Addis Ababa University
College of Business and Economics
Post Graduate EMBA Program

OPPORTUNITIES AND CHALLENGES IN THE ADOPTION OF E-BANKING SERVICES:

THE CASE OF DASHEN BANK S.C.

A Research Project Submitted to Addis Ababa University College of Business and Economics Post Graduate Executive Masters of Business Administration (EMBA) Program in Partial Fulfillment of the Requirements for the Degree of EMBA.

By

ABEBE ZELEKE

January, 2016

Addis Ababa, Ethiopia

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ABEBE ZELEKE

Advisor:

FANTA TESGERA (PhD)

January, 2016

Addis Ababa, Ethiopia

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.

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Place and date of submission: Addis Ababa University, January, 2016.

CERTIFICATION

This is to certify that Abebe Zeleke Tewado has carried out his research work on the topic entitled **"Opportunities and Challenges in the Adoption of E- Banking Services: The Case of Dashen Bank S.C".** The study is an original work and is suitable for the submission for the reward of EMBA Degree.

Advisor: Fanta Tesgera (PhD):_____

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Examiner	**Signature**
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Examiner	**Signature**

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ACKNOWLEDGEMENT

I am deeply indebted to Fanta Tesgera (PhD), my research advisor, for his valuable comments, guidance and suggestions during the course of this study.

I also appreciate the management and staff of Dashen Bank S.C. for the vital information they furnished me with. Most importantly, I would like to express my deep gratitude to the staff of the bank who participated in this study during the primary data collection process.

Last but not least, my heartfelt gratitude goes to Ato Fitsume Tsegaye for his support throughout this study.

ACRONYMS

ANOVA	Analysis of Variance
ATM(s)	Automatic Tellers Machine(s)
AVR	Automated Voice Response
BT	Banking Technology
CBE	Commercial Bank of Ethiopia
DB	Dashen Bank S.C
E-banking	Electronic Banking
EBS	Electronic Banking Service
EBSD	E- Banking Services Department
E-wallet	Electronic Wallet
FMAD	Fund Managements and Accounts Department
F.Y	Fiscal Year
GTP	Growth and Transformation Plan
IB	Internet Banking
ICT	Information Communication Technology
IT	Information Technology
Mag-stripe	Magnetic Stripe
M-Wallet	Mobil Wallet
NBE	National Bank of Ethiopia
PC	Personal Computer
PDA	Personal Digital Assistant
PIN	Personal Identification Number
POS	Point of Sale
PSS	Premium Switch Solutions
S.C	Share Company
SMS	Short Message Service
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TOE	Technology- Organization -Environmental

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ABSTRACT

This research project reports the findings of a study conducted to investigate opportunities and challenges in the adoption of E-banking services with respect to Dashen Bank S.C. The study examined opportunities and challenges within the context of Dashen Bank's E-banking services using a combination of Technology Acceptance Model (TAM) and Technology- Organization – Environmental (TOE) with some modification to guide the research. The study followed survey method and samples were taken from the Dashen Bank clerical staff using simple random sampling technique. The data was analyzed and tested using linear regression to show the effects of perceived usefulness, perceived ease of use, perceived risk, organizational factors and environmental factors on adoption of E-banking services. Based on the statistical analysis, perceived usefulness was found to have significant effect on adoption of E-banking services in Dashen Bank. Moreover, perceived risk and environmental factors were found to have significant influence in adoption of E-banking services. The findings of the study were all consistent with prior researches. The study revealed areas of improvement with possible solutions that mitigate the identified major challenges, which includes continuous reviewing and up grading of the existing security system, emphasis for appropriate promotion, and collaboration with other banks to have government support especially to the environmental factors of ICT infrastructure. Furthermore, the study suggests that future researches may embark on comprehensive investigation by incorporating customers' perceptions of all Ethiopian Commercial Banks.

Keywords: E-banking, Adoption, Opportunities, Challenges, Dashen Bank

CHAPTER ONE

INTRODUCTION

1.1-Background of the Study

In order to provide efficient and effective services, Banks currently uses deposit, machine, technology, manpower/human resources and other materials as basic inputs to achieve its predetermined goals and objectives. Among those resources, technology is one of a competitive advantage for the banking industry to ease delivery of the intended service, to make timely decision, exploit resources user friendly, achieve the objectives of the organization as planned and contribute for the enhancement of the overall development.

In rapidly changing and highly competitive environment success in the banking industry especially depends on having use of the appropriate technology along with retention of well trained and motivated employees who have the capacity to exploit the Bank's existing technology as well as look for better advancement.

Dashen Bank S.C (DB) has already introduced e-banking as one tool to settle down the growing competition by investing on card acceptance network expansion which in fact makes the network to raise to 220 Automatic Teller Machines (ATMs), 873 Point of Sale (POS) terminals and number card holders to 367,569 as at June, 2015.Those ATMs are able to accept international cards that generates foreign currency like VISA, MasterCard, Union Pay and recently American Express cards. Moreover, the Bank has recently started Internet Banking, mobile banking (in replacement of the previous Modbirr brand) and agent banking called 'Endebank', the latter two are targeting more of to welcome the Unbanked societies for banking business, in accordance with Proclamation No. 718/2011 of "National Payment System Proclamation'' and "Regulation of Mobile and Agent Banking Services'' Directives No. FIS /01/2012 issued by National Bank of Ethiopia (NBE).

Micro finance and Bank Supervision Directorate at NBE disclosed that as the legal frame work has been designed and implemented so that E- banking service can be delivered by different financial institutions. The office further added, 9 Banks have introduced ATM and POS, 5 Banks Mobile Banking, 4 banks internet banking, and 2 Banks Agent Banking (Birritu Magazine, 2014

No. 118, pp 4-5).This can be cited as one of the key opportunities that open the door for E-banking business for Banks in Ethiopia as far as the legal frame work is concerned. Bank Supervision Directorate underscored that NBE believes that it is not only possible but necessary to take advantage of new developments and innovation in technology, infrastructure and distribution networks to deliver financial service cost effectively, which is easily accessible to the public (Birritu Magazine, 2015 No.119, p 5).

Several reviews have pointed out opportunities and challenges in the adoption of E- banking, some of which include: Technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space (Turban, 2008).

Application of technology in Banking offer opportunity for reduction of both Paper and people. Banks have developed Electronic Banking service (EBS) for three main reasons according to Horseman (1979), cited in Mohammad (n.d, p. 3)

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

In order to encourage further E-banking adoption in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao et al., 2008).
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 (Gardachew, 2010).
According to Jensen (2003), most countries in Africa, except South Africa, have Internet infrastructure only in their major cities.

There are limited studies currently available in Ethiopia about EBS which includes ATM, Debit card, Tele banking, internet banking, mobile banking, Agent Banking and so on. Therefore, to address the current gap in the literature, this study is designed to examine the E-banking adoption situation in DB focusing on opportunities, challenges and optimization of EBS to the level

expected. Hence, by utilizing an analytical framework from the extant literature and empirical evidence in this regard, the research will elaborate in more detail and recommends possible ways that shows its opportunities in the adoption of EBS specifically to DB. It will also draw inferences in this regard by using questionnaires distributed to DB clerical staff of EBSD, Information Technology (IT) department and selected Area Banks located in Addis Ababa, interviews and review of some documents.

1.2- Brief about Dashen Bank S.C and Its E-Banking services

DB is a privately owned share company established on September 20, 1995 by obtaining license from the NBE to undertake commercial Banking activities and started normal business activities on January 1, 1996.It is registered as a public share holding Company in accordance with the provision of the "licensing and supervision of Banking Business'' Proclamation No. 84/94,now superseded by proclamation No. 592/2008, "A proclamation to Provide for Banking Business'' and the Commercial Code of Ethiopia 1960. It operates through its Head Office in Addis Ababa and 156 Area Banks, 5 Foreign Bureaus, 873 POS terminals and 220 ATMs located in and outside of Addis Ababa as at 30 June 2015.

On June 30, 2015, the total capital of the Bank (including paid-up capital, retained earnings and legal reserves) reached over Birr 2.9 Billion.

At the end of June 30, 2015, the staff strength of the bank including short and long term contract employees, stood at 4,597 and that of its customer base reached over 1.4 million.

E-banking has been started in DB next to payment card service was introduced by Commercial Bank of Ethiopia (CBE) in 2001 for local users. As a project the payment card of DB started in 2004 with a budget around ETB 16.9 million. Then after, on May 26, 2006 DB officially makes its payment card project operational targeting to distribute 50,000 VISA branded cards at its first year of operation. Currently, DB has become the first bank in Ethiopia to provide a full-fledged payment card service as a principal plus member of four world giant card associations i.e. VISA, MasterCard, Union Pay and American Express. Its POS and ATM terminals accept cards coming from all over the world branded with these logos including cards branded with their affiliate card associations i.e. Visa electron, Visa Plus, Maestro, American Express and Cirrus cards. The Bank issues VISA branded Dashen debit card that give clients the added convenience of round-

the-clock banking service through ATMs in its area banks, University compounds, shopping malls, restaurants and hotels, and conduct POS purchase at a growing number of merchant locations. In addition to issuing DB Visa branded debit cards; the bank is in the process of finalizing the project that allows commencing of issuing Amex Cards with new value propositions targeting various customer segments. Available services on DB ATMs are, cash withdrawal, balance inquiry, mini-statement, fund transfer between accounts attached to a single card and PIN (Personal Identification Number) change and allows its debit card clients to withdraw up to 5,000 Birr and 8,000 Birr in cash from ATMs and POS terminals located at its area banks respectively, and to buy goods and services up to 8,000 Birr per day from POS at Merchant locations. The number of registered DB VISA debit card holders by the end of June, 2015 reached to 367,569. (EBSD annual report, 2015)

DB has started Internet Banking (IB) services of informational which help customers to see account balance and account statement, and transactional IB services which offer additional services like fund transfer from account to account and salary upload free of charge on September 28, 2014 and on February 28, 2015 respectively. By the end of June 2015, it has managed to register 3,540 IB users of which 2,719 are registered by Addis Ababa city Area Bank users. Currently, this service allows users to transact or made fund transfer from one account to another account with in DB to the extent of Birr 50,000 for individuals and Birr 100,000 for corporate customer/companies per day. (EBSD annual report, 2015)

Recently, DB started Mobile and Agent Banking with a total investment cost expected to reach Birr 7.6 million and got license from NBE on August 19, 2014 save live certification. By the end of June, 2015, DB managed to subscribe and to sign a total of 1,100 mobile banking users and 10 agents respectively. Up on implementation, DB targets two distinct markets based on geographical location of potential customers. The first one is to have potential customers that are new or rare users of banking services. The second target market is to have potential customers who have basically access to banking services at a reasonable distance, but their utilization is limited due to various reasons like level of income, age and physical status. (EBSD annual report, 2015)

DB has also established ATM interoperability with Zemen Bank under the umbrella of its principal VISA membership right to extend the technology to other Banks and enable them to be

associate VISA members. Moreover, Abay Bank S.C. has concluded agreement with the Bank as Merchant Banks to use the Bank's POS terminals to provide cash encashment services. (EBSD annual report, 2015)

1.2.1- Organizational Structure of E-Banking Functions in DB

Manager, EBSD is directly responsible to the V/President, Information Systems and E-Banking Services who is under direct supervision by the President of DB. Under EBSD Manger, there is one D/Manager who supervises four Division Heads namely Card Systems Division, Customer service Division, Card Operations Divisions and Mobile and Agent Banking Division.

1.3-Statement of the Problem

The number of commercial banks in Ethiopia has reached 19, out of which 16 are private, and the remaining 3 state-owned. The total Branch net work in the country reached 2,208 as a result, the Bank branch to population ratio becomes 1 to 39,402 people (NBE annual report, 2013/2014, pp.50). Moreover, the current numbers of population of Ethiopian reached over 90 million of which 80 percent are living in rural areas where financial institutions have not yet reached to majority of those people. According to NBE 2013/2014 annual report, Ethio telecom by the year 2013/14 end able to register the following performance: the number of mobile subscribers surged by 19.2 percent and reached 28.3 million from 23.8 million a year ago. Similarly, the number of fixed line subscribers slightly increased by 2.9 percent to 813,410 from 790,168. Meanwhile, the number of internet subscribers surged by 39.2 percent on annual basis and reached 6.2 million from 4.4 million recorded. Even though the penetration of internet access and mobile phones among the population increased, out of 19 commercial Banks in Ethiopia, only 9 Banks have introduced ATM and POS, 5 Banks Mobile Banking, 4 banks internet banking, and 2 Banks Agent Banking (Birritu Magazine, 2014 No. 118, p 4).

Furthermore, one of the issues raised with adoption of new technology is Perceived risk or uncertainty about the outcome of the use of the innovation (Gerrard & Cunningham, 2003). Uncertainty arises from a predictive validity of the attributes (for example functionality and security) that is, how well users of new technology will predict future performance (Cox, 1967).

Risk is a subjective determined expectation of loss; the greater the expected probability of loss, the higher the risk perceived (Mitchell, 1999), and thus the lower the motivation to adopt an innovation.

Even though E-banking has a lot of benefit in delivering service to customers, in Ethiopia customers were missed to enjoy with the technological advancement in banking sector which has been entertained elsewhere in Africa and the rest of the world. This is due to lack of awareness or competition among banking industries. The modern E-banking methods like ATMs, Debit cards, Credit cards, Tele banking, Internet banking, Mobile banking and others are new to the Ethiopian banking sectors. E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, and to pay bills, or to obtain commercial information and advices are not well known in Ethiopia (Ayana, 2012).

Considering the low extent of development of ICT infrastructure in developing countries, when compared with the developed countries E-banking has not really been able to diffuse into society given the low rate of internet access (Banji & Catherine, 2004). Therefore, this study intended to show opportunities and challenges in the adoption of E banking service focusing on DB in light of the research problems discussed above and to fill the existing gap of limited research availability.

1.4-Research Questions

This study provides an answer to the following specific research questions in connection with factors that influence the adoption of E banking services positively or negatively with respect to DB:-

- What are the major challenges in the adoption of E banking services?
- What are the major opportunities in the adoption of E banking services?

1.5-Objectives of the Study

General objectives

The purpose of the study is to identify opportunities and challenges in the adoption and enhancement of E banking services in DB.

Detailed objectives

- To show the root causes of identified challenges in adoption of E banking services.
- To forward recommendations that enhances existing E banking services within the organization under consideration.
- To show opportunities at the hands of DB that helps to use E banking services competitively.
- To recommend possible solutions to the identified challenges in the adoption of E banking services in DB

1.6-Rationale and Benefits of the Study

Needless to say, now a day IT based banking service in the Banking industry is one of the core resources for competitiveness and assurance of better service. But, the industry didn't utilize such resources to the level expected as compared to elsewhere in Africa and the rest of the world. The research tries to see the opportunities and challenges in the adoption of E banking services by taking one of the private Banks from the industry particularly DB as a case in point.

The study has made an attempt to identify major issues to be recognized by DB in order to better understand E banking adoption opportunities and challenges for betterment of the existing service level. The following are some of the benefits which accrue to the subject of study under consideration:-

- It gives an understanding on the causes of E banking adoption challenges and its consequences.
- It helps the Bank to take appropriate measures on factors that affects adoption of the service.
- It reminds the Bank how technology based services have a competitive advantage if properly and timely managed.

- It provides possible solutions that helps the Management of the Bank maximize opportunities at hand.
- It shows possible opportunities available by adopting E banking services.
- It serves as a base for future researches.

1.7- Delimitation/Scope of the Study

The general aim of the study is to assess opportunities and challenges in the adoption of E banking Service in DB limiting its scope to Addis Ababa area. And, the study uses clerical staff of DB for the survey. Currently, DB Mobile and Agent banking are on pilot stage. During this pilot period, DB has a right to test the new system on a limited scale without making public campaign and promotion related to the service until getting approval in accordance with the directive issued by NBE in this regard. Hence, at this infancy service stage significant portion of its customers that uses and testing the services are existing staff of DB. Moreover, it is difficult to incorporate non staff customers due to their limited numbers and getting them for the purpose of the research at a given time is also difficult even to have access to their phone number due to the confidentiality principle of the Bank.

Despite being the pioneer in introducing ATM based payment system and acquired visa membership, CBE Lagged behind DB, which worked aggressively to maintain its lead in E-payment system (Gardachew, 2010). Given its experience in E banking since 2006, staff of DB has becomes knowledgeable about the opportunities and challenges in the adoption of the service through support and delivery of the service at the same time customer of DB E banking services. Hence, the study will address clerical staff of EBSD, IT department and four purposely selected Addis Ababa Area Banks per their performance in E banking service delivery in terms of card holders with the Bank per the 2015 annual report of EBAD.

1.8- Limitations of the Study

The study relied much on the responses of the questionnaire and interview that were filled out and answered by the existing clerical employees of the selected four Area Banks and two departments. Hence, the extent of credibility of these responses may be a bit questionable as the existing employees may feel not comfortable to deliver the real facts by suspecting confidentiality to some extent.

1.9-Ethical Consideration

Throughout the research, the researcher upheld and respected the participants' right to privacy, anonymity, fair treatment and to protection from discomfort and harm (Neuman, 2003). Ethics is the code of moral principles and values that governs the behavior of an individual or group with respect to what is right or wrong (Bratton and Gold, 2000). In this research, ethical issues have got especial consideration. The researcher discussed the purpose of the research clearly to the participants during data gathering stage of the research. As a matter of confidentiality, the participants were not required to write or tell their names. Furthermore, the participants were assured that their responses for the questionnaire as well as the interview are used for the intended purpose only and wiped out their responses as no more required after completing the research.

1.10- Organization of the Research Paper

The study is organized in to five chapters. The first chapter states the general introduction of the study. Chapter two presents the literature review regarding the research area and sets out the theoretical foundation for the research. The third chapter outlines the research methodology. The research results and discussions are presented in chapter four. The last chapter draws conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1- Definition of E-banking

E-banking has been defined in many ways by different scholars; Daniel (1999) defines electronic banking as the delivery of banks' information and services by banks to customers via different delivery platforms that can be used with different terminal devices such as personal computers and mobile phone with browser or desktop software, telephone or digital television; Abid and Noreen (2006) defined it as any use of information and communication technology and electronic means by a bank to conduct transactions and have interaction with stakeholders; Magembe et al.(2002) also defined electronic banking (e-banking) is nothing but e-business in banking industry. E-banking is a generic term for delivery of banking services and products through electronic channels, such as the telephone, the internet, the cell phone, etc.

E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul, 2009).

Another definition of E-banking is that, it is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network (Yang, 1997, p.2). 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), ATMs, POS, kiosk, or touch tone telephone (Alagheband, 2006, p.11).

2.2- Types of E-banking

Among the many e-banking delivery channels to provide banking service to customers, ATM, POS, Mobile & agent banking and internet banking are the most widely used and discussed below:-

ATM

It is a machine where cash withdrawal can be made over the machine without going in to the banking hall. It also sells recharge cards and transfer funds; it can be accessed 24 hours/7 days with account balance enquiry (Fenuga, 2010). ATM is same as teller point but it run automatically through identity like card and password. It does not need any slip or Cheque but it is very much based on account holder's ATM card and it's Password. Generally, ATM machines provides the same services, such as money withdrawal, fund transfer, balance enquiry, mini statement, and money transfer from one account to the other.

INTERNET BANKING

Internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or society. It may include any of transactions related to online usage. Banks increasingly operate websites through which customers are able not only to inquire about account balances, interest and exchange rates but also to conduct a range of transactions. Unfortunately, data on Internet banking are scarce, and differences in definitions make cross-country comparisons difficult (Alabar, 2012).

POS

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

MOBILE BANKING

Mobile banking also known as M-Banking is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or PDA. The earliest mobile banking services were offered over Short Message Service (SMS), a service known as SMS banking. Mobile banking is used in many parts of the world with little or no infrastructure, especially remote and rural areas. This aspect of mobile commerce is also popular in countries where most of their population is un-banked. In most of these places, banks can only be found in big cities, and customers have to travel hundreds of miles to the nearest bank. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information (Tiwari et al., 2007).

AGENT BANKING

A banking agent is a retail or postal outlet contracted by a financial institution or a mobile network operator to process clients' transactions. Rather than a branch teller, it is the owner or an employee of the retail outlet who conducts the transaction and lets clients deposit, withdraw, and transfer funds, pay their bills, inquire about an account balance, or receive government benefits or a direct deposit from their employer. Banking agents can be pharmacies, supermarkets, convenience stores, lottery outlets, post offices, and many more. *(Wiki for banking agent, 2015)*

Banking agents are usually equipped with a combination of POS card reader, mobile phone, barcode scanner to scan bills for bill payment transactions, PIN pads, and sometimes personal computers (PCs) that connect with the bank's server using a personal dial-up or other data connection. Clients that transact at the agent use a Magnetic Stripe (Mag-Stripe) bank card or their mobile phone to access their bank account or e-wallet respectively. Identification of customers is normally done through a PIN. With regard to the transaction verification, authorization, and settlement platform, banking agents are similar to any other remote bank channel *(Wiki for banking agent, 2015)*

Banking agents are the backbone of mobile banking, i.e., performing transactions over a mobile device, most often a mobile phone. To enable clients to convert cash into electronic money and vice versa which can be sent over their mobile phone, clients will have to visit a branch, ATM,

or banking agent. Especially in remote and rural locations, where cash is still the most important way to pay and transact, a mobile banking service is dependent on banking agents to enable clients to effectively use the service. *(Wiki for banking agent, 2015)*

2.3- E-banking System in Ethiopian Banking Industry

The appearance of E-banking in Ethiopia goes back to the late 2001, when CBE introduced the service for local users with its eight ATMs located in Addis Ababa (Gardachew, 2010).

Then after DB comes to the picture in the year 2006 with its ATMs that provide service for local Dashen Visa Card holders and international Visa Cardholders coming to Ethiopia.

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

Wegagen Bank is introducing a Core Banking System as of July 2000 that helps to connect its Head Office & all branches through network. Through its versatile ISO Standard Core Banking System, the Bank is now delivering more efficient services to its customers. The system has also enabled the Bank to provide technology-based banking services such as Card payment services (through ATM & POS), internet banking as well as mobile banking services. (Wegagen Bank SC web report, 2015)

Zemen Bank has launched prepaid bank cards which can be used without opening a deposit account at the bank. The cards will have preloaded funds, which can be withdrawn from ATMs or used to make purchases from POS terminal. The prepaid cards will be given to the cardholders with a PIN to withdraw the cash. The prepaid cards can be used as gift cards or employee salary or expense cards, which can avoid the need to carry around a large amount of cash. The cards can be preloaded with a minimum of 100 Br. And a maximum of 50,000.00 Br. and reloaded after the previous funds have been fully utilized. The bank will take a commission each time a card is loaded (Fortune, 2012).

Currently, there are only a few agreements in place to share ATM resources. The first was the Premium Switch Solutions (PSS), which was established by three banks in 2009 namely Awash

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

2.4- Opportunities for E-banking Development in Ethiopia

Measures have been taken by NBE aiming to improve the financial sector and achieving financial inclusion of the unbanked and under-banked populations. The regulatory platforms to secure electronic payment systems are put in place and banks are allowed to engage in mobile and agent banking services. The regulations include, The National Payment System Proclamation (No.718/2011) which was issued in July 2011; the provision of Mobile and Agent Banking Services (Directive No.FIS/01/2012) issued in January 2013 and FIS/02/2014 issued on August 12, 2014.

Needless to mention, telecommunication is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. The ambitious target set by Ethio Telecom in this regard that aims to enhance customer acquisitions, customer satisfactions and provision of quality services to its customers coupled with the country's five-year Growth and Transformation Plan (GTP) can also be seen as an opportunity for the development of E banking(NBE annual report, 2013/14).

Competition among Commercial Banks and their collaboration to use common resources has its own opportunities in adoption and optimizing of E banking in Ethiopia. Formation of PSS and interoperability agreement between DB and Zemen Bank S.C. can be cited as an example. Moreover, Un-served market, stable and secure political environment, rapidly growing mobile

infrastructure, availability of delivery channels (outlets), safe and sound financial sector are also the most important opportunities in Ethiopia (Milion,2013).

2.5- Empirical Studies Related with Challenges in the Adoption of E-banking Services.

Zohra and Kashif (2011) in their study have shown that the users do not understand about what meant mobile banking is and suggested that it is crucial to create awareness about the usage of mobile device and familiarize people with its benefit in order to increase customer satisfaction. Salman and Kashif (2013) study result showed that the awareness of customers in e-banking was poor that is more number of customers do not know what e-banking meant , E-banking has totally reduced interaction with bank employees and it enabled customers to control their accounts movements more than ordinary banking. Moreover, their study of electronic banking in Pakistan revealed that reliability, learning and feedback are very important for the satisfaction of the customers. This study also revealed those customers are not satisfied by the downloading time of website banks in Pakistan. If clients are not happy with the banking products, prices or services offered by a particular bank, they are able to change their banking partner much more easily than in the physical or real bank-client relationship. Empirical evidence implies that customers' patronage for and reaction to a particular product depend on their level of understanding of what the product can do and what they stand to benefit there from (Balachandher, 2001).

On the other hand, the study conducted by Daghfous and Toufaily (2007) on the success and critical factors in adoption of E-banking by Lebanese banks 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.

The other case study analysis conducted by Khalfan et al. (2006) on "Factors influencing the adoption of internet banking in Oman" found 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 barrier. 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 also the other inhibiting factor in the adoption of electronic commerce applications as per their finding. Similarly, the study of Ghazi and Khalid (2012) found that the most important barriers for E-business growth are technological issues, such as, security risk, quality of internet and cost of implementation to be the most prominent.

Polatoglu & Ekin (2001) conducted a research on an empirical investigation of Turkish consumer acceptance of internet banking and mention reliability as the prime factor in their finding for the adoption of new technological innovations, reliability consists of security and privacy in Internet Banking transactions. Zhao et al. (2010) in their study of "adoption of internet banking service in china" says trust in a bank is fundamental because it deals with customers financial activities. Trust is not only important to reduce risk in Internet Banking in general but also it helps banks to build trust to be more competitive in the industry. Gerrard et al. (2006) in their study in Singapore identify risk to be an important factor for Internet Banking adoption. All respondents who did not use Internet Banking services had a negative perception of the security in Internet Banking. The respondents perceived that there were many security risks when using the internet. They felt the privacy was a concern, feeling all their financial information could be in jeopardy. An empirical investigation conducted by Sathye (1999) on the adoption of Internet Banking by Australian consumers also identified, security concerns as key factor in internet banking adoption.

Similarly the study of Yang (1997), on "The security of electronic banking" suggests that solutions to the security issues require the use of software-based systems or hardware-based systems or a hybrid of the two.

In Laukkanen (2008) research, risk is considered as the most intense barrier and the greatest concern in the adoption of Internet Banking. However, in this study consumers feel human errors by themselves could cause a threat to their financial services. For example, losing their PIN

codes and it may get it to the wrong hands and result in crime or theft. A higher determinant of resistance appears to be the risk related to the individual's perceived ability to use the innovation successfully.

Another empirical Research suggests that consumer acceptance and use of E-banking technologies are related to the characteristics of both the individual consumer and the specific technology. Moreover, E-banking products and services are also viewed as ways to retain existing customers and attract unbanked and under-banked consumers (Anguelov et al., 2004).

Wang et al. (2003) explored that perceived usefulness has significant positive effect on behavioral intention towards online banking in Taiwan context. The study concluded that Taiwanese exploit online banking systems as they find the system is useful and comfortable to use. Pikkarainen et al. (2004) and Chong et al. (2010) have also found strong relationship between perceived usefulness and online banking adoption in their studies of Finnish and Vietnamese consumers, respectively. According to Moon and Kim (2001), information systems not only should be easy to use, but should also stress on user friendly features. Pikkarainen et al.(2004), who investigated the acceptance of internet banking in Finland, also found perceived ease of use to have some effect on adoption, though less influential than perceived usefulness. Poon (2008) also investigated the factors that influence Malaysian consumers' adoption of E-banking channels and found that convenience, accessibility and security have positive influence on adoption.

Howcroft (2002) also identified concerns over security and fears over the likelihood of errors as the most important discouraging factors for consumers' adoption of telephone and internet banking in the United Kingdom. Moreover, Chong et al. (2010) found that trust in security and privacy of online banking influence adoption in Vietnam. Eriksson et al. (2008); however, found perceived risk to have significant, but weak, negative effect on adoption of internet banking in Estonia. Pikkarainen et al. (2004) also found security and privacy to have relatively weak relationship with adoption in Finland.

Joseph & Stone (2003) emphasized that human and technology based delivery channels were greatly linked with the customers' perceptions of how these bank services were delivered to them

and pointed out that these perceptual outcomes would affect the level of bank customer satisfaction, retention, and switching.

2.6- Related Cases in Africa

Cases of similar subject matter in Africa are observed to draw important lessons from them;

An empirical study done by Faisal (2013) in Ghana showed that the main rejection factors in using M-banking technology by customers were M-banking requires knowledge & learning, attracts additional banking charges, and Poor telecommunication technology.

Ayo et al. (2010) in their study on "the state of e-banking implementation in Nigeria" investigated into the influence of trust on electronic payment (e-payment) using the Extended Technology Acceptance Model (TAM). Similarly, they also evaluated the influence of Perceived Trust, Perceived Risk and Organizational Reputation on Customer Loyalty to technology diffusion. According to Chemekie et al. (2006), cited in Ayo et al. (2010); most of the Nigerian banks ability to sustain; retain and satisfy their customers even after the era of considerable consolidation of the commercial banks depended largely on their ability to develop their information infrastructure mechanisms.

Another empirical study done by Korir (2012) revealed that there were losses to customers of Kenya Commercial Bank (KCB), who use the M-Banking services, due to fraudulent access of customers' accounts through hacking. Since an incident like this will have a ruinous impact on the reputation of the bank there is need to employ disciplined, qualified and well remunerated ICT in the bank and at the level of mobile provider.

2.6.1- M-PESA Mobile Wallet – Kenya

In March of 2007, a mobile money service called M-PESA was introduced into the market by Safaricom, Kenya's largest mobile operator (MO). Within eight months of its inception in March 2007, over 1.1 million Kenyans had registered to use M-PESA, and over US$87 million had been transferred over the system (Safaricom, 2007). M-PESA registered customers reached 19.34 million by the end of March 31, 2014 (Safaricom, 2014).

The application facilitates a variety of financial transactions through the mobile phone. This includes account balance checks, deposits and withdrawals, bill and merchant payments, airtime purchases, and money transfers (Hughes & Lonie, 2007; Vaughan, 2007, cited in Morawczynski, 2009). M-PESA is designed in such a way that people without bank accounts can use it. Customers' money is held safely in a bank account run by M-PESA on behalf of the customer. A customer does not have any contact with the bank and the bank does not have customers' details. An individual who have M-PESA account can have a balance between 0 ksh and 100,000 ksh (Kenyan Shilling). M-PESA is driven by a secure application on Safaricom SIM cards. Registered customers have a menu on their phone giving them the ability to move money to other phone based accounts. To load money into M-PESA account a customer need to go to an M-PESA Agent and make a cash deposit which results in electronic money being transferred into customers' M-PESA account (This is confirmed by an SMS received by both the Agent and the Customer).Then, a customer can conveniently transfer money to other mobile phone users by SMS transaction.

To withdraw cash from M-PESA account or (for unregistered customers to get cash), a customer need to go to an M-PESA agent and make an electronic transfer to the agent who will exchange this for cash. An M-PESA agents are Safaricom dealers, selected Banks & Micro-Finance Institution, and other retailers with a substantial distribution network like petrol stations, distributors, supermarkets & registered SMEs. Wrong transfers are reversible on the M-PESA system, upon rigorous vetting of the sender & recipient and if the money has not yet been cashed or withdrawn. If a customer makes an incorrect transaction, there is a free assistance call service.

According to Morawczynski (2009) the liberalization of the telecommunications sector, among other things, plays a crucial role for the success of M-PESA. The government has taken numerous strategies to increase the penetration rates of ICTs in general and the mobile phone in particular. This includes instigating competition in the market and including universal service stipulations in license agreements. Such stipulations made it easier for M-PESA to penetrate rural areas, which are under-served by financial institutions. In addition, the super and retail agents were aligned to facilitate the scalability of the agent network and to make it easier to move cash and e-money around the system. The main function of the retail agents is to provide

cash-in & cash-out services to the customers and provide customer support. The super-agents are responsible for balancing cash and e-money requirements of the retail agents.

The qualitative studies on M-Pesa such as Morawczynski and Pickens (2009) have suggested that M-Pesa serves as a partial substitute for the formal banking system. Prior to the introduction of M-Pesa, most Africans were excluded from modern financial services. Using data ranging between 2001 and 2005, Beck et al. (2007) show that African countries lagged in financial access. During those periods they show that Ghana had 1.6 branches per 100,000 and Kenya had 1.3 branches per 100,000, while Uganda and Tanzania both had less than 0.6 branches per 100,000. The ATM penetration of these countries was even lower ranging from 1 per 100,000 in Kenya to less than 0.20 per 100,000 in Tanzania. In contrast, the U.S. had 31 bank branches and 120 ATMs per 100,000 people during that period.

2.6.2- E-banking in Sudan

In 1998, The Central Bank of Sudan announced the Comprehensive Banking Policy, and it was launched in1999. The major aim was to promote the banking sector to adapt to the contemporary international economic developments namely, the wide-range adoption of the economic liberalization policies, the enforcement of the stipulations of the Basle Committee accord and the trend of economic globalization. To effectively achieve the goals of that policy, detailed annual implementation programs were drawn in the areas of banking-services automation; banking technology (BT), liquidity management, banking system development, foreign exchange market, and Islamization of the banking system (Tingari and Abdelrahman, 2010; and Central Bank of Sudan, 2001).

Following this in July 1999, Electronic Banking Services Co. Ltd was established and registered by Central Bank of Sudan as a multi-venture private company. It is a specialist company dedicated towards the introduction of modern BT and solutions to replace traditional methods being used by banks and financial institutions in the Sudan. As cited in Tingari and Mahmoud (2014), the company started its operations in May 2000 with the following objectives:-

a) Electronically connecting banks in Sudan.

b) Provision of electronic payment services in and out of Sudan.

c) Provision of services and technical consulting to banks in their related field of work. Undertaking ground breaking and innovative projects requiring great efforts and major investments to improve banking operations.
d) Adoption of standard specifications in software development allowing banks to collaborate and cooperate through an electronic network.
e) Provision of electronic financial services that require the collaboration of banks in their delivery.

According to Assalam Bank (2013), and Faisal Islamic Bank (2013), cited in Tingari and Mahmoud (2014), M-banking in Sudan was firstly adopted in 2009 that could be categorized to informational m-banking services (such as exchange rate, balance inquiry, check status inquiry and short statement),and interactive m-banking services (including E-payments, money transfer, account management).

Tingari and Mahmoud (2014) studied about the revolution of ICT. It deals with the evolution of BT, e-banking and m-banking in Sudan. It intends to explore the practice of m-banking in Sudan. The focus is on the availability of adequate infrastructure and on the challenges and risks that face m-banking services in Sudan. Their findings showed that although m banking is believed to be essential, still the services provided are at an infant stage. It is also found that concerned parties are not fully cooperating. This raises risks and constitutes challenges that hinder full utilization of m-banking in Sudan.

2.7. Challenges of Adopting E-banking in Ethiopia

Abraham (2012) described that among the common problems known in Ethiopian which are related to electronic banking few of them are lack of banking services through the web or other electronic means such as using mobile phone, weak telecommunications, lack of Internet awareness, broken and slow Internet connections, data and network security and privacy, lack and limitation of government policies, regulations and e-commerce laws, as well as legislation to protect workers and to make the Internet secure.
Banking in Ethiopia faces numerous challenges to fully adopt and adopt E-banking application and seize the opportunities presented by ICT applications in general. Part of key challenges for e-

banking applications are low level of internet penetration and poorly developed telecommunication infrastructure, lack of infrastructure for telecommunications, lack of suitable legal and regulatory framework for e-commerce and e-payment, high rate of illiteracy, high cost of internet, absences of financial institutions networks that link different banks, frequent power interruption, resistance to changes in technology among customers and staff due to lack of awareness on the benefits of new technologies, fear of risk, lack of trained personnel in key areas, tendency to be content with the existing structures and people may be resistance to new payment systems (Gardachew,2010).

Wondwossen and Tsegai (2005) also studied on the challenges and opportunities of E-payments in Ethiopia; their objective was studying of E-payment practices in developing countries, Africa and Ethiopia and found that, the main obstacles to the development of E-payments are, lack of customers trust in the initiatives, unavailability of payment laws and regulations particularly for E-payment, lack of skilled manpower and Frequent power disruption.

Ayana (2010) explored in his study on "Adoption of Electronic banking system in Ethiopian Banking industry: Barriers and Drivers" that E-banking system, such as ATM, mobile banking, internet banking and others were not well adopted by Ethiopian banking industry. This is due to low level of ICT infrastructure and lack of legal frame work at NBE, which can initiate banking industry to implement the system. In addition to the above two basic factors affecting adoption of E banking in Ethiopia, result of the study also shows that security risk and lack of trust on the use of technological adoption are other major barriers for the system. The level of security risk associated with E-banking product or service, such as ATM, internet banking, mobile banking and others, pose different challenges to different banks. Improvements are required to ensure client confidence. Lack of competition among local and foreign banks is also another challenge for the adoption of E-banking in the country. Technical and managerial skills available in Ethiopian banks for the adoption of E-banking are also limited.

2.8. Conceptual Framework

To achieve the research objective and to test the research hypotheses, the study used the theoretical framework developed by Davis et al. (1989) (modified) with some modifications in consideration of Tornatzky and Fleischer (1990) theoretical framework of Technology-organization-environment (TOE). TAM proposes perceived usefulness and perceived ease of

use as the fundamental determinants of IT adoption. An individual's intention to use an application is explained and predicted by his/her perception of the technology's usefulness and its simplicity. Based on the literature review, the researcher takes perceived ease of use and perceived usefulness from TAM model to have the perception of the target group towards adoption. Regarding the TOE model of Tornatzky and Fleischer (1990), the focuses were on factors pertaining to technological context, organizational context and external environment. Accordingly, perceived risk from technological context, finance and human resources from organizational factors and legal, ICT infrastructures, competitive pressure and government support were considered from the environmental factors of the model to have a complete understanding of opportunities and challenges in the adoption of E-banking inconsideration of the literature review. Hence, the study used a combination of both TOE and TAM framework with some modifications to benefit from both models and to have a more precise forecast regarding opportunities and challenges in the adoption of E banking service at DB.

In this study, the dependent variable is the adoption of E banking service in DB, while the independent variables are perceived usefulness, perceived ease of use, perceived risk, organizational factors and environmental factors. The study is interested in testing the variability of these variables. Do these variables truly in any way affects the adoption of E banking at DB or not?

The research model developed here below posited that perceived usefulness, perceived ease of use, perceived risk, organizational factors and environmental factors have influence on adoption of E banking service in DB with the assumption of any other intermediary variables that affect the relationships are constant.

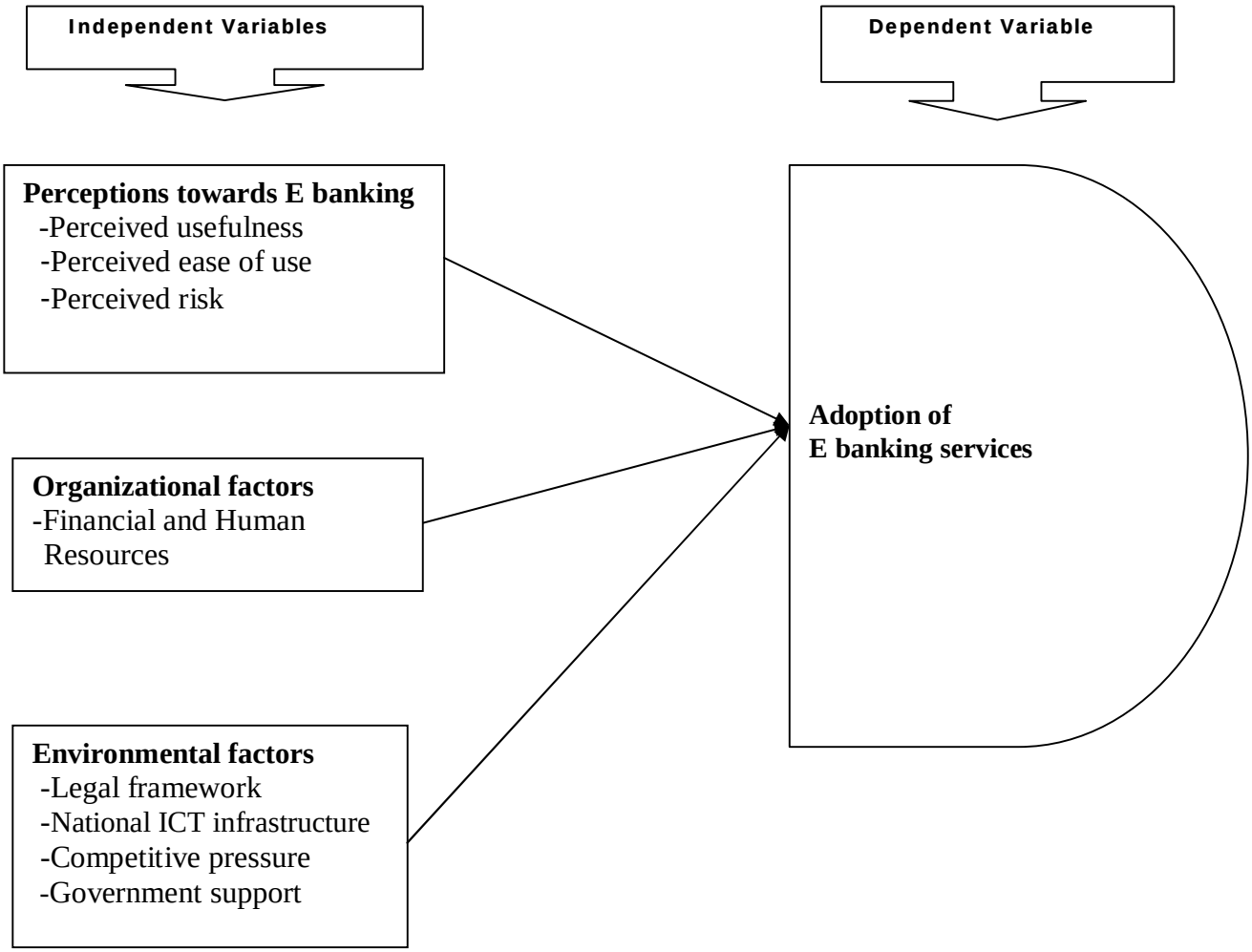

Figure 2.1. Research Model

2.9.-Hypotheses Development

According to Frank (1979) a hypothesis is the tentative statement of fact that is yet to be verified by the researcher. In order to address the research questions, the study is designed to investigate factors that could explain adoption of E banking service in DB as dependent variables against the three categories of independent variables at an assumed 95% level of interval confidence.

The description of both dependent and independent variables with related hypothesis is discussed below:-

2.9.1- Dependent Variable

The dependent variable is the variable that is the effect or is the result or outcome of other (independent) variables (Neumann, 2007). In this study the dependent variable is the adoption of E banking services in DB.

Adoption of E banking services

It is to be measured through the response of the target group based on detailed questionnaires listed under the three determinants namely perceived risk, organizational factors and environmental factors. DB has been in E banking business since 2006; however, it launched internet, mobile and agent banking services very recently in 2014/2015 fiscal year. Hence, measurements that have greater impact towards the acceptance and adoption of new E banking services shall be identified with its magnitude through the determinants explained above to know existing challenges and opportunities for the adoption of the services in DB.

Moreover, DB has been in E- banking business since 2006 and managed to have card holders of 367,569 as at June, 2015 and become at infant stage for services like internet, mobile and agent banking. This means only about 26% of its customer enjoys the card banking service while customer base of the bank reached over 1.4 million at the end of the fiscal year 2014/15. For better enhancement of adoption of the service, the responses of the players' with regard to perceived ease of use and perceived usefulness become crucial. Hence, the respondent response helps the bank to enhance and deliver its E- banking services for significant portion of DB customers.

2.9.2- Independent Variables

The independent variables are the cause variables or the one that identifies forces or conditions that acts on something else (Neumann, 2007).As TAM has proven to be a theoretical model in helping to explain and predict user behavior of information technology (Legris et al., 2003), this study considers three categories of independent variables that are perceptions of E banking

(perceived usefulness, perceived ease of use, perceived risk), organizational factors (financial and human resources),and environmental factors(Legal framework, National ICT infrastructure, Competitive pressure ,Government support) per Davis et al. (1989) (modified) TAM and Tornatzky and Fleischer (1990) TOE hypotheses with some minor modifications to fit the research purpose as explained below:-

2.9.2.1- Perceived Usefulness

Perceived usefulness in this study refers the extent to which the individual believes that E banking is more advantageous when compared to traditional ways of conducting banking transactions. These benefits include allowing users to conduct banking activities anytime, anywhere at a lower cost, speedy and in efficient manner. Past studies on E-banking adoption have consistently showed that perceived usefulness has a strong influence on users adoption of E-banking (Chong et al., 2010; Pikkarainen et al., 2004; Wang et al., 2003). Therefore, the following hypothesis could be formed in order to ascertain the possibility of perceived usefulness by customers of DB (in this study staff) that may have an influence in the adoption of E banking services.

H1: *There is a relationship between perceived usefulness and adoption of E banking services.*

2.9.2.2- Perceived Ease of Use

Perceived ease of use in this study is the extent to which the individual believes that using E banking services would be free of effort. The quality, effectiveness and success of a system can only be validated by the level which its users accept it through its ability to satisfy their needs (Pikkarainen et al., 2004). Prior studies have found positive relationship between perceived ease of use and adoption of e-banking (Amin et al., 2008; Pikkarainen et al., 2004; Poon, 2008). However, in consideration of technology advancement in E banking service, trainings for better know how of the service and existing manpower skill it is necessary to hypothesize the following.

H2: *There is a relationship between perceived ease of use and adoption of E banking services.*

2.9.2.3- Perceived Risk

Using applications involving the use of internet entails some risks. Perceived risk in the field of E-banking can be defined as the potential for loss in the pursuit of a desired outcome of using E-banking services (Featherman & Pavlou, 2002).

This study considers individuals' subjective feelings of certainty and degree of trust in the consequences of using E banking services. Several researchers have added perceived risk to the set of factors important to adoption (Aldas-Manzano et al., 2009; Chong et al., 2010; Howcroft et al., 2002; Poon, 2008; Sathye, 1999). Howcroft et al. (2002) have found security concerns to be the major factor discouraging the adoption of electronic banking services. Studies have also identified lack of trust as one of the main impediments to customers' usage of online financial application (Flavian et al., 2006).

It is interesting to see the level of confidence that DB's staff have towards the recently introduced E banking services. Thereby, the following hypothesis is proposed:

H3: *There is a relationship between perceived risk and adoption of E banking Services.*

2.9.2.4- Organizational Factors

Organizations are different in their preference to adopt technological innovation (Grover, 1993; Iacovou, 1995) influenced by a number of factors, like firm size, top management support and financial and human resources (Ayana, 2010). According to Ayana (2010), unfamiliarity with the service provided through ATM, Internet banking, telephone and mobile phone by customers, Lack of technical and managerial skills on the use of technological innovation and Lack of skills to implement E-banking system are considered as barriers for the adoption of E-banking system of Ethiopia. Financial resources are also an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Iacovou, 1995; Kuan, 2001). In general, organizational factors refer to the organization's characteristics that influence its ability to adopt and use of E-banking system. Hence, this research considers financial and human resources as important factors that enables banking institutions to develop and support provision of E-banking services.

Therefore, the following hypothesis is proposed to see its effect in DB context:

H4: *There is a relationship between organizational factors and adoption of E banking Services.*

2.9.2.5- Environmental Factors

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. Based on this, the study adopt the TOE framework to summarize possible key environmental factors affecting E-banking in DB such as legal, competitive pressure, government support and national ICT infrastructure.

Those factors that are considered relevant to the adoption and optimization of E banking were identified and discussed by different scholars as follows:-

According to Tan & Wu (2002); Martinson (2001); and Trappey et al. (2001), the existence and maturity of E-commerce legal frameworks within a country influence the diffusion of online transactions including E-banking. Moreover, without an adequate development level and quality of a nation's ICT infrastructure E banking adoption and use cannot do well (Efendioglu, 2004; Scupola, 2003).As implied by Quaddus & Hofmeyer (2007) and Gibbs et al. (2003), competitive pressure can have strong influence on any bank to develop and adopt E banking services through affecting the bank's perception towards E-banking system. Government support has also direct or indirect effect in the adoption and optimizing of E banking through creating conducive environment and impetus for banking industries and their customers so that the services can be diffused to the community (Iacovou,1995; Kuan ,2001).

Hence, the following is hypothesized:-

H5: *There is a relation between environmental factors and adoption of E banking services.*

CHAPTER THREE

METHODOLOGY

3.1- Research Design

As per Creswell (2003) there are three approaches that are used in conducting a given research. These are quantitative, qualitative and mixed research approach. Quantitative research approach focuses primarily on the construction of quantitative data, and quantitative data is a systematic record that consists of numbers constructed by researcher utilizing the process of measurement and imposing structure (Kent, 2007). The quantitative research approach employ measurement that can be quantifiable while the qualitative approach cannot be measured (Bryman & Bell, 2007). In mixed research approach inquirers draw liberally from both qualitative and quantitative assumptions (Creswell, 2009).

The research under subject will be conducted using mixed research approach; the rationale for combining both quantitative and qualitative data is to better understand the research problem by combining both numeric values from quantitative research and the detail of qualitative research and to neutralize limitations of applying any of a single approach. According to Creswell (2009), the mixed research approach uses separate quantitative and qualitative methods as a means to offset the weaknesses inherent within one method with the strengths of the other method.

To see opportunities and challenges of adoption and optimization of E banking services in DB especially in Addis Ababa area, the concurrent mixed method design is used. The concurrent triangulation approach is probably the most familiar of the major mixed method models. It is selected as a model when a research uses two different methods in an attempt to confirm, cross-validate, or corroborate findings within a single study (Creswell, 2009). In this case, the quantitative and qualitative data collection is concurrent, happening in one phase of the research.

3.2- Data Source & Collection Method

The study used both primary and secondary data. Primary sources of data include interview and questionnaire, whereas secondary sources of data are generated through a review of relevant documents and web pages.

Questionnaires were distributed to DB's clerical staff found at EBSD, IT Department and DB's clerical staff who have direct contact with customers up on delivering the service and found at purposely selected four Addis Ababa Area Banks. Those personnel (they are users of E banking services at DB) were selected as respondents because they are deemed to be knowledgeable about the existing opportunities and challenges in adoption of E banking services and could provide important perspective in addressing the research objectives.

The researcher adopts survey instrument used by Ayana (2010) with some modification to fit the study under investigation. The questionnaires were structured mainly in close-ended questions by which the respondents were asked to indicate their level of agreement using a five Likert rating scale measurement where: Strongly Agree (SA) = 1; Agree (A) = 2; Neutral (N)=3, Disagree (D) = 4; and Strongly Disagree (SD) = 5; The use of Likert scale is to make it easier for respondents to answer question in a simple way. The questionnaire have two sections where section one sought about demographic profile of the participants and that of section two sought about participants' intention towards challenges in adoption and optimizing of E banking service in DB. Under this section, there are two parts and at the end of each part there is one open ended question that the respondents are asked to provide open ended responses that require opinions, opinions which they feel the researcher would find useful.

Self administered semi-structured interview were conducted with a total of 10 selected key informant DB staff found at EBSD, IT Department and at Addis Ababa Area Banks who are currently working at a capacity of supervisor these includes two Mangers, one Deputy Manager, two Assistant Managers, one Accountant, two Section Heads, and two Division Heads found in the target group that have at least three years experience in their current positions. This allows some degree of flexibility at the time of interviewing for the pursuit of unexpected line of inquiry which may arise as the study progresses. The information becomes instrumental to have picture of the Bank's E-banking service and to validate some of the findings of the study.

Document reviews were conducted to understand the key facts about the cause and impact of the subject under study. The documents were reviewed by referring most recent information from authorized documents of the Bank, annual bulletin, web site of the Bank and different publications & reports made by the Bank. The document reviews were used to triangulate the data collected through survey questionnaire and interview.

3.3- Target Population

The populations of the study are DB's clerical employees found at EBSD, IT Department, and four purposely selected DB Area Banks found in Addis Ababa namely Megenagna, Piazza, Mexico, and Main Area Bank. The focus on the two Departments is considering their technical knowledge & support in relation with the service as well as know- how developed through the process of the support, and that of selected Area Banks' of DB in Addis Ababa is based on the relative high E-banking service performance per the annual report of EBSD as at June 30, 2015. According to the information obtained from Fund Management and Accounts Department (FMAD), the population size of the study becomes 254 as at June 30, 2015 i.e. clerical workers found at EBSD, IT Department and that of the selected four Area Banks are 74, 46 and 134(sum of the four Area Banks), respectively.

3.4- Sampling Method and Sample Size

Survey sampling is the process of choosing, from a much large population, a group about which the researcher wish to make statements so that the selected part will represent the total group (Leedy, 1989). The population considered in this study is the number of DB's clerical employees working at four purposely selected Area Banks found in Addis Ababa, EBSD and IT Department.

The sampling design for this population was simple random sampling. In random sampling each individual in the population has an equal probability of being selected which is important for the external validity of the study (Creswell, 2009). Since the aim of the study is to make theoretical inferences from the results of the study that are suitable for further empirical investigation in any other context, random sampling is the most appropriate method.

Given a population of 254 clerical staff found in the four purposely selected Area Banks, EBSD and IT Department, a sample of 155 clerical staff were chosen for the study at assumed 95% response rate. This sample size was determined using the Table developed by Krejcie and Morgan (1970) using the formula for sample size determination when the population size is known (Appendix I). The selections of the sample respondents were made using simple random sampling techniques.

3.5- Validity and Reliability

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

Table 3.1. Reliability Statistics

Cronbach's Alpha	No. of Items
.787	38

Source: pilot survey, 2015

As indicated in the Table above, the Cronbach Alpha is 0.787, which is very high and showing a very strong internal consistency among the measurement items. According to George & Mallery (2003), the value of alpha should be greater than 0.7 so as to accept the instrument. And the closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale.

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

Furthermore, pre-test were conducted using a total of 6 samples i.e. 2 pre-test from each sample group. Based on the findings of the pre-test, the researcher tries to rephrase some questions that are not clear without affecting the basic context of the instrument. And, it was confirmed that the questionnaires that pass the pre- test become effective to meet the objective of the study before distributed to the respondents.

3.6- Data Analysis Techniques

As discussed in above, the research is designed to follow a mixed Method. Hence, both qualitative and quantitative analyses were used. Data that were collected using survey questionnaire were analyzed using both descriptive and linear regression analysis with the help of a Statistical Package for the Social Sciences (SPSS version 16, 2007) software. Whereas data collected through semi-structured self administered interview with key informant staff and reviews of documents are interpreted qualitatively. The key informant staffs were supervisors working at EBSD, IT Departments and Area Banks under study. In analyzing the data from interviews, narrative approaches were used. Moreover, linear regression analysis was used to test the developed hypotheses.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.1- Introduction

Data collected using different techniques were analyzed in this section by using triangulation approach. A total of 155 questionnaires were randomly distributed during the month of September, 2015 to clerical staff of EBSD, IT Department and that of four purposely sampled DB Area Banks found in Addis Ababa. Out of the total 155 questionnaires, 153 useable valid questionnaires with no missing were obtained with 98.7% response rate at the end of September, 2015. In addition to the survey questionnaire, the researcher conducted an interview with key informant supervisors from each work units and reviews some available bank documents regarding E-banking services.

The research findings relate to the results of the effects of perceptions, organization factors and environmental variables in the adoption of E- banking services. Consequently, the relative effect of perceptual variables such as perceived risk, perceived ease of use and perceived usefulness towards adoption of E banking services are determined. Additionally, the effects of organizational and environmental factors with respect to adoption of E banking are determined and scrutinized based on detailed elements of the measurements. Furthermore, the study findings are subjected to statistical analysis, which are discussed in more details. For example, linear regression analysis was used for test of the hypothesis to indicate the extent to which the relationship of the determinants in the adoption of E banking services were explained through the use of the mentioned factors in the survey questionnaires under each determinant. Hence, the research results that were collected through the survey questionnaires were analyzed using descriptive statistics and linear regression inferential statistics with the help of SPSS software and the results are presented and discussed in the following sections.

4.2- Demographic Information of the Respondents

Demographic profiles of DB's clerical staff who participated in the study were analyzed using descriptive analysis with the help of SPSS. The result of the survey is shown in Table 4.1 as follows:-

Table 4.1. Respondents' Demographic profile

Variable	Category	Frequency	Percent
Gender	Male	99	64.7
	Female	54	35.3
	Total	153	100.0
Age	20-30	86	56.2
	31-40	61	39.9
	41-50	5	3.3
	51-60	1	.7
	Total	153	100.0
Educational level	Diploma holder	9	5.9
	First Degree holder	136	88.9
	Masters degree	8	5.2
	Total	153	100.0
Monthly income	2001-3000	1	.7
	3001-4000	2	1.3
	4001-5000	8	5.2
	Above 5000	142	92.8
	Total	153	100.0
Working Unit	EBSD	35	22.9
	IT	25	16.3
	Area Bank	93	60.8
	Total	153	100.0
Total service year within the current organization	0-2 years experience	42	27.5
	3-5 years experience	47	30.7
	6-8 years experience	34	22.2
	9-11 years experience	19	12.4
	Above 11 years experience	11	7.2
	Total	153	100.0

Source: survey result, 2015

Per the result, from 153 participants about 64.7% were male and female constitutes 35.3%. In terms of age as indicated in the table above, 56.2% of 153 respondents were categorized with age

group of 20 to 30, 39.9% with age group of 31 to 40, and 3.7% with age group of 41 to 50, and the remaining 0.70% of the respondents belongs to the age group of 51 to 60. Educational wise 5.90%, 88.9%, and 5.2% of the respondents hold diploma, first degree and masters, respectively. The largest percentage of participants were selected from Area Banks that form 60.80% of total respondents followed by EBSD 22.9% and that of IT department 16.3%. On the other hand, the highest percentage of participants have monthly income above Birr 5,000 and constitutes 92.8%. Of the total respondents, in terms of service year in DB, 0 to 2 years 27.5%, 3 to 5 years 30.7%, 6 to 8 years 22.2%, 9 to 11 years 12.40% , and above 11 years indicate 7.2%. Hence, the result of the demographic profile of DB's staff shows that most of the participants are young whose age are between 20 -30 years, holders of First degree, monthly income above Birr 5,000 and have more than two years working experience.

4.3- Opportunities for Adoption of E- banking Services in DB

Questions were asked to identify perceptions of the sampled staff with respect to challenges in the adoption of E-banking services. Hence, using descriptive analysis with the help of SPSS, the researcher try to identify opportunities that enhance the service based on the respondents perceptions that are responded most frequently with high cumulative percentage of "disagree" for factors that measures challenges of adoption and "agree" for that of adoption. Hence, relatively highest cumulative percentage of responses from each determinant factors were taken per the above criterion and shown in Table 4.2 as follows:-

Table 4.2. Respondents' perception towards opportunities that maximize E banking in DB

Identified major opportunities to enhance adoption of E banking services in DB		Cumulative Percentages of agree responses	Mode
Perceived Ease of Use	E Banking makes it easier to do banking activities	96.1%	1
	In the case of mobile & agent Banking, customers can simply use banking service by using cell phone	81%	1
	From the bank perspective it is easy to use E Banking to accomplish banking tasks	85%	2
	Using E Banking systems simplify the activity of workers to deliver service to customers.	89.5%	1
Perceived Usefulness	E Banking services enables users to complete banking activities more quickly and easily	90.8%	1
	E Banking service is convenient in terms of time saving	96.1%	1
	E Banking service is convenient, in terms of 7 days and 24 hour services ,to access bank account and information	92.2%	1
	E Banking service is more accessible to users than visiting a bank	86.3%	1
	The transactions in any of E Banking services are at a lower price, or at no cost	68%	2
	E Banking service improve customer service	94.7%	1
	E Banking service improve speed and efficiency	94.1%	1
	E Banking reduce number of customers coming to the banking hall	91.5%	1
	E Banking service increase efficient utilization of the bank's available resource	82.4%	2
	E Banking increase reliability and accessibility	81%	2
	E Banking service create better relationship among banks and clients	76.5%	2
	E Banking service used as better information control tools	65.4%	2

Note: Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Disagree and 5-Strongly disagree.

Source: survey result, 2015

Per the result obtained above, the response of DB clerical staff for determinant factors under challenges in adoption of E-banking service become high cumulative percentage of "Agree" that didn't fit the criterion set to see enhancing factors for adoption with high cumulative percentage of "Disagree" response and mode value of 4 or above. Hence, the above perceptions measurement of clerical staff under perceived ease of use and perceived usefulness that have relative high cumulative response of "Agree" with mode value of 1 or 2 can be taken as an opportunity to enhance existing E- banking services in DB. Moreover, the result of the demographic profile discussed above also shows the bank has energetic young staff whose age ranges 20 -30 years, holders of first degree, experienced and well paid which can be taken as an opportunity for betterment of the service.

The following sections discuss about the perception of respondents regarding enhancing adopted E banking services in DB. Respondents' perceptions towards adoption of the services were identified based on the research model that uses the two basic frameworks, TOE frame work and TAM with some modification.

4.3.1- Perceived Usefulness

Result obtained from survey respondents of DB clerical staff regarding their perception towards the usefulness of the existing E banking service delivery using descriptive statistics are depicted below:-

Table 4.3 Perceived usefulness

	Perceived usefulness												
	Speed	Convenience	Availability	Accessibility	Cost	Usefulness	Efficiency	physical appearance	Withdrawals limit	Resource utilization	Reliability	Create Relationship	Control tool
Mode	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**

Source: survey result, 2015

Respondents were asked about the effect of perceived usefulness on adoption of E banking services using the above thirteen questions shown in table 4.3 as measurement. The result of all statements indicate mode value of 1 or 2, which means that most of the respondents of the

sampled agreed with the idea that perceived usefulness has an effect in terms of enhancing adoption of E banking services. Moreover, the interview with the key informant staff also support the result of questionnaire and indicate that all factors in this categories have significant impact on adoption of the service. Accordingly, they pointed out that showing usefulness of E banking service in the eye of the customers is a best option to do banking transactions and becomes crucial in maximizing adoption of the service. The respondents added that by doing this, the bank will enhance its market share through resource mobilization that ultimately has an effect on improvement of image of the bank and minimization of traditional banking approach for better E banking services.

Here the researcher also tests whether the perceived usefulness has a relationship with adoption of E banking or not. In doing the hypothesis test, the researcher uses liner regression analysis.

The results of the regression analysis using SPSS are summarized in table 4.4 as follows:-

Dependent Variable: Adoption of E Banking service in DB
Independent Variables: Variables under perceived usefulness in the survey questionnaires (Q26-Q30 & Q32-Q38)

Table 4.4. Summary of linear regression results- perceived usefulness

Summary of linear regression results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.792a	.627	.595	.450

a. Predictors: (Constant), Variables of perceived usefulness

Source: survey result, 2015

The result summary table 4.4 shows that value of R=0.792 which is greater than 0.50 indicates that there is a strong correlation between the dependent variable and the independent variable (Perceived usefulness) with effect on the dependent variable 62.7% (R-Square=.627).The ANOVA table here below shows that there is a positive relationship between adoption of E Banking and Perceived usefulness as the result of P value is less than 0.05.

Table 4.5. ANOVA - perceived usefulness

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.716	12	3.976	19.645	.000a
	Residual	28.337	140	.202		
	Total	76.052	152			

a. Predictors: (Constant), Variables of perceived usefulness

b. Dependent Variable: Adoption of E Banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H1: There is a relationship between perceived usefulness and adoption of E banking services"*** is supported.

This result is consistent with the findings of Wang et al. (2003); Pikkarainen et al. (2004); and Chong et al. (2010), who have also found strong relationship between perceived usefulness and adoption of E-banking.

4.3.2- Perceived Ease of Use

Result obtained from survey respondents of DB clerical staff regarding their perceptions towards the ease of use of the existing E banking service delivery using descriptive statistics are depicted below:-

Table 4.6. Perceived Ease of Use

	Perceived Ease of Use						
	Easy to use	Cell phone banking	Task accomplishment	Simplifying	Guidelines	Training	Demonstration
Mode	**1**	**1**	**2**	**1**	**2**	**4**	**4**

Source: survey result, 2015

Respondents were asked about the effect of perceived ease of use on adoption of E banking services using the above seven questions shown in table 4.6 as measurement. The result for all statements with the exception of the last two have mode value of 1 or 2, which means that most of the respondents of the sampled agreed with the idea that perceived ease of use has an effect in terms of adoption of the E banking service. However, responses of the last two questions i.e. ***"The management of the bank provide training courses for its staff when introducing E Banking services to the level expected" (Training)*** and ***"Adequate demonstration is provided to the customer on how to use E banking services" (Demonstration)*** show mode value of 4 which indicate that the respondents didn't agree with those ideas. Moreover, the interview with the key informant staff also support the result of questionnaire and indicate that all factors in this categories have significant impact on adoption of the service. Accordingly, they pointed out that DB shall exert its effort in staff training and demonstration of the service up on delivery to the customers in order to enhance adoption of E banking through creating better know how for the system easy to use.

Here the researcher also tests whether the perceived ease of use has a relationship with adoption of E banking or not. In doing the hypothesis test, the researcher uses liner regression analysis.

The results of the regression analysis using SPSS are summarized in table 4.7 as follows:-

Dependent Variable: Adoption of E Banking service in DB

Independent Variables: Variables under perceived ease of use in the survey questionnaires (Q20-Q25)

Table 4.7. Summary of linear regression results- perceived ease of use

Summary of linear regression results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.425a	.181	.147	.585

a. Predictors: (Constant), variables of perceived ease of use

Source: survey result, 2015

The result summary table 4.7 shows that value of R=.425 which is less than 0.50 indicates that there is a weak correlation between the dependent variable and the independent variable

(Perceived Ease of Use) with effect on the dependent variable 18.1% (R-Square=.181).The ANOVA table here below shows that there is a positive relationship between adoption of E Banking and Perceived ease of use as the result of P value is less than 0.05.

Table 4.8. ANOVA- perceived ease of use

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.025	6	1.837	5.374	.000a
	Residual	49.917	146	.342		
	Total	60.941	152			

a. Predictors: (Constant), variables of perceived ease of use

b. Dependent Variable: Adoption of E Banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H2: There is a relationship between perceived ease of use and adoption of E banking services"*** is supported.

The survey result is consistent with the findings of Moon and Kim (2001); Wang et al. (2003); and Amin et al. (2008). It is also consistent with Pikkarainen et al. (2004), who found perceived ease of use to have some effect on adoption, though less influential than perceived usefulness.

4.4- Challenges in the Adoption of E banking Services in DB

Challenges of adoption were identified through relatively high cumulative percentage response of "Agree" for the listed factors under section II of part I of the survey questionnaires. Moreover, the researcher considered measuring factors that were frequently responded with high cumulative percentage of "Disagree" for section II of part II survey questionnaires. Hence, the result of the survey response in this regard using descriptive statistics is depicted below in the Table 4.9:-

Table 4.9. Respondents' Perception towards Challenges in the Adoption of E-banking Services in DB.

Identified major challenges in the adoption of E banking services in DB		Cumulative Percentages of agree responses	Mode
Perceived Risk	Lack of confidence with the security aspects considered as challenges for the adoption of E Banking	56.2%	**2**
	In the case of using E Banking, security risk affect users decision to use the system	51%	**2**
Organizational Factor	Customers of DB were not fully familiar with E Banking service provided by the bank	65.4%	**2**
	Lack of technical and managerial skills on the use technological innovation.	60.8%	**2**
	Lack of skills to implement E Banking system to the level expected	62.1%	**2**
	Lack of appropriate maintaining capacity upon failure	73.2%	**2**
	Lack of promotion	67.3%	**2**
Environmental Factor	Delivering E Banking services using internet is difficult due to low internet access in Ethiopia	79.7%	**1**
	Lack of available ICT infrastructure	75.2%	**2**
	Lack of sufficient public awareness	77.8%	**2**
Identified major challenges in enhancing adoption of E banking services in DB		**Cumulative Percentages of disagree responses**	
Perceived Ease of Use	The management of the bank provides training courses for its staff when introducing E Banking services to the level expected.	42.5%	**4**
	Adequate demonstration is provided to the customer on how to use E banking services	45.2%	**4**

Source: survey result, 2015

The result in the table 4.9 showed major challenges that the bank faced in adopting new innovation under consideration with respondents' cumulative response of "Agree" with mode value of 2 or below. Hence, major adoption challenges identified by the respondents' are security risk from perceived risk; familiarity, skills, maintaining capability and promotion from organizational factors; and public awareness, ICT infrastructures and low internet access from environmental factors. Moreover, the result shows that major adoption challenge in enhancing E banking service with response "Disagree" or "strongly disagree" for section II of part II survey questionnaires that are training to the level expected and customer awareness through demonstration with mode value of 4. On the other hand, the interview made with key informant also support the above results and indicate that all have significant impact on adoption of E banking services but they added the existing legal frame work is also a challenge that hampers the development of the service. Accordingly, they pointed out police and standards with respect to the service should be supported by technical consulting and government also encourages local solution providers for the betterment of the innovation.

The following sections discuss about the responses of the respondents regarding challenges in the adoption of E banking service in DB. Respondents' response towards challenges of the services were identified based on the research model that use the two basic frameworks, technology- organization- environment (TOE) frame work and technology acceptance model (TAM) with some modification.

4.4.1- Perceived Risk

Result obtained from survey respondents of DB clerical staff regarding their perception towards risk associated with adoption of E banking service using descriptive statistics are depicted below:-

Table 4.10. Perceived Risk

Perceived Risk				
	Fear of risk	**Confidence in adoption**	**Security**	**Trust**
Mode	**2**	**2**	**2**	**2**

Source: survey result, 2015

Respondents were asked about the effect of perceived risk in the adoption of E banking services using the above four variables shown in table 4.10 as a measurement. The result of the response indicate mode value of 2, which means that respondents of the sampled agreed with the idea that perceived risk has an effect in terms of adoption of E banking service in DB. Moreover, interview with the key informant staff also support the result of questionnaires and indicate that all factors in this categories have significant impact on adoption of the service. Accordingly, they pointed out that making awareness to the customer of the bank on how the risk associated with the adoption of E banking mitigated by the bank may build their trust and confidence that ultimately reduce perceived risk towards E banking services provided by the bank.

Using liner regression the researcher tests whether the perceived risk has a relationship with adoption of E banking or not. The results of the regression analysis using SPSS are summarized in table 4.11 as follows:-

Dependent Variable: Adoption of E Banking service in DB

Independent Variables: Variables under perceived risk in the survey questionnaires (Q1, Q3&Q4)

Table 4.11. Summary of linear regression results- perceived risk

Summary of liner regression result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.737a	.544	.534	.792

a. Predictors: (Constant), variables of perceived risk

Source: survey result, 2015

The result summary table 4.11 shows that value of R=0.737 which is greater than 0.50 indicates that there is a strong correlation between the dependent variable and the independent variable (Perceived risk) with effect on the dependent variable 54.4% (R-Square=.544).The ANOVA table here below shows that there is a relationship between adoption of E Banking and Perceived risk as the result of significant value or P value is less than 0.05.

Table 4.12. ANOVA- Perceived risk

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.394	3	37.131	59.143	.000a
	Residual	93.547	149	.628		
	Total	204.941	152			

a. Predictors: (Constant), variables of perceived risk

b. Dependent Variable: Adoption of E Banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H3: There is a relationship between perceived risk and adoption of E banking Services"*** is supported.

The study result appeared to be somehow consistent with the findings of Sathye (1999); Howcroft et al. (2002); Poon (2008); Aldas-Manzano et al. (2009); and Chong et al. (2010), who found security concerns to be the major factor discouraging the adoption of E-banking services. Moreover, the result is consistent with the findings of Khalfan et al. (2006), Wondwossen and Tsegai (2005), Zhao et al. (2010), and that of Laukkanen (2008).

4.4.2- Organizational Factors

Results obtained from survey respondents of DB clerical staff regarding challenges in the adoption of E banking under determinant organizational factors that focus mainly on finance and human aspects of the service are depicted below using descriptive statistics:-

Table 4.13. Organizational Factors

Organizational Factors								
	Cost	**Familiarity with adoption**	**Skills**	**Implementation**	**availability**	**Maintaining capacity**	**Inconvenience**	**promotion**
Mode	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

Source: survey result, 2015

Respondents were asked about the effect of organizational factors especially the finance and human aspects on adoption of E banking services using the above eight variables shown in table 4.13 as a measurement. The result of the response indicates mode value of 2, which means that respondents of the sampled agreed with the idea that organizational factors have an effect in adoption of E banking services. Moreover, interview with the key informants also support the result of the survey indicating that all factors in this categories have impact on adoption of the service. Accordingly, they pointed out that financing of new product development is poor, low level of ownership of the service by various stakeholders and expertise in the felid with knowledge and experience become almost absent as foreign banks are restricted to enter the local market with huge capital and vast expertise. They also added that the bank should try to have own expertise that have enough experience and knowledge in the field or get trained existing expertise to the level expected.

Using liner regression the researcher tests whether the organizational factors have a relationship with adoption of E banking or not. The results of the regression analysis using SPSS are summarized in table 4.14 as follows:-

Dependent Variable: Adoption of E Banking service in DB

Independent Variables: Variables under organizational factors in the survey questionnaires (Q5, Q7-Q12)

Table 4.14. Summary of linear regression results- Organizational factors

Summary of linear regression results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.458a	.210	.172	1.071

a. Predictors: (Constant), variables of organizational factors

Source: survey result, 2015

The result summary table 4.14 shows that value of R=0.458 which is less than 0.50 indicates that there is a weak correlation between the dependent variable and the independent variable (Organizational factors) with effect on the dependent variable 21% (R-Square=.210).

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

Table 4.15. ANOVA- Organizational factors

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.144	7	6.306	5.498	.000a
	Residual	166.326	145	1.147		
	Total	210.471	152			

a. Predictors: (Constant), variables of organizational factors

b. Dependent Variable: Adoption of E banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H4: There is a relationship between organizational factors and adoption of E banking Services."*** is supported.

The study results are consistent with the findings of Daghfous and Toufaily (2007); Ayana (2010); Wondwossen and Tsegai (2005); and Gardachew (2010) who found organizational factors such as financial and human aspects have an effect in adoption of E banking.

4.4.3- Environmental Factors

Results obtained from survey respondents of DB clerical staff regarding challenges in adoption of E banking under determinant environmental factors that focus mainly on internet access, government support, ICT infrastructure, legal frameworks, competition and awareness are depicted below using descriptive statistics:-

Table 4.16. Environmental Factors

Environmental factors						
	Internet access	**Government support**	**ICT infrastructure**	**Legal frameworks**	**competition**	**Awareness**
Mode	**1**	**2**	**2**	**2**	**2**	**2**

Source: survey result, 2015

Respondents were asked about the effect of environmental factors using the above six variables shown in table 4.16 as a measurement. The result of the response indicates mode value of 2 and 1, which means that respondents of the sampled agreed with the idea that environmental factors have an effect in adoption of E banking services. Moreover, interview with the key informants also support the result of the survey indicating that all factors in this categories have impact on adoption of the service. Accordingly, they pointed out that there is low level of financial literacy in the country that needs improvement through extensive public awareness and government support. They suggested that government should influence banks for strategic shift from the conventional banking service and allow exercising their potential through creating conducive environment. For better improvement of E- banking services, government should also relax the existing legal frame work and allows inclusion of mobile operators in addition to the Bank led model for mobile and agent banking services. They also pointed out that welcoming foreign banks will help to improve the service through easy technology transfer. They further added that the government along with all banks tries to improve ICT infrastructure especially for financial institutions.

Using liner regression the researcher tests whether the environmental factors have a relationship with adoption of E banking or not. The results of the regression analysis using SPSS are summarized in table 4.17 as follows:-

Dependent Variable: Adoption of E Banking service in DB

Independent Variables: Variables under environmental factors in the survey questionnaires (Q13, Q14& Q16-Q18)

Table 4.17. Summary of linear regression results- Environmental factors

Summary of linear regression results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.758a	.575	.560	.641

a. Predictors: (Constant), variables of environmental factors

Source: survey result, 2015

The result summary table 4.17 shows that value of R=0.758 which is greater than 0.50 indicates that there is a strong correlation between the dependent variable and the independent variable (Environmental factors) with effect on the dependent variable 57.5% (R-Square=.575).The ANOVA table here below shows that there is a relationship between adoption of E Banking and environmental factors as the result of significant value or P value is less than 0.05.

Table 4.18. ANOVA- Environmental Factors

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.553	5	16.311	39.734	.000a
	Residual	60.342	147	.410		
	Total	141.895	152			

a. Predictors: (Constant), variables of environmental factors

b. Dependent Variable: Adoption of E banking

Source: survey result, 2015

Per the result of the regression analysis above, the research hypothesis ***"H5: There is a relation between environmental factors and adoption of E banking services"*** is supported.

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

Figure 4.1. Summary of Hypotheses Testing Results

Hypotheses	Relationship	Result	Magnitude of The relationship
H1	Perceived Usefulness → Adoption of E-banking services	Supported	Strong
H2	Perceived Ease of Use → Adoption of E-banking services	Supported	Weak
H3	Perceived Risk → Adoption of E banking services	Supported	Strong
H4	Organizational factors → Adoption of E banking services	Supported	Weak
H5	Environmental factors → Adoption of E banking services	Supported	Strong

Source: survey result, 2015

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1- Conclusions

The study aims at investigating opportunities and challenges in the adoption of E banking services in DB based on the perception of its clerical staff as users of the service that have better know- how and believed to have direct interaction with customers in the service delivery system. The main objectives of the research include identifying opportunities at hand in the adoption of the service as well as identifying root causes of challenges in adoption and enhancing of E banking services to set out the way forward.

To address these objectives, a mixed research approach was employed and primary data was collected through survey questionnaires from a sample of 153 clerical staff of DB and that of interview from ten key informants. To achieve the proposed objectives, a combination of TOE framework and TAM with some modification were used. Frequencies and percentage were used to analyze the responses of DB clerical staff towards E-banking. Moreover, linier regression analysis was used to test the independent variables such as perceived usefulness, perceived ease of use, perceived risk, organizational factors and environmental factors to see their effects on the dependent variables.

Even though DB has been in business of E-banking service since the year 2006, the rate at which the innovation is being diffused seems to be slow. As it is evidenced, only 26% of its customers enjoy the card banking as at June 2015 while the other E-banking services are at infancy stage.

The demographic profile of the respondents shows that the combination of man power that the bank have are young, holder of first degree, and experienced. The results of the study showed that the perception of the majority of sampled staff towards perceived ease of use and perceived usefulness variables become positive that can be taken as an opportunity for adoption of the service. Among the perceptual variables regarding enhancement of E banking, perceived usefulness have significant influence and that of perceived ease of use become less influential in adoption of the service. The result of the descriptive statistics showed that providing training to

the level expected and adequate demonstration to the customer on how to use the service were identified as challenges that hider enhancement of adoption of the service in terms of perceived ease of use.

The study also identified security risk, customer familiarity with the service, technical, managerial and implementation skills of E-banking, maintenance capability up on failure, promotion, public awareness, ICT infrastructures and low internet access as major challenges in adoption of E-banking service in DB. Among the variables that measures challenges in adoption of E banking, perceived risk and environmental factors have significant influence where as that of organizational factors were found less influential.

In general, the findings of this study helps to understand major opportunities at hand that should be maximized and existing challenges in the adoption of the service. It also helps to mitigate the root causes of factors that hinder E -banking development.

Therefore, based on the above summary of findings it is concluded that the existing man power combinations and their positive perception towards usefulness and ease of use in the adoption of E banking services are opportunities at the hands of DB. Moreover, security risk, customer familiarity with the service, technical, managerial and implementation skills of E-banking, maintenance capability up on failure, promotion, public awareness, ICT infrastructures and low internet access are major challenges in the adoption of E-banking services in DB.

5.2- Recommendations

DB has been in business of E-banking service since the year 2006 with launching of VISA branded local debit cards. However, the rate at which the innovation is being diffused seems to be slow as it is evidenced only 26% of its customers enjoy the card banking as at June 2015 while that of the other E-banking services are at infancy stage. Hence, drawing from the conclusions of this study, the following recommendations are forwarded.

The study showed that providing training to the level expected and adequate demonstration to the customer on how to use the service were identified as challenges that hider enhancement of adoption of the service. Therefore, it is better for the bank to exert much effort to train its staff about the existing E-banking services as well as planned E-banking services to improve their

know-how and service efficiency up on delivery to the customers. Moreover, demonstration for ease of use shall be done while delivering the service. This can be implemented by providing cell phone as well as dedicated personal computer for the purpose of demonstration at Area Bank level especially for services like mobile, internet and agent banking.

The researcher recommends the following possible solutions that can help to mitigate the identified challenges in adoption of E-banking services:-

- The bank better continuously review and upgrade the existing system of security to the level that minimize risk and let the customers know the status for their decision and confidence in adoption of new innovation. Using all forms of media(brochures, web pages etc) , the bank tries to present the security used, outline the procedure on how to cope with the problems if any, and provide information on how to use E-banking services safely.
- Familiarization of the existing E-banking services to the customers' needs to be done through well trained personnel at the bank counter with the help of demonstration equipments. Moreover, extensive massive promotion that address the general public using mass medias, sponsorship for programs that have mass audience , different promotional materials that easily catch the attention of the individual at the same time that promote the bank's service and well designed user friendly web site need also be in effect appropriately for the enhancement of adoption of the service.
- In an effort to maximize the staff's existing technical, managerial and implementation skills of E-banking which ultimately have an effect in the adoption of the service, the bank search and design a special training program to upgrade the capability of existing key personnel. To some extent, it is also better for the bank to search and welcome experienced personnel in this field to benefit from others experience.
- For an interrupted E-banking service delivery, it is better to have appropriate maintaining capacity. Hence, getting the concerned staff well trained and equipped for this purpose or negotiating with companies that have maintenance capacity with better solution for the problem at minimal down time becomes necessary. It is also recommended implementation of a system tool or devises that monitor service failure and status of its

ATMs, POS and other E-banking services to ensure the smooth functionality and to take appropriate measures on time.

- Regarding the ICT infrastructures and low internet access, the support of government is not questionable. However, it is recommendable to strive along with all banks in Ethiopia with the help of Bankers association for having dedicated infrastructure to financial institutions as their smooth flow of the system has positive impact to the development of the country.
- The bank also needs to negotiate with internet service providers to free the users from internet service charge while accessing the bank's internet banking and mobile banking services. This ultimately have positive impact in encouraging users of the service.

The research findings and conclusions have also some implication to all other banks operated in Ethiopia:-

- All banks need to play a leading role in influencing the perception of customers through creating awareness to improve E-banking services at national level.
- Collaborate with one another to mitigate common challenges like ICT infrastructures to smoothen the service delivery.

5.3- Limitations and Further Research Areas

This study was conducted to assess opportunities and challenges in the adoption of E banking Service targeting to DB clerical staff that uses the service as customer and found at Addis Ababa area. Hence, the following could be considered for future research:-

- The study on opportunities and challenges in the adoption of E-banking service focusing on the four selected Addis Ababa Area Banks and two Departments can be extended to a more comprehensive study that incorporate upcountry (Outside of Addis Ababa) Area Banks of DB.
- The study can also be extended to include all other Commercial Banks found in Ethiopia so that the findings can be useful to conclude about E-banking services in Ethiopian context.

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APPENDIX -I

VISION, MISSION, VALUES AND OBJECTIVES OF DB

Vision of the Bank

"In as much as mount Dashen excels all other mountains in Ethiopia, Dashen Bank continues to prove unparalleled in banking services"

Mission Statement of the Bank

"Provide efficient and customer focused domestic and international banking services by overcoming the continuous challenges for excellence through the application of appropriate technology"

Major objectives of the Bank

The objective of the bank is to render commercial banking activities both at domestic and international spheres such as:-

- To undertake banking and monetary exchange business
- Accept and mobilize various types of deposits
- Extend loan and credit facilities to particularly every economic sector
- Render banking service related to international trade
- Handle money transfer domestically and internationally
- Opening bank branches within and outside Ethiopia and
- Engaging in other activities related to banking and finance

With the following values:-

Develop Banking habit in the community

Assist continuous growth of customers

Sustainable growth and stability

High integrity and accountability

Esteemed customers satisfaction

Non-stop openness for community access

Brightened and trained employees

Attend customers' constructive outlook

Normative confidentiality

Keen to build professionalism and service quality

APPENDIX -II

MAJOR ACHIEVEMENTS RECORDED BY DB TILL SEPTEMBER 2013

1995	DB obtained license from NBE with Birr 14.9 million paid-up Capital
1996	DB went operational with 11 Area Banks
1997	DB concluded its 1st financial period that lasted for 18 months with Birr 7.1 million pre-tax profit
2001	DB was named "Best Bank of the Year 2001 for Ethiopia" by the Banker Magazine DB and its former President won 'Outstanding Enterprise' and 'Most Honorable Business Leader' Awards, from Addis Ababa Chamber of Commerce DB became the first Ethiopian Bank to interconnect its Area Banks with WAN Total assets of DB exceeded the Birr 1 billion mark
2002	Total deposits of DB exceeded the Birr 1 billion mark
2003	DB began rendering encashment service (for VISA & MasterCard) as the sole agent of Barclays Bank of London
2004	DB opened its 31st Area Bank in its own premises in Woldia Town
2005	DB colorfully celebrated a decade of unparalleled banking service DB was rated as 'Ethiopia's Best Bank of the Year 2005' by Global Finance Magazine DB migrated from Micro-banker to a state-of-the-art core banking system, Flex cube DB licensed BASE24, electronic payment processing software, from ACI worldwide Euro money named DB 'The Clear Leader and Best Bank of all Private Banks in Ethiopia of the Year 2005'
2006	DB set a milestone in the Century old banking history of Ethiopia with the launching of the payment card system
2007	DB inaugurated own buildings in Awassa and Jimma towns
2008	Customer size of DB scored half-a-million DB inaugurated its seven-story Adama Area Bank building
2009	DB opened its 50th Area Bank in its own premises in Bedelle town The Banker magazine named DB 'Best Bank of the Year 2009 for Ethiopia' for the 7th time
2010	Aggregate deposits of DB surpassed Birr 10 billion DB launched mobile banking service dubbed 'ModBirr'
2011	DB began accepting China's Union Pay card DB inaugurated own buildings in Dilla and Wolaita Sodo towns

	Total income of DB for 2010/11 F.Y exceeded Birr 1.1 billion
2012	DB inaugurated own building in Bahir Dar town DB received 'Best Bank of the Year 2012 for Ethiopia' Award from the Banker Magazine for 10th time
2013	Number of customers of DB crossed the 1 million mark DB started operation in its own premises in Dire Dawa, Gondar & Bonga towns DB opened its 100th Area Bank at Bole Michael in Addis Ababa

Source: DB company profile document

APPENDIX -III

DB MOBILE BANKING SERVICES AND ITS TRANSCTIONAL LIMITS

Per the **2015** annual report of E-Banking Services Department (EBSD), through mobile banking DB plans to provide the following services:

Informative Service

Customers can have two services using their handset phone any time.

1) Request such as Payment Stop, Cheque Details, Cheque Status ,Cheque Book Request and Standing Orders
2) Information such as Exchange rate, Deposit interest rate, Loan repayment schedule, Future dated inquiries, Direct debit mandates, Mini statement and checking of account history, and alerts on account activity or passing of set thresholds.

Transaction Services

1) Transfers like Fund transfers between own accounts and Fund transfer between different customers account within the same bank.
2) Payments such as Merchant payment and Utility payment.
3) Services to be delivered at DB agent post include Informative Services (Balance Inquiry and Mini Statement) and Transaction Services (Transfers, cash deposit, cash withdrawal, Card withdrawal and Card deposit).

Transaction and Mobile Wallet Limits

- The Daily transaction limit via mobile using an m-wallet account (Mobil wallet account opened using a mobile device at the bank or agents of the bank) is Birr 6,000.00 and a single transaction limit that customers are allowed to transfer is Birr 2,000.00.
- The maximum balance that should be available in a mobile wallet account of a customer with a financial Bank at any time should not exceed Birr 25,000.00
- Daily mobile banking transaction that involves debiting of an account by a user doesn't not exceed Birr 6,000.00

APPENDIX -IV

E-BANKING SERVICES PROVIDED BY ETHIOPIAN BANKS AS AT JUNE,2015.

	Name of Banks	**Service currently provided**
1	Commercial Bank of Ethiopia	ATM through its reliable Visa Cards -cash withdrawals -bill payment -forex -fund transfer -mobile top up and balance inquiry POS –cash advance -various payment -mobile top up and bill payment Internet Banking Mobile Banking -fund transfer -payment -balance inquiry and -instant notification
2	Construction and Business Bank	
3	Develpoment Bank of Ethiopia	
4	Dashen Bank S.C	ATM(through Dashen Visa Card),internet banking, POS, SMS alert service ,mobile and agent banking
5	Wegagen Bank S.C	ATM (through agar Visa Card), POS and Telephone banking service.
6	Zemen Bank S.C	ATM, POS , internet banking, Mobile banking
7	United Bank S.C	ATM(through Hiber Card),internet banking, POS, mobile and agent banking
8	Awash International Bank S.C	ATM, and POS
9	Bank of Abyssinia S.C	ATM(through Habesha card) and POS
10	Nib International Bank S.C	ATM and POS

11	Cooperative Bank of Oromia S.C	ATM and POS
12	Lion International Bank S.C	
13	Oromia International Bank S.C	
14	Bunna International Bank	
15	Berhan International Bank S.C	Member of Premium switch solution(PSS) and uses PSS's ATM
16	Abay International Bank S.C	
17	Addis International Bank S.C	Member of PSS and uses PSS's ATM
18	Debub Global Bank S.C	
19	Enat Bank S.C	

Source: Researcher compilation

APPENDIX -V

TABLE FOR APPROPRIATE SAMPLE SIZE FOR KNOWN POPULATION

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Source: Krejcie and Morgan (1970); N = Population and S = Sample

APPENDIX -VI

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MANAGEMENT DEPARTMENT

My name is Abebe Zeleke. I am currently pursuing my postgraduate study in executive MBA program at Addis Ababa University. I am conducting a research project entitled "OPPORTUNITIES AND CHALLENGES IN THE ADOPTION OF E-BANKING SERVICES: THE CASE OF DASHEN BANK S.C."The aim of this study is to assess the factors that influence the adoption of E banking positively or negatively as well as enhancing of the service provision with respect to Dashen Bank. The results of the study are anticipated to assist the understanding of the basic opportunities and challenges of adopting E banking innovation in delivering quality service to customers of Dashen Bank S.C.

I would like to assure you that the information you provide will be used only for the purpose of achieving academic award. Your involvement is regarded as a great input to the quality of the research results. Hence, I believe that you will enlarge your assistance by participating in the study. Your honest and thoughtful response is invaluable.

Thank you for your participation.

Kind regards,

Abebe Zeleke,
EMBA Student at Addis Ababa University
College of Business and Economics
Department of Management

Questioner Id [ ]

General Instruction

This questionnaire contains two sections and five (5) pages that will be expected to take approximately 15 to 20 minutes to complete. You are kindly requested to respond to the questions based on the instructions under each section. If you have any comments or want to have further clarifications, please contact the researcher using his telephone number 0913539514 or use the space provided at the end of the questionnaire. No need to write your name in the questionnaire.

Section I: Demographic profile of respondents

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

1. Gender: Male ☐ Female ☐

2. Age: 20-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐

3. Educational level: Diploma holder ☐
   First degree holder ☐
   Masters degree ☐
   Above Masters ☐

4. Monthly income (in Eth. Birr):
   2001-3000 ☐ 4001-5000 ☐
   3001- 4000 ☐ above 5000 ☐

5. Working Unit: EBSD ☐
   IT ☐
   Area Bank ☐

6. Total service year within the current organization_____

Section II: Questionnaires related with challenges in the adoption of E banking services.

Instruction: Below are lists of statements pertaining challenges 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□”. Each choice was identified by numbers ranged from 1 to 5.

Note: SA- Strongly Agree, A- Agree, N- Neutral, DA- Disagree, SD- Strongly Disagree

Part I: Questionnaires related with challenges in the adoption of E banking services.

NB. E Banking includes ATM, POS, Internet, Mobile and Agent Banking

The following are some challenges faced, when adopting E Banking, please indicate level of your choice.		**SA**	**A**	**N**	**D**	**SD**
		1	**2**	**3**	**4**	**5**
I. Perceived risk						
1	Customers of our bank fear risk to use E Banking					
2	Lack of confidence with the security aspects considered as challenges for the adoption of E					
3	In the case of using E Banking, security risk affect users decision to use the system					
4	Lack of trust is considered as challenges for the adoption of E Banking system in DB.					
II. Organizational factors						
5	Use of E Banking services entails additional cost to do banking tasks					
6	Customers of DB were not fully familiar with E Banking service provided by the bank					
7	Lack of technical and managerial skills on the use technological innovation.					
8	Lack of skills to implement E Banking system to the level expected					

		SA	A	N	D	SD
		1	2	3	4	5
9	Lack of availability of technological equipments for the service					
10	Lack of appropriate maintaining capacity upon failure					
11	Inconvenience placement of ATM					
12	Lack of promotion					
III. Environmental factors						
13	Delivering E Banking services using internet is difficult due to low internet access in Ethiopia					
14	Lack of sufficient government support will affect customers willingness to use technological innovation					
15	Lack of available ICT infrastructure					
16	Lack of sufficient legal frameworks that attracts banking industries to adopt technological innovation					
17	Lack of competition among local bank and foreign banks					
18	Lack of sufficient public awareness					

Please specify any other challenges?

_____

_____

_____

_____

_____

_____

Part II: Questionnaires related with adoption enhancement of E-banking services.

NB. E Banking includes ATM, POS, Internet, Mobile and Agent Banking

The following are some of the perceived factors that enhance adoption of E banking, please indicate your choice.		SA	A	N	D	SD
		1	2	3	4	5
IV. Perceived Ease of Use						
19	E Banking makes it easier to do banking activities					
20	In the case of mobile & agent Banking, customers can simply use banking service by using cell phone					
21	From the bank perspective it is easy to use E Banking to accomplish banking tasks					
22	Using E Banking systems simplify the activity of workers to deliver service to customers.					
23	Our bank provide guidelines on the use of electronic banking facility					
24	The management of the bank provide training courses for its staff when introducing E Banking services to the level expected.					
25	Adequate demonstration is provided to the customer on how to use E banking services					
V. Perceived Usefulness						
26	E Banking services enables users to complete banking activities more quickly and easily					
27	E Banking service is convenient in terms of time					
28	E Banking service is convenient, in terms of 7 days and 24 hour services ,to access bank account and					
29	E Banking service is more accessible to users than visiting a bank					
30	The transactions in any of E Banking services are at a lower price, or at no cost					

		SA	A	N	D	SD
		1	2	3	4	5
31	E Banking service improve customer service					
32	E Banking service improve speed and efficiency					
33	E Banking reduce number of customers coming to the banking hall					
34	Existing E banking withdrawal and fund transfer limit is encouraging for users to use the service					
35	E Banking service increase efficient utilization of the bank's available resource					
36	E Banking increase reliability and accessibility					
37	E Banking service create better relationship among banks and clients					
38	E Banking service used as better information control tools					

Please specify any other optimization factors?

_____

_____

_____

_____

_____

APPENDIX-VII

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MANAGEMENT DEPARTMENT

Interview Protocol

Thank you very much for volunteering to participate in this one-on-one personal interview. The main objective of this interview is to assess the factors that influence the adoption of E banking positively or negatively as well as optimizing the service provision with respect to Dashen Bank S.C. Your responses will be treated with utmost confidentiality and will not be used for any purpose other than the objective of the research. Moreover, the results of the research will be reported in manner that could not identify you or your organization. The outcome of the study are anticipated to assist the understanding of the basic opportunities and challenges of adopting E- banking innovation in delivering quality service to customers of Dashen Bank S.C.

Thank you in advance for your participation.

A. Please tell us your working Unit:

EBSD ☐
IT ☐
Area Bank ☐

B. Qualification, Position, and year of service in current position_____

Part I. Challenges in adopting E-banking system.

1. What type of Electronic banking service do you provide? ATM, Internet banking, mobile and Agent banking or others? Please specify.
2. What do you think are the basic challenges in adopting new technological innovations like ATM, POS, internet banking, mobile and agent banking?
3. Are the following factors considered in your institution as challenges for the adoption of technological innovation?

   a. Security risk
   b. Customers reluctance
   C. Lack of social awareness
   d. Cost incurred in the purchase of technological instruments
   e. Lack of competition
   f. Inadequate ICT infrastructure
   g. Lack of skilled manpower

h. Lack of promotion

4. In your opinion, what are the key factors that hinder your institution from adopting e banking (such as ATM, Internet banking, mobile and Agent banking or others)?

5. Do you see any social, Economic and legal challenges in the adoption of ATM, internet banking mobile and agent banking in your institution?

6. Do you think that government policy have impact on the adoption of E-banking system?
   (Please specify/explain).

7. What sort of support would you expect from the government in relation to the E-banking service enhancement?

Part II. Factors that enhance adoption of E-banking Services.

8. What are the benefits gained by your institution from the adoption of ATM, internet banking, mobile and agent banking system in the delivery of service to customers?

9. In your opinion what are the key factors that push your institution to adopt ATM, internet , mobile and agent banking system?

10. Per your opinion, what are the advantages / reasons that you consider in implementing E-Banking system?

11. Any other suggestion or recommendation you would like to add?

Thank you!!

APPENDIX-VIII

Descriptive statistics Results

Section I: 1. Demography Descriptive statistics

1. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	99	64.7	64.7	64.7
	Female	54	35.3	35.3	100.0
	Total	153	100.0	100.0	

2. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	86	56.2	56.2	56.2
	31-40	61	39.9	39.9	96.1
	41-50	5	3.3	3.3	99.3
	51-60	1	.7	.7	100.0
	Total	153	100.0	100.0	

3. Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma holder	9	5.9	5.9	5.9
	Degree Holder	136	88.9	88.9	94.8
	Masters Holder	8	5.2	5.2	100.0
	Total	153	100.0	100.0	

4. Monthly income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2000-3000	1	.7	.7	.7
	3001-4000	2	1.3	1.3	2.0
	4001-5000	8	5.2	5.2	7.2
	Above 5000	142	92.8	92.8	100.0
	Total	153	100.0	100.0	

5. Working unit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EBSD	35	22.9	22.9	22.9
	IT	25	16.3	16.3	39.2
	Area Bank	93	60.8	60.8	100.0
	Total	153	100.0	100.0	

1.6 Total service year within the current organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	7.2	7.2	7.2
	2	31	20.3	20.3	27.5
	3	21	13.7	13.7	41.2
	4	11	7.2	7.2	48.4
	5	15	9.8	9.8	58.2
	6	15	9.8	9.8	68.0
	7	12	7.8	7.8	75.8
	8	7	4.6	4.6	80.4
	9	5	3.3	3.3	83.7
	10	10	6.5	6.5	90.2
	11	4	2.6	2.6	92.8
	12	6	3.9	3.9	96.7
	14	3	2.0	2.0	98.7
	16	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

Section II : Part one: Questionnaires Related with Challenges in Adoption of E Banking Service

I. Perceived risk

1.Customers of our bank fear risk to use E Banking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	13	8.5	8.5	8.5
	Agree	56	36.6	36.6	45.1
	Neutral	37	24.2	24.2	69.3
	Disagree	42	27.5	27.5	96.7
	Strongly Disagree	5	3.3	3.3	100.0
	Total	153	100.0	100.0	

2.Lack of confidence with the security aspects considered as challenges for the adoption of E Banking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	20	13.1	13.1	13.1
	Agree	66	43.1	43.1	56.2
	Neutral	17	11.1	11.1	67.3
	Disagree	42	27.5	27.5	94.8
	Strongly Disagree	8	5.2	5.2	100.0
	Total	153	100.0	100.0	

3. In the case of using E Banking, security risk affect users decision to use the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	21	13.7	13.7	13.7
	Agree	57	37.3	37.3	51.0
	Neutral	27	17.6	17.6	68.6
	Disagree	45	29.4	29.4	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

4. Lack of trust is considered as challenges for the adoption of E Banking system in DB.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	17	11.1	11.1	11.1
	Agree	50	32.7	32.7	43.8
	Neutral	32	20.9	20.9	64.7
	Disagree	47	30.7	30.7	95.4
	Strongly Disagree	7	4.6	4.6	100.0
	Total	153	100.0	100.0	

II. Organizational factors

5. Use of E Banking services entails additional cost to do banking tasks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	22	14.4	14.4	14.4
	Agree	49	32.0	32.0	46.4
	Neutral	32	20.9	20.9	67.3
	Disagree	35	22.9	22.9	90.2
	Strongly Disagree	15	9.8	9.8	100.0
	Total	153	100.0	100.0	

6. Customers of DB were not fully familiar with E Banking service provided by the bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	35	22.9	22.9	22.9
	Agree	65	42.5	42.5	65.4
	Neutral	21	13.7	13.7	79.1
	Disagree	22	14.4	14.4	93.5
	Strongly Disagree	10	6.5	6.5	100.0
	Total	153	100.0	100.0	

7. Lack of technical and managerial skills on the use technological innovation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	32	20.9	20.9	20.9
	Agree	61	39.9	39.9	60.8
	Neutral	30	19.6	19.6	80.4
	Disagree	24	15.7	15.7	96.1
	Strongly Disagree	6	3.9	3.9	100.0
	Total	153	100.0	100.0	

8.Lack of skills to implement E Banking system to the level expected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	27	17.6	17.6	17.6
	Agree	68	44.4	44.4	62.1
	Neutral	26	17.0	17.0	79.1
	Disagree	27	17.6	17.6	96.7
	Strongly Disagree	5	3.3	3.3	100.0
	Total	153	100.0	100.0	

9. Lack of availability of technological equipments for the service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	18	11.8	11.8	11.8
	Agree	63	41.2	41.2	52.9
	Neutral	28	18.3	18.3	71.2
	Disagree	38	24.8	24.8	96.1
	Strongly Disagree	6	3.9	3.9	100.0
	Total	153	100.0	100.0	

10. Lack of appropriate maintaining capacity upon failure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	32	20.9	20.9	20.9
	Agree	80	52.3	52.3	73.2
	Neutral	17	11.1	11.1	84.3
	Disagree	19	12.4	12.4	96.7
	Strongly Disagree	5	3.3	3.3	100.0
	Total	153	100.0	100.0	

11. Inconvenience placement of ATM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	8	5.2	5.2	5.2
	Agree	49	32.0	32.0	37.3
	Neutral	46	30.1	30.1	67.3
	Disagree	43	28.1	28.1	95.4
	Strongly Disagree	7	4.6	4.6	100.0
	Total	153	100.0	100.0	

12. Lack of promotion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	48	31.4	31.4	31.4
	Agree	55	35.9	35.9	67.3
	Neutral	25	16.3	16.3	83.7
	Disagree	22	14.4	14.4	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

III. Environmental Factors

13. Delivering E Banking services using internet is difficult due to low internet access in Ethiopia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	62	40.5	40.5	40.5
	Agree	60	39.2	39.2	79.7
	Neutral	12	7.8	7.8	87.6
	Disagree	16	10.5	10.5	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

14. Lack of sufficient government support will affect customers willingness to use technological innovation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	40	26.1	26.1	26.1
	Agree	54	35.3	35.3	61.4
	Neutral	39	25.5	25.5	86.9
	Disagree	17	11.1	11.1	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

15.Lack of available ICT infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	44	28.8	28.8	28.8
	Agree	71	46.4	46.4	75.2
	Neutral	21	13.7	13.7	88.9
	Disagree	15	9.8	9.8	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

16. Lack of sufficient legal frameworks that attracts banking industries to adopt technological innovation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	30	19.6	19.6	19.6
	Agree	64	41.8	41.8	61.4
	Neutral	44	28.8	28.8	90.2
	Disagree	10	6.5	6.5	96.7
	Strongly Disagree	5	3.3	3.3	100.0
	Total	153	100.0	100.0	

17.Lack of competition among local bank and foreign banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	27	17.6	17.6	17.6
	Agree	42	27.5	27.5	45.1
	Neutral	31	20.3	20.3	65.4
	Disagree	39	25.5	25.5	90.8
	Strongly Disagree	14	9.2	9.2	100.0
	Total	153	100.0	100.0	

18. Lack of sufficient public awareness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	50	32.7	32.7	32.7
	Agree	69	45.1	45.1	77.8
	Neutral	21	13.7	13.7	91.5
	Disagree	12	7.8	7.8	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

Part two: Questionnaires related with adoption enhancement of E-banking service

IV. Perceived Ease of Use

19. E Banking makes it easier to do banking activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	108	70.6	70.6	70.6
	Agree	39	25.5	25.5	96.1
	Neutral	4	2.6	2.6	98.7
	Disagree	1	.7	.7	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

20. In the case of mobile & agent Banking, customers can simply use banking service by using cell phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	68	44.4	44.4	44.4
	Agree	56	36.6	36.6	81.0
	Neutral	17	11.1	11.1	92.2
	Disagree	10	6.5	6.5	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

21. From the bank perspective it is easy to use E Banking to accomplish banking tasks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	60	39.2	39.2	39.2
	Agree	70	45.8	45.8	85.0
	Neutral	17	11.1	11.1	96.1
	Disagree	4	2.6	2.6	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

22. Using E Banking systems simplify the activity of workers to deliver service to customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	78	51.0	51.0	51.0
	Agree	59	38.6	38.6	89.5
	Neutral	11	7.2	7.2	96.7
	Disagree	4	2.6	2.6	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

23. Our bank provide guidelines on the use of electronic banking facility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	22	14.4	14.4	14.4
	Agree	65	42.5	42.5	56.9
	Neutral	39	25.5	25.5	82.4
	Disagree	24	15.7	15.7	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

24. The management of the bank provide training courses for its staff when introducing E Banking services to the level expected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	12	7.8	7.8	7.8
	Agree	41	26.8	26.8	34.6
	Neutral	35	22.9	22.9	57.5
	Disagree	47	30.7	30.7	88.2
	Strongly Disagree	18	11.8	11.8	100.0
	Total	153	100.0	100.0	

25. Adequate demonstration is provided to the customer on how to use E banking services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	10	6.5	6.5	6.5
	Agree	30	19.6	19.6	26.1
	Neutral	43	28.1	28.1	54.2
	Disagree	53	34.6	34.6	88.9
	Strongly Disagree	17	11.1	11.1	100.0
	Total	153	100.0	100.0	

V. Perceived usefulness

26.E Banking services enables users to complete banking activities more quickly and easily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	84	54.9	54.9	54.9
	Agree	55	35.9	35.9	90.8
	Neutral	5	3.3	3.3	94.1
	Disagree	8	5.2	5.2	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

27.E Banking service is convenient in terms of time saving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	106	69.3	69.3	69.3
	Agree	41	26.8	26.8	96.1
	Neutral	4	2.6	2.6	98.7
	Disagree	1	.7	.7	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

28.E Banking service is convenient, in terms of 7 days and 24 hour services ,to access bank account and information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	100	65.4	65.4	65.4
	Agree	41	26.8	26.8	92.2
	Neutral	6	3.9	3.9	96.1
	Disagree	6	3.9	3.9	100.0
	Total	153	100.0	100.0	

29.E Banking service is more accessible to users than visiting a bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	87	56.9	56.9	56.9
	Agree	45	29.4	29.4	86.3
	Neutral	9	5.9	5.9	92.2
	Disagree	9	5.9	5.9	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

30.The transactions in any of E Banking services are at a lower price, or at no cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	35	22.9	22.9	22.9
	Agree	69	45.1	45.1	68.0
	Neutral	32	20.9	20.9	88.9
	Disagree	14	9.2	9.2	98.0
	Strongly Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

31. E Banking service improve customer service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	84	54.9	54.9	54.9
	Agree	61	39.9	39.9	94.8
	Neutral	4	2.6	2.6	97.4
	Disagree	3	2.0	2.0	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

32.E Banking service improve speed and efficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	88	57.5	57.5	57.5
	Agree	56	36.6	36.6	94.1
	Neutral	6	3.9	3.9	98.0
	Disagree	3	2.0	2.0	100.0
	Total	153	100.0	100.0	

33.E Banking reduce number of customers coming to the banking hall

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	93	60.8	60.8	60.8
	Agree	47	30.7	30.7	91.5
	Neutral	6	3.9	3.9	95.4
	Disagree	5	3.3	3.3	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

34. Existing E Banking withdrawal and fund transfer limit is encouraging for users to use the service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	19	12.4	12.4	12.4
	Agree	52	34.0	34.0	46.4
	Neutral	43	28.1	28.1	74.5
	Disagree	33	21.6	21.6	96.1
	Strongly Disagree	6	3.9	3.9	100.0
	Total	153	100.0	100.0	

35.E Banking service increase efficient utilization of the banks available resource

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	41	26.8	26.8	26.8
	Agree	85	55.6	55.6	82.4
	Neutral	21	13.7	13.7	96.1
	Disagree	4	2.6	2.6	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

36.E Banking increase reliability and accessibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	39	25.5	25.5	25.5
	Agree	85	55.6	55.6	81.0
	Neutral	23	15.0	15.0	96.1
	Disagree	6	3.9	3.9	100.0
	Total	153	100.0	100.0	

37.E Banking service create better relationship among banks and clients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	39	25.5	25.5	25.5
	Agree	78	51.0	51.0	76.5
	Neutral	23	15.0	15.0	91.5
	Disagree	12	7.8	7.8	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	153	100.0	100.0	

38.E Banking service used as better information control tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	41	26.8	26.8	26.8
	Agree	59	38.6	38.6	65.4
	Neutral	43	28.1	28.1	93.5
	Disagree	8	5.2	5.2	98.7
	Strongly Disagree	2	1.3	1.3	100.0
	Total	153	100.0	100.0	

APPENDIX -IX

SUMMARY OF DISCRIPTIVE STATSTICS RESULTS

1. Perceived usefulness

perceived usefulness													
	E Banking services enables users to complete banking activities more quickly and easily	E Banking service is convenient in terms of time saving	E Banking service is convenient, in terms of 7 days and 24 hour services ,to access bank account and information	E Banking service is more accessible to users than visiting a bank	The transactions in any of E Banking services are at a lower price, or at no cost	E Banking service improve customer service	E Banking service improve speed and efficiency	E Banking reduce number of customers coming to the banking hall	Existing E Banking withdrawal and fund transfer limit is encouraging for users to use the service	E Banking service increase efficient utilization of the bank's available resource	E Banking increase reliability and accessibility	E Banking service create better relationship among banks and clients	E Banking service used as better information control tools
N Valid	153	153	153	153	153	153	153	153	153	153	153	153	153
Missing	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean	1.61	1.37	1.46	1.67	2.22	1.54	1.50	1.54	2.71	1.96	1.97	2.07	2.16
Median	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	2.00
Mode	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**

2. Perceived Ease of Use

Perceived Ease of Use								
		E Banking makes it easier to do banking activities	In the case of mobile & agent Banking, customers can simply use banking service by using cell phone	From the bank perspective it is easy to use E Banking to accomplish banking tasks	Using E Banking systems simplify the activity of workers to deliver service to customers	Our bank provide guidelines on the use of electronic banking facility	The management of the bank provide training courses for its staff when introducing E Banking services to the level expected	Adequate demonstration is provided to the customer on how to use E banking services
N	Valid	153	153	153	153	153	153	153
	Missing	0	0	0	0	0	0	0
Mean		1.35	1.84	1.81	1.63	2.48	3.12	3.24
Median		1.00	2.00	2.00	1.00	2.00	3.00	3.00
Mode		**1**	**1**	**2**	**1**	**2**	**4**	**4**

3.Percived risk

Perceived Risk					
		Customers of our bank fear risk to use E Banking	Lack of confidence with the security aspects considered as challenges for the adoption of E Banking	In the case of using E Banking, security risk affect users decision to use the system	Lack of trust is considered as challenges for the adoption of E Banking system in DB.
N	Valid	153	153	153	153
	Missing	0	0	0	0
Mean		2.80	2.69	2.69	2.85
Median		3.00	2.00	2.00	3.00
Mode		**2**	**2**	**2**	**2**

4.Organizational Factors

Organizational factors									
		Use of E Banking services entails additional cost to do banking tasks	Customers of DB were not fully familiar with E Banking service provided by the bank	Lack of technical and managerial skills on the use technological innovation.	Lack of skills to implement E Banking system to the level expected	Lack of availability of technological equipments for the service	Lack of appropriate maintaining capacity upon failure	Inconvenience placement of ATM	Lack of promotion
N	Valid	153	153	153	153	153	153	153	153
	Missing	0	0	0	0	0	0	0	0
Mean		2.82	2.39	2.42	2.44	2.68	2.25	2.95	2.20
Median		3.00	2.00	2.00	2.00	2.00	2.00	3.00	2.00
Mode		**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

5.Environmental Factors

Environmental factors							
		Delivering E Banking services using internet is difficult due to low internet access in Ethiopia	Lack of sufficient government support will affect customers willingness to use technological innovation	Lack of available ICT infrastructure	Lack of sufficient legal frameworks that attracts banking industries to adopt technological innovation	Lack of competition among local bank and foreign banks	Lack of sufficient public awareness
N	Valid	153	153	153	153	153	153
	Missing	0	0	0	0	0	0
Mean		1.94	2.27	2.08	2.32	2.81	1.99
Median		2.00	2.00	2.00	2.00	3.00	2.00
Mode		**1**	**2**	**2**	**2**	**2**	**2**