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E-Banking Service Quality of Ethiopian Banks

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Master of Science in Management (Quality Management and Organizational Excellence)

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Acronyms

E-Banking	Electronic Banking
EFT	Electronic Fund Transfer
POS	Point Of Sale
MPOS	Merchant Point of Sale
M-Wallet	Mobile Wallet
PAN	Permanent Account Number
NBE	National Bank of Ethiopia
SSA	Sub-Saharan Africa
Findex	Financial Inclusion
DFS	Digital Financial Service
CPO	Cash Payment Order
EATS	Ethiopian Automated Transfer System
RTGS	Real Time Gross Settlement
NPS	National Payment System
Fintech	Financial Technology
EthSwitch	Ethiopian Switching System
PSS	Premier Switch Solutions
DMS	Dispute Management System
OECD	Organization for Economic Co-operation and Development
UNCTAD	United Nations Conference on Trade and Development

Abstract

The purpose of this study is to assess the quality of electronic banking services in Ethiopian banking industry. To conduct this study, the researcher collected data from the active electronic banking service users for the past consecutive two months. A mixed approach was used to answer the research questions that obtained from the existing literature and gathered data. A Purposive sampling technique was employed to recruit 150 of respondents representing the target criteria (age, duration of usage, and technology-know-how). The study statistically analyzed data obtained from respondents using SPSS version 20 (Statistical Package for Social Sciences). The electronic banking service was represented by security, system availability, ease of use, reliability and responsiveness. The result of the study indicates that a significant proportion of the sample respondents e-banking services like POS and Internet banking services potential were not adequately used by customers and the major problem that customers experienced on mobile banking was the lengthy steps in processing transactions. Based on the overall score value, it is possible to conclude that the Internet banking service, which was used by very small proportion of customers, was moderately satisfactory to the customers using the service. Finally, it is possible to suggest that serious measures has to be taken on the ICT and power supply infrastructure, as well as liberating network providers, banks updating their softwares and NBE re-establishing a legal framework on the usage of e-banking services. Last but not least, the National Bank of Ethiopia as the regulatory body of the financial sectors of the country, together with the banking sector stakeholders has to enforce banks to update and modernize their technology in order to satisfy the users of the electronic banking.

Key-Word: E-Banking, Service Quality and Banking Industry

Chapter One

1. Introduction

Monetary transactions of most developing countries are cash driven but information technology is changing these types of businesses. This change meets the growing demands of customers including in the banking industries. The world is becoming an integrated community, where the distance of space and time between buyers and sellers is reduced through the uses of the Internet (Delvin, 1995).

The Internet is one of the most useful tools for businesses and individuals in contemporary world's economies. Its use has touched virtually every aspect of human endeavor including banking sector. Technological breakthroughs and product designs have led to the emergence of the e-banking services which in recent time have become global. In addition, transfer of funds, viewing and checking account balances, paying mortgages, paying bills and purchasing financial instruments and certificates of deposits processes have improved significantly as a result of Internet banking (Chang, 2003).

Electronic banking which is also called, web banking, virtual banking, online banking or branchless banking refers to provision and availment of banking and financial services with the help of internet using mobile phones, tablets, laptops, and desktops computers. Offered services includes balance inquiry, mini statements, viewing account transactions, payments, fund transfer, and cash out(Awash Bank Circular No. 4/2016). Electronic banking is a significantly cheaper alternative to conventional branch-based banking that allows financial institutions and other commercial actors to offer financial services outside traditional bank premises by using internet (Chang, 2003).

Electronic banking provides benefits for both customers and banks. It provides additional market and services to wide geographical areas that attracts more customers. Information technology revolution has led to fundamental changes in banking industry that receives instruction from the customer within a short time of period and with ease of operation. It also gives an opportunity for the customers to gain access to their accounts and execute transactions regardless of time and space boundaries (Dewan&Seidmann, 2001). Electronic banking has been rising due to the convenience that is offered though facilitating self-service in marketing to undertake banking

transaction outside of bank hours and from anywhere where internet access is available. It helps customers achieving speed, efficiency, cost reduction and competitive advantage (Gonzalez, 2008; Maholtra& Singh, 2007).

Several studies have found that e-banking services can positively affect customer satisfaction with website and online purchasing, thus, the purpose of this study is to assess the quality of electronic banking services in Ethiopian Banking sector.

The Ethiopian Banking sector has functioned recently the E-banking service however, with the start of E-banking service; the sector was characterized by intensely aggressive competition to solicit the customer more. This technological advancement has made the banking processes faster and easier whilst satisfying the needs of the customers. This is therefore, the following popular services covered under E-banking includes:

- ATMs,
- Credit cards,
- Debit Cards,
- Smart Cards,
- Electronic Funds Transfer System (EFT)
- Check the truncation payment system,
- Mobile Banking,
- Internet Banking,
- Telephone Banking,
- Agency Banking etc.

Source: The Global Findex Database, 2017

Electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries. It is obvious that in Africa majority of the population has no access to banking services. Furthermore, the coverage of e-banking services is under a question. These limited accesses to financial services are particularly due to deficient infrastructures, geographical inaccessibility, and financial illiteracy and so on.

The popular and common types of electronic banking services used in Ethiopia are:

1. **ATM:** Automatic Teller Machine, an electronic terminal which gives the customer an opportunity of banking service at any time.
2. **POS:** Point of Sell: The system allows the customer to pay for retail purchase, to acquired service through debit card (Merchant POS),to receive cash in advance or to withdrawal at bank branch (Branch POS).
3. **Internet Banking:** Electronic Banking system using web technology in which customers are able to conduct their business transactions through personal computer or self-phone.
4. **Mobile Wallet:** Also called M-wallet or Digital Wallet. It enables customer to conduct some banking services thorough mobile bank. It refers to provisions of banking and financial services with the help of mobile Telecommunication devices (HenokArega, 2015).
5. **Agency Banking:** New and not widely used. An Agent Banking means conducting banking business on behalf of a financial institution through an agent using various service delivery channels as permitted under National Bank of Ethiopia directives. Agency Banking is a delivery channel for providing financial services beyond the traditional branch network of the bank. This requires partnering with agents to reach out to the remotest location of the country(NBE Directives No. FIS/01/2012).

1.1. Card Banking

Bank card is a plastic card issued by a bank to its customers that performs one or more of services that relate to give customers the access of transacting their account either from his/her own bank account (Debit Card) or through a credit account (Credit Card).

Physically bank card usually have:

- The customer or the card holder name
- Unique card number (PAN)
- Magnetic strip on the back
- Expire date
- Bank logo
- Chips
- Switch logo

Debit Card:- (**Buy now Pay now**) is the type of card that when a card holder makes purchase or needs cash funds are withdraw directly from a card's holder, from his/her bank account.

Credit Card: - (Buy now Pay later) is the type of card that linked to a line of credit (credit limit) created by issuer of a card that a cardholder can draw (borrow).

Prepaid card: - (**Buy now Pay before**) is the type of card issued to customers based on pre-defined needs.

1.2. Classification of cards:

Local cards – A type of card all Ethiopian banks produce.

International Cards: - An international card that function in all countries.

Eg. VISA, MASTERCARD, UNION PAY, AMEX (American Express)

In Ethiopia, however, only local debit card is issued to the customers, and the study is only limited to this type of card.

1.3. Importance of E-Banking

The use of E-banking came into existence in greater numbers because of low operating costs, ease of accessible and its self-orientation. At the beginning, electronic banking was widely operated in the form of ATM; recently it transformed to phone and internet, as a new channel between customers and banks which benefits both. The main aim of E-banking services is to provide the customers a much faster services with low cost. From the last few years, banking sector has widely chosen a new method of E-banking for a reason of:

- saving time spent in banks
- providing ways for international banking
- providing banking throughout the year 24/7 days from any place where internet access is available
- providing well-organized cash management for internet optimization
- providing convenience in terms of capital, labor and time
- Taking advantage of integrated banking services (banks may compete in new markets therefore get new customers and expand their market share)

- providing some security and privacy to customers
- providing inquiry and transaction services around the clock that the customer can obtain funds at any time
- providing worldwide connectivity
- facilitating an easy access to transaction data, both recent and historical
- offering convenience to customers since they are not required to go to the bank's facilities
- There is a very low incidence of error.
- Credit cards and debit cards allow customers to get discounts at points of sale
- A customer can easily transfer the funds from one place to another electronically (AnujAgarwal, 2016).

1.4. Drawbacks of E-banking

Though Electronic Banking has many advantages there are some short comings. The disadvantage of e- banking includes the following:

- Understanding the usage of electronic banking might be difficult for a beginner.
- It needs internet connection; thus without the availability of internet access, it may not be useful.
- Security of transactions is a big issue. Account information might get hacked by unauthorized people over the internet.
- Password security is a must. After receiving password, customer should have change and memorize it otherwise an account may be misused by someone who gets to know the password unintentionally.
- Customer cannot use it in case the bank's server is down.
- It is sometimes difficult to note whether customer transaction was successful or not. It may be due to the loss of network connectivity in between, or due to a slow connection.
- People with physical need find it hard to use electronic banking (AnujAgarwal, 2016).

1.5. Dispute

Disputes may arise as a result of a cardholder's claim of not executing a specific transaction or not receiving the service or goods as agreed or requests on the system. It might also happen that while carrying out a bank ATM transaction, purchasing though POS, transferring fund from self phone or ATM Machine, a machine doesn't dispense cash or transfers funds and yet the money is debited from customer's account.

1.5.1. Causes of Dispute:

Dispute may arise due to inappropriate use of card by a card's holder, poor infrastructure or low level technological advancement. Some among many reasons are:

- Wrongly inserting the card in to the machine
- Power fluctuation
- Inappropriate use
- Network interruption
- Cash handler problem
- Insufficient fund

1.5.2. Dispute Management System:

DMS is an electronic or manual communication process that helps banks manage inquiries, complaints and disputes raised by their customers, among themselves or among other banks, timely, fairly and effectively.

Dispute Management: Disputes are managed through Dispute Management System (DMS). Dispute is classified into two - On us and Off us. On us dispute is a dispute arise from the same bank card or system user used on the same bank machines/system, whereas Off us dispute arise from other banks machines/system. A dispute process means that it is firstly initiated by customers. On us dispute is processed at the branch monitoring the machine or system. The card issuing bank submits a claim for off us dispute with the appropriate information to the other bank. The objective of dispute resolution mechanism is to determine, as quick as possible, the need for an adjustment as a result of a claim. All members or non-members of the same groups shall fully cooperate to resolve disputes, errors and other issues as quickly as possible to respond to customer complain on time.

1.6. Statement of the Problem

The Ethiopian banking sector has functioned recently the e- banking service, however, with the start of e-banking service, the sector face various challenges. This technological advancement has made the banking process faster and easier whilst satisfying the needs of the customers left behind. It has been argument that some of the product and services offered by the e-banking technology does not meet customers' need with expected quality. A study undertaken by Philipos (2013) entitled with "Customer satisfaction and electronic banking service on some selected banks of Ethiopia" listed that presently there are some factors which affect customer satisfaction in electronic banking service in the surveyed banks (Commercial banks of Ethiopia, Wegagen bank and Zemen bank) of Ethiopia.

As information technology promotes bank services, it has also some impact on service quality. However, regardless of the benefits obtained from electronic banking, electronic banking in Ethiopia banks is facing some challenges. These challenges affects customer's satisfaction were ATM machine is out of cash, no printing of receipts, cards getting blocked, frequent breakdown of ATM service, unreliability of the service, lack of sufficient technicians in all bank who can solve breakdown of ATM machine, lack of sufficient alternative system which substitutes the services for the customer when temporary problem occurs, lack of mobile banking services, lack of consistent network, lack of credit card service, under-development of technological infrastructure, low level of relevant knowledge creation and innovation, interruption of network, limit of fair distribution of E-banking service.

Customers are complaining about the quality of service, especially on dispute handling, internet and power fluctuations. This and other challenges hinder customers to use entirely electronic banking services and have a great impact to create cashless society. This in turn creates unnecessary overcrowding of customers in banks. E-banking service quality which has impact on customer satisfaction has not gotten an attention by many researchers. Researchers emphasize more on ATM and Mobile E-banking service and ignore other E-banking service types such as POS and internet banking service and also forget a level of customer satisfaction obtained from using E-banking service.

The above problems invited the researcher to carry out a study on analyzing the quality of electronic banking service in Ethiopian Banks in focus. To achieve this purpose, the researcher specifically formulates the following basic research questions:

1. What factors affect electronic banking service quality?
2. Are customers really enjoying electronic banking services?

1.7. Objectives of the study

1.7.1. General Objective

The general objective of this study is to assess the service quality of electronic banking in Ethiopian banks.

1.7.2. Specific Objectives

The study tried to address more specific objectives as follows:

1. To identify the basic dimensions of electronic banking service quality.
2. To study the impact of electronic banking service quality dimensions on customer satisfaction.

1.8. Significance of the Study

The study is expected to add to the existing knowledge in electronic banking field of study in Ethiopia and may help academicians as a reference who might be interested in carrying out their research. It also enables the banks and National Bank of Ethiopia, the supervisory and regulatory body, to have a better understanding of the electronic banking dimensions and their contribution toward customer satisfaction.

1.9. Scope of the Study

The researcher has found that it is very important to delimit the scope of the study to a manageable size in order to investigate the issue thoroughly. There are17 banks in Ethiopia where all of them have adopted electronic banking services to their customers all over the country, out of these the research was confining only to the Addis Ababa region for the sake of in-depth analysis with genuine investigation on quality of e-banking service in Ethiopian Banks.

1.10. Organization of the Study

This study was organized and comprises into five chapters. The first chapter consists of an introduction which consists of background of the study, statement of the problem, objectives of the study, significance of the study, scope of the study and definition of terms. The second chapter discusses about the review of related literature. The third chapter deals with the research design and method of the study. The fourth chapter deals with the presentation, analysis and interpretation of the data. The fifth chapter deals with the summary of findings, conclusions and recommendations of the study. Finally, references, a set of appendices and questionnaire that used to collect primary data for this work were included.

Chapter Two

2. Literature Review

2.1. Definition of Electronic Banking

E-banking has a variety of definitions and all refer to the same meaning. Electronic banking can be defined as the use of electronic delivery channels for banking products and services to customers. Banks have used electronic channels to do banking operations with both domestic and international customers. Banks are mostly using electronic channels to receive instructions and deliver their products and services to their customers. Although the ranges of services provided by banks over the electronic channel vary widely in content (Azouzi, 2009).

E-banking is also defined as the use of a computer to retrieve and process banking data (statements, transaction details, etc) and to initiate transactions (payments, transfers, requests for services, etc) directly with a bank or with other financial service provider remotely via a telecommunications network, Yang (1997). Hertzum et al. (2004) also defined E-Banking as web-based banking. In other words E-Banking refers to the banking operations, which is done over World Wide Web. However, more comprehensive and well-established definition is given by the United Nations Conference on Trade and Development (UNCTAD). Electronic service can be defined as an interactive, content centered, and internet based customer service that is driven by customers and integrated with the support of technologies and systems offered by service providers, which aim at strengthening the customer-provider relationship.

It is a web-based service or an interactive service that is delivered on the internet in which customers will interact with service providers (banks) through their websites. In this view, the quality of electronic service is vital in determining the extent to which electronic banking service quality refers to the consumers' overall evaluation and judgment of the excellent and quality of electronic service offering in the virtual marketplace.

It is the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery of products or services. It can be described in terms of functionality and quality of service and the subjective of perceptions of the quality are resulting from actual usage of a website, Santos, J. (2003).

Pikkarainen et al (2004) define electronic banking as an "internet portal, through which customers can use different kinds of banking services ranging from bill payment to making investments". With the exception of cash withdrawals, internet banking gives customers access to almost any type of banking transaction at the click of a mouse, De Young (2001).

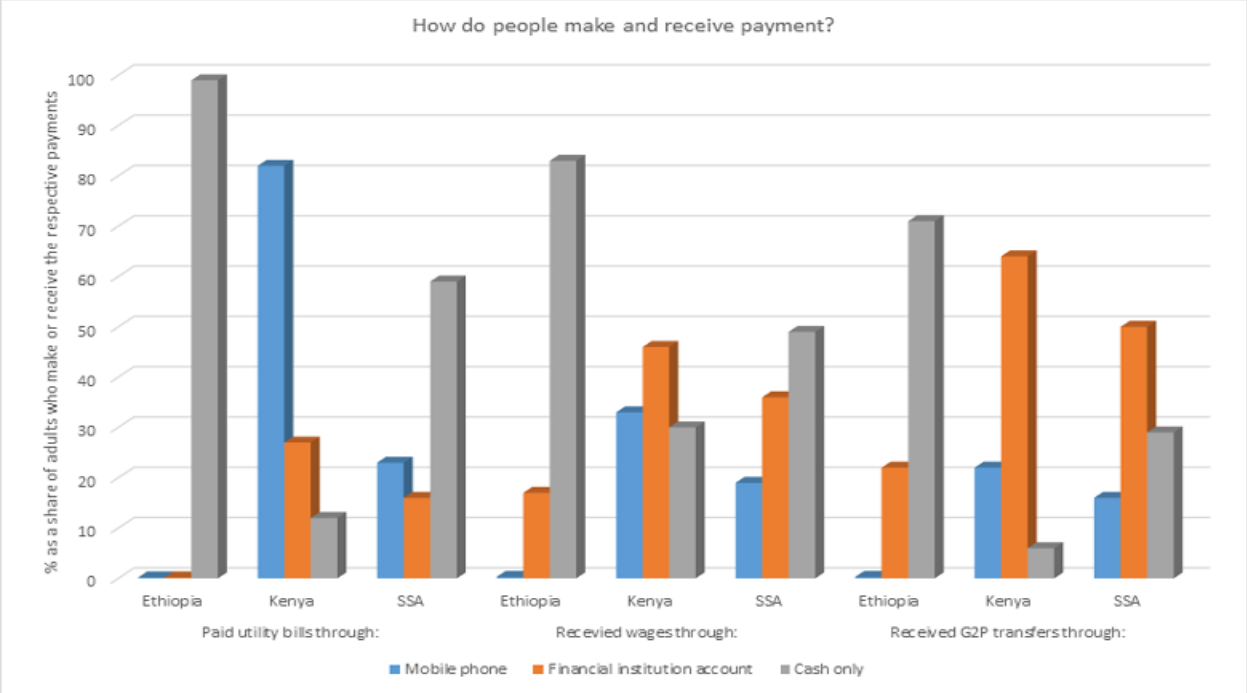
2.2. Evolution of Electronic Banking

According to OECD, (2001) E-Banking has developed from essential insignificance to millions of users worldwide. However, e-banking is the product of different generations of electronic transactions. The current web-based internet or e-banking 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 whereas, in phone banking, users call their bank's computer system on their ordinary phone banking allowed users to interact with their bank by means of a computer with a dial-up modem connection to the phone network.

After those generations Deutsch 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 a host of other financial services are being added to these primary services (Dewan&Seidmann, 2001).

2.3. Banking in Ethiopia

In SSA out of 590 million adults 350 million do not have access to accounts in bank or with other types of financial institution (David Ashiagbor. 2017). Ethiopia, the second largest country in SSA with an estimated population of 93 million has only 22% of its population formally banked (European Investment Bank, November 2017). The country lags behind its neighboring countries, for example in Kenya 82% of adults have an account, while in Rwanda, account owners stands at 50%. In Ethiopia people relay more on informal institutions for their financial needs, for example, Equb, a rotating saving and credit association where each member agrees to regularly pay a small sum in to a common pool so that each in rotation can receive a large sum (McKinsey and Company, 2016). Cash is the dominant payment mechanism like to pay utilities, receiving payments. Almost all or 99% of adults pay and receive in cash while compared to 12% of population in Kenya and 59% in the region as a whole.



Source: Global Findex database

Figure **1** in SSA the percentage of people makes and receives money

Despite its population, Ethiopia hasn't taken an advantage of Digital Financial Services that has driven access to and usage of financial and services in Sub-Saharan Africa countries.

2.4. Operating Practices of Electronic Banking in Ethiopia

Banking has traditionally been a brick-and-mortar business that required face-to-face interaction. Customers were required to visit a bank's physically location in order to complete transaction, such as making deposit, withdrawing cash, or applying for loans. In Ethiopia, currently banks are largely mobilizing the unbanked population and an economy which is predominated by cash payment. In addition, these banks are adopting new products and technology to give variety and quality of services to address their customers' satisfaction.

Banks acquire this technology by purchasing the software which requires high investment cost. Checks and cash payment order (CPO) are the leading non-cash-based payment instrument under EATS systems, carried by bank's staff physically from bank to bank for clearing and processing. The lack of standards check payment system by banks in the clearinghouse create a single check to credit to account more than three days for birr amount less than 200,000.00 and from an hour to undefined days for birr amount greater than or equal to birr 200,000.00 which has a great impact on efficiency in the payments system.

Ethiopia is on a progress in the modernization of the payment system, as predicted in the vision and strategic framework for the modernization of the National Payment System. Notable developments included the establishment of an appropriate legal framework, including the Payment System Proclamation; implementation of the Ethiopian Automated Transfer System (EATS), which comprised the RTGS system and the automated clearinghouse system; introduction of check standards and automated check processing; and implementation of state-of-the-art core banking systems. Although, these developments were very essential for the overall NPS and for creating the necessary foundations for an efficient retail payment system and broader financial inclusion within the country.

The number of customers using e-banking services in Ethiopia is still very small compared to the population. This shows that Ethiopian banking system still needs to develop compared to other African countries. Among the 17 commercial banks in Ethiopia all of them are working on electronic banking system in order to compete and survive in the industry. Likewise many of them are aggressively planting ATM machine which are performing under capacity and are limited to few services.

Modernizing and equipping the nation's financial institutions with Digital Finical System (DFS) strengthens the country's shift towards economic development and creates a productive ground to harmonious and safe local and international money transactions. Appreciating to the technology abundant, daily indoor and outdoor activities are carried out with the help of technology made devices or sometimes by the devices alone. The number of bank account holders is increasing since the liberalization of banking industry in the country and the NBE is also aggressively working on the modernization of the national payment system (Ethiopia: Strengthening NPS, 2017).

There are switching companies with unique brand that have been connecting all ATM machines and POS terminals from the currently fragmented card alliances, Essayas Taye(2016). The unification of card alliances has ensured the effective usage of card payment infrastructure, brining more convenience for card users and providing access to all banks. National Bank of Ethiopia has made CORE banking system mandatory since June 2011 in order to facilitate the payment of the banking system. It is a mandatory to use electronic banking that enables banks to provide mobile, internet and card banking services. After this directive has been issued, all banks operating in the country have got the system from different companies (Ethiopia: Strengthening NPS, 2017).

Fintech innovations are all about collaboration, and it is positive to see Ethiopian banks on the same side for a change. Establishing a national payment system were an important step in the right direction towards building a better network for everybody. EthSwitch, as its network is called, were chosen by the Ethiopian Banker's Association, and the National Bank of Ethiopia. As a result of this collaboration, all involved parties are now part of a centralized payment solution. For customers and financial institutions in Ethiopia, this is very positive news, as they can now access services through all of the ATMs in the country, and make point of sale payments through any terminal.

In the long run, the EthSwitch national payment system expects to bring more business to Ethiopia over the coming years. Further online payment services which were developed open up opportunities for Fintech looking for expanding a market in Africa. Although, some banks namely Awash Bank, Nib International Bank, United Bank, Berhan International Bank, Addis International Bank, Cooperative Bank of Oromia and Lion International Bank united and

established modern payment technology called PSS in the country. PSS, Premier Switch Solutions S.C is a company owned by these seven banks that provides banking technology platform for these seven banks restraining of its vision to be the cornerstone of attaining a cashless society in Ethiopia. The company has a mission to provide efficient, effective and diversified e-payment services to a growing number of customers using state of the art technology that is the most beneficial to member banks and users through the following objectives:

- Contribute to modernization of the National Payment System in the country
- Optimize economies of scale in investing on e-payment infrastructure
- Provide interconnectivity and interoperability amongst participants
- Deploy a shared switch network which complies with all relevant international standards
- Specify participants EFT interface standards
- Provide a mechanism for proactive detection of card frauds
- Provide seamless integration with the central switch system

2.5. Electronic Service Quality

E-service has recently become a popular research topic, with the growth of the e-commerce, and a number of published studies have offered a variety of conceptual definitions (Sylvie and Ina, 2010). E-service quality can be described as overall customer evaluations and judgments regarding the excellence and the quality of e-service delivery in the virtual marketplace (Santos, 2003). Parasuraman et.al (2005) also define e-SQ as broadly to encompass all phases of a customer's interactions with a web site: the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery, over all, it is the extent to which a website supports purchases and delivery of products and services in an efficient and effective manner.

2.6. E-Service Quality Dimensions

Electronic service quality dimensions are identified in different studies are reviewed and discussed from either the customer's perspective or the provider's perspective (Heim and Field, 2007). Review of existing literatures on electronic banking service quality shows more different

dimensions, efforts to measure e-service quality also display different approaches based on researchers and countries. Cross national boundaries have also exposes theories, concepts and instruments to a host of institutional and environmental differences that affect the ability to generalize theories developed in some countries, and challenge the relationships that are commonly accepted as "given" within a country (Farley and Lehmann, 1994). Theories and instruments, like E-SERVQUAL for measuring electronic service quality must undergo further validation through research in different contexts and cultures before they are accepted as universal Boddewyn et.al. (1999).

For Example

- Web-site setting, access, web site interface, trust, attention and credibility were dimensions of e-service quality in UK, Jayawardhena, C. (2004);
- Credibility, efficiency, fulfillment, security, site aesthetics, system availability in Sweden, Kenova V. and Jonasson P. (2006)
- Efficiency, fulfillment, system availability, privacy, contact, compensation, site aesthetics, customization in Taiwan, Wu Yu-Lung et.al (2008)
- Credibility, efficiency, problem handling, security, in Hong Kong, Noel and Jeremy(2005)

Similarities and differences are observed in the e-service quality dimensions of these countries as well as with what is being addressed in the E-SERVQUAL. However, several researches are also aimed to determine different dimensions of e-service quality, these shows that there is no agreement concerning the dimensions of electronic service quality. The following table although shows some proposed dimensions with respect to researchers systematically.

No	Dimensions	Researcher	Qlty Scale
1	Ease of use, aesthetic design, processing speed, interactive, responsiveness	Yoo&Donthu's (2001)	SITEQUQL
2	Content, access, navigation design, response, background personalization	Kaynama& Black (2000)	SERVQUAL
3	Information adaptability, trust, design, visual requirement, flow, business process, interaction, response time, intuition, creativity, overall communication, replace ability	Lociacono et al. (2002)	WEBQUAL
4	Website design, reliability, security and customer service.	Wolfinbarger&Gilly (2002)	eTailQ
5	Speed of delivery, website design, ease of use, reliability, delivery, enjoyment & control	Dabholkar 1996	
6	Ease of use, E-scape, customization, responsiveness, assurance	Ribbink et al.	
7	Website appearance, communication, accessibility, credibility, understanding & Availability	Cox & Dale (2001)	
8	Responsiveness, reliability, ease of use, competence	Yang & Fang (2004)	
9	Information availability & content, ease of use/usability, privacy/security, graphic style, reliability/fulfillment	Parasuramsn, Zeithaml and Malhotra (2005)	
10	Access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics & Price knowledge	Zeithmal (2002)	
11	Reliability, security, customization & responsiveness	Van Riel et al. (2003)	
12	Efficiency, fulfillment, system availability, privacy, responsiveness, compensation, contact, information and graphic style.	Kim et al. (2006)	
13	Website design, reliability, responsiveness, security, fulfillment, personalization, information and empathy	Li &Suomi (2009)	

Table **1**: Researchers and the Dimensions they used

Given all the above dimensions with respect to their researchers, many researchers argued that electronic service are quite various from the traditional ones, therefore a new measure for electronic service quality is needed. Loiacono et al developed WebQual instrument in 2000 with 12 dimensions, Barnes and Vidgen developed WebQual in 2003 with 4 dimensions, SITEQUAL was developed by Yoo and Donthu in 2001 with 6 dimensions. Wolfinbarger and Gilly developed eTailQ in 2002 with 4 dimensions.

Some researchers also share the same dimensions: like Ease of use, Privacy, Reliability etc, while others use different dimensions for the same meaning, for example, Security/Privacy, Website Design/Aesthetic design/Navigation Design etc. In the face of the low level of internet penetration and poorly developed telecommunication infrastructure, customers have to secure at least the basic features of the services. These are: Security, System Availability, Ease of use, Reliability and Responsiveness.

Reliability: Refers to the alignment or position of expectations and service delivery. It deals with four determinants. (Jun & Yang, 2008)

a) The correctness of order fulfillment
b) Prompt product deliveries
c) Accurate billing
d) Timely responses communicates between customers and the company

This dimension summarizes maintaining timely communications with customers ensuring full functionality of the web presence and providing customers with accurate information.

System Availability: The exact technical function of the online site.

Security: The safety of the site in the mean of protecting customer information. Protecting customers from fraud and protecting their personal information to third party. It starts from issuing or delivering cards, pin, passwords, user, etc to the customers. It gives confidence to the customers to make transactions using electronic services. This dimension can be measured by the degree of protection and maintaining customer's information and how customers feel about their special information while using the electronic banking system.

Responsiveness: Getting the problems and product returns in hand effectively through the sight and other channel. It is also the promptness and helpfulness the service provided by an operator as well as the technology on which the interface runs. There are thus both human and technology factors at play. (Jun & Yang, 2008)

Ease of Use: Anticipating expected customers that they do not need to use the system with a great effort. It is the simplicity with which key variables such as the website address can be remembered for future use (Jun & Yang, 2008).

The study also measures the e-service quality by the product banks that are avail for the market. The following products are not included in the research scenario.

- Credit Card
- Electronic Check deposit
- Electronic cash deposit
- Agent Banking
- E - Loan Processing

2.7. Customer Satisfaction

Service quality and customer satisfaction have a positive relationship because customer's satisfaction is one of the essential components of any organization's strategies, as the customer is the ultimate source of income for any industry. Through Electronic banking, customers like to enjoy sitting in the comfort of their homes or offices or anywhere accessing internet with his or her phone or personal computer logged in to the banking system and transact banking activities, or purchase goods and services without carrying cash though their cards. The quality of banking service is tested and measured here by the customer's satisfaction. Traditionally the high level of customers perceived service quality results in increased customer satisfaction. Whereas perceived service quality is less than expected, customer will be dissatisfied. As the level of customer satisfaction is determined by the quality of services, the level of e-satisfaction realizes that there are different factors of e-satisfaction compared to formal customer, e-satisfaction are modeled as the consequences of attitude toward the e-portals (chen and chen, 2009). Overall customer satisfaction is seen as a key performance indicator of a business.

2.8. Reviewed Empirical Studies

Some studies have focused on the adoption, opportunities and challenges of electronic banking services on some individual banks while few studies focus on ATM banking service usage which is one of the electronic banking services categorized under card banking system.

Based on the study of Habte Ashenafi (2019) noted that with the title of "Effect of ATM Service Quality on Customers Satisfaction in banking industry in Ethiopian": The case of Oromia International Bank in Addis Ababa. The researcher has tried to measure customer satisfaction and left aside the key factors that determine the satisfaction which is the quality of services. The limitation here also not differs from the other researchers that the research gives more emphasis on the adoption, single product of e-banking and does not seen other alternatives. The researcher also did not assess the service quality side view about the given services. He also recommended that "studies have to replicate to other banks not only on ATM services but also on all other banking products for a better economic growth and development" for the future researchers.

Abebe Zeleke (2016) conducted a research with the title "Opportunities and challenges in the adoption of E-banking services: The case of Dashen Bank S. C". The research shows that only 26% of the banks customers enjoy the card system while the other E-banking services are at an infant stage. It is known that Dashen Bank is one among the other banks which starts primary experiencing electronic banking services. The researcher conducts a research to investigate opportunity and challenges in the adoption e-banking with respect to Dashen bank. The study followed survey method and sample were taken from only clerical staffs. The research also revealed that the relative effects of variables such as perceived risk, perceived ease of use and perceived usefulness toward adoption of e-banking services are determined.

Ayana Gemechu (2014) studied the case of three private and one state owned bank on the title "Factors affecting adoption of electronic banking system in Ethiopian Banking industry". He used a mixed research approach to answer the research questions that emerged through the review of existing literature an experience of others in respect of the e-banking system in Ethiopia. The result of his study shows that security risk and lack of trust on the use of technological adoption are the major barriers for the system. The level of security risk associated

with e-banking products or services, such as ATM, internet banking, mobile banking and others pose different challenges to different banks.

Although, there are some empirical researches who focused on the challenges and opportunities of e-banking, they have not been assessed the quality of services which have an impact on customer side effect of e-banking in Ethiopia. The researcher here wants to answer the above mentioned problems and findings while investigating the "electronic banking service quality" by analyzing the performance of the service attribute within five dimensions on how they affect customer satisfaction that have been recommended by previous researchers for future study. This research mainly focuses on customer view about E-banking service quality, and question the affiliation of e-banking variables listed by other researchers which cause customer satisfaction in e-banking and finally it wonders how would they look like in the study area. The researcher believes that previously no research has been done in this specific topic in the city to provide empirical evidence of the effect of e-banking service quality of Ethiopian banks. Therefore, this study tries to fill the gap of empirical research by conducting a study on assessing the quality of electronic banking service in the banking sector of Ethiopia.

2.9. Conceptual Framework

The basic objective of this study is to assess the quality of e-banking service in Ethiopian Banking sector. The research model for this research is given in Figure 2. The independent variables will be taken into account in the explanation of e-banking service which has five identified characteristics with some modification.

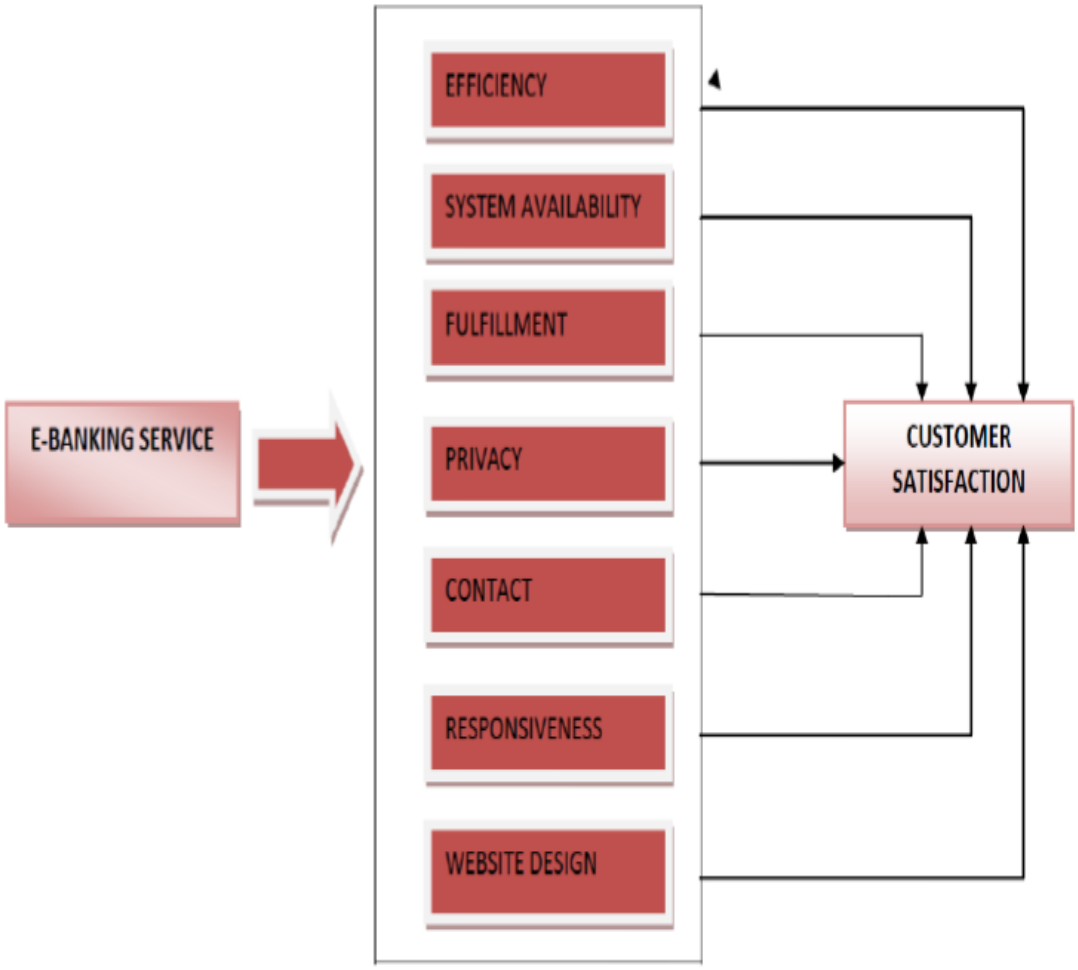


Figure **2** E-Service Quality - Customer Satisfaction Relationship in Internet Banking.

Chapter Three

3. Research Design and Methodology

3.1. Research Approach

Field researches have been conducted by using structured questionnaires, utilizing the E-SERVQUAL model and fitting the dimensions to our country's technological progress. The measurements was rated using five point Likert scales and analyzed using SPSS.

3.2. The Research Design

Explanatory method was employed in this study with the assumption that it could enable the researcher to reveal the quality of electronic banking service in Ethiopian based Banking sectors. Moreover, this method is appropriate because it shows the relationship between the quality of the service and respective satisfaction on the customer.

3.3. Sources of Data

Both primary and secondary sources of data were used in this study. The primary sources of the study were electronic banking users of the formal banks while secondary sources were library books, journals, directives, newspapers on business, and magazines on business; from these secondary source, the related concepts of the study would be obtained, such like definitions of E-banking, history of e-banking, benefits of e-banking, relation between e-banking and customer satisfaction and etc. annual reports of different commercial banks, reports of national bank of Ethiopia, internet sources, and other related materials were intensively used.

3.4. Sample Frame and Sample

Purposive sampling technique was used to get active e-banking users in Addis Ababa. Respondents were those who have only practiced in digital banking products within the past two months, March and April in order to ensure that the research is active. Respondents' opinions were collected at the spot where customers use the services like banks, supermarkets, around ATM, Universities, and walking customers and so on.

3.5. Target Respondents

1. Customer of banks whose age is above 18 years, both male and female.
2. Customer of banks who have knowledge of electronic banking practices.
3. Customer who have used electronic banking at least once during the two months under study.

3.6. Sample Size and Sampling Techniques

A simple random sampling technique has been employed to recruit 150 electronic banking users representing the desired domain (age, knowledge of electronic banking and active users). Using random sampling technique gives each of the population an equal chance of being included in the study. For the purpose of this study, based on unknown population size, 150 sample sizes were used due to limitation of finance and time constraints. The sample size has been determined in scientific way using the following formula; since in social science 1%-10% of errors are acceptable, the researcher has accepted 8% of error due to lack of time and fund to collect data from large sample.

$n_r = 4pq/d2$

Where, n_r = the required sample size

p= proportion of the population who have experienced e-banking services

q or (1-p)= proportion of the population who have not experienced e-banking services

d^2 = the degree of precision

3.7. Data Collection Tools

The data was collected mainly from primary sources through survey questionnaire which enables the researcher to gain genuine information.

3.7.1. Questionnaire

The questionnaire consisted of both close and open ended questions. The questionnaire has four pages well-articulated questions and categorized with five major sections and the pertinent information about the issue on quality of electronic banking services in Ethiopian based commercial banks.

3.8. Method of Data Analysis

The collected data was coded into the Statistical Package for the Social Sciences (SPSS version 20) and interpretation was made with help of percentage, mean value, mean difference, standard deviation and t-value. The percentage is used to analyze the background information of the sample respondents, whereas, the mean, standard deviation and t-value are derived from the data as it serve as the basis for interpretation of the data as well as to summarize the data in simple and understandable way. On the other hand, the data obtain from the document analysis were analyzed qualitatively. The interpretation was made for all five point scale measurements based on the following mean score results:

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

3.9. Ethical Considerations

Above all, the researcher has conducted the study based on professional as well as the basic principles of research. The researcher would not been identified or present the respondents personal details and response without their consent and agreement. Ethical issues grouped into informed consent procedures, dishonesty, confidentiality towards participants and protecting the anonymity and privacy of research participants (Creswell, 2003). Based on the basic principles, the researcher proposed a set of ethical and moral procedure and informed the participants just before filling out the questionnaire. The participants were informed that information obtained from them remains confidential. Besides the respondents were further informed that their names will not be written or exposed on report and would never been used in connection with any of the information they revealed.

Chapter Four

4. Data Presentation and Analysis

This chapter deals with the presentation and analysis of data collected from questionnaires administered to get bank customers opinion on electronic service quality who patronize the services for the last two months under study, March and April. A total of 150 questions were distributed to respondents, among the distributed questionnaires 138 or 92% were filled and responded.

4.1.Respondents' Background

The gender, age, education and occupation category of respondents were counted from the responded questionnaires and summarized in the table below. Among the total 129 respondents, 122 respondents expressed their gender category that 39.3% were found female and 60.7% male. The age category of respondents within 25-33 years were relatively the highest (39.7%). 23.1% of respondents were found in each of the age categories 18-24and 34-52. The respondents beyond 43 years of age were represented by relatively the least number of respondents in the sample.

The education level of the majority of respondents, 60.6%, was first degree. Respondents with second degree and above constitute 26.9% of the respondents. Whereas few number of respondents were below diploma or some levels 12.5% (4.8 + 7.7).

Concerning respondent occupation most of the respondents, 61.7%, were employees. Businessmen, students and household groups, each make up 38.2% of the respondents.

Descriptions		Frequency	Percent	Valid Percent
Gender	Female	48	37.2	39.3
	Male	74	57.4	60.7
	Total	122	94.6	100.0
Missing	System	7	5.4	
Age_Group	18-24	28	21.7	23.1
	25-33	48	37.2	39.7
	34-42	28	21.7	23.1
	43-50	11	8.5	9.1
	above 50	6	4.7	5.0
	Total	121	93.8	100.0
Missing	System	8	6.2	
Edu_level	below or high school	5	3.9	4.8
	Diploma/level	8	6.2	7.7
	firs degree	63	48.8	60.6
	2nd degree or above	28	21.7	26.9
	Total	104	80.6	100.0
Missing	System	25	19.4	
Occupation	Student	20	15.5	15.6
	Employed	79	61.2	61.7
	Businessmen	21	16.3	16.4
	Household	8	6.2	6.2
Missing	System	1	.8	.8
E_Banking_Used	Debit Card on ATM	118	91.5	92.2
	Debit Card on POs	35	27.1	27.3
	Internet Banking	15	11.6	11.7
	Mobile Banking	60	46.5	46.9
	Total	128	99.2	100.0
Missing	System	1	0.8	
E_banking_use_factor	Reduce time of transmission	96	74.4	76.2
	Cost effectiveness	15	11.6	11.9
	Ease of use	58	45.0	46.0
	Technology know-how	10	7.8	7.9
	Total	126	97.7	100.0
Missing	System	3	2.3	

Table 2. Respondents back ground

Source: Own survey (2019)

Most of the respondents (92.2%) were ATM service users. Mobile Banking service, POS service, and Internet banking service users make up 46.9%, 27.3% and 11.7% respondents respectively. And the most appealing reasons that the customers prefer for the choice of e-banking services were the time-saving (76.2%) and ease of use (46.0%) features available in such services.

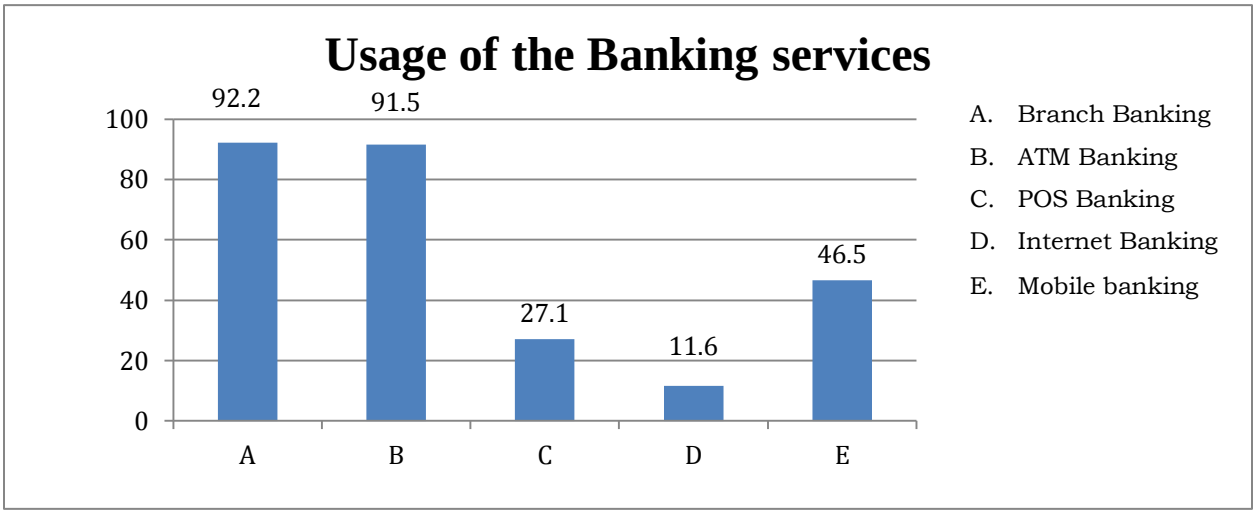


Figure 3Percentages of customer uses banking services

4.2. Usage of Bank Services

Branch banking service was the service that almost all of the respondents used . Majority of the respondents used the branch banking service by their bank book (cheque and pass book) simultaneously with electronic banking services. These customers had visited different bank branches at different frequency for services. They had approached the bank at different times during the two months period of investigation. Out of 129 customers 119 visited the bank branch for service in addition to service available on electronic banking. The majority of users visited branch banks 3-5 times (33.6%) and 6-10 times by 31.9% of users. Those respondents who only visited the banks for 1-2 or over 10 times were the least and encountered 16% and 18.5% respectively. The result indicates that users or customers were not fully using e-banking services or they were demanding other services which are not available as e-banking solution or the service was not fully functioning or in other cases most of them didn't use all the available e-banking services.

Descriptions		Frequency	Percent	Valid Percent
Branch Banking	1or2 times	19	14.7	16.0
	3to5 times	40	31.0	33.6
	6to10 times	38	29.5	31.9
	over 10 times	22	17.1	18.5
	Total	119	92.2	100.0
Missing	System	10	7.8	
ATM	1or2 times	12	9.3	11.1
	3to5 times	26	20.2	24.1
	6to10 times	37	28.7	34.3
	over 10 times	33	25.6	30.6
	Total	108	83.7	100.0
Missing	System	21	16.3	
Internet banking	1or2 times	4	3.1	57.1
	3to5 times	1	.8	14.3
	over 10 times	2	1.6	28.6
	Total	7	5.4	100.0
Missing	System	122	94.6	
Mobile banking	1or2 times	9	7.0	18.8
	3to5 times	12	9.3	25.0
	6to10 times	18	14.0	37.5
	over 10 times	9	7.0	18.8
	Total	48	37.2	100.0
Missing	System	81	62.8	
POS banking	1-2 times	3	2.3	9.4
	3to5 times	15	11.6	46.9
	6to10 times	13	10.1	40.6
	over 10 times	1	0.8	3.1
	Total	32	24.8	100.0
Missing	System	97	75.2	

Table **3**. Frequency of e-banking usage

Among all the respondents, 83.7% of users were responded that they had used the ATM service at different times. The majority of users visited the ATM service 6-10 and above 10 times was found as 34.3% and 30.6% of respondents reported respectively. Those who had used the ATM services for 3-5 times were 24.1% of the respondents; compared to the 11.1% of the customers who had visited ATMs for 1-2 times.

Only 32 of 129 customers were using the POS service; this seizes the ration of 24.8%. Most of the POS users use the service 3-5 and 6-10 times 46.9 % and 40.6% respectively which is (87%) that had accessed and used this service for 3-10 times during the past two months. Among the mobile banking used by 48 of the customers' only 37.2% of the respondents had identified their frequency of using mobile banking service. In contrast with other services, internet banking was used only by 7 of the 129 customers which encompass 5.4% of the total e-banking users. The result indicated that, due to relatively very small number of customers using mobile banking, POS banking and internet banking services, most customers needed those services from branch banking.

4.3.Problems in the e-banking services

Regarding the ATM service, customers were assessed the extent of the problems mentioned in the table below. The result indicated that these problems were faced by majority of the respondents to some extent. The out of service problem was experienced by 88.4% of the respondents; and 53.5% of the customers encountered cards gets blocked.

Machine out of cash and Non printing of statement, each was the problems that 71.5% of the users had experienced, at least in the rare instances. Reduction in balance without cash payment was rated by 58.9% of the customers which is the main reason of dispute initiation.

Descriptions		Frequency	Percent	Valid Percent
Out of service	Often	36	29.5	32.5
	Rarely	69	58.9	65.0
	Never	3	2.3	2.6
	Total	117	90.7	100.0
Missing	System	12	9.3	
Cards get blocked	Often	9	7.0	7.9
	Rarely	60	46.5	52.6
	Never	45	34.9	39.5
	Total	114	88.4	100.0
Missing	System	15	11.6	
Machine out of cash	Often	12	9.3	10.3
	Rarely	82	63.6	70.7
	Never	22	17.1	19.0
	Total	116	89.9	100.0
Missing	System	13	10.1	
Non printing of statement	Often	25	19.4	21.9
	Rarely	68	52.7	59.6
	Never	21	16.3	18.4
	Total	114	88.4	100.0
Missing	System	15	11.6	
Reduction in balance without cash payment	Often	11	8.5	10.2
	Rarely	65	50.4	60.2
	Never	32	24.8	29.6
	Total	108	83.7	100.0
Missing	System	21	16.3	

Table **4**Customers rate of ATM problem

From the 31 respondents using the POS service almost 97% of the service had the problem of Transaction decline. According to 87.5% of the respondents, the POS service had also the problem of Declining of confirmation message. Most of them, however, rated that these problems were happening in rare instance.

Description		Frequency	Percent	Valid Percent
Transaction decline	Often	4	3.1	12.9
	Rarely	26	20.2	83.9
	Never	1	.8	3.2
	Total	31	24.0	100.0
Missing	System	98	76.0	
Decline of confirmation message	Often	5	3.9	15.6
	Rarely	23	17.8	71.9
	Never	4	3.1	12.5
	Total	32	24.8	100.0
Missing	System	97	75.2	

Table **5** Customers rate of POS problem

The internet banking service were found to have left the customer with unfinished transactions where 2/3rd of the respondents had rarely experience this problem in contrast to 1/3rd of the respondents who often encountered this problem. Similarly, waiting long time for the system was one of the shortcomings of this e-banking service as this problem often was counted to 41.7% of the respondents.

While 87.5% of the respondents encountered the lengthy steps in transaction processing, security concern was also the problem for 54% of the respondents.

Description		Frequency	Percent	Valid Percent
Not being able to maintain security	Often	3	2.3	23.1
	Rarely	4	3.1	30.8
	Never	6	4.7	46.2
	Total	13	10.1	100.0
Missing	System	116	89.9	
Leaving the operation unfinished	Often	4	3.1	33.3
	Rarely	8	6.2	66.7
	Total	12	9.3	100.0
Missing	System	117	90.7	
Waiting long time for the system	Often	5	3.9	41.7
	Rarely	7	5.4	58.3
	Total	12	9.3	100.0
Missing	System	117	90.7	
Too many steps in processing transaction	Often	3	2.3	37.5
	Rarely	4	3.1	50.0
	Never	1	.8	12.5
	Total	8	6.2	100.0
Missing	System	121	93.8	

Table **6** Customers rate of Internet Banking problem

Regarding mobile banking, potential problems were assessed by the customers. Too many steps in processing transaction were also identified as one of the problems on mobile banking that 2/3rd of the respondents had experienced to some extent. The problem of login/sign off/ was attested for being a problem by 48% of the respondents that 1/3rd (16.7%) of them experienced in frequent times. Compared to the two problems, the lack of secured transaction in mobile banking was the least problematic as only 32% had considered.

Description		Frequency	Percent	Valid Percent
Login/sign off are not easy	Often	10	7.8	16.7
	Rarely	19	14.7	31.7
	Never	31	24.0	51.7
	Total	60	46.5	100.0
Missing	System	69	53.5	
Lack of security to transaction	Often	7	5.4	11.7
	Rarely	12	9.3	20.0
	Never	41	31.8	68.3
	Total	60	46.5	100.0
Missing	System	69	53.5	
Too many steps in processing transaction	Often	18	14.0	30.0
	Rarely	22	17.1	36.7
	Never	20	15.5	33.3
	Total	60	46.5	100.0
Missing	System	69	53.5	
Total		129	100.0	

Table **7** Customers rate of Mobile banking problem

4.4. E-banking quality of service

Respondents were presented with several statements to assess the quality features of e-banking services they have experienced. The security of e-banking service rated M=4.09, on average, within the 95% CI 3.98-4.21 was one of the most acknowledged quality of the e-banking services provided by the bank. The result indicated that e-banking services are well secured that the customers felt comfortable using them.

The availability of e-banking services, however, was agreed to the moderate level with M=2.95 within the 95% CI of 2.84-3.08. This indicated that the e-banks were not adequately available as the customer demanded/expected. Similarly, the responsiveness feature, rated M=3.12 with 95% CI estimate in the range 2.98-3.27, are only moderately appreciated by the customers. That is the responsiveness of e-banking services was not highly appreciated by the customers.

The ease of use in the e-banking services was also agreed to the considerably high level with M=3.88 in the range 3.77-3.98. The result justified that e-services are easy to understand and use by the respective customers. Similarly, e-banking services were rated for their reliability with M=3.54 in the range of 3.42-3.66, 95% confidence. This result also showed that the services are

trusted by the customers to some considerable level that however, needs for much improved quality in its reliability feature.

The overall services quality encompassing all the quality features was rated to the considerably high level with M=3.52 within the 95% CI of 3.44-3.59. The result indicated that the banks need to upgrade its service quality mainly by enhancing the system availability and responsiveness of its services.

One-Sample Statistics				Test Value = 3					
								95% Confidence Interval of the Difference	
	N	Mean	Std. Deviation	t-value	Df	p-value	Mean Difference	Lower	Upper
v9_1_1	123	4.26	0.80	17.52	122	.000	1.26	1.12	1.40
v9_1_2	126	4.06	0.96	12.37	125	.000	1.06	0.89	1.22
v9_1_3	124	3.98	0.79	13.74	123	.000	0.98	0.84	1.12
Security	126	4.09	0.67	18.31	125	.000	1.09	0.98	1.21
v9_2_1	127	2.91	0.83	-1.18	126	.240	-0.09	-0.23	0.06
v9_2_2	127	3.01	0.78	0.11	126	.910	0.01	-0.13	0.15
System_Availability	127	2.96	0.68	-0.65	126	.515	-0.04	-0.16	0.08
v9_3_1	126	3.82	0.73	12.55	125	.000	0.82	0.69	0.95
v9_3_2	126	3.81	0.83	10.99	125	.000	0.81	0.66	0.96
v9_3_3	126	4.00	0.85	13.23	125	.000	1.00	0.85	1.15
ease_of_use	126	3.88	0.60	16.33	125	.000	0.88	0.77	0.98
v9_4_1	121	3.51	0.84	6.73	120	.000	0.51	0.36	0.66
v9_4_2	123	3.47	0.82	6.35	122	.000	0.47	0.32	0.62
v9_4_3	124	3.69	0.86	8.89	123	.000	0.69	0.53	0.84
Reliability	124	3.54	0.69	8.73	123	.000	0.54	0.42	0.66
v9_5_1	125	3.15	0.87	1.95	124	.053	0.15	0.00	0.31
v9_5_2	125	3.10	0.96	1.12	124	.267	0.10	-0.07	0.27
Responsiveness	125	3.12	0.83	1.68	124	.096	0.12	-0.02	0.27
overall_service_quality	127	3.52	0.42	13.86	126	.000	0.52	0.44	0.59

Table 8 Assessment of quality features

4.5. Customer Satisfaction on E-banking Services

The satisfaction level of customers on e-banking services was evaluated with one-sample t-test, as presented in the following table. Regarding the satisfaction on ATM service, four statements were presented to customers, and the satisfaction levels ranges from M= 2.90 to M=3.85. In case of statement #4, customers were moderately satisfied; within the 95% CI ranges 2.70-3.10. Whereas, customers have above moderate level agreement for the rest of the statements and the respective 95% CIs ranged above the moderate level agreement, i.e 3.0. Overall, customers had scored M=3.48 regarding their satisfaction on ATM service. This level of agreement was found above moderate level agreement and the 95% CI of ATM service satisfaction was in the range 3.36-3.59. This level of satisfaction, which was made by the majority of the respondents, looks good but suggests the need for improvement.

Among all the respondents, only 35 of them were found to have used POS service. They made evaluation on their satisfaction with this service. The customers' satisfaction on POS service was M=3.86, on average within the 95% CI of 3.63-4.08. Despite of customer number this indicated that customers were highly satisfied in the POS services available to them.

Regarding the Internet banking Service, which was used by only 15 of the respondents, three statements were used to assess the customers' satisfaction. The average agreement to statement #2 was the least, M=2.75, that fall within the 95% CI 1.88-3.52. The interval indicated the disagreement to the statement by the majority of the respondents, but within the range for moderate level agreement. The average rating for statement #1 and #3 were also fall within the moderate level agreement; which is justified by the respective CIs that included the moderate level agreement. The overall agreement to the internet banking service, rated by 14 respondents were M=3.33, which is statistically indifferent to the moderate level and estimated within the 95% CI of 2.97-3.93.

Regarding the Mobile banking Service, which was used by only 60 of the respondents, four statements were used to assess the customers' satisfaction. The satisfaction on Mobile banking service specific to statement #4, M=2.83, was statistically indifferent to the moderate level agreement in the 95% CI of 2.56-3.11. Whereas, customers expressed their high level agreement

to the rest three statements. The overall customers' satisfaction on Mobile banking was computed M=3.83, which ranges 3.64-4.02 in the 95% CI.

One-Sample Statistics				Test Value = 3					
								95% Confidence Interval of the Difference	
	N	Mean	Std. Deviation	t-value	Df	p-value	Mean Difference	Lower	Upper
Q10.1.1	104	3.33	0.95	3.51	103	.001	0.33	0.14	0.51
Q10.1.2	103	3.85	0.68	12.80	102	.000	0.85	0.72	0.99
Q10.1.3	103	3.81	0.77	10.65	102	.000	0.81	0.66	0.96
Q10.1.4	99	2.90	0.98	-1.02	98	.310	-0.10	-0.30	0.10
ATM_ satisfaction	104	3.48	0.58	8.44	103	.000	0.48	0.36	0.59
Q10.2.1	35	3.83	0.71	6.94	34	.000	0.83	0.59	1.07
Q10.2.2	33	3.91	0.52	10.00	32	.000	0.91	0.72	1.09
POS_ satisfaction	35	3.86	0.65	7.82	34	.000	0.86	0.63	1.08
Q10.3.1	13	3.54	0.97	2.01	12	.068	0.54	-0.05	1.12
Q10.3.2	12	2.75	1.22	-0.71	11	.491	-0.25	-1.02	0.52
Q10.3.3	13	3.31	1.18	0.94	12	.367	0.31	-0.41	1.02
Internet_bankingv_ satisfaction	14	3.33	1.04	1.20	13	.251	0.33	-0.27	0.93
Q10.4.1	55	4.22	0.98	9.26	54	.000	1.22	0.95	1.48
Q10.4.2	55	4.31	0.96	10.12	54	.000	1.31	1.05	1.57
Q10.4.3	55	3.91	1.01	6.71	54	.000	0.91	0.64	1.18
Q10.4.4	54	2.83	1.00	-1.22	53	.228	-0.17	-0.44	0.11
Mobile_bankingv_ satisfaction	55	3.83	0.70	8.75	54	.000	0.83	0.64	1.02
overall_service_ satisfaction	113	3.62	0.58	11.42	112	.000	0.62	0.51	0.73

Table **9** evaluation of satisfaction

The customers' overall satisfaction in e-banking services was computed to an average level of M=3.62 that falls above moderate level and within the 95% CI 3.51-3.73. This is a considerably high level of satisfaction, which still needs work from the bankers to raise the satisfaction of their customers.

4.6. Relationships between E-banking Service Quality and Customer Satisfaction

We have discussed the attributes of the service quality in e-banking and the satisfaction of customers in these e-banking services. One of the purposes of this study was to investigate the relationship of service quality and customer satisfaction. These relationships were examined using Pearson moment correlation analyses.

The table below presented the correlation analysis results. The security attribute in e-banking was only significantly correlated with the satisfaction level of customers in ATM service. This relationship is weak and direct and estimated with correlation value, r=0.233. The security feature, however, was not significantly correlated with the other three services and overall customer satisfaction. Whereas the availability feature in e-banking services was found not significantly correlated with the satisfaction of customer to any of the e-banking services.

The ease of use in the e-banking services was found to have significantly correlated to ATM service and POS service satisfaction with respective correlations estimated r=0.270 and r=0.440. These relationships, however, were not strong as the ease of use feature in e-banking can only determine 7.29% and 19.36% of the satisfactions in ATM and POS service, respectively. The ease of use feature also found to have significant but weak correlation, r=0.307, with the customers' overall satisfaction in e-banking services. The result indicated that r2=0.0942=9.42% of the variation in customer satisfaction was due to the ease of use features in e-banking services.

Descriptions		ATM_ satisfaction	POS_satisfaction	Internet_bankingv_satisfaction	Mobile_ bankingv_satisfaction	overall_service_satisfaction
Security	Pearson Correlation	.233*	.243	-.155	-.016	.110
	p-value	.018	.173	.596	.907	.251
	N	102	33	14	55	111
Availability	Pearson Correlation	.082	.218	-.115	.149	.096
	p-value	.408	.215	.695	.278	.314
	N	103	34	14	55	112
ease_of_use	Pearson Correlation	.270**	.440*	-.016	.265	.307**
	p-value	.006	.010	.958	.050	.001
	N	102	33	14	55	111
Reliability	Pearson Correlation	.258**	.362*	-.030	.329*	.301**
	p-value	.010	.042	.919	.014	.001
	N	100	32	14	55	109
Responsiveness	Pearson Correlation	.306**	.210	.492	.043	.157
	p-ovalue	.002	.249	.074	.755	.101
	N	101	32	14	55	110
overall_service_quality	Pearson Correlation	.374**	.453**	.104	.230	.317**
	p-value	.000	.007	.725	.090	.001
	N	103	34	14	55	112
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						

Table **10** Relationship between e-banking service quality and customer satisfaction

The reliability in e-banking services had significantly correlated to the satisfaction on ATM, POS, and Mobile banking, but not to the satisfaction on Internet banking service. The satisfaction on ATM, POS and Mobile banking services and the reliability of e-banking services were correlated significantly and directly estimated at respective values of r=0.258, r=0.362, and r=0.329. Whereas, the responsiveness feature were only related with the satisfaction on ATM service expressed with the correlation value r=0.306.

Chapter Five

5. Summery, Conclusion and Recommendations

5.1. Conclusion

Most of the customers of branch banking users were also using the ATM service. Nearly half of the customers are also using mobile e-banking service. Only about $2/7^{th}$ of the respondents were POS service users; while only 1 in 9 users are registered for internet banking. This indicated that the e-banking services i.e POS and Internet banking services potential were not adequately used by customers. Even mobile banking required an attention that only nearly half the respondent are using the services. Users prefer the e-banking service mostly because of the time-saving and ease of use features.

The majority of the customers are still visiting the banks for branch services; while they have e-banking service alternatives. They had visited the bank several times. This concludes that majority of users were not fully using e-banking services or they are not satisfied with current technology or they were demanding other services not available as e-banking solution; i.e. most of them didn't use all the available e-banking services. The ATM service was also visited frequently by the majority of customers. They are relatively active than the other e-banking services. Irrespective of the small number of customers, those using mobile banking, POS banking or internet banking also habited using the services frequently.

The e-banking services exhibited several problems that may hinder the services rendered to customers. The ATM service was found to have out of service problems most frequently that forced the customers to move from place to place finding ATM with system. Also customers sometimes face the machine out of cash; this indicated that the ATM was short of liquidity. The ATM was also not free from Non printing of statement and failure of confirmation of amount deduction from customers balance. Reduction in balance without cash payment problems was a big issue of the ATM machine.

The problems in POS service were transaction decline, and decline of confirmation message's though they were happening in rare instance. The main problem in the internet banking service was leaving the customer with unfinished transactions. Customers were also experienced waiting

long time for the internet system. Hence the internet time lacked the quality of time saving and payment failure that most customers demanded to use e-services. The major problem that customers experienced on mobile banking was the lengthy steps in processing transactions.

The security of e-banking service was one of the most acknowledged qualities in the e-banking services provided by the bank. That is e-banking services were found secured adequately; that customers have little or no doubt about the security features. The availability of e-banking services, however, was agreed to the moderate level. This indicated that the e-banks were not adequately available as the customer demanded/expected. Similarly, the responsiveness feature was not up to high level as the customers wanted.

The ease of use in the e-banking services was appreciated by the customer. Customers agreed to the considerably high level that justified the ease to understand and use e-banking services; which also were rated for their reliability, and hence, the services are trusted by the customers. Although customers had positive rating to the quality features in the e-banking services; these qualities, however, needs to be improved for higher level of availability, and responsiveness. Although customers had positive rating to the quality features in the e-banking services,

The satisfaction level of customers on ATM service was rated to the moderately high level; while the service was not found satisfactory in some of the expected facilities. Overall, customers were satisfied by the ATM service that the bank had to ensure a much better satisfaction from its customers.

Despite the number of customers, satisfaction on POS services was high; that the bank may guarantee to attract more customers to use this service. Similarly, the Internet banking Service, which was used by very small proportion of customers, was moderately satisfactory to the customers using the service. This as mentioned earlier was due the time-taking using the system and the interruptions encountered without completing transactions. The overall customers' satisfaction on Mobile banking was adequately high; that could be improved by reducing the problems stated in this specific e-banking service.

5.2. Recommendations

The findings of this study are believed to have some recommendations for practice. The implication might show areas of intervention to improve the most wanted quality electronic banking service in Ethiopian banking sector. As we think of improving the quality of electronic banking service and customer satisfaction in Ethiopia. Thus, we need to look in to the recommendations involved. Accordingly, the following recommendations are made on the basis of the research findings and the conclusion.

Recommendations forwarded to National Bank of Ethiopia

- Electronic banking systems, such as Card Banking, Mobile Banking and Internet Banking in Ethiopian banking industry are at an infant stage. This is therefore, NBE and key stakeholders of the financial sector need to improve those services and able to bring the most wanted customers satisfaction.
- E-Banking services are moderately affected by suffered the low level of technology, poor infrastructure and lack of implementing legal frame work of NBE. The consequence of these barriers has an effect on the quality of services that banks are serving its customers. Thus, NBE and key stakeholders of the banking system should establish a system that improves the quality of the E-banking and minimize the challenges observed in the electronic banking services.
- As indicated in the finding of the study, Customers have shown their level of dissatisfaction or indifferences with some aspects of electronic quality dimensions while on the other hand banks have performed relatively better on some issues. Thus, it is possible to suggest that serious of measure has to be taken on the ICT and banks update their software.
- The National Bank of Ethiopia as the regulatory body of the financial sectors of the country together with the banking sector stakeholders has to enforce banks to update and modernize their technology so as to satisfy the end users of the electronic banking.

Recommendations forwarded to the Government

- The government of Ethiopia has to liberalize the telecom industry, invite network providing companies to enhance efficiency and competitive within the sector. Banks have to choose network providing companies than sharing a single among them. The country has to learn a practical from neighbor Kenya that there are a number of network providers companies like Acces Kenya Group, Adcare Limited, Airtel Kenya Ltd, Bandwidth and Cloud Service (BCS) Group, Orange Kenya are few among many.
- The government has to encourage employees to use e-banking services by paying salaries, benefits and remuneration through these novel products.
- Improve infrastructure to minimize the frequency of network failure and power interruption.

Recommendations forwarded to the Banks

- As long as quality electronic banking is concerned Ethiopian Banks should take the initiative and improve the service by employing the following key issues need to be implemented in the banking sector.
    - Sporadically obtain feedback on taking complaints and suggestions of the customers in order to improve the service and increase customer satisfaction.
    - Periodically control of the ATM network and power supplies and provide it with sufficient amount of cash.
    - Update the software on a regular base in order to avoid interruptions of services.
    - Maintain and clean the machines.
    - Distribute the machines and devices to an expanded area.
    - Develop the habit of working cooperatively and
    - Encourage customers using e-banking by reward and tariff discount.

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ADDIS ABABA UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS
DEPARTMENT OF MANAGEMENT

Dear respondent, this study is conducted for partial fulfillment of the requirements for the M Sc Degree in Management, Specialized on Quality Management and Organizational Excellence. I'm carrying out a study on E-Banking Service Quality of Ethiopian Banks. The purpose of this questionnaire is to obtain your perceptions and views regarding the services.
The information that you provide will enable me to critically analyze the subject matter. Therefore, please, answer all questions honestly and confidently. Please do not write your name anywhere on the questionnaire.

Circle your choice and write in the blank space where necessary

Section I: Personal Information

1. Gender A) Female B) Male
2. Age A) 18 – 24 B) 25 – 33 C) 34 – 42 D) 43 -50 E) above 50
3. Level of education A) Grade 12\10 & below B) Diploma\Level C) First Degree D) Masters & above
4. Occupation

   A) Student B) Employed/Salaried C) Business D) Household
   E) Other (please specify) _____

Section II: Factors, types and frequency of service you use

5. Type/s of E-Banking service you use:
   A) Debit card on ATM B) Debit card on POS C) Internet Banking D) Mobile Banking

   E) Other (please specify) _____
6. Which factors promote you to use E-banking?
   A) Reduce time of transaction B) Cost effectiveness C) Ease of use D) Technology savvy

   E) Other (please specify) _____
7. How frequently do you use the following banking services per month?

	Nil	1 to 2	3 to 5	6 to 10	Over 10
A. Branch Banking	☐	☐	☐	☐	☐
B. ATM	☐	☐	☐	☐	☐
C. Internet Banking	☐	☐	☐	☐	☐
D. Mobile banking	☐	☐	☐	☐	☐
E. POS Banking	☐	☐	☐	☐	☐

Section III

8. **Problem of Technology usage**	**Often**	**Rarely**	**Never**
8.1 ATM Problems			
A. Out of Service	☐	☐	☐
B. Cards get blocked	☐	☐	☐
C. Machine out of cash	☐	☐	☐
D. Non printing of statement	☐	☐	☐
E. Reduction in balance without cash payment	☐	☐	☐
8.2 Pos Banking problems			
	☐	☐	☐

A. Transaction declined
B. Decline of confirmation message ☐ ☐ ☐

8.3 Internet banking problems

A. Not being able to maintain security ☐ ☐ ☐
B. Leaving the operation unfinished ☐ ☐ ☐
C. Waiting for long time for the system ☐ ☐ ☐
D. Too many steps in processing transaction ☐ ☐ ☐

8.4 Mobile Banking Problems

A. Login / Sign off are not easy ☐ ☐ ☐
B. Lack of security in transactions. ☐ ☐ ☐
C. Too many steps in processing transaction ☐ ☐ ☐

Section IV:

9. Customer perception of the quality dimensions

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Security					
The banks protect information about the card and PIN/PW	5	4	3	2	1
The bank does not share personal information with other site	5	4	3	2	1
E-banking system provide sufficient security	5	4	3	2	1
System Availability					
The bank‘s system/web-site is always available	5	4	3	2	1
System interface do not freeze after inter order information	5	4	3	2	1
Ease of use					
The system interface is attractive and visible	5	4	3	2	1
The E-Banking system is user friendly	5	4	3	2	1
Pass Word or PIN is easy to memorize	5	4	3	2	1
Reliability					
The bank‘s system/web-site launches and runs right way	5	4	3	2	1
The system timely respond to enquiry	5	4	3	2	1
The system transact accurately	5	4	3	2	1
Responsiveness					
The bank promptly responds to the request made by customers	5	4	3	2	1
The bank‘s system tells what to do if transaction is not proceed	5	4	3	2	1

Section V

10. Satisfaction on Technology usage

	Extremely Satisfied	**Satisfied**	**Neutral**	**Dissatisfied**	**Extremely Dissatisfied**
10.1 ATM Services					
A. Promptness of card delivery	☐	☐	☐	☐	☐
B. The quality of notes (currency)	☐	☐	☐	☐	☐
C. Conveniently located	☐	☐	☐	☐	☐
D. Pay back of dispute	☐	☐	☐	☐	☐
10.2 Pos Banking Services					
A. Pay for goods & Services on MPOS	☐	☐	☐	☐	☐
B. Withdraw cash	☐	☐	☐	☐	☐
10.3 Internet banking Services					
A. Account info and balance enquiry	☐	☐	☐	☐	☐
B. E- payments	☐	☐	☐	☐	☐
C. Account to Account transfer	☐	☐	☐	☐	☐
10.4 Mobile Banking Services					
A. Balance Enquiry	☐	☐	☐	☐	☐
B. Mobile Recharge	☐	☐	☐	☐	☐
C. Money Transfer	☐	☐	☐	☐	☐
D. Payments	☐	☐	☐	☐	☐

11. What suggestion can you give to the development of technology to the Ethiopian Banking industry?

_____

_____