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**Assessment of the Opportunities and Challenges for the Adoption of E-Banking
Service in Ethiopia**

(A study with reference to selected commercial Banks)

By

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Award of Masters of Science Degree**

In

Finance and Investment

Advisor

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DECLARATION

I, **Beza Muche**, declare that this study entitled as “**Assessment of the opportunities and challenges for the adoption of e-banking service in Ethiopia**”, is my own work. I have carried out the research work independently with the guidance and support of the research advisor. This study had not been submitted to any degree/diploma in this or any other institution. It is done in partial fulfillment of Msc Degree in Finance and Investment.

Name of student: _____ Signature: _____

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CERTIFICATE

This is to certify that **Beza Muche** has carried out his research work on the topic entitled “**Assessment of the opportunities and challenges for the adoption of e-banking service in Ethiopia**”. This work is original in nature and is suitable for submission to the award of Msc. in Finance and Investment

Name of advisor: _____ Signature: _____

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ABSTRACT

Despite the growth of e-banking adoption worldwide, Ethiopian banks continue to conduct most of their banking transactions using traditional methods. The general objective of the study was assessment of the current extent and practices, benefits realized by banks, driving forces, opportunities and challenges for the adoption of e-banking service in Ethiopia. From this general objective, five specific issues were explored. An exploratory research design was employed to conduct this study. Both primary and secondary qualitative data were collected for the purpose of this study from the IT manager's of each bank at the head office level and bank web sites respectively. The collected data was analyzed by using descriptive analysis such as tables and percentages.

From an analysis of the collected data, the findings revealed that: balance inquiry, cash withdrawal, funds transfers, statement printing are among the major practice of e-banking among those banks that are providing the service to the customer. The different e-banking channels by which banks are using to provide these services to the customer are ATM card, debit card, credit card, salary card, visa card, master card, Internet banking and Mobile or SMS banking. Cost reduction, coverage of wide geographical area, customer satisfactions etc are among the benefits of adopting the system from the viewpoint of the bank. Among the different driving forces that initiate banks to adopt e-banking services: existence of high competition in the banking industry, desire to improve organizational performance, desire to reduce transaction cost, desire to cover wide geographical area, and desire to build organizational reputation are among others. Chances of risk, Lack of suitable legal and regulatory framework, absence of financial networks that links different banks, Low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet, security concerns are among the major challenges for the adoption of e-banking service in the country. However, late adopter opportunities, improvement in the banking habit of the society, commitment of the government to facilitate the expansion of ICT infrastructure and willingness among banks to cooperate in building infrastructure are the major opportunities for the adoption of the system in the banking industry.

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ACRONYMS

ATM	Automated teller machine
AIB	Awash international bank
BLMT	Broadband local money transfer
CBE	Commercial bank of Ethiopia
DB	Dashen bank
E-banking	Electronic banking
EC	E-commerce
ETC	Ethiopia Telecommunication Corporation
ICT	Information communication technology
L/C	Letter of credit
MCB	Multi-channel banking
NBE	National Bank of Ethiopia
NNOC	National network operation center
NGN	Next generation network
NAT	Network address translation
NIB	Nib international bank
NGO	Non governmental organization
SSL	Secure Socket Layer
SMS	Short message sending
SWIFT	Society for Worldwide Inter-bank Financial Telecommunication
PC	Personal computer
POS	Point of sale
UB	United bank
WB	Wegagen bank
ZB	Zemen bank

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Chapter I

Introduction

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

1.1 Background of the Study

Financial services industry has recently been open to historic transformation, it can call e-developments are emerging and advancing rapidly in all areas of financial intermediation and financial markets: e-finance, e-money, electronic banking (e-banking), e-brokering, e-insurance, e-exchanges, and even e-supervision. The new information technology (IT) is turning into the most important factor in the future development of banking, influencing banks' marketing and business strategies. In recent years, the adoption of e-banking began to occur quite extensively as a channel of distribution for financial services due to rapid advancement in IT and intensive competitive banking markets. The driving forces behind the rapid transformation of banks are influential changes in the economic environment: innovations in information technology, innovations in financial products, the dynamic nature of customers demand, liberalization and consolidation of financial markets, deregulation of financial inter-mediation etc. These and other factors make it complicated to design a bank's strategy, which process is threatened by unforeseen developments and changes in the economic environment and therefore, strategies must be flexible to adjust to these changes. The financial services market is continuing to change rapidly, which brings into question whether traditional banks, as they are now structured, will actually continue to exist by the end of the decade or even survive through the next years (Olga Iustsik, 2003). The evolution of e-banking started from the use of Automatic Teller Machines (ATMs) and Finland is the first country in the world to have taken a lead in e-banking (Mishra, R. and J. Kiranmai (2009) in order to provide efficient and effective service to their customers. Electronic banking has been widely used in developed countries and is rapidly expanding in developing countries. However, the slow diffusion of e-commerce to African countries has been attributed to a number of issues some of which may be unique to the African Continent (Darley, W. K,

2001). Electronic banking (e-banking) is nothing but e-business in banking industry. It may also be referred as internet banking. The internet is transforming the banking and financial industry in terms of the nature of core products /services and the way these are packaged, proposed, delivered and consumed (Sathye, 1999).

E-banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet ATM , Debit card ,credit card etc. The computer applications are paramount concern to the banks in today's business environment and internet has become the major platform for all financial, banking and commercial transactions in the present scenario (Magembe, B A S and Shemi A P (2002). It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness (Kamel, 2005 and Nath, Shrick and Parzinger, 2001). Banks and other businesses alike are turning to Information Technology (IT) to improve business efficiency by delivering the service with minimum cost, service quality and attract new customers (Nath et al, 2001). Technological innovations have been identified to contribute to the distribution channels of banks. The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine (ATM),Debit card ,credit card ,visa card, Phone- banking, Tele-banking, PC-banking and most recently internet banking. The paperless banking has become inevitable (Goi, 2005).

A strong banking industry is important in every country and can have a significant effect in supporting economic development through efficient financial services. In Ethiopia, the role of the banking industry needs to change to keep up with the globalization movement, both at the procedural level and at the informational level. This change will include moving from traditional distribution channel banking to electronic distribution channel banking. E-Banking transactions have opened up new window of opportunity to the existing banks and financial institutions. It permits business process re-engineering, serving borderless market, to achieve zero latency leading to improvements in customer service levels and better risk management because of real-time settlement. Since its evolution in 90 th decades, it is having unprecedented growth. The growth rate is higher in Developed Countries, and comparatively lower in least developed countries (Chang, 2003 & Gallup, 2008)

Information and communications technologies (ICTs) have changed the way of conducting business transactions and meeting the growing demands of customers for most organizations. The promise of ICTs in the banking sector has been seen in terms of its potential to increase customer base, reduce transaction costs, improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitate self-service and service customization, and improve customer communication and relationship. Most banks in developed and some in developing parts of the world are now offering e-banking services with various levels of sophistication (Garau, 2002). Thus, given the almost complete adoption of e-banking in developed countries, the reason for the lack of such adoption in developing countries like Ethiopia is an important research that was addressed by this paper.

1.2 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 e-banking or internet banking. E-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).

Despite this growth of IT worldwide, Ethiopian banks continue to conduct most of their banking transactions using traditional methods. In Ethiopia, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an infant stage. In the face of rapid expansion of electronic payment systems throughout the developed and the developing world, Ethiopia's financial sector remain behind in expanding the use of the system. Certainly, the banking industry in Ethiopia is underdeveloped .With a growing number of import-export businesses, and increased international trades, increase the demand of the customer and international relations, the current banking system is short of providing efficient and dependable services. The customers of Ethiopian commercial banks have missed to enjoy with the technological advancement in banking sector, which has been entertained elsewhere in African and the rest of the world. The modern e-banking methods like ATMs,

Debit cards, Credit cards, Tele banking, Internet banking, Mobile banking and others are new to the Ethiopian banking sector. E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, to pay bills, or to obtain commercial information and advices are little known in Ethiopia. In Ethiopia, it is difficult to withdraw money without presenting the passbook and money transfer is allowed only in between branches of the same bank. However, from the public and the economy there is a strong need for strengthening linkages among banks in order to allow healthy flow of financial resources among financial institutions and optimize the contributions of the entire financial system to the development processes as whole.

All banks in Ethiopia are too late to move with technological advancement. Every bank customer is highly dissatisfied by the disappointing status of financial development in Ethiopia. Even the time wasted in traveling for search of bank branches and the long waiting time to access the account is disappointing. This is particularly because of the non-integration of branches of the same bank, i.e. even within individual banks, their branches are not linked to each other and it is necessary for the customer to physically visit the branch in which an account has been opened. In addition, even though there are opportunities for the adoption of e-banking service in the banking industry, lack of concern or lack of giving priority on the side of the government and the national bank of the country is the main cause for the low development of e-banking service in the banking sector.

Finally, even though there are researches conducted in other countries like Bangladesh and revealed that 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 e-banking etc are the major challenges for the efficient adoption of e-banking in the country (Mohammad ,2008), there is no prior study conducted in Ethiopia. Thus, the purpose of this paper was assessment of the opportunities and challenges for the adoption of e-banking service in Ethiopia. Accordingly, the following research questions are drawn from the above-discussed problems.

1.3 Research Questions

1. How looks like the current practices and extent of e-banking service in Ethiopia?
2. What are the benefits of adopting e-banking service from the viewpoint of the bank?
3. What are the driving forces towards the adoption of e-banking service in the banking industry?
4. What are the major challenges for the adoption of e-banking service in Ethiopia?
5. What are the existing opportunities for the adoption of e-banking service in Ethiopia?

1.4 Objective of the Study

General objective

To assess the current practice and extent of e-banking service, benefits realized by banks, driving forces, opportunities and challenges for the adoption of e-banking service in Ethiopia.

Specific objectives

1. To explore the current practice and extent of adoption of e-banking service in Ethiopia.
2. To find the benefits realized by banks in the adoption and practice of e-banking to compliment their service delivery channels.
3. To identify the driving forces towards the adoption of e-banking service in the banking industry.
4. To identify the major challenges for the adoption of e-banking service in Ethiopia.
5. To identify the existing opportunities for the adoption of e-banking service in Ethiopia.

1.5 Scope of the Study

The study is confined to assess the opportunities and challenges for the adoption of e-banking service of selected commercial banks in Ethiopia. For the sake of uniformity and due to their more involvement in retail banking, only data that was obtained from commercial banks was used in this study. Other bank with development objective like Development Bank of Ethiopia was not get attention in this study. Moreover, the study focuses only on the assessment of the opportunities and challenges for the adoption of e-banking from the viewpoint of the bank.

1.6 Limitation of the Study

The focus of this study is on the assessment of the opportunities and challenges for the adoption of e-banking service of commercial banks in Ethiopia. Owing to the initial stage of e-banking services available in Ethiopia, it was very difficult to get secondary data as well as literature in this area from the country perspective. In addition time and financial constraints was also become the main limitation of the study.

1.7 Significance of the Study

Since E-banking system is in an infant stage in Ethiopia, by investigating the different opportunities and challenges for the adoption of this service delivery channel and by recommending solutions for the identified problems, this study will help banks to benefit from the adoption of this technology. In addition, it helps to fill significant knowledge gaps about e-banking landscape in Ethiopia; thereby it will give insight to researchers and students about the problem and stimulate further investigation of the issue.

1.8 Organization of the Paper

This paper consists of five chapters with different sections and sub-sections. Chapter one presents the introduction for the main part of the paper, and chapter two states the theoretical and empirical literature review about the adoption of e-banking service in some countries. Chapter three discusses research methodology. Chapter four focuses on results and discussions. Finally, the last chapter (chapter five) gives conclusion and recommendation of the study.

Chapter II

Literature Review

This chapter contains both the theoretical and empirical review of the study. The theoretical framework includes: introduction to e-banking, definition of e-banking, evolution of e-banking, e-banking channels, importance of e-banking, e-banking risks and banking in Ethiopia respectively. In addition, it also includes empirical review of the study from different researchers in different countries.

2.1 Theoretical Review

2.1.1 Introduction to E-banking

According to Mohammed shamsuddoha (2008), electronic Banking is transforming the financial services industry through various innovations. The quantity of cross-border trading and other financial activities is increasing geometrically make possible by technology. It has been made possible by technology, particularly information technology to generate, collect and process information about bank operation and bank customers efficiently and effectively. It provides the ability to create more effective systems of controls in individual institutions and in the market themselves. Compared to the paper based operation, Electronic Banking Systems, in its most proficient form, offer instant verification and transfer and reduces the flow of costly paper in the record keeping process. Application of technology in banking offer opportunity for reduction of both paper and people. Banks have developed electronic banking service for three main reasons.

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

Electronic banking allow banks to expand their markets for traditional deposit taking and credit extension activities, and to offer new products and services or strengthen their competitive position in offering existing payment services. In addition, electronic banking could reduce operating costs for banks. More broadly, the continued development of electronic banking and electronic money may contribute to improving the efficiency of the banking and payment system and to reducing the cost of retail transactions nationally and

internationally. Although many financial instrument and systems are now considered as “Electronic Banking” came into the terminology of the financial world in the late 1980s, with the possibility of emergence of true electronic money. All sorts of back-office information management technology and financial services using electronic devices can be included into the term “Electronic Banking”. The development in information technology has contributed positively to economic growth through several channels. ICT has led to a productivity growth through the impact on activity processes. Banks have been increasing their own size and financial strength and expanding the scope of their products lines to meet the growing demand of their customers.

2.1.2 Definition of E-Banking

E-banking is the modern delivery channel for banking services. Banks have used electronic channels for years to communicate and transact business with both domestic and international corporate customers. With the development of the Internet and the World Wide Web (WWW) in the latter half of the 1990s, banks are increasingly using electronic channels for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as e-banking or Internet banking, although the range of products and services provided by banks over the electronic channel vary widely in content, capability and sophistication. E-banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. The definition of e-banking varies amongst researches partially because electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999; Mols, 1998; Sathye, 1999). For example, Burr (1996) describes it as an electronic connection between bank and customer in order to prepare, manage and control financial transactions.

According to Singh & Malhotra (2004), E-banking can be defined as the deployment of banking services and products over electronic and communication networks directly to customers. These electronic and communication networks include Automated Teller Machines (ATMs), direct dial-up connections, private and public networks, the Internet, televisions, mobile devices and telephones. Among these technologies, the increasing penetration of personal computers, relatively easier access to the internet and particularly the wider diffusion of mobile phones has drawn the attention of most banks to e-banking. E-

banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet or mobile phone. Customers access e-banking services using an intelligent electronic device, such as a personal computer (PC), personal digital assistant, automated teller machine (ATM), kiosk, or Touch Tone telephone. Or 'e-banking refers to the provision of retail and small value banking products and services through electronic channels. Such products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money.

2.1.3 Evolution of E-Banking

Since the late 1990s E-Banking has developed from virtual insignificance to tens of millions of users worldwide (OECD, 2001). However, E-Banking is the product of different generations of electronic transactions. The current web-based internet is the latest of several generations of systems: Automated Teller machine (ATMs), Phone Banking, PC or House Banking. Automated teller machines (ATMs) were the first well-known machines to provide electronic access to customers where as in phone banking, users call their bank's computer system on their ordinary phone and use the phone keypad to perform banking transactions. PC banking superseded phone banking and allowed users to interact with their bank by means of a computer with a dial-up modem connection to the phone network. Phone and PC banking entailed maintenance costs associated with keeping up to date with diverse modems and with avoiding prohibitively complex installation procedures. After those generations Deutsche Bank launched the very first Internet banking project in Latin America in 1996 and Citibank has developed a special "e-toolkit" across all its branches worldwide (UNCTAD, 2002). E-Banking uses the web browser for the user interface and the Internet for data transfer and download of software, and so has a potential for reducing maintenance costs. For users, E-Banking provides current information, 24-hours-a-day access to banking services. The primary services provided by e-banks are transferring money among one's own accounts, paying bills, and checking account balances. Loans, brokering, share trading, service bundling, and hosts of other financial services are being added to these primary services). E-Banking is widely used in, among other places (Dewan & Seidmann, 2001).

2.1.4 E-Banking Channels:

2.1.4.1 Internet banking

According to Booz, Allen & Hamilton (1999), “Internet banking” refers to systems that enable bank customers to access accounts and general information on bank products and services through a personal computer (PC) or other intelligent device. Internet banking products and services can include wholesale products for corporate customers as well as retail and fiduciary products for consumers. Ultimately, the products and services obtained through Internet banking may mirror products and services offered through other bank delivery channels. Some examples of wholesale products and services include: Cash management, wire transfer, automated clearinghouse transactions, Bill presentment and payment.

Examples of retail and fiduciary products and services include Balance inquiry, Funds transfer, Downloading transaction information, Bill presentment and payment, Loan applications, investment activity, other value-added services.

Based on the levels of access granted, internet-banking products are divided into 3 types. They are:

I) Information Only System: General purpose information like interest rates, branch location, bank products and their features, loan and deposit calculations are provided in the banks website. There exist facilities for downloading various types of application forms. The communication is normally done through e-mail. There is no interaction between the customer and bank's application system. No identification of the customer is done. In this system, there is no possibility of any unauthorized person getting into production systems of the bank through internet.

II) Electronic Information Transfer System: The system provides customer- specific information in the form of account balances, transaction details, and statement of accounts. The information is still largely of the 'read only' format. Identification and authentication of the customer is through password. The information is fetched from the bank's application system either in batch mode or off-line. The application systems cannot directly access through the internet.

III) Fully Electronic Transactional System: This system allows bi-directional capabilities. Transactions can be submitted by the customer for online update. This system requires high

degree of security and control. In this environment, web server and application systems are linked over secure infrastructure. It comprises, technology covering computerization, networking and security, inter-bank payment gateway and legal infrastructure.

Growth in Internet Banking

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. Many researchers expect rapid growth in customers using online banking products and services.

Some of the market 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. For example, according to Booz, et.al, as of mid- 1999, the cost to deliver manual transactions at a branch was typically more than a dollar, ATM and call center transactions cost about 25 cents, and internet transactions cost about a penny. 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.

2.1.4.2 Types, Benefits and Features of Electronic Payment Methods

2.1.4.2.1 Types

Cheques and drafts have replaced the traditional payment system with money as a medium of settlement and further development in the field has been with the advent of electronic cards. The most commonly used electronic cards include ATM cards, Debit cards, Credit cards and Smart cards. ATM card is a kind of plastic card, which allows a cardholder to withdraw money from his bank account through automated teller machine. This card can be used also for other banking services like deposit and transfer to any other account by using the ATM machine. Credit card is the modern electronic plastic card that may be used repeatedly to borrow money or buy products and services on credit. VISA, Master Card, American Express and Discover is commonly known and widely used credit cards throughout the world. The decision with which card to go depends on the comparison of the features of the specific card (not the brand). The most important features, of course, are Interest rate and Annual fees. Debit cards are electronic plastic cards directly tied to bank account and the amount of money the cardholder can spend with it is limited to the amount of money he/she has in the bank. It is called debit card because when cardholder uses a debit card, the transaction debits

(withdraws) the amount of the transaction from cardholders' account, usually on the same day (C.S.V Murthy, 2004).

2.1.4.2.2 Benefits of E-Cards

According to C.S.V Murthy, (2004), E-cards offer a number of benefits to the issuing banks and customers of the bank including:

- ❖ Dramatically reduce printing, mailing, and financial handling costs associated with processing transaction.
- ❖ Enhance payment security by minimizing theft or loss.
- ❖ Prevent fraud through automated controls
- ❖ Increase customer satisfaction and enhance service to constituents.
- ❖ Ensure continuity of service to cardholders in emergency or disaster situations
- ❖ Improve operational efficiency and profitability of the issuing banks.

2.1.4.3 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 but can also use special programs called clients downloaded to the mobile device. The standard package of activities that mobile banking covers are: mini-statements and checking of account history; alerts on account activity or passing of set thresholds; monitoring of term deposits; access to loan statements; access to card statements; mutual funds/equity statements; insurance policy management; pension plan management; status on cheque, stop payment on cheque; ordering check books; balance checking in the account; recent transactions; due date of payment (functionality for stop, change and deleting of payments); PIN provision, change of PIN and reminder over the internet; blocking of (lost/stolen) cards; domestic and international fund transfers; micro-payment handling; mobile recharging; commercial payment processing; bill payment processing; peer to peer payments; withdrawal at banking agent and deposit at banking agent (Rahman, 2006).

2.1.4.4 Tele Banking

Tele banking refers to the services provided through phone that requires the customers to dial a particular telephone number to have access to an account, which provides several options of services (Rahman, 2006).

2.1.4.5 Home Banking

Home banking frees customers from visiting branches and most transactions will be automated to enable them to check their account activities, transfer funds and to open L/C sitting in their desk with the help of a personal computer and a telephone (Rahman, 2006).

2.1.4.6 Point of Sale Terminal

An advanced payment system, which enables customers to use an ATM card to pay for goods and services, electronically debiting the cardholders account and crediting the account of the merchant (Rahman, 2006).

2.1.4.7 Society for Worldwide Inter-Bank Financial Telecommunication (SWIFT)

It is a bank owned non-profit co-operative based in Belgium servicing the financial community worldwide. It is a highly secured messaging network enables banks to send and receive fund transfer, L/C related and other free formal messages to and from any banks active in the network. Having SWIFT facility, banks will be able to serve its customers more profitable by providing L/C, payment and other messages efficiently and with at most security. Especially it will be of great help for clients dealing with imports and exports etc (Mohammed shamsuddoha, 2008).

2.1.5 Importance of E-Banking

Understanding e-banking service 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 e-banking because of the numerous potential benefits associated with it. Some of these major benefits according to Shah & Clarke (1997) are briefly described below.

2.1.5.1 From the Banks Point of View

Attracting High Value Customers: E-Banking often attracts high profit customers with higher than average income and education levels, which helps to increase the size of revenue streams. For a retail bank, e-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 suggests 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 non-interest income from service charges on deposit/current accounts. These customers also tend to be of high-income earners with greater profit potential.

Enhanced Image: E-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 a 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. Whether these revenues are enough for reasonable return on investment (ROI) from these channels is an ongoing debate. It has also allowed banks to diversify their value creation activities. E-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. E-banking has also resulted in increased credit card lending as it is a sort of transactional loan that is most easily deliverable over the internet. 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 start up and maintenance costs. E-channels, such as the Internet, have made this unnecessary in many circumstances. Now banks with a traditional customer base in one part of the country or world can attract customers from other parts, as most of the financial transactions do not require a physical presence near customers living/working place.

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 e-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 e-banking so far has been reduction of overhead costs of other channels such as branches, which require expensive buildings and a staff presence. It also seems that the cost per transaction of e-banking often falls more rapidly than that of traditional banks once a critical mass of customers is achieved. 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 e-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 e-banking, organizations often have to re-engineer their business processes, integrate systems and promote agile working practices. These steps, which are often pushed to the top of the agenda by the desire to achieve e-banking, often result in greater efficiency and agility in organizations. 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, Electronic banking has also helped banks in proper documentation of their records and transactions

2.1.5.2 Benefits from the Customers' Point of View

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

- Reduced costs in accessing and using the banking services.
- Increased comfort and timesaving — transactions can be made 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.
- Better cash management: E-banking facilities speed up cash cycle and increases efficiency of business processes as large variety of cash management instruments are available on internet sites. For example, it is possible to manage company's short-term cash via internet banks (investments in over-night, short- and long term deposits, in commercial papers, in bonds and equities, in money market funds). Private customers seek slightly different kind of benefits from e-banking. In the study on online banking drivers Aladwani (2001) has found, that providing faster, easier and more reliable services to customers were amongst the top drivers of e-banking development.

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

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

- Funds management: Customers can download their history of different accounts and do a “what-if” analysis on their own PC before affecting any transaction on the web. This will lead to better funds management.

In addition,

- Beside withdrawing cash customers can also have mini banks statements, balance inquiry at these ATMs
- Through Internet Banking customer can operate his account while sitting in his office or home. There is no need to go to the bank in person for such matter.
- E- Banking has also greatly helped in payment of utility bill. Now there is no need to stand in long queues outside banks for his purpose.
- All services that are usually available from the local bank can be found on a single website.
- The Growth of credit card usage also owes greatly to E-banking. Now a customer can shop worldwide without any need of carrying paper money with him and
- Banks are available 24 hours a day, seven days a week and they are only a mouse click away.

2.1.5.3 Benefits to General Economy

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

2.1.6 E-Banking Risks

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

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

Accurate volume forecasts have proved difficult - One of the key challenges encountered by banks is how to predict and manage the volume of customers that they will obtain. Many banks going on-line have significantly misjudged volumes. When a bank has inadequate systems to cope with demand it may suffer reputational and financial damage, and even compromises in security if extra systems that are inadequately configured or tested are brought on-line to deal with the capacity problems. The second type of operations risk concerns management information systems. Again, this is not unique to E-banking. Banks may have difficulties in obtaining adequate management information to monitor their e-service, as it can be difficult to establish/configure new systems to ensure that sufficient, meaningful and clear information is generated. Such information is particularly important in a new field like e-banking. Finally, a significant number of banks offering e-banking services outsource related business functions, e.g. security, either for reasons of cost reduction or, as is often the case in this field, because they do not have the relevant expertise in-house. Outsourcing a significant function can create material risks by potentially reducing a bank's control over that function

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

Reputational risk: This is considerably heightened for banks using the Internet. For example, the Internet allows for the rapid dissemination of information, which means that any incident,

either good or bad, is common knowledge within a short space of time. Internet rumors can easily become self-fulfilling prophecies. The speed of the Internet considerably cuts the optimal response times for both banks and regulators to any incident. Banks must ensure their crisis management processes are able to cope with Internet related incidents (whether they be real or hoaxes).

Any problems encountered by one firm in this new environment may affect the business of another, as it may affect confidence in the Internet as a whole. There is therefore a risk that one rogue e-bank could cause significant problems for all banks providing services via the Internet. This is a new type of systemic risk and is causing concern to e-banking providers. Overall, the Internet puts an emphasis on reputational risks.

In addition, legal risks (e.g. without proper legal support, money laundering may be influenced); Strategic risks; credit risks; market risks; and liquidity risks are also e-banking risks. Therefore, identification of relevant risks, and formulation and implementation of proper risk mitigation policies and strategies are important for banks while performing e-banking. Among these security risk that affects the network system is the major one FSA (2010).

2.1.7 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 its 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.

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 transfer tasks.

Configuration Management: A final aspect of security is helping to assure high network performance to avoid problems of availability, access and lack of service. A good security solution provides support for configuration management and control, a model that focuses on establishing and maintaining knowledge of the system and network configuration, including security. Based on this approach, operations personnel have the ability to manage security features and assurances through control of changes made to hardware, software, firmware, testing and documentation throughout the lifecycle of the systems Juniper (2010).

2.1.8 BANKING IN ETHIOPIA

2.1.8.1 Banking History in Ethiopia

A reference to the Ethiopian history reveals that the first bank in the country, Bank of Abyssinia was founded during the reign of Emperor Menelik II in February 1905. Due to a foreign domination of its management (mainly the British), the then Bank of Abyssinia was forced to dissolve and in its place was established the Bank of Ethiopia in 1931 whose management was still left to foreigners due to the then lack of skilled manpower in the country. The Bank of Ethiopia was later replaced by the State Bank of Ethiopia soon after the war with Italy. The latter was the first bank in the country fully controlled and owned by the Ethiopian government. In the mean time, however, a number of foreign banks had opened their branches in the country, most of them with an interest to have control over the nation's economy. It was the State Bank of Ethiopia that gave rise to the present Commercial Bank of

Ethiopia (CBE) and National Bank of Ethiopia (NBE). During the Dergue reign, CBE had remained as the only participant in the country's commercial banking sector.

However, following the 1991 takeover by the present government and accompanying encouragement of private investment, a number of private banks have emerged in the country's financial sector. Accordingly, Monetary and Banking proclamation No.83/1994 and the Licensing and Supervision of Banking Business No.84/1994 laid down the legal basis for investment in the banking sector. Consequently, shortly after the proclamation the first private bank, Awash International Bank was established in 1994 by 486 shareholders and by 1998 the authorized capital of the Bank reached Birr 50.0 million. Dashen Bank was established on September 20, 1995 as a share company with an authorized and subscribed capital of Birr 50.0 million. 131 shareholders with subscribed and authorized capital of 25.0 million and 50 million founded bank of Abyssinia. Wegagen Bank with an authorized capital of Birr 60.0 million started operation in 1997. The fifth private bank, United Bank was established on 10th September 1998 by 335 shareholders. Nib International Bank that started operation on May 26, 1999 with an authorized capital of Birr 150.0 million. Cooperative Bank of Oromia was established on October 29, 2004 with an authorized capital of Birr 22.0 million. Lion International Bank with an authorized capital of Birr 108 million started operation in October 02, 2006. Zemen Bank that started operation on June 17, 2008 with an authorized capital of Birr 87.0 million. Oromia International Bank that started operation on September 18, 2008 with an authorized capital of Birr 91 million. In addition, recently Buna international bank and Birhan international bank are started operation in the country (NBE, 2009).

2.1.8.2 Review of Commercial Banking Practices in Ethiopia

In Ethiopia, 12 private and three state owned banks are operating at the end of June 2009. Despite a rapid increase in the number of financial institutions since financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world. The use of checks is mostly limited to government institutions, NGOs and some private businesses. Commercial banks in Ethiopia provide the same services with the same operational style that they used to offer before decades. The common banking functions provided by public and private banks in Ethiopia are deposit mobilization, credit allocation, money transfer and safe custody. Banks in Ethiopia are unable to improve customer service, design flexible and customized products, and differentiate themselves in a market where

product features are easily cloned. Ethiopian banking is unable to come from long way of being sleepy to a high proactive and dynamic entity.

The Ethiopian banking industry as a whole has a net work of 636 branches as per the fourth quarter bulletin 2008/09 of the National Bank of Ethiopia, which is the lowest compared to the size of the country (1.1million square km) and number of population (78 million) and this shows that the number of population being served by a single branch stood at around 105,000. With such highly scattered branch network and disintegrated working system it is hard to ensure efficient flow of financial resources and optimize the contributions of the entire financial system to the development processes. All banks in Ethiopia are too late to move with technological advancement and they should clearly chart out the time schedule for their integration and technological advancement. Some of the banks even today do not have information websites, which can help them to provide at least the information on financial services offered by them (NBE , 2008/09).

2.2 Empirical Evidence

2.2.1 Challenges and prospects of E-Banking Adoption

Challenges

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, electronic banking (e-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 e-banking and so on. The concept of e-banking includes all types 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, e-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. Leow, Hock Bee (1999) state that the terms PC banking, online banking, Internet banking, telephone banking or mobile 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, e-banking covers all these ways of banking business electronically. Since e-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 e-banking. Among others, attractiveness of e-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 for the adoption of e-banking in the countries banking industry.

Prospects of e-Banking

According to M., M Rahman (2008) in Bangladesh e-banking is now a global phenomenon. Apart from the developed countries, the developing countries are experiencing strong growth in e-banking. The government's emphasis on setting up ICT park, raising allocation for developing ICT infrastructure, waiving taxes on computer peripherals and other measures including the automation program of banking sector and competition among the scheduled banks in improving customer services have accelerated the prospects of e-banking.

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

- ❖ Lack of Technological Infrastructure – the implementation of e-payment is been impeded by unavailability of ICT infrastructure. Most rural areas where majority of small and medium scale industries are concentrated have no access to internet facilities
- ❖ ICT Equipment Costs – where available, the cost of ICT is a critical factor relative to per capital income. This makes the cost of entry higher compared to developed countries.

- ❖ Regulatory and Legal Issues – inexistence of proper legal and regulatory framework.
- ❖ Non-readiness of banks and other stake holders (acceptability) – even though some have shown impressive willingness, some banks are still not fully ready to 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 in telephone lines
- ❖ Frequent power interruption

2.2.2 Perceived advantages that Initiate Banks to Adopt E-Banking

The study that was conducted in Omani banks by Al-Sabbagh, I., & Molla, A. (2004) using exploratory research found that bank manager' perceptions of four concepts: perceived relative advantage, Perceived organizational performance, perceived customer/organizational relationship and perceived ease of use provided a broader understanding of e-banking adoption in the banking industry.

The first construct: Perceived Relative Advantage construct relates to the degree to which bank managers think that Internet technology might help their bank gain advantages in the industry. From the literature, three major issues emerged relating to the perception of relative advantage: convenience of services; innovative use of IT; and management of banking services

The second construct: Perceived Organizational Performance is associated with how much a bank manager thinks Internet technology could improve their organizational performance. Three issues: profitability; market environment and employee productivity were utilized to explore this construct in depth. From the broad question related to profitability, two

impediments are indicated: high technology investment cost and the need for economies of scale for Internet technology use are inhibiting the rate of E-banking adoption.

Productivity of employees was another issue of interest. Most respondents expected that their business efficiency could be improved on the Internet.

The third construct: Perceived Customer/Organizational Relationship relates to how a bank manager perceives Internet technology adoption in terms of improving the relationship with their customers. In the literature, three major issues emerge related to the perception of customer/organizational relationship: customer trust, customer commitment, and customer satisfaction..

The final construct: Perceived Ease of Use measures how easy a bank manager believes that Internet technology is to use. The literature suggests that if technology is perceived to be easy to use then the rate of adoption will increase. The research threw up three major issues related to perceived ease of use: easy to navigate, easy to learn and easy to manage. The last issue related to management of financial transactions on the Internet.

2.2.3 Drivers and Barriers of E-Banking Adoption

An exploratory research conducted by Mahdi Salehi (2004) in Iran indicate that the adoption status of e-banking is the transition of pre-development to development phase and the main drivers for adopting e-banking are downsizing, gaining competitive advantage, increasing market share and improving bank's image. The analysis further reveals that inefficient ICT infrastructure, political challenges and traditional organizational culture are barriers for adoption of e-banking.

In addition to the above factors, the case study that was conducted in china by Sherah Kurnia, Fei Peng, Yi Ruo Liu (2005) suggests that the government support is also a strong driver for e-banking adoption. The government support is manifested in two ways. Firstly, the Government is establishing an electronic commerce (EC)-friendly environment in the country. The government in recent years to revamp the national ICT and logistic infrastructures has committed heavy investments. New EC laws and regulations have also been passed and adjusted to provide legal protections for EC activities in general. Secondly, the government also directly offers financial incentives to promote e-banking adoption.

2.2.4 Constraints and Drive Forces for the Adoption of E-Banking in Africa

The study that was conducted by Isaac Awuondo (2005) indicated that the Constraints and drive forces for the adoption of e-banking in Africa respectively are presented below.

Constraints

- Security: Majority of the shy away from e-Banking services due to security concerns.
- Human face: According to some analysts, customers still value personalized and responsive services from their bankers.
- Poor and/or lack of technological infrastructure especially in the rural areas.
- Lack of proper legislation governing e-transactions.
- Preference to paper money, as opposed to “virtual” cash in transactions etc

Drive forces towards e-Banking adoption in Africa

- Rapidly changing customers’ needs and preferences
- Competitive forces and product differentiation strategies
- Pressure to reduce transactional and operation costs

Chapter III

Research Methodology

3.1 Introduction

Designing appropriate research methodology is a prerequisite in order to conduct a good research work. Accordingly, this chapter discusses about the methodology by which the researcher was used to conduct this study. Thus, background of the study area, research design, sampling, data source and method of collection and method of data analysis are presented below respectively.

3.2 Background of the Study Area

Addis Ababa is the capital city of Ethiopia and the diplomatic capital of Africa with a population of greater than 3 million. It is situated at 2,380 meters above sea level on a well-watered plateau and is the seat of the national government.

It was chosen as a study area because: the head office of each bank that represents the whole branch in the country and the national bank of the country is found there and in addition educated bank employees who have better understanding about e-banking as compared to other locations in the country are found in Addis Ababa.

3.3 Research Design

An exploratory research design was considered the most suitable approach in view of the nature of the problem being investigated. According to Zikmund (2000), exploratory research is conducted to clarify and research a better understanding of the nature of the problem. Consequently, it is appropriate to use when there is little prior knowledge of the problem being researched. Saunders & Thornhill (2003) argue that exploratory research is advantageous because it is flexible and adaptable to change.

3.4 Sampling

Both private and public commercial banks were included as a target population. Purposive or convenience sampling technique was used to select the target population for this study that means all those commercial banks that are currently providing the service and all those commercial banks that have an age of five and more than five years among those banks which are not yet started the service were included in the target population for this study.

Currently there are more than 12 banking institutions in Ethiopia, both private and public which are in operation; of the 12 banks, all commercial banks which are providing the service such as commercial bank of Ethiopia, Dashen bank, United bank and Zemen bank were included in the study as a target population and six commercial banks such as Wegagen bank, Abyssinia bank, Nib international bank, Awash international bank, and cooperative bank of Oromia were included among those banks which are not providing the service. However, at the time of administering the questionnaire, a person who can able to fill the questionnaire was not available at Abyssinia bank, as a result, the researcher ignore this bank during analysis. The questionnaire was administered to the IT manager's of each bank by using purposive sampling technique, which means the selection of the respondent was made in a way to get sufficient data regarding e-banking.

3.5 Data Source and Method of Collection

The study was conducted by collecting data from both primary and secondary sources. Primary data was collected from the respondents based on a structurally designed questionnaire. It was included both closed ended and open-ended questions .In addition, unstructured interview with the higher official of the National bank of Ethiopia and from each bank IT manager's was used to collect supporting data. Secondary data was collected from the websites of the respective commercial banks. In order to get sufficient and reliable data that represents the whole branch of the selected banks both primary and secondary data was collected from the IT manager's of each bank at the head office level.

3.6 Method of Data Analysis

In order to meet the stated research objectives, the collected data was analyzed based on the nature of the objective, accordingly since all the information that were collected are qualitative in nature ,descriptive type of analysis by using tables and percentages was employed to analyze each objective.

Chapter IV

Results and Discussion

4.1 Introduction

To find the major out puts of the study and to give important recommendations, the collected data should be analyzed and discussed, accordingly the analysis and important findings from the collected data are discussed below.

Table 1: Demographic characteristics of respondents

Bank	Year of establishment	Job position	experience	gender	Educational status
Commercial Bank of Ethiopia(CBE)	1980	IT manager	10	M	Degree
Awash international Bank(AIB)	1994	IT manager	10	M	Masters
Dashen bank(DB)	1995	IT manager	10	M	Degree
Wegagen Bank(WB)	1997	IT manager	12	M	Degree
Nib international Bank(NIB)	1999	IT manager	4	M	Masters
United Bank(UB)	1998	IT manager	12	M	Degree
Cooperative Bank of Oromia(CBO)	2004	IT manager	3.5	M	Degree
Zemen Bank(ZB)	2008	IT manager	14	M	Masters

Source: From Questionnaire

As shown in the above table almost all the banks except the single branch Zemen bank have an age of more than five years. As the researcher purposely selects, all the respondents are IT manager's of the respective bank. Almost all these respondents have an experience of more than five years. With regard to sex, all the respondents are male and have an educational status of 66.7% degree holder and 33.3% masters holder. This implies that, data were collected among those employees who have good educational status.

Table 2: classification of banks according to their adoption of e-banking

Banks providing e-banking service	Year of commencement	Banks not providing e-banking service but planned to adopt
CBE	2001	AIB
DB	2006	WB
UB	2009	NIB
ZB	2009	CBO

Source: From Questionnaire

As reported in the above table among banks that are currently in operation in the country, only four banks are providing banking products to their customer through electronic channels but the remaining banks are not using electronic channels as a means of service delivery. However, they are planning to adopt the system and among these some banks are currently on the way of installing the system, for example, Wegagen Bank has signed an agreement with Technology Associates, a Kenyan based IT firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008

In addition, the table also indicated that e-banking service is in an infant stage in the country since most banks are not yet adopted the system and even those banks that are currently providing the services are commenced the system after 2006 and are not fully adopted the technology because of different challenges.

4.2 Analysis and Discussion Related to Objective I

Table 3: Number of branches providing e-banking services

Bank	Total branch	No of branches providing the service
CBE	209	35
DB	54	54 (ATM), selected for POS
UB	41	38
ZB	1	1

Source: From Questionnaire

The above table indicated that, among the total branches of the commercial bank of Ethiopia, only 35 (16.7%) branches are currently providing ATM service to their customers. All the branches of Dashen bank are providing ATM services but only selected banks are delivering electronic point of sale service. With regard to united bank, 38 (92.7%) branches are currently providing e-banking services to their customers but only three of them (7.3%) are not. Finally, Zemen bank is currently providing the service with its single branch located in Addis Ababa. The difference in the adoption of e-banking service among the branches is due to the difference in the availability of ICT infrastructure among the branches in different locations and lack of customer awareness on the service especially with those branches located in the rural area.

Therefore, from the above table, it is possible to conclude that the commercial bank of Ethiopia, which was the first in the introduction of ATM service in the country, is too late in the expansion of e-banking channels among the branches in the country. The table also implies that private banks are more competitive in the adoption of new technology as compared to public bank.

Table 4: Current Practices and Extent of e-banking service in Ethiopia

Bank	e-banking channels	Services /transactions available
CBE	ATM, credit card and debit card	Balance inquiry, cash withdrawal, and statement printing
DB	ATM, master card, visa card, salary card, debit card, mobile or SMS banking and electronic point of sale (POS)	Balance inquiry, cash withdrawal, statement printing, fund transfer , PIN change, purchase of goods or services and accessing his/her accounts 24*7
UB	Internet banking, phone banking, mobile /SMS banking and BLMT	Balance inquiry, fund transfer, mini-statement or view account statement, information about the exchange rate of major currencies, purchase of goods or services, request a new cheque book, make a stop payment order, accessing his/her accounts 24 hours a day, 7 days a week, and 365 days a year, cheque-status enquiry and view account transaction, view loan status
ZB	Internet banking, phone banking, mobile /SMS banking , SWIFT, ATM- credit card and debit card	New account set up, credit application, Balance inquiry, fund transfer, mini statement, information about the exchange rate of major currencies, purchase of goods or services, request a new cheque book, make a stop payment order, accessing his/her accounts 24 hours a day, 7 days a week, and 365 days a year, bill presentment and payment, password change and management features, cheque-status enquiry, and credit-card payments

Source: From Questionnaire

As shown above, commercial bank of Ethiopia is providing only ATM services for the customer. As a result, customers of the bank can get the services listed in the above table but the bank is also planned to adopt other e-banking channels in order to provide efficient banking services.

Undeniably, the largest state-owned bank, Commercial Bank of Ethiopia, is the pioneer in introducing ATM service for local users in 2001 with its fleet of eight ATMs located in Addis Ababa. Moreover, CBE has had Visa membership since November 14, 2005. However, due to lack of appropriate infrastructure, it failed to reap the fruit of its membership.

Despite, being the pioneer in introducing ATM based payment system and acquired Visa membership, CBE lagged behind Dashen Bank, which worked aggressively to maintain its lead in electronic payment systems. Dashen bank, a forerunner in introducing e-banking in Ethiopia, has installed ATMs at convenient locations for its own cardholders. The Dashen Bank ATM is available 24 hours a day, seven days a week and 365 days a year providing service to Dashen Debit Cardholders and International Visa Cardholders coming to the country. At the end of June 2009, Dashen bank has installed more than 40 ATMs in its area branches, shopping malls, restaurants and hotels. Available services on Dashen Bank ATMs are, cash withdrawal, balance Inquiry, mini-statement, fund transfer between accounts attached to a single card and PIN (Personal Identification Number) change. Currently, the bank gives debit service only for Visa cards. Dashen bank clients can withdraw up to 3,000 birr in cash and can buy goods and services of up to 5,000 birr a day. As of June 30, 2009, Dashen Visa cardholders have reached 54,624. Expanding its leadership, Dashen Bank has begun accepting MasterCard in addition to Visa credit cards. It began serving over two years ago. Dashen won the membership license from MasterCard in 2008. In addition, Dashen Bank also introduced salary cards to companies. Dashen Bank is currently issuing debit cards to access one's account. The card is being accepted at POS terminals installed at merchant sites and ATMs deployed in various locations. Dashen debit cards can also be used as salary cards to any organization.(Business in Ethiopia, 2009).

The younger single-branch Zemen Bank launched multi-channel banking (MCB) services in Ethiopia, which includes ATMs, Internet Banking, Banking through Call Centre and SMS banking. These services introduced October 22, 2009, makes Zemen Bank the first in Ethiopia to introduce fully IT supported and 24/7 customers services to local bank customers. It is currently the only bank in the country offering ATM; call Centre, SMS and internet banking

services all at the same time. Zemen's new services would enable customers of the bank to get the services listed in the above table.

The launch of MCB is perfect for business owners, individuals and even local and national institutions. Whether it's monitoring business account activities while away on a business trip, personal finance management at any time of the day, or the need to be informed with alerts/notifications based on one's account activities, bank users need to have more accessible ways of communicating with their bank.

The Multi-Channel Banking services were designed for bank customers that require easy access to the bank's facilities while they are On-The-Go. Zemen Bank designed and equipped each of the new services with a user friendly Amharic and English language support. Zemen Bank customers can access their account from their PC/Laptop, Mobile Phone, ATM, and through a direct phone call to the dedicated and customer friendly Zemen Bank Call Centre. The Multi-Channel Banking Services are free of charge to all Zemen Bank customers. ATM cards are also issued immediately and free of charge to all customers who open an account with Zemen Bank (Business in Ethiopia, 2009).

United is the first bank to introduce the service for the first time in Ethiopia in August 2008. This service enables customers to get banking services without a need to physically visit branches of the Bank. Customers can get a 24/7 service anywhere as long as they have an internet access

A customer who subscribe to the internet banking service of the bank can enjoy the services listed in the above table. As United strides forward to develop new products, it introduced SMS Banking service in September 2008. Like Telephone Banking, Internet Banking and BLMT services, United is a pioneer to introduce SMS banking. Like the internet banking service, customers can get a 24/7 service using SMS banking. Customers can get the services listed in the above table using SMS banking. Through telephone, the customer can get services 24 hours a day, 7 days a week and 365 days a year.

Broadband local money transfer (BLMT) is one of the peculiar services of United Bank S.C. The introduction of this electronic money transfer service, which uses a broadband connection, is quiet a departure from a transfer service given by using telephone lines. The service gained wide acceptance by customers and the positive feedback about the product is overwhelming. Since most of the branches have, a broadband network infrastructure, and use

a central database. By using this central database, the data from the money sender side can be transferred in real time and this will allow the receiver to collect the money sent instantly (Business in Ethiopia, 2009).

Finally, with respect to service charge, as per Dashen and Commercial bank of Ethiopia, customers being charged minimal amount based on amount of transaction on ATM service and point of sale terminals. In addition, as per United and Dashen bank, there is small service charge on SMS banking. However, all the services are free of charge at Zemen Multi channel banking services.

In general, as shown in the above table the most dominant e-banking channel among those banks, which are currently providing the service is ATM card, which is the first generation of electronic banking channel, so from this it is possible to conclude that even banks that are providing the service did not sufficiently adopted the latest e-banking channel such as internet and mobile banking

Table 5: operational issues related to e-banking service

S.No	Operational Issues	Banks			
		CBE	DB	UB	ZB
1	Are links and interactive program's check for accuracy and functionality?	yes	yes	yes	Yes
2	Are security measures in place to prevent the web site information from being altered?	no	Yes	yes	Yes
4	Does the bank have procedures in place for when there is an interruption in service of e-banking for customers?	yes	yes	yes	Yes
5	Is electronic banking training provided to employees?	yes	yes	yes	Yes
6	Are any policies and procedures in place to address activities beyond the traditional trade area?	yes	yes	yes	Yes
7	Doe the bank have a target market or trade area for e-banking.	yes	yes	yes	Yes

Source: From Questionnaire and Interview

The above operational issues listed in the table related to e-banking service are discussed below:

As per the data collected among banks that are currently providing the service, all banks are checking their links and interactive programs periodically for its accuracy and functionality since this helps banks to take corrective measures as soon as an operational error is happened in the system.

To prevent the web site information from being altered, security measures like firewall and secure socket layer (SSL) are taking by all banks except that of the commercial bank of Ethiopia. Because commercial bank of Ethiopia is not yet adopted web based e-banking service like internet and mobile banking.

Even though, it is not satisfactory to make use of their passbook and checkbook are the procedures in place for when there is an interruption in the service of e-banking for customers.

Providing electronic banking training to employees help banks to provide quick, up to date and secured services to the customer. With this regard, even if it is not sufficient as explained by the respondents during interview, all banks are providing e-banking training to their employees but the main limitation here is that this training is confined only to the ICT personnel's of each bank.

Addressing banking activities beyond the traditional trade area is one among the different driving forces of delivering banking products to the customer through electronic channels. With this regard, all banks have policies and procedures in place to address this activity. Using internet and mobile as a channel of service delivery is the implication of this activity because these channels can able banks to provide service for the customer at any place rather than branch based traditional service.

Finally, with respect to target market or trade area, all banks have target market area for ATM services. This is true for Dashen, Zemen and Commercial bank of Ethiopia that are currently providing the service. Because ATM is installed at a place in which the bank have large number of customers. However, there is no target market or trade area for the other e-banking channels because any customer of the bank can get the service at any place if there is mobile and internet net work connection.

4.3 Analysis and Discussion Related to Objective II

Table 6: Benefits realized by banks from the adoption of e-banking service

Bank	Benefits
CBE	Enhanced image, improvement of organizational efficiency, and load reduction
DB	Attracting high value customers , enhanced image, improvement of organizational efficiency, high foreign currency earning, low risk of cash management and load reduction
UB	Attracting high value customers , enhanced image, and improvement of organizational efficiency
ZB	Attracting high value customers, enhanced image, larger customer coverage, improvement of organizational efficiency, better monitoring of their customer base, and load reduction

Source: From Questionnaire

As reported in the above table, all of the banks (100%) believe that providing banking products to the customer by using electronic channels have the benefit of building good image, load reduction that enables bank employees to focus on strategic issues instead of focusing on traditional activities and improvement of organizational performance through cost reduction (by avoiding paper work and by reducing the number of employees required). In addition, adopting e-banking service as a means of service delivery have also the benefits as stated by each respective bank in the above table. In general, according to the respondents' response as listed in the above table, it is possible to conclude that delivering banking products through electronic channels made the bank benefited.

Even though, those banks that are currently providing e-banking service to their customer can get the different benefits as listed in the above table, the assumption of perceived relative advantage, perceived organizational performance, perceived customer relationship and perceived ease of use are the major perceived advantages of e-banking adoption among those banks which are not yet adopted the technology but are planned to adopt the system in the near future.

4.4 Analysis and Discussion Related to Objective III

Table 7: Driving forces that initiate banks to adopt e-banking services

Bank	Driving forces
CBE	Rapidly changing customers' needs and preferences, desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to cover wide geographical area, desire to build organizational reputation and desire to satisfy customers
DB	Existence of high competition in the banking industry , desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to cover wide geographical area, desire to build organizational reputation, desire to satisfy customers, to keep the international banking standard and rapidly changing customers' needs and preferences
UB	Desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to cover wide geographical area, desire to build organizational reputation, desire to satisfy customers
ZB	Existence of high competition in the banking industry, desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to cover wide geographical area, desire to build organizational reputation, desire to satisfy customers and rapidly changing customers' needs and preferences

Source: From Questionnaire

As depicted in the above table, even though there are some sort of difference regarding the driving forces that initiate for the adoption of e-banking service in each bank, the existence of high competition in the banking sector, rapidly changing customers' needs and preferences, desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to build organizational reputation and desire to satisfy customers are the major common driving forces that initiate banks for the adoption of e-banking as a means of service delivery to their customers.

Therefore, from this it is possible to conclude that it is due to the existence of some driving forces in which banks are initiated to provide modern banking services to the customer. In addition, the table also implied that there are common driving forces that lead all banks to provide e-banking services.

4.5 Analysis and Discussion Related to Objective IV

Table 8: Challenges for the adoption of e-banking service in Ethiopia

Bank	Major challenges
AIB	Chances of risk, lack of suitable legal and regulatory framework, lack of government initiation or lack of government prioritization, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet and security issues
WB	High installation cost, chances of risk , lack of suitable legal and regulatory framework, high rate of customer illiteracy, non-readiness of banks to adopt the system, lack of government initiation or lack of government prioritization, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet and security issues
NIB	High installation cost, chances of risk , lack of suitable legal and regulatory framework, non-readiness of banks to adopt the system, lack of government initiation or lack of government prioritization, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet and security issues
CBO	Chances of risk, lack of suitable legal and regulatory framework, high rate of customer illiteracy, non-readiness of banks to adopt the system, lack of government initiation or lack of government prioritization, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, low level of initiation on the side of the shareholders to adopt the system, high cost of internet and security issues
Challenges for the efficient adoption of e-banking among banks that are currently providing the service	
CBE	Chances of risk , lack of trained and efficient staff in e-banking context, lack of suitable legal and regulatory framework, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure , high cost of internet and security issues
DB	Chances of risk , lack of trained and efficient staff in e-banking context, lack of suitable legal and regulatory framework, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet and security issues
UB	security issues, lack of public awareness on the use of e-banking service
ZB	security issues, lack of public awareness on the use of e-banking service

Source: From Questionnaire and Interview

According to the above table even though there is some sort of difference among the challenges in each bank, chances of risk (such as **operation, security and reputation risk** as stated by both banks), Lack of suitable legal and regulatory framework that govern and regulate e-banking transaction in the country, absence of financial networks that links different banks, Lack of government initiation or lack of government prioritization , high cost of internet, Low level of internet penetration and poorly developed telecommunication infrastructure are the major common challenges for the adoption of e-banking service in the country's banking industry. These major challenges are true for both the initial adoption of e-banking service among those banks which are not yet adopted the system and for the sufficient provision of the service among those banks that are currently providing the service to their customers. Especially with respect to ICT infrastructure, even though ETC is expanding its internet and mobile network services, it is unable to attract adequate number of customers. The corporation's mobile network will soon be able to accommodate 15 million customers. However, it now has only five million mobile subscribers. Ethiopia's mobile penetration rate stands at five percent while sub-Saharan African penetration rate is 39 percent.

Since the Ethiopian banking system is heavily dependent on the state-owned ETC to perform transactions and connect branches to their main office, Ethiopia Telecommunications Corporation's (ETC) failure to offer efficient services, especially broadband internet, is limiting banking services. The recurrent problem of system downfall has meant banks without the broadband service having to work manually, limiting services to customers (Binyam, 2009).

Finally, even though it may be temporary, frequent power interruption is another challenge that affects the provision of e-banking service among those banks that are currently providing the service. Therefore, from the above discussion it is possible to conclude that there are challenges for the adoption of e-banking service among those banks that are not yet adopted the system and for the sufficient adoption of the service from the viewpoint of those banks that are currently providing the service in the country.

4.6 Analysis and Discussion Related to Objective V

Table 9: Existing opportunities for the adoption of e-banking services

Bank	Opportunities
CBE	Late adopter opportunities, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
DB	Late adopter opportunities, commitment of the government to strengthen the banking industry, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
UB	Late adopter opportunities, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
ZB	Late adopter opportunities, commitment of the government to strengthen the banking industry, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
WB	Late adopter opportunities, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
NIB	Commitment of the government to facilitate the expansion of ICT infrastructure
AIB	Late adopter opportunities, commitment of the government to strengthen the banking industry, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure
CBO	Late adopter opportunities, commitment of the government to strengthen the banking industry, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure

Source: From Questionnaire and Interview

The above table indicated the existence of some difference among the respondent of each bank regarding the different existing opportunities in the country for the adoption of e-banking. But late adopter opportunities, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia, commitment of the government to facilitate the expansion of ICT infrastructure and willingness among banks to cooperate in building infrastructure are common to all banks. With respect to cooperation among banks, the memorandum of understanding signed by three private commercial banks to launch an Automated Teller Machine (ATM) and Point of Sale terminal (POS) network in February 2009 is welcoming strategy to improve electronic payment system in Ethiopia. Three private commercial banks - Awash International Bank S.C., Nib International Bank S.C and United Bank S.C. – have agreed in principle to establish an ATM network called Fettan ATM network. If everything goes as planned, Fettan ATM will install over 140 ATM machines and over 340 POSs across Ethiopia. There will be one ATM at every branch of the consortium banks, all domestic airports serviced by commercial service, shopping complexes and merchants.

The agreement is the first significant cooperation between competing banks in Ethiopia, which others should be encouraged to follow as there is no single bank in Ethiopia that can afford to provide extensive geographical coverage and access. In addition, the commitment of the government to strengthen the banking industry is a good opportunity for the adoption of e-banking service in the country because currently the national bank of the country is developing a project in cooperation with the World Bank in order to modernize the payment system of the country (Abiy D., 2008).

With regard to ICT infrastructure, since ICT plays a pivotal role in the all-rounded political, economic and cultural development of the nation, the Ethiopian Telecommunication Corporation (ETC) and ZTE of China entered an agreement worth \$158 million. The agreement covers three telecom expansion projects, including the first phase of a fiber transmission backbone, expansion of mobile-phone service, and expansion of wireless telephone service. Upon completion, the projects would enable the corporation to provide standardized and quality telecommunication services to its customers. The projects would also increase the number of fixed and mobile telephone service subscribers to over 14 million.

ETC has been exerting utmost efforts toward expansion of Next Generation Network (NGN) Information and Communication Technology (ICT) in the country.

Expansion of the NGN Information and Communication Technology will enable the Corporation provide efficient and modern telecom services to the society and accelerate the development of school-net, woreda-net, agri-net, distance education, e-banking, e-medicine, dependable TV broadcasting, and other related services in Ethiopia. In addition, in order to cope with the fast growth in the complexity of networks, services and their customer base, ETC has realized the need of a centralized National Network Operation Center (NNOC) that can improve the network performance and lower the time needed to locate and maintain faults. Furthermore, it is able to ensure customers experience service quality and perceive the value of delivered service, and it also improves operational readiness for short time-to-market of new innovative services (Ma Zhiyong, Tewodros Hailemeskel, Li Xiaojin, 2008).

Therefore, from the above discussion it is possible to conclude that there are good opportunities for the adoption of e-banking service in Ethiopia.

Chapter V

Conclusion and Recommendation

5.1 Introduction

Information technology is considered as the key driver for the changes taking place around the world. Due to a pervasive and steadily growth of information and communication technology, the world banking industry is entering into new phenomena of unprecedented form of competition supported by modern information and communication infrastructure. The rate at which e-banking technology is adopted by banks constitutes an important part of technological change. With this regard currently, our banks are in an infant stage

This chapter as a whole presents the concluding remarks for the main findings in chapter four and important recommendations as per the main problems investigated in this research study respectively.

5.2 Conclusions

Based on the analysis made in chapter four the following conclusions are made on the assessment of the opportunities and challenges for the adoption of e-banking service in Ethiopia.

ATM, Credit Card and debit card services, internet banking, mobile banking and other electronic payment systems are at infant stage. The most dominant e-banking channel among those banks, which are currently providing the service is ATM card, which is the first generation of electronic banking channel, so from this it is possible to conclude that even banks that are providing the service did not sufficiently adopted the latest e-banking channel such as internet and mobile banking.

In view of the extent of e-banking adoption, majorities of the banks have not adopted this technology and are using traditional services to reach and serve their clients. In general, banks in Ethiopia are trailing behind in acquiring the required quality of banking services to effectively compete in the global market.

The main practice of e-banking among those banks that are providing the service have been for, balance inquiry, cash withdrawal, statement printing, PIN change, purchase goods or services, accessing his/her accounts 24*7 and funds transfers among others.

Adoption of e-banking service have the benefit of attracting high value customers, enhanced image, larger customer coverage, improvement of organizational efficiency, and load reduction etc from the view point of the bank.

Important perceived benefits of using e-banking among those banks that are not currently providing the service but are planned to adopt the system were relative advantage, organizational performance, customer relationship and perceived ease of use.

As per the findings, the major driving forces that initiate banks to deliver banking services to the customer using electronic channels are existence of high competition in the banking industry, rapidly changing customers' needs and preferences , desire to improve organizational performance, desire to improve the relationship with customers, desire to reduce transaction cost, desire to cover wide geographical area, desire to build organizational reputation, desire to satisfy customers and to keep the international banking standard among others.

Chances of risk, lack of trained and efficient staff in e-banking context, lack of suitable legal and regulatory framework, absence of financial networks that links different banks, low level of internet penetration and poorly developed telecommunication infrastructure, high cost of internet and security issues are the main challenges for adoption of e-banking in Ethiopia. In addition, lack of customer awareness regarding the service is another challenge in order to provide the service. Therefore, from this, it is possible to conclude that there are challenges for the adoption of e-banking service among those banks that are not yet adopted the system and for the sufficient adoption of the service from the viewpoint of those banks that are currently providing the service in the country.

Finally, Late adopter opportunities, commitment of the government to facilitate the expansion of ICT infrastructure, improvement in the banking habit of the society, sustainable economic growth in the country, increment of tourist inflow to Ethiopia and willingness among banks to cooperate in building infrastructure are among the major opportunities for the adoption of e-banking in the country. Therefore, from this, it is possible to conclude that there are good opportunities for the adoption of e-banking service in Ethiopia.

5.3 Recommendation

As per the findings from the analysis of the collected data; the following recommendations are forwarded in order to promote and develop viable e-banking service in Ethiopia. .

- ❖ Ongoing efforts by the Ethiopia telecommunication corporation to expand ICT infrastructure should be encouraged by the government and gradually the corporation should try to reduce the service charge.
- ❖ The lack of legal and regulatory framework for e-banking services has discouraged banks from introducing these innovative payment instruments or where they have introduced, has put them at legal risk. Electronic payments are not recognized in Ethiopia legal system. Thus, government should issue laws that govern electronic payment. This helps financial service providers introduce innovative products currently in use around the world which are cost effective, efficient and safe.
- ❖ In recent years, due to its convenience, mobile banking is the latest electronic banking channel, so in this context, it is important to each bank to formulate relevant acts, policies, and adopt operative guidelines.
- ❖ The National Bank of the country should prepare various capacity building activities for banks regarding e-banking operation and provide incentives for banks to invest rigorously on ICT and use of e-banking.. .
- ❖ Each bank should strengthen its ICT department through providing training to IT personnel and procuring required hardware and software. Create separate unit in each branch for rendering ICT related operational activities under the supervision of the ICT department. Train all staff in basic ICT related matters in phases.
- ❖ Security risk is the major challenge for the adoption of e-banking service in the banking industry. Therefore, the national bank of the country in collaboration with all banks in the country should prepare typical security technologies applicable to control system networks such as firewall, intrusion detection and prevention etc.
- ❖ Banks that are currently providing the service should promote the system in order to raise public awareness on the use of e-banking service.
- ❖ Since sufficient power supply is mandatory for the uninterrupted and efficient provision of e-banking service, therefore, ongoing effort by the government to address adequate power supply to the country should be encouraged.

Future Research

- Investigating in to the factors that affect the adoption of e-banking service in Ethiopia, from the customers point of view
- Impact of e-banking on traditional banking services
- Impact of e-banking service on the profitability of banks

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ANNEXES

Mekelle University, Faculty of Business and Economics

Department of Accounting and Finance

(MSC in Finance and Investment)

Annex I: Research Questionnaire for Bank IT Manager's

Dear Sir/Madam

Subject: Research questionnaire prepared to collect data from the respondents in order to assess the opportunities and challenges for the adoption of e-banking service in Ethiopia

I am undertaking a research project on the assessment of the opportunities and challenges for the adoption of e-banking service in Ethiopia, with reference to selected commercial banks. Knowing the benefits, driving forces, opportunities and challenges for the adoption of e-banking service in the banking industry will have a paramount important to the institution, to owners, to clients, to government and others. More over the result of this study will be used as additional reference for those who want to conduct detailed research on the area. To this end, I have prepared a self – administered questioner to help me gather the pertinent information from the purposely-selected employees of the bank at the head office level. The quality of the result of this research will be based on the accuracy of the information you provided.

Eventually, I promise you, the information you will provide me is going to be reported and communicated in aggregate and utmost care will be taken for its confidentiality.

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

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

Thank you for your cooperation!

I. Personal Information

1. Name of the organization/bank _____
2. Year of establishment: _____
3. Job position _____
4. Work experience _____ years
5. Gender : Male Female
6. Educational status: A. Diploma B. Degree C. Masters
D. PhD and above
7. **Do your organization start offering electronic banking services to the customers by using electronic channels?**

A. Yes B. No

II. Questions Related to those Banks Providing E-Banking Services

8. **If your organization started offering electronic banking services (or if you say yes for the above question):**

A. Are links and interactive programs checked for accuracy and functionality?

- A. Yes B. No if no, why?
-
-

B. Is security measures in place to prevent the web site information from being altered?

- A. yes B. no if yes, what are they?
-
-

C when did you start offering the service?

D. what services (if any) are customers being charged for and how much?

E. does the bank have procedures in place for when there is an interruption in service of e- banking (internet banking) for the customer?

A. yes B. no if yes, describe the procedures

F. Is electronic banking training provided to employees?

A. yes B. no

G. does the bank has a target market or trade area for e-banking?

A. yes B. no if yes what is it?

H. is any policies and procedures in place to address activities beyond the traditional trade area?

A. yes B. no if yes what are they?

I. what are the different benefits does the bank is realized by using e-banking channels?

I. Attracting high value customers II. Enhanced image

III. Increased revenue IV. Larger customer coverage

V. Cost reduction VI. Improvement of organizational efficiency

VII. Better monitoring of their customer base

Others (explain)

J. is there a difference in its adoption among the branches?

- A. Yes B.No

K. If there is a difference in the adoption of e-banking service among the branches, what is the reason behind?

L. how many branches are currently providing the service?

M. What are the different electronic channels through which the bank is delivering the service to its customers? You can choose more than once!

- A. Internet banking D. Mobile or SMS banking
B. ATM E. BLMT
C. Tele banking F. Others

N. What are the different ATM and other cards available? You can choose more than once.

- A. Credit card E. Master card
B. Salary card F. Debit card
C. Visa card G. Student card
D. Others _____

O What options are available to the customer once they have accessed e-banking? You can choose more than once!

- A. Fund transfer F. Bill presentment and payment
B. New account set-up G. Cash withdrawal
C. Insurance premium payment H. Purchase of goods and services
D. Credit application I. Utility payment
E. Balance inquiry J. Others/ mention it

P. what future plans are you contemplating offering on your web site?

Q. Do you think that the bank is sufficiently adopted the system?

A. Yes B. No if no, what are the challenges

behind? You can choose from the different challenges listed under question number (9A)!

R Is there any risks involved because of adopting /using electronic channels for delivering banking services to the customer? A. Yes B. No if yes, what are they?

- A. Transaction or operation risk
- B. Security risk
- C. Compliance or legal risk
- D. Reputation risk
- E. Strategic risk
- Others_____

➤ What measures you are taking to minimize this risk?

III. Questions Related to those Banks Not Providing E-Banking Services

9. If you say no for question number 7 or if you don't start offering e-banking services

A. Do you think that the following are the different challenges for the adoption of e-banking services?

S.NO	CHALLENGES	Agree	disagree
1	High installation cost		
2	Lack of demand from the customers side		
3	Chances of risk from the banks side		
4	lack of educated and efficient staff in e-banking context		
5	Lack of suitable legal and regulatory framework		
6	Non-readiness of banks to adopt the system		
7	Lack of government initiation or lack of government prioritization		
8	Absence of financial networks that links different banks		
9	Low level of internet penetration and poorly developed telecommunication infrastructure		
10	Low level of initiation on the side of the shareholders to adopt the system		
11	High cost of internet		
12	Lack of coordination and cooperation with the other banks in e-banking context		

Other challenges (if any)

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

B. If your bank is not using electronic channels as a means of delivering services to the customer; does your bank have a plan to adopt the system?

A. Yes B. No

10 .If currently the bank is using the system but cannot get any benefit due to its initial stage and if you say **YES** for the above question, what are the perceived benefits your bank will get by adopting e-banking service?

A. perceived relative advantage

B. Perceived organizational performance

C. perceived customer/organizational relationship

D. perceived ease of use

others _____

IV. General Questions

11. Whether the bank is currently using the technology or not, do you think that the following are among the driving forces for the adoption of e-banking services?

S.NO	Driving forces	Agree	Disagree
1	Existence of high competition in the banking industry		
2	Existence of high demand		
3	Desire to improve organizational performance		
4	Desire to improve the relationship with customers		
5	Desire to reduce transaction cost		
6	Desire to cover wide geographical area		
7	Desire to build organizational reputation		
8	Desire to satisfy customers		

Others factors if any

12. What are the existing opportunities in the country that initiates the adoption of e-banking?

S.NO	Opportunities	✓
1	Late adopter opportunities	
2	Commitment of the government to strengthen the banking industry	
3	Commitment of the government to facilitate the expansion of ICT infrastructure	
4	The existence of high demand	
5	Increment of educated potential customer	

Others opportunities (if any)

13. What should be the role government to adopt e-banking in the banking industry?

14. What should be the role of the national bank to facilitate the adoption of e-banking in the banking industry as a regulatory body of all financial institutions in the country?

15. What should be the role of the Ethiopian telecommunication corporation regarding ICT infrastructure expansion?

16. What should be expected from each bank to provide efficient e-banking service to the customers?

17. Any suggestions regarding the adoption of e-banking service in the banking industry

Annex II

General Unstructured Interview Schedule

1. What the National Bank of Ethiopia is doing regarding the adoption of e-banking service in the banking industry?
2. What is the responsibility of the National Bank of Ethiopia regarding the adoption of e-banking service in the banking industry?
3. What the National Bank expects from each bank regarding the adoption of e-banking service?
4. What is the benefit of adopting e-banking service in the banking industry?
5. What are the challenges for the adoption of e-banking service in the country?
6. What are the opportunities for the adoption of e-banking service in the country?
7. What is expected from the government regarding the adoption of e-banking service in country's banking industry?
8. What are the driving forces towards the adoption of e-banking service?
9. Does your bank provide e-banking training to employees?

