed3604/conmc/glsry/glsry.html*

Retrieved from *https://www.scribd.com/doc/26494919/Definition-of-E-banking*

Retrieved from https://www.dashenbanksc.com

Retrieved from https://www.combanketh.et/

Retrieved from https://www.nibbank.com.et/

Appendices

Questioner for customer

ST.MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MBA PROGRAMME

INTRODUCTION

DEAR PARTICIPANT

The purpose of this questionnaire is to gather relevant data that will be used for undertaking a study on the topic "factors affecting the adoption of mobile and internet banking services in Ethiopia: in the case of selected commercial banks.''

Through your participation I hope it is possible to understand your perception related with this topic. Therefore, your cooperation in filling out the questionnaire carefully and genuinely, apart from contributing towards the successful completion of the study is essential input towards the creation of knowledge regarding the aforesaid issue.
Your involvement is regarded as a great input to the quality of the research results. Hence, I believe that you will enlarge your assistance by participating in the study. Your honest and thoughtful response is invaluable.

Finally, I confirm you that the information that you share me will be kept confidential and only used for the academic purpose. To this end; I would like to forward my deepest gratitude for your unreserved cooperation in filing the questioner.

For further information, please contact me through the following address:
Tel: +251913106129/+251933187234
Email:Nendale@yahoo.com/endeshetu@gmail.com

Questioner for customers only

Section I

Background information

Instruction: Put (√) sign on the box of your choice

1. **Gender** :

   Male ☐ Female ☐

2. **Age**:

   20-30 years ☐ 31-40 years ☐ 41-50 years ☐

   51-60 years ☐ above 60 years ☐

3. **Education Level**:

   Diploma ☐ First Degree ☐ Second degree ☐

   Masters ☐ Any other ☐

4. **How many years work experience you have**?

   Less than 1 year ☐ 1-5 year ☐ 6-10 year ☐

   11-15 year ☐ 16-20 year ☐ above 20 year ☐

5. **Type of customer**:

   Individual customer ☐

   Corporate customer ☐
   Other_____

6. **Type of Your occupation**:

   Employee ☐

   Business owner ☐

   Other _____

Section II

Close Ended Question

Instruction; please use (√) mark and each choice identifies by numbers ranged from 1 to 5. SA- Strongly Agree (1), A- Agree (2), N- Neutral (3), DA- Disagree (4), SD- Strongly Disagree (5)

Section II. Questions related with drives to the adoption and acceptance of mobile and internet banking services.

QUESTIONS						
No		(1)	(2)	(3)	(4)	(5)
	Perceived usefulness					
7	I frequently use mobile and internet for non-financial purpose.					
8	Mobile and internet banking provides convenience since it is available 24 hours, 7 days of the week.					
9	I find Mobile and internet banking useful for my banking needs.					
10	Using mobile and internet banking enables me to perform banking transaction quickly.					
11	Mobile and internet banking allows me to do my banking transaction at any time/anywhere.					

	Perceived ease of use	(1)	(2)	(3)	(4)	(5)
12	Using mobile and internet banking makes it easier for me to conduct my own banking transactions.					
13	Mobile and internet banking is more convenient than other banking options (e.g. phone banking and going to a Bank branch).					
14	I use mobile and internet banking because I have seen someone else using it.					
15	Mobile and internet banking service provided by the bank is user friendly.					
16	Awareness of the services that could be done by using branch & E- banking will encourage me to accept the technology.					

Section III. Questionnaire related with factors affecting the adoption of mobile and Internet banking services.

QUESTIONS						
No		**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Perceived risk						
17	Mobile and internet banking service is reliable.					
18	Security and privacy issues influence the adoption of mobile and internet banking service.					
19	Using mobile and internet banking fits well with the way I like to control and manage my banking transactions.					
20	Mobile and internet banking service can be trusted.					

	Income, knowledge, Age, Occupation, Culture and consistency	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
21	People with more income have high tendency of using mobile and internet banking service.					
22	It costs a few to use mobile and internet banking service.					
23	People with high education level become more mobile and internet banking service user.					
24	I am having awareness to use mobile and internet banking service.					
25	People with adult age have high tendency to use mobile and internet banking service.					
26	Customers of certain occupation use more mobile and internet banking service than others.					
27	Internet connection and network is good enough to perform internet and mobile banking transactions.					
28	My decision to adopt mobile and internet banking is influenced by family, friend, media and financial institutions.					
29	I think Mobile and internet banking service always consistent.					

Section IV

Open ended Question

Instruction: Give your opinions on the spaces provided

33. What are other factors affecting the adoption of mobile and internet banking service which is not included above? Please

_____
_____
_____
_____

34. Did you think mobile and internet banking service provided by the bank is consistent?

Yes/no _____

34.1. If say no, what do you think the reason? Please Explain

_____
_____
_____
_____

Questioner for staff

ST.MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MBA PROGRAMME

INTRODUCTION

DEAR PARTICIPANT

The purpose of this questionnaire is to gather relevant data that will be used for undertaking a study on the topic "**factors affecting the adoption of mobile and internet banking services in ADDIS ABEBA: in the case of selected commercial banks"**.

Through your participation I hope it is possible to understand your perception related with this topic. Therefore, your cooperation in filling out the questionnaire carefully and genuinely, apart from contributing towards the successful completion of the study is essential input towards the creation of knowledge regarding the aforesaid issue.
Your involvement is regarded as a great input to the quality of the research results. Hence, I believe that you will enlarge your assistance by participating in the study. Your honest and thoughtful response is invaluable.

Finally, I confirm you that the information that you share me will be kept confidential and only used for the academic purpose. To this end; I would like to forward my deepest gratitude for your unreserved cooperation in filing the questioner.

For further information, please contact me through the following address:
Tel: +251913106129/+251933187234
Email:Nendale@yahoo.com/endeshetu@gmail.com

Questioner for staffs only

Section I

Background information

Instruction: Put (√) sign on the box of your choice

1. **Gender** :

Male ☐ Female ☐

2. **Age category**:

20-30 years ☐ 31-40 years ☐ 41-50 years ☐

51-60 years ☐ above 60 years ☐

3. **Education Level**:

Diploma ☐ First Degree ☐ Second degree ☐

Masters ☐ Any other ☐

4. **How many years work experience do you have**?

Less than 1 year ☐ 1-5 year ☐ 6-10 year ☐

11-15 year ☐ 16-20 year ☐ above 20 year ☐

5. **Monthly income (in Eth. Birr):**

Up to 2000 ☐ 2001-5000 ☐

5001-10000 ☐ above 10,000 ☐

6. **Employer at:**

Commercial bank of Ethiopia ☐

Dashen bank s.c ☐

NIB International bank s.c ☐

Section II

Close Ended Question

Instruction; please use (√) mark and each choice identifies by numbers ranged from 1 to 5. SA- Strongly Agree (1), A- Agree (2), N- Neutral (3), DA- Disagree (4), SD- Strongly Disagree (5)

Section II. Questions related with drives to the adoption and acceptance of mobile and internet banking services.

QUESTIONS						
No		(1)	(2)	(3)	(4)	(5)
	Perceived usefulness					
7	Mobile and internet banking provides convenience since it is available 24 hours, 7 days of the week.					
8	Mobile and internet banking useful for customers banking needs.					
9	Mobile and internet Banking service increases productivity of the bank.					
10	Using mobile and internet banking enable to perform banking activities quickly.					
11	Mobile and internet banking allows to do banking activities anywhere/anytime.					

	Perceived ease of use	(1)	(2)	(3)	(4)	(5)
12	Using mobile and internet banking service makes easier to conduct banking activities.					
14	Our bank provides guidelines on the use of mobile and inter-net banking facility.					
15	From the bank perspective it is easy to use mobile and internet banking to accomplish banking tasks.					
16	Mobile and internet banking is more convenient than other banking options (e.g. phone banking and going to a Bank branch).					
17	Mobile and internet banking service provided by the bank is user friendly.					
18	Awareness of the services that could be done using branch & E- banking encourages many customers.					

Section III. Questionnaire related with factors affecting the adoption of mobile and Internet banking services.

QUESTIONS						
No		(1)	(2)	(3)	(4)	(5)
Perceived risk						
19	Mobile and internet banking service is reliable.					
20	Security and privacy issues influence the adoption of mobile and internet banking service.					
21	Our bank online site can be trusted so nobody afraid financial data would be leaked during internet connection and message passing.					
22	Using mobile and internet banking fits well with the way customers like to control and manage their banking transactions.					
23	Mobile and internet banking service have no many uncertainties so it can be trusted.					
Income, Knowledge, Age, Occupation, culture and Consistency						
24	People with high education level become more mobile and internet banking service user.					
25	I have full information about how can I support branches and customers about mobile and internet banking system.					
26	People with more income have high tendency of using mobile and internet banking service.					
27	It costs a few to use mobile and internet banking service.					
28	People with adult age have high tendency to use mobile and internet banking service.					
29	Customers of certain occupation use more mobile and internet banking service than others.					
30	Internet connection and mobile network is good enough to perform internet and mobile banking transactions.					
31	Mobile and internet banking service always consistent.					

Section IV

Open ended Question

Instruction: Give your opinions on the spaces provided

32. What are other factors affecting the adoption of mobile and internet banking service which is not included above? Please describe

_____
_____
_____
_____

33. Did you think that government policy and procedures influence the adoption of mobile and internet banking services?
Yes/no _____
33.1. If say yes, how? Please Explain

_____
_____
_____
_____

34. Did you think mobile and internet banking service provided by your bank is Consistent?
Yes/no _____
34.1. If say no, what do you think the reason? Please Explain

_____
_____
_____
_____
_____

St. Mary University

School of Graduate Studies

MBA Program

Interview questions

Semi structured interview for mobile and internet banking managers of CBE, DB and NIB

The interview is prepared to collect necessary data for the study under the title of "**factors affecting the adoption of mobile and internet banking service in Addis Ababa ; in case of selected commercial bank"** it's aimed totally to fulfill academic requirements, and confidentiality of the answers will be protected. I am grateful for your honestly responded answers and I would like to thank you for your cooperation in advance.

1. What are the basic factors adopting new technological innovations like mobile banking and internet banking?
2. Is the following factors considered in your institution as factors for the adoption of mobile and internet banking service?

A. Customers awareness about mobile and internet banking
B. Perceived risk (Privacy, Security risk and trust)
C. Perceived usefulness and ease of use
D. Government policy
E. lack of competition among domestic and foreign banks
F. inadequate infrastructure
G. Technology

3. What sort of support would you expect from the government in relation to the mobile and internet banking adoption in Addis Ababa?