Addis Ababa University

Department of Project Management

An Assessment of the Challenges and Benefits Associated in the Adoption of E-Banking Technology in Commercial Bank of Ethiopia

By: Endrias Bekele

A Research Project Submitted In Partial Fulfillment of the Requirements for the Award of Master of Arts Degree in Project Management

Advisor: Teklegiorgis Assefa (Assistant Professor)

June, 2017

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DECLARATION

I, the undersigned, declare that this research project is my own work and effort and it has not been submitted anywhere for any award. Where other sources of information have been used, they have been duly acknowledged.

Name of Candidate: Endrias Bekele Signature: _____

Place: Addis Ababa, Ethiopia Date: Jun, 2017

CERTIFICATION

This is to certify that Endrias Bekele Begashaw has carried out his research work on the topic entitled **"**An Assessment of the Challenges and Benefits Associated in the Adoption of E-Banking Technology in Commercial Bank of Ethiopia**".** The study is an original work and is suitable for the submission for the reward of MA Degree in Project Management.

Advisor: Teklegiorgis Assefa (Asst.Prof):_____

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Approved by the Board of Examiners:

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Advisor	**Signature**
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Examiner	**Signature**
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Examiner	**Signature**

Abstract

The study evaluated the challenges and benefits in the adoption and development of E-banking technology in the Commercial Bank of Ethiopia. Population of the study consist of employees of 4 branches of the CBE. The study was conducted based on the data gathered from 4 CBE branches. The stratified sampling technique and simple random sampling technique simultaneously had been used to draw the sample from the population. The stratified sampling technique was used to categorize by district. Then by simple random sampling technique 4 branches were selected from those districts.

A mixed research approach was employed to answer the research questions that emerged through the review of existing literature in respect of the E-banking technology in Commercial Bank of Ethiopia. The study statistically analyzed data obtained from the survey questionnaire. To acquire the intended information the researcher used different data collection instruments like distributing questionnaire & conducting interview. The questionnaire included both open-ended and close-ended questions. And also the research framework was developed based on organization-environment –technology framework to guide the study. The result of the study indicated that, the major challenges that the Commercial Bank of Ethiopia faces in the adoption and development of E-banking technology are: high cost of implementation of E-banking, lack of customer awareness, limitation in network infrastructure and internet related support services, low levels of computer literacy, low level of ICT infrastructure and lack of trust. The study identified operational and services benefits from adopting and developing of E-banking technology such as increase productivity, reduces paper work, reduce transaction cost, generate foreign currency, increase reliability and reducing errors as operational benefits it improves customer service, reduce long queues in banking halls, increase accessibility of the bank services, create good relation between the bank and clients and encourages price transparency as services benefits.
The study recommended the bank to facilitate proper and continuous training for their employees, increasing security for E-banking products, create deep awareness about E-banking technology to the community while the government should support banking sector by facilitating sufficient ICT infrastructure development in Ethiopia.

Keywords: - *E-banking, Adoption and development of E-banking technology.*

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Acronyms & Abbreviations

AA- Addis Ababa
ACH- Automated Clearing House
ATM- Automatic Teller Machine
AVR- Automated Voice Response
CBE- Commercial Bank of Ethiopia
E-Banking- Electronic Banking
E-Commerce- Electronic Commerce
E-Payment- Electronic Payment
EFT- Electronic Fund Transfer
FSA- Financial Services Authority
GTP Growth and Transformation Plan
ICT- Information and Communication Technology
IDT- Innovation Diffusion Theory
IT- Information Technology
MB- Mobile Banking
NBE- National Bank of Ethiopia
OECD- Organization for Economic Cooperation and Development
PC- Personal Computer
POS- Point of Sale
PIN- Personal Identification Number
SPSS- Statistical Package for Social Science
TAM- Technology Acceptance Model
TOE- Technology-Organization-Environment framework
TPB- Theory of Planned Behavior
TRA Theory of Reasoned Action
TV- Television
VISA - Visa International Service Association
UNCTAD- United Nations Conference on Trade and Development
7X24- 7 days and 24 hours

CHAPTER ONE

1. INTRODUCTION

As an introduction of the study, this chapter presents: background of the study, statement of the problem, research questions, research objective, scope of the study, limitation of the study, significance of the study and organization of the whole paper respectively.

1.1 Back Ground of The Study

Information Communication Technology is the umbrella term that encompasses a wide selection of systems, devices and services used for data processing. In the widest sense, 'E-business' refers to the application of ICT technologies in business processes. Today's business environment is very dynamic and intense as a result of technological advancement and introduction of information and communication technology as a competitive advantage of any organization. Information and communication technology (ICT) is the automation of processes, controls, and information production using computers, telecommunications, software and other devices that ensure smooth and efficient running of activities. It is a term that largely covers the coupling of electronic technology for the information needs of a business at all levels (Alagheband, 2006). Laudon and Laudon (2012) define Information Technology as all the hardware and software that a firm needs to use in order to achieve its business objectives. Therefore, it can be explained in business context as "a set of interrelated components that collect (or retrieve), store, and distribute information to support decision making and control in an organization" (Yeboah, 2013).

In the last few decades, application of information technology in business strategies has become at the very heart of the competitive process. As economy moves from lower to higher stages of development, business processes are shifting from simpler to modern and complex techniques of production. In this regard information technology has played a great role in changing input-output relationship of production activities. Business organization, especially the banking industry is operating in a complex and competitive environment characterized by changing conditions and highly unpredictable economic climate with ICT being at the center of the change curve (Agbolade, 2011). Adoption of electronic banking service delivery is fast gaining ground worldwide. Different E-Banking channels such as electronic cards, internet banking and mobile

banking services have been introduced. Information and Communication Technologies have become an essential part of our lives. Businesses have employed e-business by the use of the internet and other products as a principal means of doing business. The electronic means of producing, distributing, marketing and sales of products and services is known as E-Commerce; broadly defined, electronic commerce encompasses all kinds of commercial transactions that are concluded over an electronic medium or network, essentially the internet.

According to (Frempong 2007) banks today are becoming increasing aware of both the threat and the opportunity that the Web represents. ICT mediated services such as automated teller machines, electronic fund transfer, electronic smart cards, cell phone banking among others are transforming the traditional ways of banking and providing competitive edge for banks that provide those services. But, to be competitive in the internet economy, companies need to control the power of the internet successfully; hence it is important to understand the benefits and challenges related to businesses' adopting of E-Business.

E-Business has dramatically changed how companies' business process are implemented and has also enhanced industry structure and shifted the balance of power between corporations and their suppliers and customers.(Basu and muylle 2007). The Internet is driving the economy by creating exceptional opportunities for countries, companies, and individuals around the world. Today chief executive officers worldwide recognize the strategic role that the Internet plays in their organization's ability to endure and compete in the future.

According to Basu and Muylle (2007) Companies in every industry have evaluated the opportunities and threats presented by E-Business. By thinking strategically about E-Business, managers can select technological solutions that support the company's business strategies and create value for the company and its customers.

The economy of Ethiopia is picking up the service industry especially the banking industry are extending their national and regional coverage to be able to provide the needed financial service and there will be a need for these businesses to understand if, when and how to use E-Business. In some industries, businesses are learning now that this is no longer an option to consider, but a requirement for survival. The reach of the underlying Information Communication Technologies making E-business possible is also causing exceptional globalization of business. In this development it is expected that the use of the internet would facilitate the adoption of E-Business in the Ethiopian banking industry as a means of offering fast, flexible and cost-effective ways of

doing business as well as enhance their competitiveness. This state of development will be important especially as volumes of trade increases. According to Bawumia (2007) banks will need to reinvent themselves in this new conducive but challenging environment. This is important because electronic transaction will continue to grow and only countries that make a move towards embracing E-Business will participate in this revenue generation (Akoh, 2001).

As with most developing countries that have pursued economic and structural reforms, Ethiopia has been undergoing a process of financial sector reforming and transformation as an important part of a comprehensive strategy for some time (Acquah, 2006). For example all banks to use the core banking system and an individual customer of a particular commercial bank has an access to use any commercial bank's ATM machine to withdraw money. Banking in Ethiopia is one of the industries being radically transformed by information communication technology. Hence it's a necessary to know and understand the benefits and challenges associated with electronic means of business transaction.

1.2 Statement of the Problem

Electronic Business in recent years has been beneficial to many businesses including the financial sector. Due to the resent globalization, it has become essential for businesses to demand for a convenient, reliable, effective, and efficient and a secured means of carrying out business.

E-banking has been widely used in developed countries and is rapidly expanding in developing countries. Nevertheless, in Ethiopia cash is still the most dominant medium of exchange, and electronic payment systems are observed late to move with rapid expansion of electronic payment systems throughout the developed and the developing world, Ethiopia's financial sector remain behind in expanding the use of the technology. With a growing number of import-export businesses, and increased international trades, increase the demand of the customers and international relations, the current banking system is short of providing efficient and dependable services (Gardachew, 2010).

The success of organizations today depends on the effectiveness and efficiency of the organizations information technology level. And this has brought about a keen competition among industry and the financial industry is no exception. Despite the fact that the benefits of electronic business appears to be obvious to businesses, many organization deem it less

important because the whole system appears cumbersome to such organization and have less knowledge about the positive impact e-business can have on their turn over and profitability.

The study is geared towards finding the impact of electronic business on the Commercial Bank of Ethiopia in general.

Lots of researches on E-banking system have been done in different countries in the world. Different factors in the adoption of E-banking have been taken as the main factors of the adoption of new technology by different researchers such as environmental factors (like lack of suitable legal and regulatory framework for e-commerce, poor ICT infrastructure, lack of competitive pressure in the industry), organizational factors (Lack of skilled man power, resistance to changes in technology among staff) and technological factors (security risk and functionality). However, despite the importance of these adoptions and development of E-banking, very limited number of researches have been done on the challenges and benefits of E-banking in developing countries. To the extent of the researcher knowledge, however, there is no research undertaken in this regard on CBE.

Therefore, more studies are still required to assess challenges and benefits of E-banking in the country to identify areas in which the country lags behind that inhibit their E-banking adoption and diffusion (Zhao, 2008).

Therefore, the purpose of this research was to identify the challenges and benefits associated in the adoption of E-banking technology in Commercial Bank of Ethiopia; which is in operation of doing business electronically parallel with the traditional banking system.

1.3 Research Questions

To gain a comprehensive understanding of the phenomenon under investigation, and in order to be able to provide a sufficient justification for answering that question, the following specific questions needs to be addressed. For the purpose of the present research, these questions are:

1. What are the major challenges for the adoption of e-banking service in CBE?
2. What are some of the benefits of adopting e-banking service?

1.4 Objective of the Study

1.4.1 General objective

To assess the challenges in the current practice and benefits realized by the bank through the adoption of e-banking service in Commercial Bank of Ethiopia.

1.4.2 Specific objectives

1. To identify the major challenges for the adoption of e-banking service in CBE.
2. To find some of the benefits realized by CBE in the adoption and practice of e-banking technology.

1.5 Significance of the Study

Customers judge service quality depending on a number of factors relevant to the context. Many attempts have been made to understand and measure e-service quality. Most of these efforts have focused on online shopping with limited attention to other service contexts (Li, H and Suomi, R. 2007). These endeavors have confirmed the existence of variability in the dimensions of e-service quality (Li, H and Suomi, R. 2007) which means that most measures of e-service quality that have been developed differ in dimensions and attributes. Besides, most measures are ad hoc and have not been validated, potentially leading to poor managerial decisions (Zeithaml, V.A. 2002) when they are applied in other contexts. Further, while several e-service dimensions may be important, only a few are most important from the customer's perspective (Joseph, M. and Stone, G. 2003).

E-banking system is in an infant stage in Ethiopia, by investigating the different challenges and benefits for the adoption of this service delivery channel and by recommending solutions for the identified problems, this study will help the bank to benefit from the adoption of this technology. In addition, it will give insight to researchers and students about the problem and stimulate further investigation of the issue.

1.6 Scope of the study

The scope of the study was limited on geographical location which is focused only Addis Ababa branches. The questionnaires were distributed to the Commercial Bank of Ethiopia employees of four selected branches that are found in AA. They are currently using the service of E-banking but it does not consider all branches of employees have on technology. Hence the generalization

may not be applicable to them. And due to time and resource limitation, customers were not included on the assessment.

1.7 Limitation of the study

The focus of this study was on the assessment of the challenges and benefits for the adoption of e-banking service in commercial bank of Ethiopia. And the study was limited to surveying and interviewing employees of randomly selected branches of CBE and documentary analysis of the CBE. Hence, the random sampling procedure decreases the generalizability of findings and this study might not be generalizable to all branches of CBE. And also owing to the initial stage of e-banking services available in Ethiopia, it will be very difficult to get secondary data as well as literature in this area from the country perspective. The study was focused on the opinion of the bank officials and does not include the customers or public opinion on the subject matter. In addition, time and financial constraints will also become the main limitation of the study.

1.8 Organization of the study

This study has been arranged in five chapters with different sections and sub-sections. The first chapter of the research briefly discusses the recent developments in e-banking services quality measurement and its impact on customer satisfaction. It will also include the general and specific objectives to be addressed, statement of the problem, research questions, its significance to stakeholders, rationale behind conducting the study, the benefit that will result in and limitations; chapter two will deeply investigate related literatures to study and outline all e-banking service quality dimensions to be processed further; The third chapter will handle the methodology of the study (including the development and validation process of the instrument); The fourth chapter has revealed data analysis and interpretation of the result; and finally the fifth chapter will focus on conclusion and recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter focused on reviewing different literatures in the area of E-banking adoption and development and mainly focused on the challenges and benefits of adopting E-banking technology. This review of literature establishes a framework, which can guide the study.

The review has nine sections. Section 2.1, presents introduction to e-banking followed by the definition of E-banking technology in section 2.2. Evolution of E-banking presented in section 2.3. forms of e-banking, innovation adoption and e-banking risks were presented in section 2.4, 2.5 and 2.6, respectively, while the conceptual frame work used to guide the study and the empirical studies related with E banking adoption and development is presented in section 2.7 and 2.8 respectively. Finally, E-banking challenges in Ethiopia were presented in section 2.9.

2.1 Introduction to E-Banking

According to Mohammed shamsuddoha (2008), electronic Banking is transforming the financial services industry through various innovations. The quantity of cross-border trading and other financial activities is increasing geometrically make possible by technology. It has been made possible by technology, particularly information technology to generate, collect and process information about bank operation and bank customers efficiently and effectively.

It provides the ability to create more effective systems of controls in individual institutions and in the market themselves. Compared to the paper based operation, Electronic Banking Systems, in its most proficient form, offer instant verification and transfer and reduces the flow of costly paper in the record keeping process. Application of technology in banking offer opportunity for reduction of both paper and people. Banks have developed electronic banking service for three main reasons.

- To protect and increase market share
- To reduce operating cost by substituting physical capital and technology for labor
- To generate new revenue

Electronic banking allow banks to expand their markets for traditional deposit taking and credit extension activities, and to offer new products and services or strengthen their competitive

position in offering existing payment services. In addition, electronic banking could reduce operating costs for banks. More broadly, the continued development of electronic banking and electronic money may contribute to improving the efficiency of the banking and payment system and to reducing the cost of retail transactions nationally and internationally. Although many financial instrument and systems are now considered as "Electronic Banking" came into the terminology of the financial world in the late 1980s, with the possibility of emergence of true electronic money. All sorts of back-office information management technology and financial services using electronic devices can be included into the term "Electronic Banking". The development in information technology has contributed positively to economic growth through several channels. ICT has led to a productivity growth through the impact on activity processes. Banks have been increasing their own size and financial strength and expanding the scope of their products lines to meet the growing demand of their customers.

2.2 Definition of E-Banking

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 definition of electronic banking (E-banking) varies amongst researchers partially because electronic banking refers to several types of services through which a bank's customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999; Mols, 1998; Sathye, 1999). Different authors have defined it in different ways based on their understanding of the application of electronic banking. The following are few of them.

E-banking is an electronic connection between bank and customer in order to prepare, manage and control financial transactions (Burr, 1996). Electronic 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 other financial service provider remotely via a telecommunications network (Yang, 1997, pp.2) same is shared by (Malak, 2007).

Sathye (1999) also asserted that electronic banking can be defined as a variety of the following platforms: (a) Internet banking (or online banking), (b) telephone banking, (c) television-based banking, (d) mobile phone banking, and (e) PC banking (or offline banking).

Daniel (1999) explained, E-banking is online banking (or Internet banking) which allows customers to conduct financial transactions on a secure website operated by their retail or virtual bank, credit union or building society. This implies that E-banking is a service that allows an account holder to obtain account information and manage certain banking transactions through a personal computer via the financial institution web site on the internet.

According to Singh & Malhotra (2004), E-banking can be defined as the deployment of banking services and products over electronic and communication networks directly to customers.

E-banking can be also defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, Personal Digital Assistant (PDA), Automated Teller Machine (ATM), Point of Sale (POS), kiosk, or touch tone telephone (Alagheband 2006, p.11).

In general, E-banking is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting the bank.

2.3 Evolution of E-banking

Since the late 1990s E-banking has developed from virtual insignificance to tens of millions of users worldwide (OECD, 2004). However, E-banking is the product of different generations of electronic transactions. The current web-based internet is the latest of several generations of systems: Automated Teller Machine (ATMs), Phone Banking, PC or House Banking. Automated Teller Machines (ATMs) were the first well-known machines to provide electronic access to customers where as in phone banking, users call their bank's computer system on their ordinary phone and use the phone keypad to perform banking transactions.

PC banking superseded phone banking and allowed users to interact with their bank by means of a computer with a dial-up modem connection to the phone network. Phone and PC banking entailed maintenance costs associated with keeping up to date with diverse modems and with

avoiding prohibitively complex installation procedures. After those generations Deutsche Bank launched the very first Internet banking project in Latin America in 1996 and Citibank has developed a special "e-toolkit" across all its branches worldwide (UNCTAD, 2002). E-banking uses the web browser for the user interface and the Internet for data transfer and download of software, and so has a potential for reducing maintenance costs. For users, E-banking provides current information, 7x24 access to banking services. The primary services provided by e-banks are transferring money among one's own accounts, paying bills, and checking account balances. Loans, brokering, share trading, service bundling, and hosts of other financial services are being added to these primary services). E-banking is widely used in, among other places (Dewan & Seidmann, 2001).

2.4 Forms of E-banking

The tools/channels use in executing e–banking include plastic cards (debit cards, credit cards, prepaid cards), personal computers, telephone, mobile phones, internet, ATM's, POS or point of interaction machines (Morufu and Taibat, 2012). The description of the above mentioned tools/channels are as follows: -

A. Plastic Cards

Debit cards: - Debit card is a banking card enhanced with ATM and POS features sothat it can be used at merchant locations. Debit cards allow you to spend only what is in your bank account. It is a quick transaction between the merchant and your personal bank account. A debit card is linked to an individual's account, allowing funds to be withdrawn at the ATM and point of sale without writing a cheque. When using a debit card to pay for goods and services, the purchase amount is deducted from the cardholder's checking account or saving account. The types of debit card include online debit card and offline debit card. With offline debit card, debit is not made immediately. Benefits of using a debit card include making the payment process at the checkout counter quicker and more convenient, eliminating the need to carry a cheque book and a lot of cash, using it at locations where personal cheques are not accepted, and reducing the possibility of loss or theft of cash (Okoye, 2013).

Prepaid debit cards: - These are debit cards not usually linked to a customers' account. They must be funded before being used by cardholders. Prepaid debit cards are identified with such

names like cash cards, value cards, and Naira cards etc. prepaid cards can be used as gift cards students ID cards, Government payment card, payroll card, Bursary card, insurance cards, travel cards etc.

Credit Cards: - A credit card is different from a debit card in that it does not remove money from the user's account after every transaction. In the case of credit cards, the issuer lends money to the consumer (or the user) to be paid to the merchant. A credit card allows the consumer to revolve their balance at the cost of having interest charged. The parties involved in a credit card transaction include cardholder, card issuing bank, merchant, acquiring bank, independent sales organization, merchant account, credit card association, transaction network, and affinity partner.

A. Automated Teller Machines (ATM):-

This is a computerized telecommunications device that provides the customer of a financial institution with space to financial transaction in a public space without the need for a human clerk or bank teller. Using an ATM, customers can access their bank accounts in order to make cash withdrawals and check their account balance. ATM's rely on authorization of a financial transaction by the card issuer or other authorizing institution via the communications network. Many banks charge ATM usage fees for transactions.

B. Point-of-Sale Transfer Terminals (POS) :-

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

C. Internet / Extranet Banking:-

According to Booz, Allen & Hamilton (1999), "Internet banking" refers to systems that enable bank customers to access accounts and general information on bank products and services through a personal computer (PC) or other intelligent device.

D. Mobile Banking:-

It can be defined as an occurrence when customers access a bank's networks using cellular phones, pagers, personal digital assistants, or similar devices through telecommunication wireless networks (Segun, 2011). It means performing banking activities which primarily consists of opening and maintaining mobile/regular accounts and accepting deposits; furthermore, it includes performing fund transfer or cash-in and cash-out services using mobile devices (NBE Directive, FIS-01-2012).

E. Tele-banking:-

According to Habibur, Mohammed and Sayeed (2012) Telephone Banking service is provided by phone. To access an account it is required to dial a particular telephone number and there are several options of services. Options included:-

- Checking account balance,
- Funds transfer between current, savings and credit card accounts
- Bill payments
- Stock exchange transaction
- Receive statement via fax
- Loan payment information

2.5 Innovation Adoption

Today the world is witnessing profound transformations and acceleration as a result of the tremendous development of information technology and steady growth of volume of information that has led to the emergence of new types of activities and transactions in various fields (Joseph N, 2005). The banking sector has been one of the first area that adopted different electronic applications to improve performance and gain a competitive advantage strategy. In light of the extensive use of information and communication technologies, the financial services industry and banking has provided new systems and applications that maximizes the use of modern technology and are now available (Francis, 2014). According to Rogers (1983), the rate of adoption is defined as the relative speed with which members of a social system adopt an innovation. Therefore, it has become necessary for banks to change the concept of traditional

banking service to because of the rapid growth of electronic banking services and ever increasing competition among banks to raise efficiency, reduce costs and attract more customers (Francis, 2014).

2.6 E-Banking Risks

Although E-banking has bright prospects, it involves some financial risks as well. The major E-banking risks according to FSA (2010) include:-

Operational risks: Banks faces three main types of operations risk: such as volume forecasts, management information systems and Outsourcing.

Accurate volume forecasts have proved difficult – One of the key challenges encountered by banks is how to predict and manage the volume of customers that they will obtain. Many banks going on-line have significantly misjudged volumes. When a bank has inadequate systems to cope with demand it may suffer reputational and financial damage, and even compromises in security if extra systems that are inadequately configured or tested are brought on-line to deal with the capacity problems.

The second type of operations risk concerns management information systems. Again, this is not unique to E-banking. Banks may have difficulties in obtaining adequate management information to monitor their service, as it can be difficult to establish/configure new systems to ensure that sufficient, meaningful and clear information is generated. Such information is particularly important in a new field like E-banking.

Finally, a significant number of banks offering E-banking services outsource related business functions, e.g. security, either for reasons of cost reduction or, as is often the case in this field, because they do not have the relevant expertise in-house. Outsourcing a significant function can create material risks by potentially reducing a bank's control over that function security risk: Security issues are a major source of concern for everyone both inside and outside the banking industry. E-banking increases security risks, potentially exposing hitherto isolated systems to open and risky environments. Security breaches essentially fall into three categories; breaches with serious criminal intent (e.g. fraud, theft of commercially sensitive or financial information), breaches by 'casual hackers' (e.g. defacement of web sites or 'denial of service' - causing web sites to crash), and flaws in systems design and/or set up leading to security breaches (e.g.

genuine users seeing / being able to transact on other users' accounts). All of these threats have potentially serious financial, legal and reputational implications.

Reputational risk: This is considerably heightened for banks using the Internet. For example, the Internet allows for the rapid dissemination of information, which means that any incident, either good or bad, is common knowledge within a short space of time. Internet rumors can easily become self-fulfilling prophecies. The speed of the Internet considerably cuts the optimal response times for both banks and regulators to any incident. Banks must ensure their crisis management processes are able to cope with internet related incidents (whether they be real or hoaxes). Any problems encountered by one firm in this new environment may affect the business of another, as it may affect confidence in the Internet as a whole. There is therefore a risk that one rogue e-bank could cause significant problems for all banks providing services via the Internet. This is a new type of systemic risk and is causing concern to E-banking providers. Overall, the internet puts an emphasis on reputational risks.

In addition, legal risks (e.g. without proper legal support, money laundering may be influenced); Strategic risks; credit risks; market risks; and liquidity risks are also E-banking risks. Therefore, identification of relevant risks, and formulation and implementation of proper risk mitigation policies and strategies are important for banks while performing E-banking. Among these security risk that affects the network system is the major one FSA.

Strategic Risk:- E-banking is relatively new and as a result there can be lack of understanding among senior management about its potential and implications. People with technological but not banking skills can end up driving the initiatives. E-initiatives can spring up in an incoherent and piecemeal manner in firms. They can be expensive and can fail to recoup their cost. Furthermore, they are often positioned as loss leaders (to capture market share), but may not attract the types of customers that banks want or expect and may have unexpected implications on existing business lines.

Business Risk: - Business risk is also significant in E-banking. Given the newness of E-banking, nobody knows much about whether E-banking customers will have different characteristics from the traditional banking customers. They may well have different characteristics. This could render existing score card models inappropriate, thus resulting in either higher rejection rates or inappropriate pricing to cover the risk. Banks may not be able to assess credit quality at a distance as effectively as they do in face to face circumstances. It could be more difficult to

assess the nature and quality of collateral offered at a distance, especially if it is located in an area the bank is unfamiliar with (particularly if this is overseas).

Security: - Security issues are sources of concerned for everybody more especially as it concerns banking industry. E – banking are prone to security breaches such as fraud, theft of commercially sensitive or financial information, defacement of web sites or denial of service and flaws in system design and/or set up leading to security breaches. All these security breaches have potentially serious financial, legal and reputational implications.

2.7 Conceptual Framework

Researchers have been used different frameworks in the study of adopting new technological innovation. Among frameworks that have been developed in different studies includes,). Technology-Organization-Environment (TOE) framework, Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Innovation Diffusion Theory (IDT) and Theory of Reasoned Action (TRA).

A. Technology- Organization- Environment (TOE) Framework.

TOE framework was developed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, 2009, Ellis, 2009, Chang, 2007, Zhu & Kraemer, 2006). According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment.

- The technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).Technological factors include complexity, compatibility, relative advantage, ease of use and usefulness. The technological factors are related to challenges to technology adoption and its perceived benefits. The perceived benefits for manager could be direct, such as cost savings or income generation, or indirect, such as potential opportunities in new market, marketing, or publicity (Rogers 2003).

- The organizational factor refers to the organizations characteristics that influence its ability to adopt and use of E-banking system. The organizational factors that have been mostly cited in literature include: Information Technology (IT) users' community; organizational structure; firm's process; firm size; technological capabilities of the organization's members; the technological and financial resources available; process of selecting and implementing the IT; management backing and support for the project (Harrison, 2012).
- The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services. Environmental factors relating to IT adoption (and specifically the adoption of internet technologies) includes pressure from competitors, customers or suppliers; the role of government (incentives); partners, alliances; technological infrastructure; technology consultants; image of internet technology; and users expectations (Harrison, 2012).

B. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was introduced by Davis (1986) quoted in Davis, (1989). Technology acceptance model is an adaptation of Theory of Reasoned Action (TRA), developed to specifically deal with modeling user acceptance of information systems. As compared to TRA, Technology Acceptance Model is significantly less general. The model was developed to particularly explain the computer usage behavior. But since, TAM includes findings collected from over a decade of Information System (IS) research, so it is particularly well-suited for modeling computer acceptance.

The Technology Acceptance Model (TAM) defines the casual relationship between perceived usefulness, ease of use, system design features, attitude towards using and actual usage behavior. In general, an informative representation of the mechanisms by which design choices influence user acceptance is provided by TAM. Hence, Technology acceptance model is useful in applied contexts for forecasting and evaluating user acceptance of information technology (Davis, 1993).

According to Technology Acceptance Model (TAM), perceived usefulness (PU) and perceived ease of use (PEOU) are two key beliefs that are mainly relevant for computer acceptance behavior. Theory of Reasoned Action (TRA) is used by TAM as a theoretical basis to specify causal association between these two key beliefs i.e. PU and PEOU.

Perceived usefulness (PU) is defined as the degree to which a potential user thinks that using a particular system would increase his/her job performance. The term usefulness is derived from the word 'useful', which means the advantage of using particular IS. Whereas, perceived ease of use (PEOU) is defined as the degree to which a potential user thinks that using a particular system would be free of effort. The word 'ease' means, freedom from difficulty, hardship or effort. In short, ease of use means 'user-friendliness' of IS (Davis,
1989).

C. Theory of Planned Behavior (TPB)

TPB is developed originally based on the theory of reasoned action (TRA) which explains almost any human behavior. In predicting and explaining human behavior across various application contexts, it has been proven successful. According to TRA, a person's behavioral intention guides his actual behavior of performing some certain action and where subjective norm and attitude toward the behavior determine the behavioral intention (Liao, 2007).

According to Ajzen (1991) quoted in Liao, (2007, p. 2809), "behavioral intention is a measure of the strength of one's willingness to try while performing certain behaviors". As in the original model of TRA, there are some limitations when dealing with behavior for which there is incomplete volitional control of people. Therefore, TPB is proposed to eliminate these limitations; and in fact, TPB differs from TRA because of the addition of perceived behavior control, which potentially effects behavioral intention.

According to Ajzen (1991), the theory of planned behavior proposes three independent determinants of intention which are attitude towards the behavior, subjective norm and perceived behavioral control.

Attitude as defined by Fishbein and Ajzen (1975) quoted in Liao, (2007, p. 2809), is "the degree of one's favorable or unfavorable evaluation of the behavior in question". The attitudes are developed reasonably from one's beliefs about object of the attitude.

Subjective Norm refers to "the perceived social pressure to perform or not to perform the behavior"(Ajzen, 1991 quoted in Liao, 2007, p. 2809). It can be said that it is related to the normative beliefs about other people's expectations on either to perform or not to perform the behavior.

Perceived behavioral control refers to ‘‘people’s perception of ease or difficulty in performing the behavior of interest” (Ajzen, 1991 quoted in Liao, 2007, p. 2809) and is assumed to reflect past experiences as well as the predicted difficulties and barriers. The construct of the perceived behavioral control in the TPB is added to cope with the situations in which people may lack the complete volitional control over the behavior of interest.

Perceived behavioral Control is directly connected to the beliefs of the control factors that can facilitate or hinder the performance of the behavior (Ajzen, 2002 qouted in Liao, 2007). Control factors can be referred to as the internal or external constraints where internal constraints are related to self efficacy and external constraints to the environment (Ajzen,1991 quoted in Liao, 2007).

Generally speaking, the more favorableness and un-favorableness of the attitude, subjective norm and the higher perceived behavior control are directly proportional to the strength of one’s intention to perform the behavior under consideration (Ajzen, 1991).

D. Innovation Diffusion Theory (IDT)

According to Rogers (1995 p. 11), innovation is defined “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”, whereas diffusion is defined as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995, p. 5). Therefore, Innovation Diffusion Theory (IDT) states how new ideas, concepts or technologies spread or become common in a society and adopted by users.

Innovation Diffusion Theory (IDT) includes fives characteristics. These characteristics as defined by Rogers (1995, pp. 250-251) are:

- Relative Advantage: “The degree to which an innovation is perceived to be better than the idea it supersedes”.
- Compatibility: “The degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters”.
- Complexity: “The degree to which an innovation is perceived as relatively difficult to understand and use”.
- Trialability: “The degree to which an innovation may be experimented with on a limited basis”.

- Observability: “The degree to which the results of an innovation are visible to others”.

The above mentioned characteristics, defined by Rogers (1995) greatly influence adoption. According to Chen, (2000), among five characteristics of IDT, relative advantage, compatibility and complexity are the only attributes, which are consistently related to innovation adoption.

F. Theory of Reasoned Action (TRA)

The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975 quoted in Belleau, 2007) is based on the assumption “that individuals are rational and make systematic use of information available to them”.

According to theory of reasoned action, behavioral intention (BI) of an individual is a measure of the strength of one's intention to perform a specified behavior. BI is determined by two factors:

1) Attitude towards the behavior (AB), which is a function of beliefs (bi) that performing the behavior possesses certain attributes and the evaluation of those beliefs (EI).

2) Subjective Norm (SN), which is the perception of social groups i.e. what specific individuals or groups think that a person should or should not perform (Belleau, 2007). “An individual's Subjective Norm (SN) is determined by a multiplicative function of his or her normative beliefs (NBI), i.e., perceived expectations of specific referent individuals or groups, and his or her motivation to comply (MCI) with these expectations” (Fishbein and Ajzen, 1975, p. 302 quoted in Davis, 1989).

Apart from the above mentioned factors, Ajzen and Fishbein (1980) quoted in Belleau, (2007) mentioned that some external variables might also have influence on behavioral intention, for instance, demographics, traditional attributes towards targets and personality traits. Some researchers have proposed additional external variables, which could be included in the model for predicting the behavior. Those variables are: past behavior, past experience or involvement (Bagozzi, Wong, Abe, & Bergami, 2000; Bunce & Birdi, 1998; Shim, 1989 quoted in Belleau, 2007).

According to Fishbein and Ajzen (1975) quoted in Sheppard, (1988) “a behavioral intention measure will predict the performance of any voluntary act, unless intent changes prior to performance or unless the intention measure does not correspond to the behavioral criterion in terms of action, target, context, time-frame and/or specificity”.

TRA model predicts consumers' intention and behavior very well. Armitage and Conner (2001) quoted in Belleau, (2007); state that behavior that is comparatively straight forward i.e. under volitional control can be predicted adequately by theory of reasoned action. As it is understood that an intention to buy a product is volitional and few constraints are associated with it, so the usage of theory of reasoned action can lead to valid prediction of purchase intention. However, there is a constraint associated with the TRA model regarding the distinction between a goal intention and a behavioral intention, which has also been acknowledged by Fishbein and Ajzen. The limitation is that they established their model to cope with behaviors, for example, taking weight loss pill, applying for a loan or purchasing a new car; but not with outcomes that result from behaviors, for example, losing 10 pounds, getting a loan or owning a brand new car. Moreover, only those behaviors are dealt by model that is under an individual's volitional control. The conditions of the model can't be fulfilled, whenever the performance of some action needs resources, knowledge, skills or environmental hurdles need to be overcome (Sheppard, 1988).

In this study, Technology-organization-environment framework was used to have a more precise forecast on the challenges of adopting and developing E-banking technology in Commercial Bank of Ethiopia.

2.8 Empirical Studies Related with E-banking Adoption and Development

A lot of related studies were conducted by different researchers in different developed countries. Nevertheless, there are limited numbers of studies were conducted in Ethiopia on the adoption and development of the technological innovation particularly on E-banking services. Specifically, Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analyzing the status of E-banking in Ethiopia and investigates the main challenges and opportunities of implementing E-banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using E-banking system, such as, lack of suitable legal and regulatory frame works for E-commerce and E- payments, political instability in neighboring countries, high rates of illiteracy and absence of financial networks that links different banks. According to Gardachew (2010), Opportunities offered by ICT through e-learning programs and Commitment of the governments on development of ICT infrastructures is considered as drivers of using E-

commerce and E-payment systems. Ayana, (2012) also conducted research on factors affecting adoption of E-banking System in Ethiopian Banking industry. The study was conducted based on the data gathered from four banks in Ethiopia. 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 framework, Lack of ICT infrastructure and absence of competition between local and foreign banks. The study also identified perceived ease of use and perceived usefulness as a driver of adopting E-banking system.

Study conducted by Khalfan, (2006) on 'Factors influencing the adoption of internet banking in Oman. Data, used in his study were collected using semi structured interviews and survey questionnaire as well as reviewing some bank documents. The results of their study provide a Pragmatic picture about the adoption of E-Commerce applications in the core financial sector domain of Oman. One of the main findings is that security and data confidentiality issues have been a major challenge. The banking sector was reluctant to use E-commerce applications as they felt that transactions conducted electronically were open to hackers and viruses, which are beyond their control. Lack of top management support is the other inhibiting factor in the adoption of electronic commerce applications as per their finding.

Siam (2006) investigated the role of electronic banking services on the profits of Jordanian banks. He investigated the reasons behind providing electronic banking services through the internet and their impact on banking services in general and banks profitability. The study was done in 20 commercial banks operating in Jordan. The sample period was between 2003 to 2006 and they interviewed 98 managers. Accounting data was used to measure banks performance using regression analysis. He concluded that the effect of electronic banking services on banks profitability is negative in the short run because of costs and the investments the bank carry in order to have the technical and electronic infrastructure in place, training the employees to be skilled and competent but will be positive on the long run.

The study conducted by Daghfous and Toufaily (2007) on factors affecting adoption of E-banking technology in Lebanese banks. The study was conducted on the factors that can lead to success the adoption of E-banking and the other factors that can constitute as challenges to its adoption, it focus on the organizational, structural and strategic factors.

Data, used in their study were collected using semi structured interviews and survey questionnaire that was given to E-banking managers all the banks on the official list of institutions operating on the Lebanese market, with a total of 57 banks, 31 of them operate internationally and 26 are strictly local were used to gather data. The results of the study revealed that the organizational variables (bank size, functional divisions, technical staff, technical infrastructure, perceived risks, decision makers` international experience and mastery of innovation) are variables which exert significant impact on the adoption of E-banking, among the structural characteristics, the result revealed that internal technological environment of the bank is a very important factor in determining the adoption of E-banking, also the result shows that banks which are developing in the international scale are more likely to adopt E-banking innovations.

Finally the result of the study indicated that extent of penetration of E-banking in the growth phase of an emerging market has an important correlation with the improvement of commercial performance.

Njuguna, (2009) conducted a study on internet banking adoption in Nairobi County, Kenya between 2010 and 2011. The purpose of the study was to establish the factors that influence adoption of internet banking among the individuals who have accounts with commercial banks in Nairobi County; Kenya. Only 24.82% of the respondents use internet banking services. This is despite the high rate of internet access recorded. They concluded that internet banking is still at its nascent stages as demonstrated by the length of usage response. The results also revealed that perceived usefulness, perceived ease of use, self-efficacy, relative advantage, compatibility, and result demonstrability have a significant association with intention to use internet banking, while risk, visibility and trialability are not significant. Other study conducted by Gikandi and Bloor (2010) on adoption and effectiveness of electronic banking in Kenya. The results showed that there was a drastic shift in the importance attached to some E-banking drivers between years 2005 and 2009. In the 2005 survey, the number of other retail banks adopting E-banking was considered as a driver of medium importance by 70% of the banks, however, in the 2009 survey it was ranked among the extremely important drivers by a 100% of the banks. Similar observations were made in the case of competitive forces. Internet security was identified as the most important future challenge in E-banking while customer trust, privacy and awareness were

recognized as challenges of great importance. The study concluded that cost reduction and customer related factors have emerged as the main drivers of E-banking adoption in Kenya. Mobile banking growth is expected to continue.

It would be good to find out if there has been any change with the increase in competition among commercial banks in Kenya and changes in the regulatory environment.

E-banking challenges and opportunities in Greece were researched by Angelakopoulos and Mihiotis (2011). The main findings demonstrate that banks expand to E-banking services in order to remain competitive, to keep track with technological developments and to benefit from the lower cost of E-banking transactions. The major problems they face are the low response rate from customers and the implementation of security and data protection mechanisms. The relatively low Internet usage, the non-familiarity with technologically advanced devices and problems regarding security and privacy are the main factors that have a negative influence on the adoption of E-banking services by customers in Greece.

Rasoulian and Safari (2011) carried out research concerning reasons as to why there was a lack of E-banking achievement; the result of the first chapter of their study showed the importance of Internet use, frameworks and encouraging policies to impress beneficiaries to use electronic banking. The second part introduced cultural elements as the most important challenge followed on by financial elements (the cost of the Internet and commissions) as the second influencing factor. The significance of technical elements is fading away according to their study due to improvements in the banking system. In addition their study highlighted other parameters such as management obstacles as also playing an important role in electronic banking in Iran.

Sumra, (2011) carried out a study on the impact of E-banking on the profitability of Pakistani banks. The study was qualitative in nature assessing the qualitative factors in determining the impact of E-banking. It also discussed the effect of customers' literacy on provision of services from banks' perspective. The study was conducted in 12 Pakistani banks from three cities. The results showed that E-banking has increased the profitability of banks; it has enabled the banks to meet their costs and earn profits even in the short span of time. The illiteracy of customers is not regarded as a major impediment in provision of their products and services. For banks, the main motive to adopt E-banking is to increase their clientage and to retain their customers. The profitability of banks has augmented in transitioning to E-banking medium. It would be

important to carry out a similar qualitative research in Kenya to determine whether similar results would be obtained.

Simeon and Bamidele (2012)"Cashless Banking in Nigeria: Challenges, Benefits and Policy implications", have studied the challenges, benefits and policy implications towards the creations of cashless society in Nigeria and have found that the shift towards a cashless Nigeria seems to be beneficial though it comes with high level of concerns over security and management of cost savings resulting from its implementation. Its objective is to examine the implication of cashless banking with a view to exposing the possible challenges and prospects it poses to the Nigerian economy whilst employing aggregated approach. Vis-à-vis the rising doubts with regard to the effectiveness of various economic policies in achieving developmental goals of Nigeria, the study presented significant recommendations: availability of sufficient and well-functioning infrastructural facilities (notably electricity), harmonization of fiscal and monetary policy, regular assessment of the performance of cashless banking channels (individually and collectively), consideration of the present state and structure of the economy, redesign of monetary policy framework and greater efforts towards economic growth whilst managing inflation.

The following section, reviews empirical studies related with challenges, benefits of E-banking technology adoption.

2.8.1 Challenges of E-banking

According to Harrison (2012), it is hypothesized that many of the factors affecting the successful adoption of new technologies such as e-commerce and E-banking are generic in nature and that the successful adoption of internet technologies in part depends on how these are used in conjunction with the other technologies and management practices that form a technology cluster. However, the most critical challenges can be ascribed to the very limited information and communication infrastructure available in most developing countries. Reasons vary widely among sectors and countries and are most commonly related to lack of applicability to the business, preferences for established business models, (OECD, 2004). Common challenges includes; enabling factors (availability of ICT skills, qualified personnel, network infrastructure); cost factors (ICT equipment and networks, software and re-organization); security and trust factors (security and reliability of ecommerce systems, uncertainty of payment methods, legal frameworks and intellectual property right); and challenges in areas of management skills,

technological capability, productivity and competiveness. Lack of reliable trust and redress systems and cross country legal and regulatory differences was also impede e-commerce adoption (OECD, 2004). It is however important to note that challenge to e-commerce adoption work differently according to organizational type and culture. Areas of training and people development need to be addressed Harrison (2012).

The study that was conducted by Isaac (2005) indicated that the challenges for the adoption of E-banking in Africa are security, human face i.e. customers still value personalized and responsive services from their bankers, poor and/or lack of technological infrastructure especially in the rural areas, lack of proper legislation governing e-transactions and preference to paper money, as opposed to "virtual" cash in transactions etc.

Ziad, (2009) also analyzed E-commerce challenges in terms of three categories: economic, socio-political and cognitive. The economic obstacles include several factors that affect the diffusion of e-commerce such as slow internet diffusion, unavailability of credit cards, unavailability of a physical delivery system, and low bandwidth availability.

The socio-political challenges take account of government regulations like privacy and security, lacks of business laws for e-commerce, lacks of legal. Finally, the cognitive hindrances contain a number of factors which lead to a negative cognitive assessment of E-commerce of individuals and organizations like inadequate awareness, knowledge, skills, and confidence; a lack of awareness and understanding of potential opportunities; lack of confidence in service providers and the postal network and computer illiteracy.

Japhet and Usman (2010) identified the following specific challenges hindering the adoption of e-commerce in developing countries.

- Lack of convenient payment means, poor distribution system, imperfect legal system, and lack of large scale telecommunication transmission capability (broadband), Internet security are problems face these countries.
- Another most pressing limitations are access to technology (computers, connectivity, and gateway to Internet), limited bandwidth, which reduces the capacity to handle audio and graphic data; poor telecommunications infrastructures and unreliable electricity supply.
- The cost of the Internet access makes it inaccessible to most users in developing countries. The cost of accessing the infrastructures also influences the growth of ecommerce. The priority for most developing countries is to put in place the necessary

infrastructure and a competitive environment and regulatory framework that support affordable Internet access. The monthly connection cost of the internet far exceeds the monthly income of a significant portion of the population.

- Confidence and trust is also an essential requirement for secure electronic trading. The geographical separation of buyers and sellers, often coupled with a lack of real-time visual or oral interaction, creates a barrier to ecommerce adoption in developing countries. Language is another important hindrance to ecommerce adoption. Most people in developing countries are illiterates and uneducated. Moreover, English is a primary language used in many Western countries where new technologies originate. It is the predominant language for development of IT and e-commerce and it is the main language used on the Web.
- Finally, the study identified various socioeconomic characteristics as barriers hindering ecommerce adoption in developing countries. The most common are unfavorable economic condition, the poor state of educational system , Lack of ICT skills and business skills, unreliable and non-secure payment infrastructures, the inefficient logistics and distribution system and the lack of good transport.

Exploratory study conducted by Alhaji Ibrahim H. (2009) the following are among the critical challenges for the adoption of E-banking in Nigeria:-

- Lack of Technological Infrastructure – the implementation of e-payment is been impeded by unavailability of ICT infrastructure. Most rural areas where majority of small and medium scale industries are concentrated have no access to internet facilities.
- ICT Equipment Costs – where available, the cost of ICT is a critical factor relative to per capital income. This makes the cost of entry higher compared to developed countries.
- Regulatory and Legal Issues – inexistence of proper legal and regulatory framework.
- Non-readiness of banks and other stake holders (acceptability) – even though some have shown impressive willingness, some banks are still not fully ready to this new payment regime.
- Resistance to changes in technology among customers and staff due to: · Lack of awareness on the benefits of new technologies,
    - Fear of risk among banks
    - Lack of trained personnel in key organizations and

- ❖ Tendency to be content with the existing structures

- ♦ People are resistant to new payment mechanisms;
- ♦ Security – where disclosure of private information, counterfeiting and illegal alteration of payment data may be rampant.
- ♦ Frequent connectivity failure in telephone lines.
- ♦ Frequent power interruption

In addition, a research conducted by Eze and Nwankwo (2012) stated that the following as major challenges for adoption and development of E-banking technology in Nigeria:-

- ♦ Legal and Regulatory framework: - The absence of a proper legal and regulatory framework for internet constitutes one of the major challenges of E-banking. The existing banking laws do not address the issue of E-banking as a new banking system.
- ♦ Consumer Protection: - Another major challenge of the development of E-banking is the issues of adequate protection for consumers of banking products from the various risks to which they are exposed to. The risks include financial loss, malfunctioning of terminals or cards as well as the possibility of unauthorized disclosure of information without the consent of the consumer. The challenges here range from customer details being stolen from the vendors files to the selling up of a fraudulent website by fake customer to deceive other innocent customers.
- ♦ Loss of Audit Trail: - Another challenge of E-banking is the loss of audit trail as business processes continue to change with internal banking, personal computer and telephone banking. Audit trail basically allows for the tracing of transactions through banking environment facilitates the work of supervisors in ascertaining the reliability or otherwise of the information contained in the master file.
- ♦ Security of Financial Transactions: - There are numerous threats to the security of internet banking. One of such threats is the fear of insecurity and trust associated with on-line banking which can only be tackled by a good online developer that can put in place the required firewalls whereby only the authentic users can gain access. Security breaches in E-banking are most frequently discussed in terms of the dangers that hackers may intercept messages, misuse the information on modify the content of the message.
- ♦ Money Laundering and other Financial Crimes: - Another major challenge is that under E-banking the financial system is prone to criminal abuse such as money laundering and

other financial crimes. Money laundering and other financial crimes are easily facilitated through E-banking. This has given a lot of work to monetary authorities which have continued to work to see that the activities of the money launderers and fraudsters are brought under control.

- Systems and Infrastructure Failure: - Systems and infrastructural failure have also a lot of effect on E-banking. Failure results to loss of data. System failure can be caused by software failure either at the entity or at an organization used for outsourced functions. Infrastructure failures are mainly caused by power failure. The system and infrastructural really given a lot of setback to development E-banking.
- The Potential Risks of E-banking: - Electronic delivery and payments systems involve a wide range of potential risks. The use of an electronic channel to deliver products and services introduces unique risks due to the increased speed at which systems operate and the broad access in terms of geography, user group, applications database and peripheral systems. The potential risks bring by the e-banking has a lot of implications for the safety and soundness of the nations banking system.

A research conducted by Vaithianathan, S. (2010) stated that lack of technology infrastructure, lack of awareness, lack of skilled human resources, and the lack of government initiatives, including various economic and social factors are cited as hurdles that prevent pervasive e-commerce adoption in Indian.

2.8.2 Benefits of E-Banking

Banks just like other businesses are tuning to information technology to improve business efficiency, service quality and attract new customers. Farshad, (2013) stated that, the most important factors encouraging consumers to use online banking are lower fees followed by reducing paper work and human error. Subsequently electronic channels can lead to lower transaction costs which are very competitive (Claessens and Kliengbiel, 2000). Farshad, (2013) is of the view that disputes can be minimized between the employees as there is a clear flow of processes. Conducting business outside the normal branch working hours has also been a factor that has been considered convenient for bankers, inexpensive access to the bank 7x24 and seven days a week. Increased availability and accessibility of more self-service distribution channels

help bank administration in reducing the expensive branch network and associated staff overheads.

A reduction in the percentage of customers visiting the banks with an increase in alternative channels of distribution will also minimize the queues in branches (Thornton and White, 2001). According to Thornton and White (2001) this ultimately leads to improved customer satisfaction. Jayawardhena and Foley (2000) observe that electronic banking increases competition within the banking system and also from non-bank financial institutions.

Electronic banking also increases the power of the customer to make price comparisons across suppliers quickly and easily and as a consequence this pushes prices and margins downward. Kerem (2003) observed that banks are responding to electronic banking differently and that those which see electronic banking as a complement and substitute to the traditional channels achieved better communication and interactivity with the customers. Other benefits that have accrued because of the adoption of electronic banking in developed countries include the ability to attract new customers and widening the customer database, improving bank marketing and communication, and having the ability to retain high profit customers (Farshad, 2013).

According to Harrison (2012), companies can gain two fundamental types of benefits from E-banking. These are generally described as: Value creation or value enhancement for one or more of a company's stakeholder's groups, and lower cost of providing goods and services to the market place. Value creation includes; improvement in internal and external communication through effective e-marketing, increment of sales through an ecommerce website integrated with a back office systems and improvement in supplier relations and productivity through collaborative work spaces. Lower costs are: reduction in communication and travel cost using online meeting tools; shared workspaces and; benefit from license free open source alternatives to proprietary software.

Businesses also see tremendous opportunities for cost saving, revenue generation, increased market share, marketing and market access, and improving customer service through direct links that facilitate speedy enquiry and feedback. Similarly, consumers can inter alia, access the world market through the virtual economy on the internet, choose from a wider variety of products, and shop in the comfort of their homes. Globalization and specifically liberalization of

communication networks have all facilitated this breakthrough that further presents a massive boost for international trade.

Harrison (2012) suggested that the commercial benefits of E-banking lie in five areas;
Firstly, firms are able to expand their geographical reach.
Secondly, important cost benefits lie in improved efficiency in procurement, production and logistics processes.

Thirdly, there is enormous scope for gaining through improved customer communications and management.

Fourthly, the internet reduces barriers to entry for new market entrants and provides an opportunity for small firms to reorient their supply chain relationships to forge new strategic partnership.

Finally, e-commerce technology facilitates the development of new types of products and new business models for generating revenues in different ways as well as different revenue streams.

Humphrey, (2001) stated that the introduction and use of E-payment instruments holds the promise of broad benefit to both business and consumers in the form of reduced costs, greater convenience and more secure, reliable means of payment and settlement for a potentially vast range of goods and services offered worldwide over the internet or other electronic networks. Electronic Payments as argued by (Cobb, 2005) have a significant number of economic benefits apart from their convenience and safety. These benefits when maximized can go a long way in contributing immensely to economic development of a nation.
In general, E-banking service is important for several stakeholders, since it helps them to derive benefits from it. Many Banks have already implemented or are planning to implement E-banking because of the numerous potential benefits associated with it.
Benefits of adoption E-banking for banks and customer are described below.

2.8.2.1 Benefit of E-banking for Banks

According to Jayawardhena & Foley, 2000 the primary benefits of E- Banking are as follow:-

Price- In the long run a bank can save on money by not paying for tellers or for managing branches. Plus, it's cheaper to make transactions over the Internet.

Customer Base- the Internet allows banks to reach a whole new market- and a well off one too, because there are no geographic boundaries with the Internet. The Internet also provides a level playing field for small banks who want to add to their customer base.

Efficiency- Banks can become more efficient than they already are by providing internet access for their customers. The Internet provides the bank with an almost paper less system.

Customer Service and Satisfaction- Banking on the internet not only allow the customer to have a full range of services available to them but it also allows them some services not offered at any of the branches. The person does not have to go to a branch where that service may or may not be offer. A person can print of information, forms, and applications via the Internet and be able to search for information efficiently instead of waiting in line and asking a teller. With more better and faster options a bank will surely be able to create better customer relations and satisfaction.

Image-A bank seems more state of the art to a customer if they offer Internet access. A person may not want to use Internet banking but having the service available gives a person the feeling that their bank is on the cutting image.

2.8.2.2 Benefit of E-banking for Customers

The main benefit from the bank customers' point of view is significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money. The main advantages of E-banking for corporate customers as per (BankAway! 2001; Gurău, 2002) are as follows:-

- Reduced costs in accessing and using the banking services.
- Increased comfort and timesaving — transactions can be made 7x24, without requiring the physical interaction with the bank.
- Quick and continuous access to information: Corporations will have easier access to information as, they can check on multiple accounts at the click of a button.
- Better cash management: E-banking facilities speed up cash cycle and increases efficiency of business processes as large variety of cash management instruments are

available on internet sites. For example, it is possible to manage company's short term cash via internet banks (investments in over-night, short- and long term deposits, in commercial papers, in bonds and equities, in money market funds). Private customers seek slightly different kind of benefits from E-banking.

The main benefits from E-banking for private customers are as per BankAway (2001) are as follows:-

- Reduced costs: This is in terms of the cost of availing and using the various banking products and services.
- Convenience: All the banking transactions can be performed from the comfort of the home or office or from the place a customer wants to.
- Speed: The response of the medium is very fast; therefore customers can actually wait till the last minute before concluding a fund transfer.
- Funds management: Customers can download their history of different accounts and do a "what-if" analysis on their own PC before affecting any transaction on the web. This will lead to better funds management.
- In addition,
    - Withdrawing cash customers can also have mini banks statements balance inquiry at these ATMs.
    - Through Internet Banking customer can operate his account while sitting in his office or home.
    - There is no need to go to the bank in person for such matter.
    - E- Banking has also greatly helped in payment of utility bill. Now there is no need to stand in long queues outside banks for his purpose.
    - All services that are usually available from the local bank can be found on a single website.
    - The Growth of credit card usage also owes greatly to E-banking. Now a customer can shop worldwide without any need of carrying paper money with him and
    - Banks are available 7x24 and they are only a mouse click away.

Electronic Banking as already stated has greatly serviced both the public and the banking industry. This has resulted in creation of a better enabling environment that supports growth, productivity and prosperity. Besides many tangible benefits in the form of reduction of cost, reduced delivery time, increased efficiency, reduced wastage, banking electronically controlled and thoroughly monitored environment and discourage many illegal and illegitimate practices associated with banking industry like money laundering, frauds and embezzlements. Further E-banking has helped banks in better monitoring of their customer base. This is a useful tool in the hand of the bank to device suitable commercial packages that are in conformity with customer needs. As E-banking provide opportunity to banking sector to enlarge their customer base, a consequence to increase the volume of credit creation which results in better economic condition. Besides, E-banking has also helped in documentation of the economic activity of the masses (Mahdi Salehi, 2004).

2.9 E-banking Challenges in Ethiopia

Banking and Finance is an important sector for establishing e-commerce. There are some roles of banking sector in e-commerce such as, online corporate banking, electronic fund transfer, automated teller machines (ATM), debit card, credit card etc. Bank is the only authorized organization which can store and transact money. Technological developments in banking sector make trading activities much easier and cheaper for customers. It provides convenience in terms of the capital, labour, time and all the resources needed to make a transaction (Uppal, 2008). Banking in Ethiopia faces numerous challenges to fully adopt E-banking. Research result studied by Wondwossen & Tsegai (2005) forward the following challenges:

- Low level of internet penetration and poorly developed telecommunication infrastructure.
- Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvements in e-commerce in Ethiopia.
- Lack of suitable legal and regulatory framework for e-commerce and e-payment: Ethiopian current laws do not accommodate electronic contracts and signatures. Ethiopia has not yet enacted legislation that deals with ecommerce concerns.
- Political instabilities in neighboring countries: Political and economic instabilities in Somalia, Southern Sudan, and Eritrea are threatening traits that do not provide a very conducive environment for E-banking in Ethiopia.

- High rates of illiteracy: Low literacy rate is a serious impediment for the adoption of E-banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of E-banking, they should not only know how to read and write but also possess basic ICT literacy.
- High cost of Internet: The cost of Internet access relative to per capita income is a critical factor. Compared to the developed countries, there are higher costs of entry into the e-commerce market in Ethiopia. These include high start-up investment costs, high costs of computers and telecommunication and licensing requirements.
- Absence of financial networks that links different banks (Banks are not yet automated): Most of the banking-transactions currently taking place use credit and debit cards supplied by Visa and MasterCard. For conducting E-banking, the use of credit or debit cards is mandatory thus requiring the need for specialized systems which are not currently available.
- Frequent power interruption: Lack of reliable power supply is a key challenge for smoothly running E-banking in Ethiopia.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the appropriate research methodological framework applied to solve the research problem and to answer the research questions. Accordingly, this chapter discusses about the methodology by which the researcher used to conduct this study. Thus, research design, sampling, data source and method of data collection and method of data analysis are presented below.

3.2 Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004).

According to Robson (2002), the three purposes of conducting research are generally the following: explorative, descriptive and explanative. Explorative research is characterized as the seeking of new insights, the looking around, and the asking of questions or the bringing of some phenomenon into new light. Explanative research aims at gaining an explanation of a specific situation or problem, generally in the form of causal relationships. Finally, Descriptive research is a type of research that is mainly concerned with describing the nature or condition and the degree in detail of the present situation. Creswell (2003) stated that the descriptive method of research is used to gather information about the present or existing condition.

The research approach in this study is chosen based on the purpose and the research questions set out to be addressed. According to Creswell (2003, p.13-15) There are three basic types of research approaches, quantitative, qualitative, and Mixed approach.

For the successful accomplishment of this paper the researcher used mixed approach research design that is by applying both qualitative and quantitative research designs. Applying a multiple approach research design helped the researcher to collect significant information and to increase

the accuracy of the information. Besides, descriptive design survey was used, since the researcher described the real situation.

This research paper intended to examine the main challenges and benefits of adopting E-banking in sampled branches of Commercial Bank of Ethiopia. To acquire the intended information the researcher used different data collection instruments like distributing questionnaire, conducting interview. The questionnaire is both open-ended and close-ended in order to collect information regarding the adoption of e-banking. Survey for the quantitative strategy was used through distributing self-administered questionnaires. Questionnaires were distributed to employees of the selected branches. Those respondents were selected because, they are deemed to be knowledgeable about E-banking system and could provide important perspectives on its adoption.

3.3 Research Approach

In order to attain the objective of the study and answer the research questions, the researcher adopted mixed research approach. The rationale of using a mixed approach is to gather data that could not be obtained by adopting a single method (Creswell, 2003). Hence, the basis of such approach helps to neutralize the limitations of applying a single approach in connection with the qualitative and quantitative nature of the research questions.

3.4 Source of Data

The study was conducted by using both primary and secondary data sources. Primary data are those which are collected a fresh & for the first time & happen to be original in character (Kohtari, 2004:95). Primary data was collect from the respondents based on a structurally designed. It included both closed ended and open-ended questions. In addition, semi-structured interview with the branch managers of randomly selected branches was used to collect supporting data. Secondary source of data are those which are made available i.e. data which have already been collected & analyzed by someone else (Kohtari, 2004). Secondary data was collected from the website of the bank, annual reports and published articles.

3.5 Population of the Study

Sampling is the process of choosing from a much large population, a group about which we want to make generalized statements so that the selected part represents the total group (Leedy, 1989; pp. 158). The sampling population was employees of the selected braches. The selection of the samples was limited to four branches of the bank. These selections are limited to these samples because these are the employees who perform the actual activities of the branches. Due to time and resource limitation, it hadn't included customer's opinion in the assessment.

3.6 Samplings Techniques and procedures

The study used stratified sampling technique and simple random sampling techniques simultaneously. The stratified sampling technique was used to categorize by district. There are four districts; south, north, east and west then by simple random sampling select 4 branches from those district.

3.7 Sample Size Determination

The total population of the research was employees of the selected branches of CBE in Addis Ababa. The total number elements in the population of the selected branches are around 310 employees. By using of Slovin formula the researcher used around 175 sample employees at 95% confidence level. The resarcher distributed questionnaires to samples in randomly selected branches. In this study all the employees of the randomly selected branches was used as a sample.

$$n = \frac{N}{1 + Ne^2}$$

3.8 Methods of Data Collection

To acquire the intended information the researcher used different data collection instruments like distributing questionnaire, conducting interview and the questionnaire which is both open-ended and close-ended. In order to collect information regarding the adoption of e-banking thus, the respondents answer the questions and filled questionnaires collected from each respondent according to the time line provided for data collection. The researcher personally gives out the questionnaires. The staffs of the selected branches were included in the survey by using random

sampling method. A questionnaire was distributed to all 175 staffs. Questions are presented in such form of affirmative statements, relating to the concepts on e-banking and to identify their intention on the challenges and benefits of using electronic banking system, in such a way to enable measurement of the respondent's opinions. In addition to questionnaire and interview secondary data source has been also used.

3.8.1 **Questionnaires**

According to Yin (2003), structured questionnaires are important method for collecting primary data and that it further allows the researcher to be well focused on the specific research topic.

The questionnaire was used because the researcher considered it to be more convenient as respondents could answer at their convenience (See Appendix 1). The questionnaire was developed by the researcher based on the research questions and the literature. The researcher used open and closed-ended type of questionnaires, which gives the respondents an opportunity for adequate expression of their view on the questions. The questionnaire begins with an introductory statement, which specified the purpose of the research as purely academic. Respondents were encouraged being objective in their responses since they were assured of confidentiality.

To determine the probable usefulness of the questionnaire and whether further revision is needed prior to conducting the survey, the questionnaire was pilot tested. The researcher circulated the questionnaire to three postgraduate students and four professional staffs of sampled branches of CBE who are directly engaged in E-banking technology. The subjects were asked if they had any problems understanding the questionnaire or have specific comments regarding the questionnaire. The format for responding was through both open-ended and close-ended questions. The subjects were encouraged to be very free with their responses, make suggestions for improvement and outline any difficulties they found. After each questionnaire was accomplished, every question was asked what he/she meant in checking various answers. Comments were solicited on the intelligibility of the questions and what the changes should be done in order to make the questions simpler.

These respondents also gave their comments on understanding the instructions about the scaling and the time taken to answer the questions. The test found no grave problems and minor modifications were made to the survey questions based on the response obtained.

The respondents are considered as they are deemed to be knowledgeable in due course of implementing and running E-banking system in their line of work and could provide important perspectives on its adoption as they are involved in implementation of the project. The survey is to be used through distributing self-administered questionnaires.

Questions present in the form of affirmative statements, relating to the concepts on E-banking and to identify their intention on the challenge and benefits for adoption and development of E-banking technology, in such a way to enable measurement of the respondent's opinions. The respondents were asked to indicate their level of agreement on a five point likert scale with the following ratings. Strongly agree (SA; or 5), agree (A; or 4), neutral (N; or 3), disagree (DA; or 2), and strongly disagree (SD; or 1). Because, Likert scale make it easier for respondents to answer question in a simple way. The numbers were indicated in the questionnaires to provide a feel of ordinal scale measurement and to generate data suitable for quantitative analysis. The questionnaire was a close ended questionnaire to elicit guided responses and for easy analysis and to obtain additional information, the respondents were requested to provide open-ended responses if they have opinions which they feel the researcher would find useful.

In addition, this research instrument permitted an efficient use of statistics for the interpretation of data. Moreover, the central issue to argue that likert scales is that it produce ordinal data. Johns (2010) noted that in statistical terms the level of measurement of the likert response scale is ordinal rather than interval. That is we can make assumptions about the order but not the spacing of the response options. Thus, the permissible descriptive statistics that can perform on ordinal data is median (or average response) and mode (or more frequent responses) (Hole 2011).

3.8.2 Interviews

In addition to questionnaires, semi-structured interviews were conducted with Branch managers of each sampled CBE branches to have sufficient information regarding the research problem (See Appendix 2). The major purpose of this interview was to corroborate certain facts that the

investigator already thinks have been established (Yin, 1989; pp. 89). Therefore, semi-structured interviews were conducted so as to substantiated and improve the results of questionnaires.

3.8.3 Secondary Data Sources

The secondary sources of data constituted data gathered from records and reports of the industry, website of CBE, literature on E-banking, journals, and unpublished theses.

The most important use of this secondary data source was to corroborate and augment evidence from other sources (Yin, 1989; pp. 86). Thus, the document examination helps to substantiate the patterns that evolved from the data collected via questionnaires and interview, so that the validity of the findings could be enhanced through secondary sources.

3.9 Methods of data Analysis

In order to meet the stated research objectives, the collected data was analyzed based on the nature of the objective. A descriptive analysis is used to present and interpret the data collected on various variables of factors affecting the adoption of e- banking. Using percentages and tables was employ to analyze each objective. Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study (Yin, 1989; pp. 105). The researcher analyzed the data collected through survey to statistical population concerning the adoption of E-banking system. The data collected via questionnaires was analyzed with descriptive statistics using statistical package for social scientists (SPSS). Furthermore, Wolcott (1994) cited in Creswell (2003; pp. 184), suggested that qualitative research is fundamentally interpretative i.e. the researcher makes an interpretation of the data. Thus, the data that was collected from the interview and reviews of documents were interpreted qualitatively. To sum, the analysis of quantitative data and interpretation of qualitative data combines to seek convergence among the results (Creswell, 2003).

3.10 Ethics of Research

The respondents were told the purpose of the study and asked their permission. The data collected only used for this study purpose and will not be accessible for any other purposes.

However, the study result will be presented and accessible both for the graduating school and the organization. To ensure that the in trust of all parties have been protected & respondents were informed about the objective of the interview prior to each interview.

Reliability refers to the degree to which the data collection tools or analysis procedures will yield consistent findings (Saunders, Lewis & Thornhill, 2009). Reliability measures the internal consistency of a group of items which is used in questionnaire construction. Reliability analysis examines the homogeneity or cohesion of the items that comprise each scale.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

This chapter deals with the presentation, interpretation and analysis of the data gathered. The chapter has four sections, section 4.1 presents introduction to the chapter, section 4.2 demographic information of the respondents and section 4.3 presents the result and discussion regarding the challenges of adoption and development of E-banking in CBE. Results and discussions regarding the benefits realized for the adoption of E-banking in CBE is presented in section 4.4.

4.1 Introduction

Data collected through different techniques were analyzed in this chapter. In the analysis, a total of one hundred seventy five (175) questionnaires were distributed to the selected branch staff of CBE. Out of the one hundred seventy five (175) questionnaires distributed, one hundred sixty (160) were successfully completed, returned and used for the study. The response rate was approximately 91% of the total questionnaires distributed. The researcher also conducted interviews with each branch managers. Other documents regarding to E-banking technology were reviewed. Accordingly, the presentation, analysis and interpretation of the interviews and questionnaires were done simultaneously whereby the findings obtained from the interviews were presented in parallel by substantiating against the results obtained from the questionnaires. In order to analyze the research results, SPSS (statistical package for social scientists) V.20 tool software was used. Descriptive measures of each questions response and an interview conducted with branch managers of selected branches are presented in the following sections.

4.2. Demographic Information of the Respondents

The study participants on survey questionnaire have different personal information; besides these differences they introduce different responses towards E-banking usage, and the factors that influence E-banking adoption. The following discussion shows these differences. The demographic profile of respondents, participated in this study was shown in table 4.1 as follows.

Table 4.1, Respondents' Demographic Profile

Variables	Classification of variables	Frequency	Percentage
Gender	male	89	50.86%
	Female	71	40.57%
	missing	15	8.57%
Age	21-29	96	54.86%
	30-39	50	28.57%
	40-50	11	6.28%
	Over 50	3	1.72%
	Missing	15	8.57%
Educational level	Diploma	1	0.57%
	Bachelor degree	150	85.71%
	Masters degree	9	5.15%
	Missing	15	8.57%

Source: own survey result 2017

As it is shown on the above table, the highest percentage of participants in this study was males which are 89 out of the total who form 50.86% of respondents. In the case of classification of respondents by age the highest percentage of participants are young (21-29 years old) which are 96 out of the total who form 54.86% of total respondents. Regarding the educational level of the study participants, the highest percentage of them have bachelor degree that is 150 from the total which is 85.71% of the total participants.

The following section discusses the challenges, prospect, driving forces and opportunities of adopting and extending of E-banking technology in Commercial Bank of Ethiopia.

4.3 Challenges of Adoption and Development E-banking Technology in Commercial Bank of Ethiopia

As cited in chapter two, there are so many challenges that negatively affect adoption and growth of the E-banking technology. The factors affecting the successful adoption and growth of new technologies, such as cost factors, security and trust factors and lack of adequate ICT infrastructure (particularly in developing countries like Ethiopia). However, reasons vary widely among countries and also important to note that challenges to E-banking technology adoption and development work differently according to organizational type and culture.

A total of 15 questions were asked on challenges of adopting and extending of E-banking technology, which are obtained from different literatures. They are asked to indicate the extent to which each respondent agrees to corresponding closed ended statements rated on a five-point Likert type scales ranging from '1' "Strongly Disagree" to '5' "Strongly Agree". Statistical results are presented under each section of the factors considered using the table including the number of frequencies, the Mean, Mode and Standard Deviation of the data points. The "Valid" column shows the number of respondents who provided answer for each corresponding variables. On the other hand, the "Missing" column depicted the variables which were not answered by respondents. The mean tried to tell the average where the data points fall for each specific variable, Mode indicated most frequently answered points for each specific variable while the standard deviation column showed the variability of the data points for each variable under consideration.

Accordingly, the researcher tried to interpret the Mean and the Mode of the data points. The researcher tried to triangulate and complement the result obtained from the interview and open ended questions with the results obtained from the Likert type statements pertaining to similar variables, when found appropriate. For analysis purpose challenges are categorized in to organizational, environmental and technological factors according to Tornatzky and Fleisher (1990).

4.3.1 Organizational Factors

Most cited organizational factors in the different literature are; IT users' community; organizational structure; firm's process; firm size; technological capabilities of the organization's

members; the technological and financial resources available; process of selecting and implementing the IT; management backing and support for the project (Harrison, 2012). In this study customer awareness, technical and managerial skills in implementation and development of E-banking technology, limited skills of personnel and executive support are considered as organizational factors and the survey result is shown on table 4.2 as follows:

Table 4.2 Organization Factors Affecting Adoption and Growth of E-Banking Technology.

Challenges	Number of respondents		Mean	Mode	Std. Deviation
	Valid	Missed			
Lack of customer awareness;	160	-	4.40	4	.586
Lack of technical and managerial skills in implementation and development of E-banking technology	160	-	3.96	4	1.126
High cost of implementation of E-banking;	160	-	3.62	4	1.078
Limited skills of personnel	160	-	3.75	4	.946
Lack of executive support	160	-	3.6	4	.974

Source: Field survey report May 2017

Tables 4.5 shows that lack of customer awareness regarding E-banking services provided by the bank is considered as a factor that negatively affecting the successful adoption and growth of E-banking technology as the average result in the Likert scale is found 4.4 Similarly, an interview script received from Branch Managers of sampled branches indicates that communities are not aware of the benefits of e- banking technology to the individual as well as to the society as whole. As a result, they are not provoked enough to use E-baking products or services. The finding is in line with Vaithianathan, S. (2010) and Angelakopoulos and Mihiotis (2011) in which all indicted that, the non- familiarity with E-banking technology products and services by

customers is the main factor that has a negative influence on the adoption and growth of E-banking technology.

The result further revealed that most respondents (35.8% strongly agree and 44.2% agree, please refer Appendix 3) agreed that lack of technical and managerial skills in implementation and development of E-banking technology is considered as factor that has a negative influence on the adoption and growth of E-banking technology in Commercial Bank of Ethiopia with a mean score of 3.96. Besides, an interview conducted with branch managers they confirmed that E-banking and E-payment system requires high level of understanding and knowledge on ICT. The finding is in line with Vaithianathan, S. (2010) where lack of skilled human in E-banking context is considered as hurdles that prevent pervasive e-commerce adoption in developing countries. The high cost of implementing of E-banking technology such as cost of ICT equipment and network, software and re-organization is the major organizational challenge for implementation and growth of E-banking technology in Commercial Bank of Ethiopia, in which the mean score and mode were found 3.62 and 4.00 respectively. This is in line with finding OECD (2004) where high cost of ICT equipment and network, software and reorganization is a factor that hinders adoption of E-banking technology. The limited skills of personnel implementing the E-banking at the branch also challenge for implementation and growth of E-Banking, in which the mean and mode were found 3.75 and 4.00 respectively.

The respondent also agreed that the executive support that means the support to the technology by Board is considered as challenge for the adoption and growth of E-banking technology as the average result in the Likert scale is found 3.6.

In general, the result revealed that high cost of implementation of E-banking technology, customers unfamiliarity with the E-banking products and their benefits, lack of technical and managerial skills in implementation and development of E-banking technology, limited skills of personnel and lack of executive support to the technology are considered as organizational factors that hinders Commercial Bank of Ethiopia to adopt and develop E-banking technology.

4.3.2 Environmental Factors

According to Tornatzky and Fleischer (1990) another factors influencing technology innovation is environmental factors. The issues raised in this study in relation with environmental factors are

infrastructure, computer literacy, power disruption and relative high cost of internet are considered as organizational factors and the survey result is shown on table 4.3 as follows:-

Table 4.3 Environmental Factors Affecting Adoption and Growth of E-Banking Technology.

Challenges	Number of respondents		Mean	Mode	Std. Deviation
	Valid	Missed			
Limitation in network infrastructure and internet related support services;	160	-	3.45	4	1.249
Customer low levels of computer literacy;	160	-	3.75	4	1.047
Limitation in ICT infrastructure;	160	-	3.75	4	1.047
Frequent power disruption;	160	-	3.85	4	0.913
Relative high cost of internet;	160	-	3.50	4	0.870

Source: Field survey report May 2017

The above table 4.3 highlighted that limitation in network infrastructure and internet related support services is the basic external challenge for adoption and growth of E-banking technology in Commercial Bank of Ethiopia, were the mean and mode value are 3.45 and 4.00, respectively as per the response of the sampled participants. Likewise, an interview conducted with all selected branch managers of sample commercial bank branches indicates that limitation in network infrastructure and internet related support services is a major obstacle to effectively

deliver of E-banking services to their customers. This result is consistent with the findings reported earlier by OECD (2004) and Wondwossen and Tsegai (2005). The respondent also agreed that a low level of customer computer literacy is considered as basic challenge for implementation of E-banking technology in Commercial Bank of Ethiopia in which the mean score was found 3.75. For citizens to fully enjoy the benefits of E-banking, they should not only know how to read and write but also possess basic ICT literacy. Let alone the adaptability to new technology, in a country like Ethiopia where the adult literacy rate (only read and write in their mother tongue) is only 39.0% (UNICEF, 2013) and the rate of technology adoption is low, this factor is a challenge for financial inclusion in Ethiopia.

The top third challenge stated by respondents was low level ICT infrastructure development that is having a mean score of 3.75 since the E-banking technology requires a generally good infrastructure in terms of communication and information technology.

The other challenge stated by respondents was frequent power disruption that is having a mean score of 3.85 since when the power interrupts the internet connection also interrupt and this has an impact on providing an effective E-banking service to customers.

Finally, with regard to ideas that high internet cost considered as a challenge on average the respondents were found as the mean resulted in 3.5.

4.3.3 Technological Factors

Even though there are many benefits associated with adoption of new technology, there are many hindrance technological factors that affect effective implementation and extending of the technology. The issues raised herein under the technological factors were relative obstacles that hinder the bank from adoption and development of E-banking technology such as lack of confidence with the security aspects, money laundering and other financial crimes, lack of trust with the technology, customer fear of risk and all of the respondents participated in this study were asked that such factors are consider as challenges that the bank faced while adopting and extending of E-banking technology and the survey result is shown on table 4.4 as follows:-

Table 4.4 Technology Factors Affecting Adoption and Growth of E-Banking Technology.

Challenges	Number of respondents		Mean	Mode	Std. Deviation
	Valid	Missed			
Lack of confidence with the security aspects;	160	-	3.43	4	0.976
Money laundering and other financial crimes;	160	-	3.33	4	1.196
Users do not trust the E-Banking technology provided by the bank;	160	-	3.80	4	0.931
Customer fear of risk to use E-Banking technology;	160	-	3.95	4	0.672

Source: Field survey report May 2017

Responses captured in the above table 4.4 shows that, lack of confidence with the security issue is considered as another challenge for the adoption and development of E-banking technology, were mean score and mode value found 3.43 and 4.00, respectively. This result is consistent with the findings of (Okoye, 2013), Ziad et al., (2009), Khalfan et al., (2006) were security risk as hindrance factor for the adoption of E-banking. Thus, customer fear of risk and lack of confidence with the security aspect are other technological factors that hamper adoption and growth of E-banking technology.

The average respondents are indifferent with the idea that E-banking system is prone to illegal abuse such as money laundering and other financial crimes considered as challenges in adoption and development of E-banking technology as the Mean and mode value is 3.33 and 4, respectively.

Likewise, the respondents were asked whether customers do not trust the E-banking products provided by bank and the descriptive statistics result gives mean value of 3.80, that means the largest number of respondent (25% strongly agree and 40% agree) were agreed with the idea that lack of customers trust with E-banking technology is one technological factor that have a

negative impact for adoption and growth of E-banking technology. This result is in line with the finding of Ziad et al., (2009) where lack of confidence in service providers is cognitive hindrance in adoption of ecommerce. According to Delali (2010) consumer's confidence, trust in the traditional payment system has made customers less likely to adopt new technologies and new technologies will not dominate the market until customers are confident that their privacy will be protected and adequate assurance of security is guaranteed and also new technologies also requires the test of time in order to earn the confidence of the people, even if it is easier to use and cheaper than older methods.

The result further revealed that the largest number of respondents (20% strongly agree and 55% agree, please refer Appendix 3) were agreed with the idea that customer fear of risk to use E-banking technology is considered as challenge for the adoption and growth of E-banking technology, were mean and mode value found 3.95 and 4.00, respectively.

4.4 Benefits Realized from the Adoption and Development of E-banking Technology in Commercial Bank of Ethiopia

Perceived benefits are the gains or improvements derived from existing traditional ways of operating business transactions using E-banking technology applications. The following section summarizes respondents' views of expectations and perceived benefits for E-banking deployment. Benefits expected to be gained from E-banking as an option is a big deciding factor for a Bank's decision to adoption and growth E-banking technology.

Some of these benefits include cost saving, enhance productivity in the banking industry, enhance foreign currency generation, facilitate development of new products and new business, increased market share, speed and efficiency of doing business, improvement in customer service and others.

A total of 12 questions on "Benefits" of adoption and development of E-banking were asked to indicate the extent to which each respondent agrees to corresponding closed ended statements rated on a five-point Likert type scales ranging from '1' "Strongly Disagree" to '5' "Strongly Agree". Statistical results on the variables under the benefits of E-banking including the number of frequencies, the Mean and Standard Deviation of the data points. The "Valid" column shows the number of respondents who provided answer for each corresponding variables. On the other

hand, the "Missing" column depicted the variables which were not answered by respondents. The mean and mode tried to tell the averages where the data points fall for each specific variable while the standard deviation column showed the variability of the data points for each variable under consideration.

Accordingly, the researcher tried to interpret the mean of the data points. The researcher tried to triangulate and complement the result obtained from the interview, open ended questions with the results obtained from the Likert type statements pertaining to similar variables, when found appropriate.

The following section summarizes respondents' views of expectations and perceived benefits for E-banking adoption and development. For analysis purpose perceived benefits are classified in to operational efficiency and service benefits (Futcher, 2003).

4.4.1 Operational Benefits

Despite different challenges faced by adopting and extending of E-banking technology, there are enormous benefits expected from adoption and growth of E-banking technology which includes operational and services benefits. Operation benefits covered in the survey are presented here below in the table 4.5.

Table 4.5 Operational Benefits that Commercial Bank of Ethiopia Gained From Adoption and Growth of E-Banking Technology

Operational Benefits	Number of respondents		Mean	Mode	Std. Deviation
	Valid	Missed			
Reduced paper work;	160	-	4.55	5	.500
Low transaction cost;	160	-	4.15	4	.913
Enhance productivity in the banking industry;	160	-	4.40	4	.586
Enhance foreign currency generation;	160	-	3.65	4	.967
Increase reliability and reducing errors	160	-	3.75	4	1.094

Source: Field survey report May 2017

The potential operational efficiency benefits of E-banking technology as perceived by the bank identified in this study as captured in the above table 4.5, the respondents strongly agreed that

adoption and development of E-banking technology in Commercial Bank of Ethiopia will reduce paper work, transaction cost and it also increases productivity of the Bank.

This is evidenced by the data collected from the respondents with mean score of 4.55, 4.15 and 4.40 respectively. Similarly, interviews conducted with Branch Managers of each sampled branches supported that adoption and development of E-banking technology reduce the banks cost in two fundamental ways: it minimizes the cost of processing transactions i.e. no need to have too much clerks and cashiers and expenditures on paper slips, forms and other bank stationery have also gone down and reduces the number of branches required to service an equivalent number of customers, this lead the bank profit margin to boost.

The result further revealed that large number of respondent (20% strongly agree and 40% agree, please refer Appendix 3) agreed that adoption of E-banking technology generate foreign currencies. This agreement is based on the responses of the respondents with mean score 3.65. This implies that adoption of E-banking technology has a crucial factor not only for trade but also for economy growths in the country through improving the capital inflow and solve foreign currency shortage that the country faced.

Lastly, the other operational benefit of E-banking technology identified in this study is increase reliability and reducing errors. This agreement is also based on the responses of the respondents with mean score of 3.75.

4.4.2 Services Benefits

In addition to operational benefits, there are also services benefits that the banking industry can attain from adoption and development of E-banking technology. Such services benefits covered in the survey are presented here below in the table 4.6.

Table 4.6 Services Benefits that the Commercial Bank of Ethiopia Gained From Adoption and Growth of E-Banking Technology

Service Benefits	Number of respondents		Mean	Mode	Std. Deviation
	Valid	Missed			
E-banking is convenient, in terms of 7 days and 24hrs services;	160	-	3.85	5	1.394
Enhance accessibility of the bank's services(in terms of place);	160	-	4.30	4	.559
Improve customer service;	160	-	4.20	5	.875
Improving transaction speeds;	160	-	4.40	4	.586
Reduce queues in the banking hall;	160	-	3.99	4	.893
Encourages price transparency;	160	-	3.80	4	1.082
Improvement in customer relations	160	-	3.70	5	1.274

Source: Field survey report May 2017

As portrayed in the Table 4.6 the respondent strongly agreed that E-banking technology enhances accessibility of the bank services in terms of 7days and 24 hours to both existing and new customers having mean value of 3.85. This implies that E-banking system allows an account holder to access and manage bank account and information through their personal computer or mobile phone any time and place. Similarly, interviews conducted with sample branch managers supported that in light of advancing the motif of financial inclusion in Ethiopia, E-banking technology plays underpinning role to inundate access to finance through mobile and internet banking. And they also mentioned that adoption of E-banking technology gives the unbanked population as an important option for bringing cash into the formal economy and also reduce

physical circulation of cash. Taking in to account the gap on the demand and supply side on financial access and the untapped potential market ahead, strategic implementation of the E-banking service will pave the way to enhance access to financial service and thereby brings financial inclusion in Ethiopia. Next to this benefit entailed towards accessibility, E-banking increase customer base as per the interviewee. The Traditional Banking requires expensive investment and not economically feasible for financial institution. Otherwise, financial inclusion would be a nightmare in Ethiopia unless banks should make strategic shift to alternative channels like E- Banking. Thus, respondents' reflection supported such idea and that is why several banks are now trying to manage to get on board of the E-banking business. Since ''Electronic payment systems can help the unbanked join the banking system with significant benefits to them and to the societies in which they live" (Commonwealth Business Council & Visa, 2004).

Another service benefit of adoption and development of E-banking technology in Commercial Bank of Ethiopia is overcome geographical limitations i.e. it removes the traditional geographical limitation as it could reach out to customers of different location. This agreement is based on the responses of the respondents with mean score 4.30. Similarly, an interview conducted with Branch Mangers of each sampled branches stated that they are used E-banking technology as a way out as one strategic approach to reduce the investment cost associated with branch expansion and to enhance accessibility of financial services to the unbanked/under banked society.

Another most ranked service benefits identified in this study are adoption and development of E-banking technology in Commercial Bank of Ethiopia facilitates improvement in customer service and transaction speeds. This is evidenced by the data collected from the respondents with mean score of 4.20 and 4.40 respectively.

The result further revealed that large number of respondent agreed that other services benefits perceived from adoption and development of E-banking technology in Commercial Bank of Ethiopia included reduction of queues in the banking hall (Mean 3.99), encourages price transparency (Mean 4.30), create better relationship between the bank and clients (Mean 3.70).

CHAPTER FIVE

5. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Information technology is considered as the key driver for the changes taking place around the world. Due to a pervasive and steadily growth of information and communication technology, the world banking industry is entering into new phenomena of unprecedented form of competition supported by modern information and communication infrastructure. The rate at which e-banking technology is adopted by banks constitutes an important part of technological change. With this regard currently, our banks are in an infant stage. This chapter as a whole presents the concluding remarks for the main findings in chapter four and important recommendations as per the main problems investigated in this research study respectively.

5.1 Summary of Findings

The objective the study was to identify challenges, benefits for adoption and development of E-banking technology in Commercial Bank of Ethiopia. Accordingly, this part of the research summarizes the major findings of the study from the challenge and prospect perspectives.

Despite the numerous benefits that E-banking technology brings to the nation, the bank and individuals, it also has its own challenges. The challenges as discussed in the study can be categorized into three main groups i.e. Organizational, environmental and technological.

Lack of customer awareness with E-banking product, lack of skills and trained staff in implementation and running of E-banking System, high cost of implementation of E-banking such as cost of ICT equipment and network, software and re-organization, and lack of the board support are described in the study as organizational challenges for adoption and growth of E-banking in Commercial Bank of Ethiopia.

Limitation in network infrastructure and internet related support services, customer low levels of computer literacy, lack of ICT infrastructure, frequent power disruption and relative high cost of internet are considered the basic external challenges for adoption and development of E-banking technology in Commercial Bank of Ethiopia.

In connection with technology factors, lack of confidence with the security aspects, lack of customer trust with E-banking services provides by the bank, customer fear of risk to use E-banking technology and security risks are consider as technological factors negatively affect the adoption and growth of E-banking technology. In this study, majority of challenges for adoption and development of E-banking technology are derived from the external environments and limitation in network infrastructure and internet related support services is one of basic challenge in adoption and development of E-banking technology.

The study revealed lists of benefits that the Commercial Bank of Ethiopia realized from adoption and extension of E-banking technology. The benefits were classified as operational and service benefits. Operational benefits identified in this study as agreed by the participant include reduces paper work, reduce transaction cost, enhance productivity in the banking industry, generate foreign currency, increase reliability and reducing errors.

The study has also described lists of services benefits in the adoption and extension of E-banking technology in Commercial Bank of Ethiopian as agreed by the participants, improve customer service, reduce long queues in banking halls, increase accessibility of the bank services, create good relation among banks and clients and encourages price transparency.

5.2 Conclusion

The findings of the study revealed that adoption and development of E-banking technology in Commercial Bank of Ethiopia stretches wide across the two extremes of the challenges and prospects where the concerted effort by stakeholders to overcome the challenges will bring about immense opportunities to the dominant players in the field with the ultimate result of transforming the country towards financial inclusion.

Accordingly, a number of conclusions can be drawn from these results. Potential operational efficiency benefits of E-banking adoption and development as perceived by the bank are: increase productivity, reduces paper work, reduce transaction cost, generate foreign currency, increase reliability and reducing errors. Moreover, the bank realized service benefits like improving customer service, reducing long queues in banking halls, increasing accessibility of the bank services, creating good relation between the bank and clients and encourages price transparency.

Perceiving both operational and services benefits have positive tendency to adopt and develop E-banking technology in CBE.

Despite the above benefits of adopting and developing E-banking technology in CBE, it is associated with some challenges. The study shows that high cost of ICT equipments and network, software and re-organization and lack of customer awareness are the major challenges that CBE facing for adoption and development E-banking technology. The prevailing technical and managerial skills available in CBE towards adopting and extending of E-banking technology are found to be limited to influence the technological development rate. Limitation in network infrastructure and internet related support services, low levels of computer literacy and low level of ICT infrastructure are considered the basic external challenges facing Ethiopian banks to adopt and develop E-banking technology. Besides, Security risks and lack of trust on the technological innovations are another challenges faced by the CBE in the adoption and development of E-banking. Therefore, from the above discussion it is possible to conclude that E-banking technology is not well adopted and developed in CBE and considering adoption and development of E-banking technology in the rest of the world, E-banking and its related technologies are still in its infancy stage in CBE.

5.3 Recommendations

Based on the findings the researcher came up with the following possible recommendations to policy makers, the banks, and the government in order to overcome the challenges, exploit the untapped opportunities in adoption of E-banking technology and to ensure a successful practice of E-banking technology in CBE.

The Bank should create deep awareness to community concerning the E-banking products they offer and the benefits associated with using E-banking services through advertising their products and services on the internet, mass media as well as through organizing public exhibition and talk shows. Besides, the bank should attract the community to use the technology by diverse incentive campaigns. This way, customers' interest would be aroused. Banks should work to improve customers' confidence by providing adequate security of transaction back up of critical data files and alternative means of processing information.

In collaboration with the bank, Government should educate and inform the community on the workability and effectiveness of E-banking technology. This will increase the customer confidence levels;

The bank should facilitate proper and continuous training courses for their employees to have adequate understanding of the E-banking technology so as to achieve the desired objectives;

High cost of ICT equipment and network, software and re-organization has been a challenge for the bank facing adoption and development of E-banking. The researcher therefore, recommend that either bank should raise fund by issuing share to public in order to acquire these facilities needed in the industry or the bank jointly acquire the ICT equipments to use together for instance the bank have to use strongly the opportunity of using one of bank‘s ATM together in order to overcome the challenge as well as to reduce the spending of the foreign currency to import the ATM machines.

Government should support banking sector by facilitating development of sufficient ICT infrastructure for the successful implementation and development of E-banking Services.

5.4 Suggestions for Further Research

This study described the factors affecting E-banking adoption and development in Commercial Bank of Ethiopia from the bank perspective. Nevertheless, it did not consider the customers perspective and other stakeholder like Ethio-Telecom and other.

Therefore, the researcher would like to recommend further research be made on the area especially to capture the customers’ and other above stakeholders perspectives.

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Appendix 1 Questionnaire

Addis Ababa University

College of Commerce

Department of Project Management

Dear Sir/Madam

Subject: Research questionnaire prepared to collect data from the respondents in order to assess the benefits, barriers and challenges for the adoption of e-banking service in Commercial Bank of Ethiopia.

I am undertaking a research project on the "**An Assessment of the Challenges and Benefits Associated in the Adoption of E-banking Technology in Commercial Bank of Ethiopia**" with reference to selected commercial bank branches for the partial fulfillment of the requirements of the degree of Master of Art in Project Management. The aim of this questionnaire is to identify the benefits, barriers and challenges of adopting E-banking in Commercial Bank of Ethiopia. The results of the study will have a paramount important to the institutions, to owners, to clients, to concerned government offices and policy makers and others. To this end, this questionnaire is prepared to gather pertinent information. I sincerely assure you that the information you provide will be used only for academic purposes. Your involvement is regarded as a great input to the quality of the research results. Your honest and thoughtful response is invaluable.

Please put the tick mark (√) on the appropriate space as per your choice for each closed-ended question and the appropriate reason for open-ended questions.

Electronic banking is defined as: the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels such as internet, mobile, ATM etc

Thank you for your cooperation!

Yours faithfully,
Endrias Bekele

I. Personal Information

1. Gender : Male _ Female _
2. Age:

   A. 21-29 Years B. 30-39 Years C.40-50 Years D. Over 50 Years

3. Educational status: A. Diploma _ B. Degree _ C. Masters _

   D. PhD and above _

II. Questions Regarding E-banking Challenges and Benefits

Below are lists of questioners relating to Adoption of E-banking? Please indicate whether you agree or disagree with each statement by ticking (√) on the spaces that specify your choice from the options that range from ''strongly agree" to ''strongly disagree".

Key

SA=strongly agree N= Neutral SD= Strongly Disagree

A=Agree D= Disagree

Factors	S.No	1) Please indicate the extent you agree or disagree of the Potential challenges that affect to adoption or development use of E-banking technologies.	SA 5	A 4	N 3	D 2	SD 1
Organizational Factors	1.1	Lack of customer awareness with E-banking product;					
	1.2	Lack of technical and managerial skills in implementation and development of E-banking technology ;					
	1.3	High cost of implementation of E-banking. (such as cost of ICT equipment and network, software and reorganization;					
	1.4	Limited skills personnel					
	1.5	Lack of executive support					
Environmental factors	1.6	Limitation in network infrastructure and internet related support service					
	1.7	Customer low levels of computer literacy					
	1.8	Limitation in ICT infrastructure ;					

	1.9	Frequent power disruption;					
	1.10	Relative high cost of internet;					
Technological factors	1.11	Lack of confidence with the security aspects					
	1.12	Money laundering and other financial crimes are easily facilitated through e– banking;					
	1.13	Users do not trust the E-banking technology provided by the Bank;					
	1.14	Customer fear of risk to use E-banking technology;					

Please kindly state any other challenges that the Banks faces in the adoption E-banking.

_____

_____

If you agree on most of the above challenges, what measures should be taken to reduce these challenges?

_____

_____

Benefits of E-Banking

Benefits	S.No	2) The following are some of the benefits the Banks realized from adoption of E-banking system, please indicate your choice.	SA 5	A 4	N 3	D 2	SD 1
Operational Benefits	2.1	Reduced paper work;					
	2.2	Low transaction cost;					
	2.3	Enhance productivity in the banking industry;					
	2.4	Enhance foreign currency generation;					
	2.5	Increase reliability and reducing errors;					
Service Benefits	2.6	E-banking is convenient, in terms of 7 days and 24 hours services i.e. accessibility; i.e. No time limit to access bank account and information					
	2.7	Enhance accessibility of the bank's services(in terms of place);					
	2.8	Improve customer service;					
	2.9	Improving transaction speeds					
	2.10	Reduce queues in the banking hall;					
	2.11	Encourages price transparency;					
	2.12	Improvement in customer relations					

Please kindly state any other benefits the branch gained from the adoption of E-banking system (ATM, POS and mobile banking system) in the delivery of service to customers?

_____

_____

_____

Appendix 2 Interview

Addis Ababa University

College of Commerce

Department of Project Management

Dear Sir/Madam

I am Endrias Bekele, M.A. student in the Department of Project Management at Addis Ababa University. I am undertaking a research on the topic "**An Assessment of the Challenges and Benefits Associated in the Adoption of E-banking Technology in Commercial Bank of Ethiopia**" for the partial fulfillment of the requirements of the degree of Master of Arts in Project Management. The aim of this interview is to assess the challenges and benefits of E-banking service. This interview was designed to be conducted with branch managers of the four randomly selected branches of Commercial Bank of Ethiopia.

The results of the study will have a paramount important to the institutions, to clients, to concerned government offices and policy makers and others.

To this end, this questionnaire is prepared to gather pertinent information. I sincerely assure you that the information you provide will be used only for academic purposes. Your involvement is regarded as a great input to the quality of the research results. Your honest and thoughtful response is invaluable. Thank you in advance for your cooperation.

Yours faithfully,

Endrias Bekele

1. What are the challenges in the adoption of E-banking service?
2. What is the benefit of adopting E-banking service in the Commercial Bank of Ethiopia?

Appendix 3 (Survey Data)

Frequency Tables

LACK OF CUSTOMER AWARENESS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NEUTRAL	8	5.0	5.0	5.0
	AGREE	80	50.0	50.0	55.0
	STRONGLY AGREE	72	45.0	45.0	100.0
	Total	160	100.0	100.0	

LACK OF TECNICAL AND MANAGERIAL SKILL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY DISAGREE	8	5.0	5.0	5.0
	DISAGREE	16	10.0	10.0	15.0
	NEUTRAL	8	5.0	5.0	20.0
	AGREE	71	44.2	44.2	64.2
	STRONGLY AGREE	57	35.8	35.8	100.0
	Total	160	100.0	100.0	

HIGH COST OF IMPLEMENTATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY DISAGREE	8	5.0	5.0	5.0
	DISAGREE	16	10.0	10.0	15.0
	NEUTRAL	39	24.2	24.2	39.2
	AGREE	64	40.0	40.0	79.2
	STRONGLY AGREE	33	20.8	20.8	100.0
	Total	160	100.0	100.0	

LIMITED SKILLS OF PERSONNEL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DISAGREE	24	15.0	15.0	15.0
	NEUTRAL	24	15.0	15.0	30.0
	AGREE	80	50.0	50.0	80.0
	STRONGLY AGREE	32	20.0	20.0	100.0
	Total	160	100.0	100.0	

LACK OF EXECUTIVE SUPPORT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY DISAGREE	8	5.0	5.0	5.0
	DISAGREE	16	10.0	10.0	15.0
	NEUTRAL	24	15.0	15.0	30.0
	AGREE	96	60.0	60.0	90.0
	STRONGLY AGREE	16	10.0	10.0	100.0
	Total	160	100.0	100.0	

LIMITATION IN NETWORK INFRASTRUCTURE AND INTERNET RELATED SUPPORT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	8	5.0	5.0	5.0
	disagree	48	30.0	30.0	35.0
	agree	72	45.0	45.0	80.0
	strongly agree	32	20.0	20.0	100.0
	Total	160	100.0	100.0	

CUSTOMER LOW LEVELS OF COMPUTER LITERACY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	24	15.0	15.0	15.0
	neutral	40	25.0	25.0	40.0
	agree	48	30.0	30.0	70.0
	strongly agree	48	30.0	30.0	100.0
	Total	160	100.0	100.0	

LIMITATION IN ICT INFRASTRUCTURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	8	5.0	5.0	5.0
	disagree	8	5.0	5.0	10.0
	neutral	40	25.0	25.0	35.0
	agree	64	40.0	40.0	75.0
	strongly agree	40	25.0	25.0	100.0
	Total	160	100.0	100.0	

FREQUENT POWER DISRUPTION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	16	10.0	10.0	10.0
	neutral	32	20.0	20.0	30.0
	agree	72	45.0	45.0	75.0
	strongly agree	40	25.0	25.0	100.0
	Total	160	100.0	100.0	

RELATIVE HIGH COST OF INTERNET

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	24	15.0	15.0	15.0
	neutral	48	30.0	30.0	45.0
	agree	72	45.0	45.0	90.0
	strongly agree	16	10.0	10.0	100.0
	Total	160	100.0	100.0	

LACK OF CONFIDENCE WITH THE SECURITY ASPECTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	35	21.7	21.7	21.7
	neutral	43	26.7	26.7	48.3
	agree	61	38.3	38.3	86.7
	strongly agree	21	13.3	13.3	100.0
	Total	160	100.0	100.0	

MONEY LAUNDERING AND OTHER FINANCIAL CRIMES ARE EASILY FACILITATED THROUGH E-BANKING

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	16	10.0	10.0	10.0
	disagree	24	15.0	15.0	25.0
	neutral	36	22.5	22.5	47.5
	agree	60	37.5	37.5	85.0
	strongly agree	24	15.0	15.0	100.0
	Total	160	100.0	100.0	

USERS DO NOT TRUST THE E-BANKING TECHNOLOGY PROVIDED BY THE BANK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	16	10.0	10.0	10.0
	neutral	40	25.0	25.0	35.0
	agree	64	40.0	40.0	75.0
	strongly agree	40	25.0	25.0	100.0
	Total	160	100.0	100.0	

CUSTOMER FEAR OF RISK TO USE E-BANKING TECHNOLOGY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	40	25.0	25.0	25.0
	agree	88	55.0	55.0	80.0
	strongly agree	32	20.0	20.0	100.0
	Total	160	100.0	100.0	

REDUCED PAPER WORK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agree	72	45.0	45.0	45.0
	strongly agree	88	55.0	55.0	100.0
	Total	160	100.0	100.0	

LOW TRANSACTION COST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	16	10.0	10.0	10.0
	neutral	8	5.0	5.0	15.0
	agree	72	45.0	45.0	60.0
	strongly agree	64	40.0	40.0	100.0
	Total	160	100.0	100.0	

ENHANCE PRODUCTIVITY IN THE BANKING INDUSTRY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	8	5.0	5.0	5.0
	agree	80	50.0	50.0	55.0
	strongly agree	72	45.0	45.0	100.0
	Total	160	100.0	100.0	

ENHANCE FOREIGN CURRENCY GENERATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	24	15.0	15.0	15.0
	neutral	40	25.0	25.0	40.0
	agree	64	40.0	40.0	80.0
	strongly agree	32	20.0	20.0	100.0
	Total	160	100.0	100.0	

INCREASE RELIABILITY AND REDUCING ERRORS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	8	5.0	5.0	5.0
	disagree	16	10.0	10.0	15.0
	neutral	24	15.0	15.0	30.0
	agree	72	45.0	45.0	75.0
	strongly agree	40	25.0	25.0	100.0
	Total	160	100.0	100.0	

E-BANKING IS CONVENIENT, IN TERMS OF 7DAYS & 24 HOURS SERVICES I.E ACCESSIBILITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	16	10.0	10.0	10.0
	disagree	16	10.0	10.0	20.0
	neutral	24	15.0	15.0	35.0
	agree	24	15.0	15.0	50.0
	strongly agree	80	50.0	50.0	100.0
	Total	160	100.0	100.0	

ENHANCE ACCESSIBILITY OF THE BANK'S SERVICES(IN TERMS OF PLACE)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	8	5.0	5.0	5.0
	agree	96	60.0	60.0	65.0
	strongly agree	56	35.0	35.0	100.0
	Total	160	100.0	100.0	

IMPROVE CUSTOMER SERVICE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	8	5.0	5.0	5.0
	neutral	24	15.0	15.0	20.0
	agree	56	35.0	35.0	55.0
	strongly agree	72	45.0	45.0	100.0
	Total	160	100.0	100.0	

IMPROVING TRANSACTION SPEEDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	8	5.0	5.0	5.0
	agree	80	50.0	50.0	55.0
	strongly agree	72	45.0	45.0	100.0
	Total	160	100.0	100.0	

REDUCE QUEUES IN THE BANKING HALL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	8	5.0	5.0	5.0
	neutral	40	25.0	25.0	30.0
	agree	56	35.0	35.0	65.0
	strongly agree	56	35.0	35.0	100.0
	Total	160	100.0	100.0	

ENCOURAGES PRICE TRANSPARENCY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	32	20.0	20.0	20.0
	neutral	16	10.0	10.0	30.0
	agree	64	40.0	40.0	70.0
	strongly agree	48	30.0	30.0	100.0
	Total	160	100.0	100.0	

IMPROVEMENT IN CUSTOMER RELATIONS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	8	5.0	5.0	5.0
	disagree	32	20.0	20.0	25.0
	neutral	16	10.0	10.0	35.0
	agree	48	30.0	30.0	65.0
	strongly agree	56	35.0	35.0	100.0
	Total	160	100.0	100.0	