



INTERNET BANKING IMPELEMENTATION CHALLENGES AND OPPORTUNITIES AT UNITED BANK

BY

FREHIWOT MEKONNEN

**Addis Ababa University College of Business and Economics School of
Commerce Graduate Studies Program**

**November 2018
Addis Ababa, Ethiopia**

**INTERNET BANKING IMPELEMENTATION CHALLENGES AND
OPPORTUNITIES AT UNITED BANK**

BY

FREHIWOT MEKONNEN

ADVISOR: WUBESHET BEKALU (PhD)

**A Research Project Submitted to Addis Ababa University School of
Commerce in Partial Fulfillment of the Requirement for Master of Arts in
Project Management**

November 2018

Addis Ababa, Ethiopia

Addis Ababa University
School of Commerce
Department of Project Management

Internet Banking Implementation Challenges and Opportunities at
United Bank

By

Frehiwot Mekonnen

Approved by: Board of Examiners

Advisor

Signature

Date

Internal Examiner

Signature

Date

External Examiner

Signature

Date

DECLARATION

This research project work on the topic entitled “Internet Banking Implementation Challenges and Opportunities at United Bank” is my own work and that all the sources that I have been indicated and acknowledged by means of complete references.

Frehiwot Mekonnen

Signature _____

Date _____

CERTIFICATION

This is to certify that Frehiwot Mekonnen has carried out her project work on the topic entitled “Assessment of the Challenges and Opportunities on the Implementation of Internet Banking Service Project; the Case of United Bank”. The study is an original work and is suitable for the submission the award of Master of Arts Degree in Project Management.

Wubeshet Bekalu (PhD)
Project Work Advisor

ACKNOWLEDGMENT

First and for most, I would like to give my praise to the Almighty God for his invaluable care and support throughout the course of my life. Next I would like to express my sincere gratitude to my advisor Wubeshet Bekalu (PhD) for his guidance and suggestion. Finally, I would like to thank all people involved directly or indirectly for the accomplishment of this paper.

ABSTRACT

The main purpose of the study was to examine the adoption and implementation of internet banking service project in United Bank. The study was conducted based on the data gathered from 30 branches in Addis Ababa on those are currently providing internet banking service. The total sample size for the study is 175 employees from selected thirty branches of the bank found in Addis. The study used a non-probability sampling design by applying a purposive sampling method to select sample size of 175 respondents. To achieve the main objective of the research, a mixed methods approach was used. The study used a descriptive statistics data analysis method to analyze numerical data gathered using tables. The result of the study indicated that, the major challenges faced in the adoption and development of internet banking services are lack of employees' awareness, low level of ICT infrastructure, lack of customer awareness, limitation in network infrastructure and internet related support services and security risk. The study identified operational and services benefits from adopting and developing of internet banking service technology such as enhance productivity, reduces paper work, reduce transaction cost, increase reliability and reducing errors as operational benefits and overcome geographic limitation, enhance accessibility of internet banking services (in terms of place), improve customer service, create better relationship among customers as services benefits. The study recommended the bank to provide proper and continuous training for its employees, create deep awareness about internet banking technology to the community; the government should also enforcing policies that supports installation of better ICT infrastructure. In addition the bank should increasing security to gain trust from customers on internet banking usage.

Keywords: - Internet banking, Adoption, challenge, opportunities

TABLE OF CONTENTS

DECLARATION	i
CERTIFICATION	ii
ACKNOWLEDGMENT	iii
ABSTRACT	iv
LIST OF TABLES	v
ABBREVIATIONS AND ACRONYMES	vi
CHAPTER ONE	1
INTRDUCTION	1
1.1 Background of the Study.....	1
1.2 Background of the Project.....	2
1.3 Statement of the Problem.....	3
1.4 Research Questions.....	4
1.5 Objective of the Study.....	5
1.5.1 General objective.....	5
1.5.2 Specific objectives.....	5
1.6 Significance of the Study.....	5
1.7 Scope and Limitation of the Study.....	5
1.8 Organization of the Study.....	6
CHAPTER II	7
LITERATURE REVIEW	7
2.1 Internet Banking.....	7
2.1.1 The concept of internet banking.....	7
2.1.2 Benefits of internet banking.....	8
2.1.2.1 Benefits to the bank.....	8
2.1.2.2 Benefits to the customer.....	10
2.1.2.3 Benefits to general economy.....	11
2.2 Factors Influencing Acceptance of Internet Banking.....	11
2.3 Challenges of Internet Banking.....	12
2.4 Internet Banking Risk.....	14
2.5 Typical Security Technologies Applicable to Control System Network...	16

2.6 Driving Force of Internet Banking Adoption.....	18
2.7 Conceptual Frame work.....	19
2.8 Empirical Literature.....	24
CHAPTER III.....	28
RESEARCH METHODOLOGY.....	28
3.1 Research Approach.....	28
3.2 Research Design.....	28
3.3 Population of the Study.....	28
3.4 Sample Design.....	29
3.4.1 Sampling frame.....	29
3.4.2 Sampling technique.....	29
3.4.3 Sample size.....	30
3.5 Data Source and Collection Method.....	30
3.6 Method of Data Analysis.....	30
3.7 Validity and Reliability.....	31
3.8 Ethical Consideration.....	32
CHAPTER IV.....	33
RESULTS & DISCUSSION.....	33
4.1 Demographic Information.....	33
4.2 Challenges that Affect Internet Banking Implementation.....	35
4.2.1 Organizational factor.....	36
4.2.2 Environmental factor.....	37
4.2.3 Technological factor.....	39
4.3 Benefits that Expected to Realize Adoption of Internet Banking.....	40
4.3.1 Operational benefit.....	40
4.3.2 Service benefit.....	42
4.4 Driving Forces for Adopting of Internet Banking Services Project	43
CHAPTER V.....	45
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	45
5.1 Summary of Findings.....	45
5.2 Conclusions.....	46

5.3 Recommendations.....	47
5.4 Suggestion for Further Studies.....	48
REFERENCES.....	49
ANNEX.....	52
Annex I Questionnaire.....	52
Annex II Frequencies Tables.....	55

ABBREVIATIONS AND ACRONYMES

ATM	Automated Teller Machine
SWIFT	Society for Worldwide Inter-bank Financial Telecommunication
ICT	Information Communication Technology
SMS	Short Message Service Center
E-banking	Electronic banking
POS	Point of sale
PIN	Personal identification number
NBE	National Bank of Ethiopia
FSA	Financial Services Authority
PC	Personal Computer
SPSS	Statistical Package for Social Science

LIST OF TABLES

Table 4.1	Gender of the Respondents.....	36
Table 4.2	Age of the Respondents.....	36
Table 4.3	Duration Worked in the Bank.....	37
Table 4.4	Descriptive Statistics-Organizational factors that affect implementing internet banking.....	38
Table 4.5	Descriptive Statistics-Environmental factors that affect implementing internet banking.....	39
Table 4.6	Descriptive Statistics-Technological factors that affect implementing internet banking.....	41
Table 4.7	Descriptive Statistics-Operational benefits that expected to realize from implementing internet banking service.....	43
Table 4.8	Descriptive Statistics-Service benefits that expected to realize from implementing of internet banking service.....	44
Table 4.9	Descriptive Statistics-Driving forces for adopting of internet banking service.....	46

CHAPTER I

INTRDUCTION

1.1 Background of the Study

For over a decade, information technologies have significantly affected the banking industry all over the world. Banks and other financial institutions worldwide have improved their functions as financial intermediary through adopting various information technologies (Chang, 2002; Haynes & Thompson, 2000; Venkateshat *al.* (2003). Advancements in ICT have enabled a lot of commercial banks globally to adopt electronic banking so as to remain a significant player in this technological age.

Nowadays, the banking industry is making use of new online communication platforms to offer its customers value added services conveniently (Zimucha et al., 2012). Many organizations in the banking industry have quickly implemented internet proficiencies, and are making use of technology as a worthwhile opportunity for interface between financial service firms and their clients. The growing applications of computerized networks being used by banks has reduced the cost of transactions and increased the speed of service delivery substantially. The nature of financial intermediaries made banks improve their production technology by focusing on distribution of products. In other words, the evolution of banking technology has been mainly driven by changes in distribution channels as we see evidence from over-the counter (OTC), automated-teller-machine (ATM), telephone-banking, and most recently internet banking (IB) (Yoonhee, 2007).

Internet banking can be referred to as the process in which one can access and manipulate accounts and perform transactions via the internet using personal computers, mobile devices and other web-based applications. Internet banking helps bank customers to conduct their transactions online without been physically present in the banking hall or premises.

United Bank S.C is a pioneer Bank in the country to provide Internet Banking services to customers. Their state of the art Hibir Mobile and Hibir Online Banking services are a 24 hours link to account information with view of all your banking transactions that enables you to access details on dealings regarding current, saving and overdraft accounts, loan particulars, Letter of

Credit, Check book status, exchange rate value of foreign currencies and many other relevant details to keep you abreast of all financial demands you have. Moreover, using the new upgraded Online Banking Services customers can transfer funds from one of their account to another or to other United Bank customer's account, effect local remittances, set standing instructions on certain recurrent transactions and upload bulk payments such as salary of employees. The online Banking Service will enable you to access and print a bank statement free of charge (real time) without coming to any of our branches.

Due to the immergence of this technology, the technology offers a huge benefit to banks and financial institutions to provide these services by exploiting an extensive public network infrastructure (ternullo, 1997).

1.2 Background of the Project

United bank was incorporated as a share company on 10 September 1998 in accordance with the Commercial Code of Ethiopia of 1960 and the Licensing and supervision of Banking Business Proclamation No. 84/1994 with paid up capital of birr 24.8 million by 335 share holders.

United Bank has been the pioneer bank in lunching internet banking service in the country. Subsequent with this custom it has again succeeded in upgrading the brands of service to a new world class online banking system with the commencement of HIBIR Online service. Hibir Online gives you the freedom to retrieve as well as conduct transaction services all day and every day. The system holds all standard features and high security mechanisms to ensure banking details are secured from all form of frauds at all times. Moreover, as an additional security measure the system allows to its corporate customers to set multiple signatories to approve transaction amounts, this is vital to strengthen the security in uploading bulk payment.

E-Banking operations in United Bank S.C.

The major types of electronic banking (e-banking) services available in United Bank are:

Internet Banking: - Internet banking can be referred to as the process in which one can access and manipulate accounts and perform transactions via the internet using personal computers, mobile devices and other web-based applications. Internet banking helps bank customers to conduct their transactions online without been physically present in the banking hall or premises.

Mobile Banking :- Mobile banking (also known as M-banking or SMS banking) is a term used for performing balance checks, account transactions, payments etc. via a mobile device such as a mobile phone. Mobile banking is most often performed via SMS or the Mobile Internet.

ATM: - ATM is an electronic banking outlet, which allows customers to complete basic transactions without the aid of a branch representative or teller. Anyone with a credit card or debit card can access most ATMs. There are two primary types of ATMs; basic units allow customers to withdraw cash and receive reports of their account balances only. The more complex machines accept deposits, facilitate line of credit payments and report account information. To access the advanced features of the complex units, a user must be an account holder at the bank that operates the machine.

SWIFT:-SWIFT stands for the Society for Worldwide Interbank Financial Telecommunications, founded in Brussels, Belgium in 1973. It is a messaging network that financial institutions use to securely transmit information and instructions through a standardized system of codes. United Bank is directly connected to S.W.I.F.T. headquarter to facilitate its cross-border trading activities like money transfers to individuals, organizations, and banks, foreign exchange transactions, Letters of Credit, documentary collections, cheque clearances, etc.

1.3 Statement of the Problem

In this era of globalization, with increased competition around the globe in all sectors, a strong banking industry is important in every country and can have a significant effect in supporting economic development through efficient financial services; as a result many banks in the world are modifying their strategies to reach customers worldwide more easily and cheaply. Therefore, banks are developing the technologies that will help them deliver banking products and services by the most cost-effective channels and one of such channel is adoption of electronic banking or Internet banking. E-banking or Internet banking is a way to keep existing customers and attract new ones to the bank. The transaction costs of providing these services are lower than the traditional approach. The rapidly growing information and communication technology is knocking the front door of every organization in the world (Booz & Hamilton, 1997).

Internet banking has distinctive characteristics that may escalate organization's total risk portfolio and the levels of risk typical with traditional banks, predominantly operational,

reputation, legal, and strategic risks (Nicoleta, 2009). Various factors including customer service, demographic considerations and competitive costs encourage banks to appraise their existing technology and evaluate their internet banking and e-commerce methods. The main undertaking for banks is to maximize the benefits of internet banking technology and ensure that they are higher than the risks and cost associated with carrying out business on the internet (Internet Banking Comptroller's Handbook, 1999).

According to National Bank of Ethiopia website there are 19 registered commercial banks of which some of them are providing Internet banking services. United bank S.C is one of the private banks which give internet banking services to its customers to fulfill its customer's needs in order to win the competition.

However, in spite of having many studies undertaken on internet banking, there are limited studies has been done on the challenges and opportunities on the implementation of internet banking in developing countries. To the extent of the researcher knowledge however, no study has been undertaken to address specifically ascertaining the factors affecting adoption of Internet banking on United bank while previous studies focused on the challenge and adoption of e-banking in Ethiopia and concentrated much on the client side of the implementer (Wondwossenand Tsegai 2005; Gardachew W.2010).Therefore, the purpose of this study is to examine the challenges and opportunities associated on the implementation of Internet banking service project in United bank.

1.4 Research Questions

The study sought to offer answers to the following research questions:

- What are the challenges faced to implement Internet banking project in United Bank?
- What are existing opportunities gained by the bank in the implementation of Internet banking service?
- What are the driving forces towards the adoption and development of Internet banking service in the bank industry?

1.5 Objectives of the Study

1.5.1. General objective

The General objective of this study is internet banking implementation challenges and opportunities at United Bank.

1.5.2. Specific objectives

The specific objectives of the study are:

- To find the challenges faced to implement Internet banking service project in United Bank.
- To find the benefits gained by the bank in the adoption of internet banking ser project.
- To examine the driving forces towards the adoption and development of internet banking service in United Bank.

1.6 Significance of the Study

The findings of this study would be useful to bank's management since the findings obtained will give a clear insight of the characteristics of the internet banking adoption problems. This study would also assist bank's management and stakeholders in the banking industry to identify and formulate strategies that will promote internet banking service. In addition, the study would be of significance to further studies since the findings obtained would provide ready reference that would be used as literature for other researchers conducting studies on internet banking.

1.7 Scope and Limitation of the Study

The scope of the study was limited on geographic location which is focused only Addis Ababa branches. The questionnaires were distributed to the United Bank employees of selected branches that are found in Addis Ababa. The branches are currently using the service of internet banking but it does not consider all branches of employees. Hence, the generalization may not be applicable to them. In addition, due to time line and resource limitation customers were not included on the assessment.

1.8 Organization of the Study

This study consists of five chapters. The first chapter includes background of the study, statement of the problem, research questions, objective of the study, significance of the study, limitation and scope of the study. Chapter two contains a literature review on internet banking while chapter three describes the methodology of the study. Chapter four presents data analysis and findings. Summary, conclusion and recommendation are made in chapter five.

CHAPTER II

LITERATURE REVIEW

This section aims to present a review of the pertinent and relevant literatures related to the research topic.

2.1 Internet banking

2.1.1 The concept of internet banking.

Internet banking is a new age banking concept. It uses technology and brings the bank closer to the customer. Internet banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of banks website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations. For those that have access to the internet and a computer all you need to do is proceed to your banks website and login. From there you have access to all of your accounts that you have at that bank. Transfer funds between your accounts with ease. You can also use online banking to see how much money you have in your accounts and where the money you have spent has gone. Internet Banking means that banking services such as services introduction, loan application, account balance inquiry, fund transfer and so forth are provided by a bank through the internet. Internet banking has evolved into a “one step service and information unit” that promises great benefits to both banks and consumers. (Thulani et al, 2009).

According to Michael Karlin, Internet Banking is as follows:

- You do not have to purchase any software, store any data on your computer, back up any information, since all transactions occur on the bank server over the infrastructure of the Internet.
- You will be able to conduct your banking services anywhere you like but you need to have a computer and a modem, no matter where you are (e.g. at home, at office, or in a place outside the country).
- You can use the banking services 24 hours a day, 7 days a week, and 365 days a year.
- You no longer have to reconcile a bank statement or manually track your ATM and paper checks.

2.1.2 Benefits of internet banking

Understanding internet banking services is important for several stakeholders, since it helps them to derive benefits from it. Many banks and other organizations have already implemented or are planning to implement electronic banking because of the numerous potential benefits associated with it. Some of these major benefits according to Shah & Clarke (1997) are briefly described below

2.1.2.1 Benefits to banks

- **Attracting High Value Customers:-** internet Banking often attracts high value i.e. in terms of profit customers with higher than average income and educational backgrounds, which helps to increase the size of revenue streams. For a retail banking, internet banking customers are therefore of particular interest, and such customers are likely to have a higher demand for banking products. Most of them are using online channels regularly for a variety of purposes, and for some there is no need for regular personal contacts with the bank's branch network, which is an expensive channel for banks to run (Berger & Gensler, 2007). Some research suggest that adding the Internet delivery channel to an existing portfolio of service delivery channels results in nontrivial increases in bank profitability (Young, 2007). These extra revenues mainly come from increases in noninterest income from service charges on deposit/current accounts. These customers also tend to be of high-income earners with greater profit potential.
- **Enhanced Image:** - internet banking helps to enhance the image of the organization as a customer focused innovative organization. This was especially true in early days when only the most innovative organizations were implementing this channel. Despite its common availability today, an attractive banking website with a large portfolio of innovative products still enhances bank's image. This image also helps in becoming effective at e-marketing and attracting young/professional customer base.
- **Increased Revenues:** - Increased revenues as a result of offering e-channels are often reported, because of possible increases in the number of customers, retention of existing customers, and cross selling opportunities. It has also allowed banks to diversify their value

creation activities. Internet banking has changed the traditional retail banking business model in many ways, for example by making it possible for banks to allow the production and delivery of financial services to be separated into different businesses. This means that banks can sell and manage services offered by other banks (often-foreign banks) to increase their revenues. This is an especially attractive possibility for smaller banks with a limited product range. Electronic bill payment is also on rapid rise (Young, 2007) which suggests that electronic bill payment and other related capabilities of e-banking have a real impact on retail banking practices and rapidly expanded revenue streams.

- **Easier Expansion:**-Traditionally, when a bank wanted to expand geographically it had to open new branches, thereby incurring high startup and maintenance costs. E-channels, such as the Internet, have made this unnecessary in many circumstances. Now banks with a traditional customer base in one part of the country or world can attract customers from other parts, as most of the financial transactions do not require a physical presence near customers living/working place.
- **Load Reduction on Other Channels:** - E-Channels are largely automatic, and most of the routine activity such as account checking or bill payment may be carried out using these channels. This usually results in load reduction on other delivery channels, such as branches. This trend is likely to continue as more sophisticated services such as mortgages or asset finance are offered using internet Banking channels. In some countries, routine branch transactions such as cash/cheque deposit related activities are also being automated, further reducing the workload of branch staff, and enabling the time to be used for providing better quality customer services.
- **Cost Reduction:** - The main economic argument of internet banking so far has been reduction of overhead costs of other channels such as branches, which require expensive buildings and a staff presence. It also seems that the cost per transaction of internet banking often falls more rapidly than that of traditional banks once a critical mass of customers is achieved. The research in this area is still inconclusive, and often-contradicting reports appear in different parts of the world. The general consensus is that fixed costs of internet banking are much greater than variable costs, so the larger the customer base of a bank, the lower the cost per transaction would be. Whilst this implies that cost per transaction for

smaller banks would in most cases be greater than those of larger banks, even in small banks it is seen as likely that the cost per transaction will be below that of other banking channels.

- **Organizational Efficiency:** - to implement internet banking, organizations often have to re-engineer their business processes, integrate systems and promote agile working practices. These steps, which are often pushed to the top of the agenda by the desire to achieve internet banking, often result in greater efficiency and agility in organizations. However, radical organizational changes are also often linked to risks such as low employee morale, or the collapse of traditional services or the customer base. In addition, it has also helped banks in proper documentation of their records and transactions.

2.1.2.2 Benefits for customers

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

- **Reduced costs:** - in accessing and using the banking services.
- **Increased comfort and time saving:** - transactions can be made 24 hours a day, without requiring the physical interaction with the bank.
- **Quick and continuous access to information:** - Corporations will have easier access to information as, they can check on multiple accounts at the click of a button.

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

- **Reduced costs:-** This is in terms of the cost of availing and using the various banking products and services
- **Convenience:** - All the banking transactions can be performed from the comfort of the home or office or from the place a customer wants to.
- **Speed:** - The response of the medium is very fast; therefore customers can actually wait till the last minute before concluding a fund transfer.

- **Funds management:** - Customers can download their history of different accounts and do a what-if analysis on their own PC before affecting any transaction on the web. This will lead to better funds management
- Customers can operate their accounts while sitting in their office or home. There is no need to go to the bank in person for such matter.
- All services that are usually available from the local bank can be found on a single website.
- Banks are available 24 hours a day, seven days a week and they are only a mouse click away.

2.1.2.3 Benefits to general economy

Internet Banking as already stated has greatly serviced both the public and the banking industry. This has resulted in creation of a better enabling environment that supports growth, productivity and prosperity. Besides many tangible benefits in the form of reduction of cost, reduced delivery time, increased efficiency, reduced wastage, banking electronically controlled and thoroughly monitored environment and discourage many illegal and illegitimate practices associated with banking industry like money laundering, frauds and embezzlements.

Further internet banking has helped banks in better monitoring of their customer base. This is a useful tool in the hand of the bank to device suitable commercial packages that are in conformity with customer needs. As internet banking provide opportunity to banking sector to enlarge their customer base, a consequence to increase the volume of credit creation which results in better economic condition. Besides, internet banking has also helped in documentation of the economic activity of the masses (Mahdi Salehi, 2004).

2.2 Factors Influencing the Acceptance of Internet Banking

Many factors are seen to be influencing the acceptance of Internet banking and it is important to take these factors into account when studying customer attitudes towards Internet banking.

Awareness of Service and its benefits Pikkarainen (2004), has reported that the amount of information a customer has about internet banking and its benefit may has a critical impact on

the adoption of internet banking. Moreover, Sathye (1999) note that low awareness of Internet banking is a critical factor in causing customers not to adopt internet banking.

In addition Howcroft et al. (2002) find that lack of awareness of internet banking services and its benefits are found to be reasons for consumers' reluctance to use Internet banking services. Security and reliability of transactions over the internet is a burning issue and it is an important factor that customers consider before adopting Internet banking. Some customers avoid electronic banking as they perceive it as being easily susceptible to fraud. This perception can damage consumers' confidence of the online system as a whole.

According to a study conducted by Sathye (1999), 73% avoided the adoption online, banking because they are concerned about safety and security of transactions over the internet. Moreover, Sathye (1999) found that consumers will not be ready to change from present familiar ways of banking to internet banking unless their specific need is satisfied.

2.3 Challenges of Internet Banking

According to M. M. Rahman (2008) in Bangladesh despite huge demand from the business community as well as the retail customers particularly the urban customers, internet banking is still at a budding state due mainly to a number of constraints such as unavailability of a backbone network connecting the whole country; inadequacy of reliable and secure information infrastructure especially telecommunication infrastructure; sluggish ICT penetration in banking sector; insufficient legal and regulatory support for adopting internet banking and so on.

The concept of internet banking includes transaction of banking activities performed through electronic networks. It is the most recent delivery channel of banking services, which is used for both business-to-business and business-to-customer transactions. However, in true sense, internet banking includes activities like payment of bills and invoices, transfer of funds between accounts, applying for a loan, payment of loan installments, sending funds to third parties via emails or internet connections regardless of where the client is located.

According to Leow, Hock Bee (1999) state that the terms internet banking refers to a number of ways in which customer can access their banks without having to be physically present at the bank branch. Therefore, internet banking covers all these ways of banking business

electronically. Since internet banking offers some smart services benefiting both banks and customers compared with traditional banking system, it has become imperative to make necessary room for banks to flourish internet banking. Among others, attractiveness of internet banking includes: it lowers transaction cost; provide 24- hour services; ensure increased security and control over transactions; reduces fraud risk; performs higher volume of transactions with less time; increases number and volume of value payment through banks; allows remote transactions facilities that replace physical presence of a customer in a bank branch and; increases transaction speed and accuracy. On the other hand, traditional banking is time-consuming and more costly and therefore, e-banking is replacing traditional banking all over the world.

In addition, an exploratory study that was conducted in Zimbabwe by Chitura Tofara (2008) indicated that incompatibility with the existing system, cost of implementation, security concerns, lack of expertise, inadequate legislation and consumer acceptance are the major challenges of internet banking in the country's banking industry.

The same challenges may also face by Ethiopian banking industries to implement the E banking facilities. But the good thing is that the benefit out weighted the challenges in many parameters. Specially country like Ethiopia which have a huge potential customers for such service coupled with a fast growing economy will be the main advantages of the banking service to offer different products with the help of technology to their customers.

In addition, as investigated by Alhaji Ibrahim H. (2009) using exploratory study, the following are among the critical challenges of internet banking:-

- **Lack of Technological Infrastructure:** – the implementation of e-payment is been impeded by unavailability of ICT infrastructure. Most rural areas where majority of small and medium scale industries are concentrated have no access to internet facilities and ICT equipment.
- **Costs:** – where available, the cost of ICT is a critical factor relative to per capital income. This makes the cost of entry higher compared to developed countries.
- **Regulatory and Legal Issues:** – in existence of proper legal and regulatory framework.

- **Non-readiness of banks and other stake holders (acceptability):** – even though some have shown impressive willingness, some banks are still not fully ready to for this new payment regime.
- **Resistance to changes in technology among customers and staff due to:**
 - Lack of awareness on the benefits of new technologies
 - Fear of risk among banks
 - Lack of trained personnel in key organizations and
 - Tendency to be content with the existing structures
- **People are resistant to new payment mechanisms;**
 - Security: – where disclosure of private information, counterfeiting and illegal alteration of payment data may be rampant.
 - Frequent connectivity failure
 - Frequent power interruption
 - Wide spread Problem of internet connection

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

2.4 Internet Banking Risk

The major internet banking risks according to FSA (2010) include:

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

The second type of operations risk concerns management information systems. Again, this is not unique to E-banking. Banks may have difficulties in obtaining adequate management

information to monitor their service, as it can be difficult to establish/configure new systems to ensure that sufficient, meaningful and clear information is generated. Such information is particularly important in a new field like E-banking.

- **Security Issue:** -According to FSA (2010) Security issues are a major source of concern for everyone both inside and outside the banking industry. E-banking increases security risks, potentially exposing hitherto isolated systems to open and risky environments. Security breaches essentially fall into three categories; breaches with serious criminal intent (e.g. fraud, theft of commercially sensitive or financial information), breaches by casual hackers (e.g. defacement of web sites or denial of service - causing web sites to crash), and flaws in systems design and/or set up leading to security breaches (e.g. genuine users seeing / being able to transact on other users' accounts). All of these threats have potentially serious financial, legal and reputational implications.

In 2006 Michigan Surveys of Consumers reported that half of the respondents mainly 52% agree that internet banking was not safe enough to protect their personal financial information and 60% agree that internet banking increase the possibilities for a person to become a victim of theft identity. More and more consumers are targeted by viruses, spam and phishing e-mail that attempt to steal personal information. This includes name, credit card number and bank account. Due to this problem the state of California in USA require business to notify consumer of data breach involving name and account number.

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

causing concern to E-banking providers. Overall, the internet puts an emphasis on reputational risks.

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

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

2.5 Typical Security Technologies Applicable to Control System Networks

According to Juniper (2010), the following are among the major typical security technologies applicable to control System Networks:-

- **Firewalls:** - A firewall is simply a program or hardware device that filters the information coming through the internet connection into the private network or computer system. If an incoming packet of information is flagged by the filters, it is not allowed through. A firewall limits a control system's network access to specific ports and protocols from specified networks. It can also provide the ability to create distinct security zones using Network Address Translation (NAT), which enables multiple areas of a private network to access the internet using a single public IP address and Virtual Private Networks). The firewall's main task is to regulate traffic between network segments at different trust levels—for example, between the internet, as a zone with no trust, and the internal control network, a zone of higher trust.
- **Intrusion Detection and Protection:** - its appliance provides a more advanced layer of defense. Such defense (known as intrusion prevention system) can be deployed to help

prevent attacks, or simply to detect attacks using intrusion detection systems. Information is sent through the network in small blocks of data known as packets. It goes deeper than a firewall by assessing each packet based on the network protocols, the context of the communication, and it's tracking of each session (the time the user spends communicating on the network). Akin to antivirus software on a desktop, it contains a large repository of signatures that help to identify potential attacks by matching attempts to exploit known vulnerabilities.

- **Authentication/Authorization Systems:-** Authentication and authorization systems protect applications by verifying user identity, providing access to devices based on that user's role and privilege level, and logging all access attempts in order to audit any infringement or misuse of critical plant functions. The use of passwords alone is not a secure enough mechanism, yet it is still the norm to find devices in the field that rely on the manufacturer's default password. Most security standards require two-factor authentication, which requires the combination of two methods of identification, such as a password and a certificate.
- **Network Access Control:** - This might include ensuring those users and their laptops or other devices meet a minimum baseline of security in order to gain access. Such policies can be based on various criteria, such as user identity, device identity, device health, and device and/or network location. A solution including it ensures that both user and device properly make the appropriate connection to the appropriate network. It also ensures that users and their devices meet all authentication and security policies. Since network access control applies to users as well as devices, this can become a reliable method for rogue device mitigation over wireless or wired networks.
- **Encryption of Critical Data:** - Encryption is the process of transforming information, such as a document or important message, by using an algorithm or cipher to make it unreadable to anyone who does not have the key to the cipher. It is a standard method for protecting highly confidential information. However, as heavily encrypted messages can slow network performance unless managed effectively, its use is often restricted to non-real-time messaging and data.
- **Monitoring for Administration and the Audit Trail:-** An increasingly important aspect of today's security solutions is the ability to monitor and administer the entire network to keep

it at optimum performance, identify weaknesses, maintain consistent security policies, track a constant history of activity, and assure the complete safety of information.

- o **Secure Remote Access:** - on top of these security capabilities, contractors, engineers and managers may remotely communicate via remote access virtual networks enabled by the secure socket layer (SSL) based security protocols. Found in all standard web browsers, SSL provides a more secure, efficient and effective way to access control networks from an outside location or even outside the organization. This set of protocols allows secure communications via the Internet for gathering sensor data, sending instructions to field devices, performing remote maintenance and administrative data.

2.6 Driving Force of Internet Banking Adoption

Numerous factors including competitive cost, customer service, and demographic considerations are motivating banks to evaluate their technology and assess their electronic commerce and Internet banking strategies. According to Booz, (1999), there are some factors that may drive a bank's strategy to use internet banking include the following:

Competition:-Studies show that competitive pressure is the chief driving force behind increasing use of internet banking technology, ranking ahead of cost reduction and revenue enhancement, in second and third place respectively. Banks see internet banking as a way to keep existing customers and attract new ones to the bank.

Cost Efficiencies:-banks can deliver banking services on the internet at transaction costs far lower than traditional brick-and-mortar branches. The actual costs to execute a transaction will vary depending on the delivery channel used. These costs are expected to continue to decline. Banks have significant reasons to develop the technologies that will help them deliver banking products and services by the most cost-effective channels.

Geographical Reach: - internet banking allows expanded customer contact through increased geographical reach and lower cost delivery channels. In fact some banks are doing business exclusively via the internet — they do not have traditional banking offices and only reach their customers online. Other financial institutions are using the internet as an alternative delivery channel to reach existing customers and attract new customers.

Branding : - relationship building is a strategic priority for many banks. Internet banking technology and products can provide a means for banks to develop and maintain an ongoing

relationship with their customers by offering easy access to a broad array of products and services. By capitalizing on brand identification and by providing a broad array of financial services, banks hope to build customer loyalty, cross-sell, and enhance repeat business.

Customer Demographics:-internet banking allows banks to offer a wide array of options to their banking customers. Some customers will rely on traditional branches to conduct their banking business. For many, this is the most comfortable way for them to transact their banking business. Those customers place a premium on person-to-person contact. Other customers are early adopters of new technologies that arrive in the marketplace. These customers were the first to obtain PCs and the first to employ them in conducting their banking business. The demographics of banking customers will continue to change. The challenge to banks is to understand their customer base and find the right mix of delivery channels to deliver products and services profitably to their various market segments.

2.7 Conceptual Framework

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

- **Technology- Organization- Environment (TOE) Framework:** - TOE framework was developed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, et al., 2009, Ellis, 2009, Chang et al., 2007, Zhu & Kraemer, 2006).

According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the *technological context*, *the organizational context*, and the *external environment*.

The Technological factor: - refers to adopter's perception of E-service attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation which include relative advantages (perceived benefits), and relative disadvantages (perceived risks). Technological factors include complexity,

compatibility, relative advantage, ease of use and usefulness. The technological factors are related to challenges to technology adoption and its perceived benefits. The perceived benefits for manager could be direct, such as cost savings or income generation, or indirect, such as potential opportunities in new market, marketing, or publicity (Rogers 2003).

The organizational factor: - refers to the organizations characteristics that influence its ability to adopt and use of E- system. The organizational factors that have been mostly cited in literature include: Information Technology (IT) users' community; organizational structure; firm's process; firm size; technological capabilities of the organization's members; the technological and financial resources available; process of selecting and implementing the IT; management backing and support for the project (Harrison, 2012).

The environmental factor: - refers to the external environment in which an organization operates and its condition for supporting the development of E- services. Environmental factors relating to IT adoption (and specifically the adoption of internet technologies) includes pressure from competitors, customers or suppliers; the role of government (incentives); partners, alliances; technological infrastructure; technology consultants; image of internet technology; and users expectations (Harrison, 2012).

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

The Technology Acceptance Model (TAM) defines the casual relationship between perceived usefulness, ease of use, system design features, attitude towards using and actual usage behavior.

In general, an informative representation of the mechanisms by which design choices influence user acceptance is provided by TAM. Hence, Technology acceptance model is useful in applied contexts for forecasting and evaluating user acceptance of information technology (Davis, 1993).

According to Technology Acceptance Model (TAM), perceived usefulness (PU) and perceived ease of use (PEOU) are two key beliefs that are mainly relevant for computer acceptance behavior. Theory of Reasoned Action (TRA) is used by TAM as a theoretical basis to specify causal association between these two key beliefs i.e. PU and PEOU. Perceived usefulness (PU) is defined as the degree to which a potential user thinks that using a particular system would increase his/her job performance. The term usefulness is derived from the word 'useful', which means the advantage of using particular IS. Whereas, perceived ease of use (PEOU) is defined as the degree to which a potential user thinks that using a particular system would be free of effort. The word 'ease' means, freedom from difficulty, hardship or effort. In short, ease of use means 'user-friendliness' of IS (Davis, 1989).

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

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

According to Ajzen (1991), the theory of planned behavior proposes three independent determinants of intention which are attitude towards the behavior, subjective norm and perceived behavioral control. Attitude as defined by Fishbein and Ajzen (1975) quoted in Liao, (2007, p. 2809), is "the degree of one's favorable or unfavorable evaluation of the behavior in question". The attitudes are developed reasonably from one's beliefs about object of the attitude. Subjective Norm refers to "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991 quoted in Liao, 2007, p. 2809). It can be said that it is related to the normative beliefs about other people's expectations on either to perform or not to perform the behavior. Perceived

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

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

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

- **Innovation Diffusion Theory (IDT) :-**According to Rogers (1995 p. 11), innovation is defined “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”, whereas diffusion is defined as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995, p. 5). Therefore, Innovation Diffusion Theory (IDT) states how new ideas, concepts or technologies spread or become common in a society and adopted by users. Innovation Diffusion Theory (IDT) includes five characteristics. These characteristics as defined by Rogers (1995, pp. 250-251) are:

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

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

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

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

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

- **Attitude towards the behavior (AB):-** which is a function of beliefs (bi) that performing the behavior possesses certain attributes and the evaluation of those beliefs (EI).
- **Subjective Norm (SN):-** which is the perception of social groups i.e. what specific individuals or groups think that a person should or should not perform (Belleau, 2007). “An individual's Subjective Norm (SN) is determined by a multiplicative function of his or her normative beliefs (NBI), i.e., perceived expectations of specific referent individuals or groups, and his or her motivation to comply (MCI) with these expectations” (Fishbein and Ajzen, 1975, p. 302 quoted in Davis, 1989).

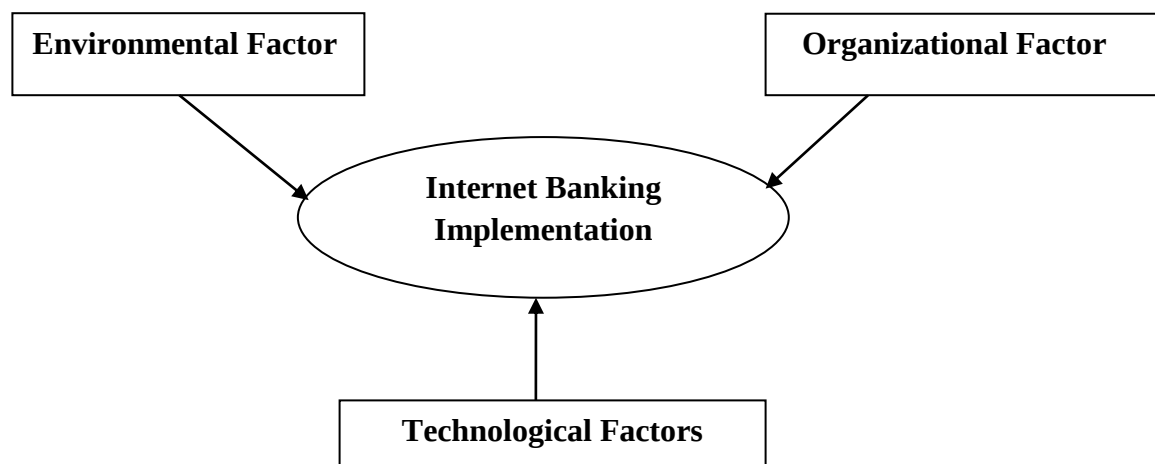
Apart from the above mentioned factors, Ajzen and Fishbein (1980) quoted in Belleau, (2007) mentioned that some external variables might also have influence on behavioral intention, for instance, demographics, traditional attributes towards targets and personality traits. Some researchers have proposed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

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

TRA model predicts consumers' intention and behavior very well. Armitage and Conner (2001) quoted in Belleau, (2007); state that behavior that is comparatively straight forward i.e. under volitional control can be predicted adequately by theory of reasoned action. As it is understood that an intention to buy a product is volitional and few constraints are associated with it, so the usage of theory of reasoned action can lead to valid prediction of purchase intention.

However, there is a constraint associated with the TRA model regarding the distinction between a goal intention and a behavioral intention, which has also been acknowledged by Fishbein and Ajzen. The limitation is that they established their model to cope with behaviors, for example, taking weight loss pill, applying for a loan or purchasing a new car; but not with outcomes that result from behaviors, for example, losing 10 pounds, getting a loan or owning a brand new car. Moreover, only those behaviors are dealt by model that is under an individual's volitional control. The conditions of the model can't be fulfilled, whenever the performance of some action needs resources, knowledge, skills or environmental hurdles need to be overcome (Sheppard, 1988).

In this study, Technology-organization-environment framework will be used to have a more precise forecast on the challenges of adopting and developing internet banking technology in United Bank.



Source: Researcher construction

2.8 Empirical Literature

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

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. The authors employs interview and on site observation to investigate challenges to E-payment in 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. According to Wondwossen and Tsegai (2005), an adequate legal structure and security framework could foster the use of E-payments, which is contradicting with the finding of the previous study.

On the other hand the study conducted by Siam (2006) investigated the role of electronic banking services on the profits of Jordanian banks. He investigated the reasons behind providing electronic banking services through the internet and their impact on banking services in general and banks profitability. The study was done in 20 commercial banks operating in Jordan. The sample period was between 2003 to 2006 and they interviewed 98 managers. Accounting data was used to measure banks performance using regression analysis. He concluded that the effect of electronic banking services on banks profitability is negative in the short run because of costs

and the investments the bank carry in order to have the technical and electronic infrastructure in place, training the employees to be skilled and competent but will be positive on the long run.

The other descriptive case study analysis conducted by Ghazi and Khalid (2012), found that, the most important barriers for electronic business growth are technological issues, such as, security risk, quality of internet and cost of implementation to be the most prominent. On the other hand Kim (2010), found that, factors discouraging the use of Internet banking are lack of Internet access and not having a chance to try out Internet banking in a safe environment.

The study conducted by Daghfous and Toufaily (2007) on factors affecting adoption of E-banking technology in Lebanese banks. The study was conducted on the factors that can lead to success the adoption of E-banking and the other factors that can constitute as challenges to its adoption, it focus on the organizational, structural and strategic factors. Data, used in their study were collected using semi structured interviews and survey questionnaire that was given to E-banking managers all the banks on the official list of institutions operating on the Lebanese market, with a total of 57 banks, 31 of them operate internationally and 26 are strictly local were used to gather data.

The results of the study revealed that the organizational variables (bank size, functional divisions, technical staff, technical infrastructure, perceived risks, decision makers` international experience and mastery of innovation) are variables which exert significant impact on the adoption of E-banking, among the structural characteristics, the result revealed that internal technological environment of the bank is a very important factor in determining the adoption of E-banking, also the result shows that banks which are developing in the international scale are more likely to adopt E-banking innovations. Finally, the result of the study indicated that extent of penetration of E-banking in the growth phase of an emerging market has an important correlation with the improvement of commercial performance.

The study of Rasoulion and Safari (2011) carried out research concerning reasons as to why there was a lack of E-banking achievement; the result of the first chapter of their study showed the importance of Internet use, frameworks and encouraging policies to impress beneficiaries to use electronic banking. The second part introduced cultural elements as the most important challenge followed on by financial elements (the cost of the Internet and commissions) as the second

influencing factor. The significance of technical elements is fading away according to their study due to improvements in the banking system. In addition, their study highlighted other parameters such as management obstacles as also playing an important role in electronic banking in Iran.

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

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the methods and procedures used to carry out the research study. The chapter comprises the research approach, research design, population and sampling design, data collection methods, data analysis methods and ethical considerations.

3.1 Research Approach

In order to achieve the main objective of this research, a mixed methods approach (both quantitative and qualitative) was used. The purpose of using such a mixed methods approach is to gather data that could not be obtained by adopting a single method, so that the findings with a single approach could be substantiated with others wherever possible (Creswell 2013).

3.2 Research Design

Sullivan (2001) states that descriptive technique of a research is used to discover facts or descriptive reality to grasp of phenomenon under investigation. He explained descriptive research is a picture or accounts of what exist sometimes summarized in numbers, percentage or other statistics and is characterized by the prior formation of specific research question or hypothesis. As a result, the research method in this study is descriptive survey type. Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. This method was chosen because it is a sound to identify and explain investigations of the challenges and opportunities on the implementation internet banking project in United Bank.

3.3 Population

The study population is 116 branches. And all the 10 employees of the E-banking section of the bank where all the internet banking activities are managed at the head office level have been taken to be part of the total population. The study considered this bank since most of the banks in the city provide similar services and applicable in most banks hence, the bank is to be representative of other banks.

3.4 Sampling Design

3.4.1 Sampling frame

Sampling frame is the source list, it is a group of items or respondents from which sample has to be drawn, it constitute all the components of the target population (Dempsey, 2003).The researcher taken 30 of the 116 city branches of the bank on which the study will be undertaken. These branches are selected on the basis of their stay delivering the service for a relatively larger number of individual and corporate level internet banking users. Age of the branches since opened 2013, is also considered in selecting the 30 branches out of which the sample respondents are to be selected.

3.4.2 Sampling technique

Non-probability sampling represents a group of sampling techniques that help researchers to select units from a population that they are interested in studying. Purposive sampling is also known as judgmental or selective sampling, reflects a group of sampling techniques that rely on the judgment of the researcher when it comes to selecting the unit that are to be studied (Orodho,2009).

The study has used a non-probability sampling design by applying a purposive sampling method to select the study respondents. This was a deliberately done by the researcher taking the fact that only few of the bank's branches are to be considered and selecting these branches based on probabilistic approach would lead to a non representative sample and wrong conclusion. Therefore, only 30 of the 116 city branches with a relatively larger size of internet banking customers and longer years stay in service are taken in to consideration. 6 employees ranging from the level of customer service officer to branch manager are selected from each of these 30 branches. This is also done purposely to address only those staffs with a relatively better exposure to the internet banking service.

Finally, all the 10 employees of the E-banking section of the bank where all the internet banking activities are managed at the head office level have been taken to be part of the total sampling.

3.4.3 Sample size

In determining the sample size for this study, the researcher employed a multi-step purposive sampling technique by which the 116 branches has been reduced to 30. As described above, the population size is determined to be 910 which is the summation of 10 E-banking section staffs of the bank and an average 30 employees per branch. Having identified the total population size, the researcher used the under stated sample size determination formula for finite population.

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

n = corrected sample size, N = population size, e = Margin of error (percentage in decimal form) e = 0.05. Accordingly, using the above stated sample calculation formula; the sample size for this study is set to be 190.

3.5 Data Source and Collection Method

The study is conducted by collecting data from both primary and secondary sources. Primary data were collected from respondents of United Bank in Addis Ababa based on a structurally designed questionnaire. It included both closed ended and open ended questions. Secondary data, were obtained from different documents, records and reports of the industry, from web site, books, annual reports and magazines has been analyze. In order to get sufficient and reliable data that represents the bank both primary and secondary data has been collected from branch and at the head office level.

3.6 Methods of Data Analysis

In order to meet the stated research objectives, the collected data has been analyzed based on the nature of the objective. A descriptive analysis is use to present and interpret the data collect on various variables on challenges of implementing internet banking. Using percentages and tables has employed to analyze each objective. Accordingly the data collected through questionnaires was analyzed with descriptive statistics using statistical package for social scientists (SPSS).

3.7 Reliability and Validity

As proclaimed by Bhattacharjee (2012), reliability is the degree to which the measure of a construct is consistent or dependable. In other words, if we use a certain scale to measure the same construct multiple times, we will get pretty much the same result every time, assuming the underlying phenomenon is not changing. This research has administered the most commonly used internal consistency reliability measure of Cronbach's alpha which was originally designed by Lee Cronbach in 1951. According to Sekaran (2003), reliabilities less than 0.6 are considered to be poor, those in the 0.7 range to be acceptable and those over 0.8 are good. The reliability coefficient closer to 1 is better. Cronbach's alpha coefficient and the reliability measure calculated by SPSS version 20.00 is 0.69 for the final survey. Since this reliability statistics is above the minimum required threshold, it implies that the reliability of the questionnaire high.

Table 3.1 Reliability statistics for the final survey

Reliability Statistics	
Cronbach's Alpha	N of Items
.698	7

Table 3.2 Cronbach Alpha Coefficient for each variable

	Cronbach's Alpha
Organizational factor	.741
Environmental factor	.676
Technological factor	.732
Operational benefit	.658
Service benefit	.649
Driving force adoption	.714

3.8 Ethical Consideration

To ensure compliance to ethical issues the researcher sought authorization to carry out research from the relevant offices. In addition, care was taken to assure the respondents that all information was treated with confidence. Further, all references to work by other scholars or writers were appreciated and acknowledged.

CHAPTER IV

RESULTS & DISCUSSION

To find the major out puts of the study and to give important recommendations, the collected data should be analyzed and discussed. A total of 190 questionnaires were prepared to potential respondents to fill the structured questionnaires. A total of 175 questionnaires were successfully filled in time for data analysis, the remaining 15 were not returned. The overall respondent rate for the survey was approximately 92%. According to Mugenda (2003), “a 50% response rate is adequate, 60% is good and above 70% is very good” and was therefore concluded to be appropriate to derive the inferences based on the study objectives.

The statistical analysis of this study was done by SPSS software, version 20.0 and descriptive measures of each questionnaire response were conducted. Accordingly, the analysis and important findings from the collected data are discussed in terms of tables below.

4.1 Demographic Information

This section presents the respondents demographic information. The respondent’s demographic information reflects the relevant attributes of the population which forms the basis under which the study can rightfully access the relevant information. The respondent’s information captured includes: gender, age and the total years worked within the organization.

4.1.1 Gender of the respondents

The gender of the respondents who took part in the research were recorded as presented in Table

Table 4.1: Gender of the respondents

Gender	Frequency	Percent
Male	83	47.4
Female	92	52.6
Total	175	100

Source: own survey, 2018

Results obtained in Table 4.1 show that a higher number of the respondents 52.6% were Female while 47.4% were Male. What this showed was that the distribution of staff by gender is the number of female staff is higher.

4.1.2 Age of the respondents

The study requested the respondents to indicate their age bracket. The results were as shown in the Table 4.2

Table 4.2: Ages of the respondents

Age	Frequency	Percent
22-25	19	10.9
26-35	64	36.7
36-45	48	27.4
45-50	34	20.0
Greater than 50	10	5.
Total	175	100

Source: own survey, 2018

Table 4.2 above demonstrates that the highest bracket scored 36.7% where respondents were aged between 26 to 35 years, followed by 27.4% of respondents were aged between 36-45years ,20% of respondents were aged between 45-50 years,10.9% of respondents were aged between 22-25 and 5% of respondents were aged greater than 50. This could imply that the respondents in this study were old enough and would comprehend the issue and give solid data for the study.

4.1.3 Duration worked in the bank

Similarly, respondents indicated the number of years they had worked at bank as required, findings of which are presented in Table 4.3

Table 4.3: Duration worked in the bank

Work Experience	Frequency	Percent
1-3 year	25	14.3
3-5 year	57	32.6
More than 5 year	93	53.1
Total	175	100.0

Source: own survey, 2018

The study outcome in Table 4.3 demonstrates that 53.1 % of respondents had more than 5 years of work experience which is the highest. The second larger number of respondents 32.6%, had work experience of more than 3-5 years. The remaining 14.3% respondents had work experience from 1-3 years only. This outcome might depict that respondents had enough experience which would sufficiently contributed to the data quality of the survey.

4.2 Challenges that Affect Internet Banking Implementation

There are factors affecting the successful implementation of new technology. Respondents were required to state their agreement level on various statements on organizational factors, environmental factors and technological factors. The study used a likert scale of 1 to 5 where 5= 'strongly Agree', 4= 'Agree', 3= 'Neutral' 2= "Agree" 1= 'Disagree". The findings were presented below the Tables 4.4, 4.5 and 4.6 using mean results .The mean tried to tell the average where the data points fall for each specific variable. The mean values have been interpreted by adopting the criteria suggested by (Scott, 1999). According to his suggestion, for likert type scale ranging from 1 (Strongly Disagree/High dissatisfied) to 5(Strongly Agree/Highly Satisfied) interpretation should be like; mean up to 2.8 is considered as disagree, from 2.9 to 3.2 means neutral or neither disagree nor agree and mean above 3.2 is considered as agree.

4.2.1 Organizational factor

The issues raised in this study in relation with organizational factors are lack of technical and managerial skills in implementation and development of internet banking technology, high cost of implementation of internet banking such as cost of equipment network, and software, lack of employees awareness with internet banking product and lack of executive support which are

hinder the banking industry from the implementation and growth of new technological innovation. The findings are presented in Table 4.4.

Table 4.4: Descriptive Statistics-Organizational factors affect implementing internet banking

	N	Minimum	Maximum	Mean
Lack of technical and managerial skills in implementation and development of internet banking technology	175	1.00	4.00	1.3621
High cost of implementation of internet banking such as cost of equipment network, software	175	1.00	4.00	2.0314
Lack of employees awareness with internet banking product	175	2.00	5.00	3.3321
Lack of executive support	175	1.00	5.00	3.1303
Grand mean				2.46

Source: own survey, 2018

The outcome from Table 4.4 shows that the respondents revealed that lack of employee's awareness with internet banking product and lack of executive support to the technology as shown by the mean score of 3.33, and 3.13 respectively are considered as factors that affecting the implementation of internet banking technology in the bank.

From the results, the average mean of the factor is 2.46. This shows that internet banking implementation is affected by an organizational factor. This is due to lack of employee's awareness with internet banking product and lack of executive support to the technology. Hence, employees cannot produce high quality product and if they lacked adequate knowledge and skills to provide satisfactory customers service, this combination results in dissatisfy customers to use internet banking product effectively. This considered as a barrier for implementation and growth of internet banking by the bank. The findings are in agreement with the conclusions made by Wondwossen and Tsegai (2005) who found that lack of skilled manpower in E-banking context is considered as hurdles that prevent pervasive E-commerce adoption in developing countries. The findings are also supported by Vaithianathan, S. (2010) where lack of skilled human in E-

banking context is considered as hurdles that prevent pervasive e-commerce adoption in developing countries.

4.2.2 Environmental factor

Another factor which can affect the implementation of technological innovation is an external environment, in this study five basic environmental factors are considered, these are ICT infrastructure, customers' awareness, network infrastructures, power disruption and relative high cost of internet. The result obtained from the survey regarding these five issues were presented below in Table 4.5

Table 4.5: Descriptive Statistics - Environmental factors affect implementing internet banking

	N	Minimum	Maximum	Mean
Limitation ICT infrastructure provided by Ethio Telecom	175	1.00	5.00	2.8120
Lack of customer awareness with internet banking product	175	3.00	5.00	3.1231
Limitation in network infrastructure and internet related support service by Ethio Telecom	175	3.00	5.00	3.2216
Relative high cost of internet	175	2.00	4.00	2.0201
Frequent power disruption	175	1.00	4.00	1.0143
Grand mean				2.43

Source: own survey, 2018

Results reported on Table 4.5 shows that respondents strongly agree on the matter that limitation in network infrastructure and internet related support service is a major obstacle to effectively implementation internet banking services by the bank where mean score was found 3.22. Similarly, the respondents stated that on an open ended questionnaire poor network infrastructure hindered effective adoption of internet banking .Respondents further indicated that lack of customer awareness with internet banking services provided by the bank considered as a factor

that negatively affecting the successful implementation of internet banking project as revealed by the mean score of 3.12. The respondents reported that ICT infrastructure for internet access is not sufficient to use online banking service as shown by the mean scores of 2.81. Respondents also agreed that relative high cost of internet considered as a challenge on average the respondents were found as the mean resulted in 2.02

The study result shows that the grand mean of the factor is 2.43. This implies that effective implementation of internet banking is affected by the environmental factor. This is due to lack of customer awareness with internet banking product, limitation of ICT infrastructure, limitation in network infrastructure and internet related support service and relative high cost of internet. Thus, poor technological infrastructure of the existing data networks hindered accessibility of high internet speed and this slowed the transaction processing time during the execution of internet banking functions. Hence, these are considered as barriers factor for the adoption and growth of internet banking technology to a large extent. These findings corroborates with those of Howcroft et al. (2002) who found that lack of awareness of internet banking services and its benefits are found to be reasons for consumers' reluctance to use internet banking services. The findings were also in agreement with Wondwossen and Tsegai (2005) who stated that lack of sufficient telecommunication infrastructure is one of the basic challenges in the development of E-payment in Ethiopia while Rasoulilian and Safari (2011), also found that concerning reasons as to why there was a lack of E-banking achievement, the result of the second part introduced cultural elements as the most important challenge followed on by financial elements (the cost of the Internet and commissions) as influencing factor.

4.2.3 Technological factor

The basics issues raised herein under the technological factors were relative obstacles that hinder the bank from adoption and development of internet banking technology such as internet, customer fear of risk to use internet banking technology, lack of confidence with the security aspect, and money laundering and other financial crimes that may be easily facilitated through internet banking service which hinder banking industries from the adoption of new technological innovations. Outcomes are displayed in Table 4.6

Table 4.6: Descriptive Statistics -Technological factors that affect implementing internet banking

	N	Minimum	Maximum	Mean
Users lack of access to personal computer and internet	175	1.00	4.00	1.0971
Customer fear of risk to use internet banking technology	175	2.00	5.00	3.1286
Lack of confidence with the security aspect	175	2.00	5.00	3.2101
Money laundering and other financial crimes that may be easily facilitated through internet banking service	175	1.00	5.00	2.2331
Grand mean				2.41

Source: own survey, 2018

The outcomes displayed in Table 4.6 demonstrates that the respondents agreed that lack of confidence with the security issue and fear of risk to use internet banking technology considered as a challenge for the adoption and development of internet banking technology as shown by the mean score of 3.21 and 3.12 respectively. The respondents also agreed that money laundering and other financial crimes considered as challenges in implementation of internet banking technology as revealed by the mean score of 2.23. Likewise, the respondents stated that on an open ended questionnaire the product of internet banking is unfriendly and sophisticated to use.

From the findings, the average mean of the factor is 2.41. This indicates that technological factors influences effective implementation of internet banking. This is due to lack of confidence with the security issue, fear of risk to use internet banking technology, unfriendly product package and money laundering and financial crimes were the greatest challenge to adoption of internet banking services. Thus, poor online security system subjected customers financial information to risks of unauthorized access by fraudsters and this greatly discourage application of online banking service. These results were consistent with the findings of Ghazi and Khalid (2012), who 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. The findings were also corroborates with Kim (2010), who indicated that, factors discouraging the use of internet banking is not having a chance to try out internet banking in a

safe environment. The findings are also in agreement with those of Angelakopoulos and Mihiotis (2011).who revealed that the relatively low internet usage, the non-familiarity with technologically advanced devices and problems regarding security and privacy are the main factors that have a negative influence on the adoption of E-banking services.

4.3. Benefits that Expected to Realize Adoption of Internet Banking Service

Benefits expected to be gained from internet banking is a big deciding factor for the bank's decision to adoption of internet banking technology. Similarly, respondents were required to state their agreement level on statements of operational benefit and service benefit .The study used a likert scale of 1 to 5 where 5= 'strongly Agree', 4= 'Agree', 3= 'Neutral' 2= "Agree' 1= 'Disagree". The findings were presented below the Tables 4.7 and 4.8 using mean. The mean tried to tell the average where the data points fall for each specific variable. The mean values have been interpreted by adopting the criteria suggested by (Scott, 1999). According to his suggestion, for likert type scale ranging from 1 (Strongly Disagree/High dissatisfied) to 5(Strongly Agree/Highly Satisfied) interpretation should be like; mean up to 2.8 is considered as disagree, from 2.9 to 3.2 means neutral or neither disagree nor agree and mean above 3.2 is considered as agree.

4.3.1 Operational benefit

Operational benefit expected from adoption of internet banking technology covered in the survey are presented below Table 4.7

Table 4.7: Descriptive statics operational benefits that expected to realize from implementing internet banking service

	N	Minimum	Maximum	Mean
Reduced paper work	175	3.00	5.00	3.8071
Low transaction cost since services offered on www page of the bank	175	3.00	5.00	3.5457
Enhance productivity in the banking industry.	175	3.00	5.00	3.9457
Increase reliability and reducing errors	175	2.00	5.00	3.8857
Grand mean				3.79

Source: own survey, 2018

From Table 4.7, the respondents agreed that implementation of internet banking service reduced paper work, lowering transaction cost, and enhances productivity in the banking industry, which means it minimizes the cost of processing transactions i.e. no need to have too much clerks and cashiers and expenditures on paper slips, forms and other bank stationery have a gone down as shown by the mean score of 3.80, 3.54 and 3.94 respectively. The respondents also indicated that implementing internet banking technology increase reliability and reducing errors as shown by the mean score of 3.88. Since, it is able to take corrective measures as soon as an operational error is happened in the system.

The above findings shows that the averages mean score result for operational benefit is 3.79 .The respondents rated agreed all the factors in almost the same way and the difference between the respondents' answers was very narrow. This demonstrates that internet banking helps the bank to control of operations, achieve higher efficiency and reduce cost. It has also helped the bank in proper documentation of their records and transactions. The findings corroborates with those of Shah & Clarke (1997) who found out that internet banking services reduced costs significantly and enhanced profits for the banks, while elevating customer convenience through the ease of use and swiftness with which transactions are affected.

4.3.2 Service benefit

In addition to operational benefits, there are also service benefits that the banking industry can attain from implementing internet banking. The result obtained from the survey are presented below the Table 4.8

Table 4.8: Descriptive statics- Service benefits that expected to realize from implementing of internet banking service

	N	Minimum	Maximum	Mean
Enhanced image	175	1.00	5.00	3.3943
Larger customer Coverage	175	3.00	5.00	3.8574
Improve customer service	175	3.00	5.00	4.1086
Improving transaction speeds	175	3.00	5.00	3.5314
Enhance accessibility of the bank's services (in terms of place)	175	3.00	5.00	4.3829
Improvement in customer relations	175	2.00	5.00	3.3086
Grand mean				3.76

Source: own survey, 2018

Outcomes from Table 4.8, shows that the respondents revealed that internet banking enhances the bank's image, cover larger customer which means it overcome geographic limitation and improve customer service as shown by the mean value of 3.39, 3.85 and 4.1 respectively. The respondents also stated that adoption and development of internet banking service facilitates improvement transaction speeds and enhances accessibility of the bank's services that is it removes the traditional geographic limitation as it could reach out to customers of different location as shown by the mean value 3.53 and 4.38 respectively. The respondents further agreed that internet banking create better relationship between the bank and clients as shown by the mean score of 3.30.

The study results shows that the averages mean score result for service benefits is 3.76. The respondents rated agreed all the factors in almost the same way and the difference between the respondents' answers was very narrow. This demonstrates that internet banking offers effective

customer value added service and convenience, leads to innovative products and services and new market openings for both banks and clients.

4.4. Driving Forces for Adopting of Internet Banking Services Project

The respondents were requested to point out their agreement levels on various statements on driving forces for the adoption of internet banking services. The study used a likert scale of 1 to 5 where 5= ‘strongly Agree’, 4= ‘Agree’, 3= ‘Neutral’ 2= “Agree’ 1= ‘Disagree’. The findings were presented below the Tables 4.9 using mean results .The mean tried to tell the average where the data points fall for each specific variable. The Mean values have been interpreted by adopting the criteria suggested by (Scott, 1999). According to his suggestion, for likert type scale ranging from 1 (Strongly Disagree/High dissatisfied) to 5(Strongly Agree/Highly Satisfied) interpretation should be like; mean up to 2.8 is considered as disagree, from 2.9 to 3.2 means neutral or neither disagree nor agree and mean above 3.2 is considered as agree.

Table 4.9: Descriptive statistics - Driving Forces for Adopting of Internet Banking Services

	N	Minimum	Maximum	Mean
Desire to improve the relationship with customers	175	2.00	5.00	3.4800
Desire to cover wide geographical area	175	3.00	5.00	3.5743
Desire to improve customer service	175	3.00	5.00	3.8943
Desire to satisfy rapid change of customer needs and preferences	175	3.00	5.00	3.9229
NBE policy direction that enforce banking industries to adopt technological innovation	175	2.00	5.00	3.2800
Grand mean				3.63

Source: own survey, 2018

The outcomes displayed in Table 4.9 shows that the respondents indicated that the possible driving forces for the adoption of internet banking is to improve the relationship with

customers, to cover wide geographical area, to improve customer service, to satisfy rapid change of customer needs and preferences as shown by the mean score of 3.48,3.57,3.89 and 3.92 respectively. The respondents also stated that NBE's policy direction enforce banks to adopt technological innovation by the mean score of 3.28.

The above finding shows that, the grand mean score result is 3.63, which is above average. This indicates that significant proportion of respondents replied that desire to improve the relationship with customers, desire to cover wide geographical area, desire to satisfy rapid change of customer needs and preferences and desire to improve customer service have a strong influence for adoption and development internet banking services project. Hence, due to the existence of some driving forces in which the bank is initiated to provide modern banking services to customers.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter focuses on the conclusion of the study. It provides summary on major findings, conclusion and recommendation of the thesis, and limitations and implications for future research on related subject.

5.1 Summary of Findings

Despite the tremendous benefits of adopting and developing internet banking technology in the bank industry, it hasn't come without challenges. The study found out that lack of employees' awareness and lack of executive support are organizational challenges for adoption and growth of internet banking service at the bank.

The study also found out that limitation in network infrastructure and internet related support services, lack of ICT infrastructure, lack of customer awareness with internet banking product, and relative high cost of internet are considered the basic external challenges for adoption and development of internet banking technology in the bank.

The study further revealed that customer fear of risk to use internet banking technology, unfriendly of internet banking product package and lack of confidence with the security aspect are considered as technological factors that affect the adoption and growth internet banking technology in bank.

Moreover, the study revealed that lists of benefits that may the bank realize from adoption and extension of internet banking service. The benefits were classified as operational and service benefits. Operational benefits identified in this study include increase bank's productivity, reduces paper work, reduce transaction cost and increase reliability and reducing errors. The study also found out that lists of service benefits in the adoption and extension of internet banking technology in bank industry such as improve customer service, improve transaction speeds, large customer coverage, enhance image, increase accessibility of the services, and create good relation among bank's clients.

Finally, the study found out that lists of factors that initiate the bank for adoption and development of internet banking technology such as desire to cover wide geographic area, desire to improve the relationship with customers, desire to reduce transaction cost and desire to improve customer service were strong influence for adoption and development internet banking services in the bank.

5.2 Conclusions

Based on the research findings, the study drew conclusions that the major factors affecting effective implementation of internet banking. The study concludes that there is lack of employee's knowledge of the product is the major challenges that the bank faces for adoption and development internet banking technology.

The study concludes that there is existence of weak technological network infrastructure and internet related support services, weak ICT infrastructure, and lack of customer awareness with internet banking and unfriendly of internet banking product packages. These creates unfavorable environment for the application of internet banking and disrupts effective delivery of internet banking services.

The study also concludes that lack of effective transaction security systems greatly affects effective adoption of internet banking; transaction insecurity lowers the level of confidence among many customers on the safety of internet banking application. Hence, technological factors negatively affect the adoption and growth internet banking technology in bank.

The study concludes that in the bank adopting internet banking, there are benefits, challenges and barriers that the bank faces; but, as has been established from the study the benefits outweigh the challenges and the barriers. What is needed is for the bank to take steps to minimize the challenges and overcome the barriers.

The study further concludes that, the desire to cover wide geographic area, improve the relationship with customers, satisfy rapid change of customer needs and preferences, and improve customer service were pointed out as the drivers as well for the adoption of the internet banking project in the bank.

5.3 Recommendations

According to the findings from the analysis of the collected information, the following recommendations are forwarded in order to run viable implementation process on internet banking service.

The bank should provide proper and continuous training the techniques of knowhow for their employees to have adequate understanding of the internet banking technology so as to achieve the desired objectives.

The bank should provide the required information and proper awareness to business partners and customers to produce more results by enhancing awareness level of people to use the internet banking facility. Moreover, the bank should also expand its advertisement at the branch level by using its employee to make customers aware about the benefits of internet banking.

The government should support the banking sector by way of enforcing policies that supports installation of better ICT infrastructure like fiber optic cable, reduction of internet costs, enhance better internet service accessibility, and enhance existence of better internet security in the country's ICT infrastructure. Further, Ethio-telecom needs to provide the bank industry better and quality network having a higher bandwidth. By doing so, the existing quality of internet connection should also be improved to achieve successful implementation.

Easy-to-use internet banking is important for all customers so the bank should enable to make its internet banking as simple and easy to use as possible. So the customers do not perceive them as being complicated or difficult to use. This gives insights for web page developers to design an internet banking system interface and websites which are more user-friendly with clear instructions for users. In addition, the bank should install effective internet security systems such as intrusion detection and prevention that protect customer's financial data from fraudsters.

5.4 Suggestions for Further Studies

The banking industry is a key in the performance of the economy as a whole. The current study investigated on the challenges and opportunities on the implementation of internet banking service project, the case of United Bank. The study recommends that future researchers can carry out a study on the challenges and opportunities on the implementation of internet banking service in other banks for comparison of the resu

REFERENCES

- Ajzen I.,1991 the Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes* [e-journal] 50, pp. 179–211
- Angelakopoulos, G and Mihiotis, A. (2011). E-banking challenges and opportunities in Greek Banking sector. *Electronic Commerce Research Journal*, 11(3):297-319.
- Ayana Gemechu (2014), Factors Affecting Adoption of Electronic Banking System in Ethiopian Banking Industry, *Journal of Management Information System and E-commerce* Vol. 1, No
- Alice Muthoni (2013), Factors affecting the adoption of internet banking in commercial banks:A survey of commercial banks in Nairobi
- Belleau, B.D., summers, T.A., Xu, Y. and Pinel, R., 2007. Theory of Reasoned Action Purchase Intention of Young Consumers. *Clothing & Textiles Research Journal* [ejournal] 25 (3) pp. 244- 257
- BankAway (2001). Net Banking Benefits! Sheer Acceleration, Electronic Banking: The Ultimate Guide to Business and Technology of Online Banking.
- Booz-Allen and Hamilton (1999). Corporate internet banking: A global study of potential Effects', New York, NY.
- Chen, L., Gillenson, M.L. and Sherrell, D.L., 2000. Enticing online consumers: an extended Technology acceptance perspective. *Information & Management* [e-journal] 39, pp. 705-719
- Chang, et al., 2007, *Factors affecting the adoption of electronic signature: Executives Perspective of hospital information department*, *Decision Support Systems*, 44(4):350-359.
- Creswell,W 2003,Research Design: Qualitative, Quantitative and Mixed Approaches,' 2nd edition. Sage publication, California.
- Daghfous, N and Toufaily, E (2007); *The adoption of E-banking by Lebanese banks: success and critical factors*, research paper, University Du Quebec a Montreal Retrieved from.
- Daniel, E. (1999). "Provision of electronic banking in UK and the Republic of Ireland'. *International Journal of Bank Marketing.*, Vol.17,No.2,pp.72-82
- Davis, F.D., 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* [e-journal] 13 (3), pp. 319-340
- Gardachew, W 2010, `Electronic -banking in Ethiopia: practices, opportunities and Challenges'', *Journal of internet Banking and commerce*, 15(2):2-9

- Ghazi, A & Khalid, A 2012, 'E-business Enablers and Barriers: Empirical study of SME in Jordanian communication sector', Global journal of Business Research, 6(3):1-15.
- Gurau Catalin (2002). E-banking in Transition Economies: the Case of Romania, *Journal of Financial Services Marketing*, pp. 362–379
- Harrison Utum Ubi, 2012, Adoption of e-commerce in the Nigerian banking Industry: problems and prospects, A study of UBA PLC and Zenith Bank PLC, Nnamdi Azikiwe University, AWKA Anambra State.MA thesis.
- Howcroft, D. (2012). "Who offers Internet Banking?" Quarterly Journal, Office of the Comptroller of the Currency, Vol. 19 No. 2, June, pp. 27-46.
- Juniper (2010), [http://www.juniper.net/us/en/whitepapers-control system cyber Vulnerabilities](http://www.juniper.net/us/en/whitepapers-control%20system%20cyber%20vulnerabilities) and potential mitigation of risk for utilities, retrieved on April, 2010.
- Karjaluoto,H.,Mattila, M. & Pento, T.(2002a) "Electronic banking in Finland – Consumer beliefs and reactions to a new delivery channel', journal of financial Services marketing, Vol.6, No .4, forthcoming
- Kim (2010). "Internet Banking in the US, Japan and Europe", Multinational Business Rev 7381.
- Liao, C., Chen, J-L. and Yen, D.C., 2007. Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior* [e-journal] 23, pp. 2804–2822
- Mahdi Salehi (2004). E-banking in Emerging Economy: Empirical Evidence of Iran (Corresponding author) Accounting and Management Department, Zanzan University, Iran
- Mols,K.(1998)."The behavior consequence of PC Banking', International Journal of Bank Marketing, Vol.16,No.5,PP.195-201
- Mugenda, O. M. & Mugenda A. G. (2003), *Research Methods. Quantitative and Qualitative Approaches*. Nairobi: Acts Press), 72
- Pikkarainen (2004). *Consumer acceptance of online banking:an extension of the technology acceptance model*. Internet Research, 14, (3).
- Rahman, M.(2006). *Innovative Technology and Bank Profitability: The Bangladesh Experience*.
- Rasoulilian. M and Safari. M. (2011). The Reasons to Lack of Electronic Banking Achievement in Iran. International Journal of Managing Information Technology (IJMIT). 3(3), August 2011.

- Rogers, E.M., 1995. *Diffusion of Innovation*. 4th ed. New York: The Free Press
- Rogers, M 2003, *Diffusion of Innovations*, 5th edition, New York: Free Press.
- Sekaran, U., 2003. Research methods for business. 4th ed. Hoboken, NJ: John Wiley & Sons.
- Slevin
- Salwani, *et al.*, 2009, E-commerce usage and business performance in the Malaysian tourism sector: empirical analysis', *Information Management & Computer Security*. 17(2):166-185
- Sathye, M. (1999). "adoption of internet Banking By Australian Consumers: an empirical investigation", *international Journal of Bank Marketing*, Vol.17, No.7, pp.324-334
- Scott R. Sroude (1999). *Understanding and Interpretation: Defending Gadamer in Light of Shusterman's "Beneath Interpretation"*, USA
- Shah and Clarke (1997). E-Banking-Management-Issues-Solutions-and-Strategies
- Sheppard, B.H., Hartwick, J. and Warshaw, P.R., 1988. The Theory of Reasoned Action: A Meta- Analysis of Past Research with Recommendations for Modifications and Future Research. *Journal of Consumer Research* [e-journal] 15 (3), pp. 325-343
- Thulani, D., Tofara, C & Langton, R. (2009). Adoption and Use of Internet Banking in Zimbabwe: An Exploratory Study. *Journal of Internet Banking and Commerce*, Vol.14(1).
- Tornatzky, G & Fleischer, M 1990, *The Process of Technology Innovation*, Lexington, MA, Lexington book.
- Vaithianathan, S. (2010). A review of e-commerce literature on India and research agenda for future. *Electronic Commerce Research Journal*, 10(1):83-97.
- Wondwossen, T and Tsegai, G 2005, 'E-payment: challenges and opportunities in Ethiopia', *Economic commission for Africa*, Addis Ababa Ethiopia
- Young, R. D., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking & Finance*, 31, 1033– 1060
- Michigan Ann Arbor, Michigan 48109-3091 available on
- <http://www.fordschool.umich.edu/rsie/workingpapers/wp.html> retrieved on July 2015
- The financial service authority (FSA) <http://www.fsa.gov.uk>. E-banking risks, retrieved on may, 2010

Annex I Questioner Distributed to Respondents



Addis Ababa University School of Commerce Master of Art in Project Management

Questionnaire on (Internet banking implementation Challenges and opportunities at United Bank)

Dear respondent,

This questionnaire is designed to assess Internet banking implementation Challenges and opportunities at United Bank. The purpose of this questionnaire is to collect data from employees of United Bank in Addis Ababa for conducting thesis on the title

Your response is vital to the outcome of the study and you are kindly requested to completely and objectively answer all questions. The research is going to be carried out based on your responses and other relevant data that could support it.

Your cooperation to respond genuinely is very important to this study. The information you provide will be used only for academic purpose and will be kept confidential.

Thank you, for your cooperation!

Frehiwot Mekonnen

Tel-0911-154881

General Instructions

- Please answer all questions
- The questions are open and closed ended, so please put tick (☐) for close ended.

Part-I Demographic Factors

1) Gender

Male

Female

2) Age

Under 21

36-45

22-25

45-50

26-35

50 years and over

36-45

3) No of years' service (Experience) at United Bank

Less than 1 year

3-5 years

1-3 years

More than 5 year

Part-II Questions regarding internet banking challenges and opportunities

Please indicate the level of your agreement on the statements below

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

		Rating Points				
	Potential challenges that affect adoption use of internet banking service project.	1	2	3	4	5
	A. Organizational Factors					
1	Lack of technical and managerial skills in implementation and development of internet banking technology.					
2	High cost of implementation of internet banking such as cost of equipment network, software					
3	Lack of employees awareness with internet banking product					
4	Lack of executive support					
	B. Environmental Factors					
5	Limitation ICT infrastructure provided by Ethio Telecom.					
6	Lack of customer awareness with internet banking product					
7	Limitation in network infrastructure and internet related support service by Ethio Telecom					
8	Relative high cost of internet					
9	Frequent power disruption					

	C. Technological Factors	1	2	3	4	5
12	Users lack of access to personal computer and internet					
13	Customer fear of risk to use internet banking technology					
14	Lack of confidence with the security aspect					
15	Money laundering and other financial crimes that may be easily facilitated through internet banking service					

Please state if any other Barriers or challenges that the Bank faces in the adoption internet banking into Ethiopia banking industry.

		<i>Rating Points</i>				
	Possible existing opportunities that the bank expected from the adoption of internet banking service project	1	2	3	4	5
	A. Operational Benefits					
1	Reduced paper work					
2	Low transaction cost since services offered are always available on the www page of the bank					
3	Enhance productivity in the banking industry.					
4	Increase reliability and reducing errors					
	B. Services Benefits					
5	Enhanced image					
6	Larger customer coverage					
7	Improve customer service					
8	Improving transaction speeds					
9	Enhance accessibility of the bank's services (in terms of place)					
10	Improvement in customer relations					

	Do you think that the following are the driving forces for the adoption of internet banking services in bank Industry?	1	2	3	4	5
1	Desire to improve the relationship with customers					
2	Desire to cover wide geographical area					
3	Desire to improve customer service;					
4	Desire to satisfy rapid change of customer needs and preferences					
5	NBE policy direction that enforce banking industries to adopt technological innovation					

Please kindly state any other Driving forces for adoption internet banking service into Ethiopia banking industry.

Thank you for time and your response!

Adopted from: Ayana Gemechu (2014) and Alice Muthoni (2013)

Annex -II Frequency Tables

Challenges that affect implementation of Internet banking service

Frequent power disruption

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	30	17.1	17.1
	Not bad	29	16.6	33.7
	Good	45	25.7	59.4
	Very good	33	18.9	78.3
	Excellent	38	21.7	100.0
	Total	175	100.0	

High cost of implementation of internet banking such as cost of equipment network software

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	18	10.3	10.3
	Not bad	11	6.3	16.6
	Good	23	13.1	29.7
	Very good	55	31.4	61.1
	Excellent	68	38.9	100.0
	Total	175	100.0	

Lack of technical and managerial skills in implementation and development of internet banking technology

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	46	26.3	26.3
	Not bad	44	25.1	51.4
	Good	37	21.1	72.6
	Very good	35	20.0	92.6
	Excellent	13	7.4	100.0
	Total	175	100.0	

Lack of confidence with the security aspect

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	6	3.4	3.4	3.4
	Not bad	14	8.0	8.0	11.4
	Good	23	13.1	13.1	24.6
	Very good	62	35.4	35.4	60.0
	Excellent	70	40.0	40.0	100.0
	Total	175	100.0	100.0	

Limitation ICT infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	19	10.9	10.9	10.9
	Not bad	26	14.9	14.9	25.7
	Good	21	12.0	12.0	37.7
	Very good	52	29.7	29.7	67.4
	Excellent	57	32.6	32.6	100.0
	Total	175	100.0	100.0	

Limitation in network infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	3	1.7	1.7	1.7
	Not bad	35	20.0	20.0	21.7
	Good	19	10.9	10.9	32.6
	Very good	69	39.4	39.4	72.0
	Excellent	49	28.0	28.0	100.0
	Total	175	100.0	100.0	

Lack of employees awareness with internet banking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	39	22.3	22.3	22.3
	Not bad	38	21.7	21.7	44.0
	Good	26	14.9	14.9	58.9
	Very good	41	23.4	23.4	82.3
	Excellent	31	17.7	17.7	100.0
	Total	175	100.0	100.0	

Lack of executive support

	Frequency	Percent	Valid Percent	Cumulative Percent
.00	1	.6	.6	.6
Bad	20	11.4	11.4	12.0
Not bad	41	23.4	23.4	35.4
Valid Good	40	22.9	22.9	58.3
Very good	48	27.4	27.4	85.7
Excellent	25	14.3	14.3	100.0
Total	175	100.0	100.0	

Money laundering and other financial crimes

	Frequency	Percent	Valid Percent	Cumulative Percent
.00	1	.6	.6	.6
Bad	13	7.4	7.4	8.0
Not bad	51	29.1	29.1	37.1
Valid Good	45	25.7	25.7	62.9
Very good	33	18.9	18.9	81.7
Excellent	32	18.3	18.3	100.0
Total	175	100.0	100.0	

NBE policy direction that enforce banking industries to adopt technological innovation

	Frequency	Percent	Valid Percent	Cumulative Percent
Not bad	4	2.3	2.3	2.3
Good	31	17.7	17.7	20.0
Valid Very good	67	38.3	38.3	58.3
Excellent	73	41.7	41.7	100.0
Total	175	100.0	100.0	

Relative high cost of internet

	Frequency	Percent	Valid Percent	Cumulative Percent
Bad	5	2.9	2.9	2.9
Not bad	22	12.6	12.6	15.4
Valid Good	33	18.9	18.9	34.3
Very good	60	34.3	34.3	68.6
Excellent	55	31.4	31.4	100.0
Total	175	100.0	100.0	

lack of access to personal computer and internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	2	1.1	1.1	1.1
	Not bad	22	12.6	12.6	13.7
	Good	30	17.1	17.1	30.9
	Very good	75	42.9	42.9	73.7
	Excellent	46	26.3	26.3	100.0
	Total	175	100.0	100.0	

Operational Benefits

Reduced paper work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	0	.0	.6	.6
	Not bad	.0	.0	.0	6.9
	Good	2	1.1	1.1	8.0
	Very good	83	46.9	46.9	54.9
	Excellent	90	51.4	51.4	100.0
	Total	175	100.0	100.0	

Low transaction cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad		.0	1.1	1.1
	Not bad	4	2.3	2.3	3.4
	Good	10	5.7	5.7	9.1
	Very good	94	52.6	52.6	61.7
	Excellent	67	38.3	38.3	100.0
	Total	175	100.0	100.0	

Enhance productivity in the banking industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.6	.6	.6
	Not bad	9	5.1	5.1	5.7
	Good	30	17.1	17.1	22.9
	Very good	75	42.9	42.9	65.7
	Excellent	60	34.3	34.3	100.0
	Total	175	100.0	100.0	

Increase reliability and reducing errors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not bad	19	10.9	10.9	10.9
	Good	31	17.7	17.7	28.6
	Very good	49	28.0	28.0	72.0
	Excellent	49	43.4	43.4	100.0
	Total	175	100.0	100.0	

Service Benefits

Enhanced image

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	1	.6	.6	.6
	Not bad	4	2.3	2.3	2.9
	Good	6	3.4	3.4	6.3
	Very good	78	44.6	44.6	50.9
	Excellent	86	49.1	49.1	100.0
	Total	175	100.0	100.0	

Larger customer coverage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	1	.6	.6	.6
	Not bad	8	4.6	4.6	5.1
	Good	8	4.6	4.6	9.7
	Very good	83	47.4	47.4	57.1
	Excellent	75	42.9	42.9	100.0
	Total	175	100.0	100.0	

Improve customer service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not bad	8	4.6	4.6	4.6
	Good	27	15.4	15.4	20.0
	Very good	78	44.6	44.6	64.6
	Excellent	62	35.4	35.4	100.0
	Total	175	100.0	100.0	

Improving transaction speeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	15	8.6	8.6	8.6
	Not bad	13	7.4	7.4	16.0
	Good	13	7.4	7.4	23.4
	Very good	62	35.4	35.4	58.9
	Excellent	72	41.1	41.1	100.0
	Total	175	100.0	100.0	

Enhance accessibility of the bank's services (in terms of place)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	2	1.1	1.1	1.1
	Not bad	0	0	0	23.4
	Good	15	8.6	8.6	32.0
	Very good	58	33.1	33.1	65.1
	Excellent	100	57.2	57.2	100.0
	Total	175	100.0	100.0	

Improvement in customer relations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	32	18.3	18.3	18.3
	Not bad	21	17.0	12.0	30.3
	Good	23	20.00	13.1	43.4
	Very good	59	21.7	33.7	77.1
	Excellent	40	22.9	22.9	100.0
	Total	175	100.0	100.0	

Driving forces for the adoption of internet banking services

Desire to improve the relationship with customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	1	.6	.6	.6
	Not bad	16	9.1	9.1	9.7
	Good	34	19.4	19.4	29.1
	Very good	76	43.4	43.4	72.6
	Excellent	48	27.4	27.4	100.0
	Total	175	100.0	100.0	

Desire to improve customer service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	2	1.1	1.1	1.1
	Not bad	26	14.9	14.9	16.0
	Good	52	29.7	29.7	45.7
	Very good	76	43.4	43.4	89.1
	Excellent	19	10.9	10.9	100.0
	Total	175	100.0	100.0	

Desire to satisfy rapid change of customer needs and preferences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	8	4.6	4.6	4.6
	Not bad	4	2.3	2.3	6.9
	Good	9	5.1	5.1	12.0
	Very good	74	42.3	42.3	54.3
	Excellent	80	45.7	45.7	100.0
	Total	175	100.0	100.0	

NBE policy direction that enforce banking industries to adopt technological innovation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not bad	4	2.3	2.3	2.3
	Good	31	17.7	17.7	20.0
	Very good	67	38.3	38.3	58.3
	Excellent	73	41.7	41.7	100.0
	Total	175	100.0	100.0	