


***ADDIS ABABA UNIVERSITY***

***COLLEGE OF BUSINESS & ECONOMICS***

***DEPARTMENT OF MANAGEMENT***

# THE IMPACT OF INFORMATION & COMMUNICATION TECHNOLOGY ON ETHIOPIAN PRIVATE BANKS' PERFORMANCE: THE CASE OF TWO SELECTED ETHIOPIAN PRIVATE BANKS

**A Thesis Submitted to the Department of Management of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Executive Master of Business Administration**

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BY YALEW NIGUSSIE

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## Declaration

I declare that this study is my original work towards the Executive Masters of Business Administration and has not been submitted for any Degree or Diploma in any University. To the best of my knowledge, all source of materials used for the study have been duly acknowledged. I have undertaken the study independently with the guidance and support of the research advisor.

Signature:_____

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Name of Advisor: Dr. Asmare Emerie

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## Abstract

*This research aimed at finding out the impact of Information and Communication Technology (ICT) on performance of Ethiopian Private Banks using Dashen Bank S.C. and United Bank S.C. as a case study. It used customers' satisfaction and employees' performance/efficiency as independent variables to measure performance of the banks. In addition the research tried to investigate major challenges encountered by customers in using Technology-based services/products. Structured questionnaire was used to collect relevant data for the research. The data gathered through the questionnaire was analyzed by Statistical Package for Social Science (SPSS) version 16. T-statistic test was carried out to determine the significance of the independent variables on dependent variable. Simple linear regression analysis was also carried out to determine the effect of the independent variables on dependent variable. It was found from the research that Information and Communication Technology indeed has a positive significance impact on performance of Ethiopian Private Banks in respect with satisfying their customer and improve their employees' performance. The simple linear regression analysis also showed a positive coefficient of 0.803 and 0.725 for customer satisfaction and employees performance respectively, which simply mean that there is strong positive relationship between Information and Communication Technology and customers' satisfaction and employees' performance of the banks. The research also identified that the major challenges discouraging customer to use Technology-based services/products of the banks are; mobile and internet connectivity problem and lack of Information and Communication infrastructures. In general, Information and Communication Technology has positively impacted performance of Ethiopian private banks.*



**Key Words**: ICT, Customer satisfaction, Employee performance, bank performance, challenges.

# CHAPTER ONE

# Introduction

## 1.1 Background of the Study

Today‟s business environment is very dynamic and intense as a result of technological advancement and introduction of information and communication technology as a competitive advantage of any organization. Information and communication technology (ICT) is the automation of processes, controls, and information production using computers, telecommunications, software and other gadgets that ensure smooth and efficient running of activities. It is a term that largely covers the coupling of electronic technology for the information needs of a business at all levels (Agbolade, 2011). Laudon and Laudon (2012) define Information Technology as all the hardware and software that a firm needs to use in order to achieve its business objectives. Therefore, it can be explained in business context as "a set of interrelated components that collect (or retrieve), store, and distribute information to support decision making and control in an organization" (Yeboah *et. al*, 2013).

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

Moreover, the rapid diffusion of the ICT in the current business environment during recent decades has affected many organization‟s business process and organizational strategies. Many studies have shown that world organizations have been inspired by the rapid and persistent upgrading of technology and scientific knowledge. Rapid changes in computer and communication technologies have altered the way organizations do business and decision making process which is reflected on their operational effectiveness. In this regard Chakrabarty (2011) argued that technology has revolutionized every industry in the world by rendering faster

and cost effective delivery of products and services to customers, who in the normal course could not have afforded the same. At the same time it also enhanced producers of goods and services to remain viable and profitable.

With increasing global competition and quick spreading of knowledge, the future of many businesses depend upon their ability to innovate (Talegeta, 2012). Information technology is one of the most important tools along with innovations in organizations and it plays a critical role in development of new products and services. Rai, *et. al.* (1996) concurred that, IT provides new forms of customer services, new distribution channels, new information based products, improved productivity, and has the capacity to influence industry structure. According to Agrawal and Jain (2013), the major impetus for innovation has been globalization of financial system, deregulation, and great advances in technology. Thus, in increasingly integrated financial systems facing higher volatilities, more competition and wide varieties of risks, financial innovation has become an essence to provide new products and strategies to better suit different circumstances of time and market and to meet different requirements of participants in financial system.

Banks, like other business organizations, are deploying innovative products and services to ensure their future survival and meet the changing expectation of their customers. In this intense globally competitive market, banks should strive to satisfy the needs of their customers through providing quality customer service and improve their customer relation management. According to Agrawal and Jain (2013), while banks are striving to strengthen customer relationship and move towards „relationship banking," customers are increasingly moving away from the confines of traditional branch banking and seeking the convenience of remote electronic banking. In this regard Information technology and the communication networking system have revolutionized the working of banks and financial entities all over the world.

Indeed, there is no doubt that the majority of business organizations, particularly banks, consider computer technology as core competency measure to gain their competitive advantage. In this regard Jalal-Karim and Hamdan (2010) concurred that in recent years, the utilization of information technology has been increased in service industries, particularly, the banking industry, which by using information technology related products such as internet banking, electronic payments, security investments, information exchange, can deliver high quality

services to clients with less effort. Theoretically, alternative banking channels/e-channels will enhance good performance of banking services and increase the level of customer satisfaction by providing anytime, anywhere and multi way banking services including varieties of services, conveniences, speed, efficiency, security and cost effectiveness (Kumbhar, 2011). Therefore every bank should accentuate the impact of technology on their customers‟ satisfaction and employees‟ performance.

Banking in Ethiopia began in 1905 with the bank of Abyssinia, a private company controlled by the bank of Egypt (Asefa, 2011). However introduction of information technology into the banking industry is the last decade phenomena. Currently most of Ethiopian Banks have started providing Technology-based services/products like ATM (payment cards), Mobile banking, Internet Banking, SMS banking and Electronic fund transfer to their customers. Gemechu (2012), argued that technology innovation play a crucial role in Banking industry by creating value for banks and customers, that it enables customers to perform banking transaction without visiting a brick and mortar banking system. However, banks in Ethiopia still engaged in aggressive branch expansion and extended hour‟s office services. Indeed as Asefa (2011) contend, the electronic banking in Ethiopia is facing lot of challenges due to lack of software, awareness, fear of risk and lack of trained persons in the industry. Nevertheless, in order to surmount local and global competition, Ethiopian private banks need to appreciate the role of information and communication technology on their performance and properly ascertain the challenge thereon.

## 1.2. Statement of the Problem

Information and communication technology (ICT) has in particular brought a complete paradigm shift on the bank‟s performance and on the customer service delivery in the banking industry (Aliyu and Tasmin, 2012). Nowadays the banking system is slowly shifting from traditional banking towards relationship banking. Traditionally the relationship between the bank and its customers handled by face to face interaction in a branch, whereas, in contemporary banking, customers are demanding more flexible and accessible services everywhere and anytime. Technology has made a lot of impact on banking services owing to its role in gathering and analyzing information. The 21st century has witnessed a lot of technological innovation in banking sector. Some of the services that technology is providing to the financial services are:

ATMs, Mobile Banking, Branch network, Telephone Banking, Internet Banking just to mention a few (Yeboah *et. al*, 2013). In general ICT allows the present day banks to meet the expectation of their more demanding customers who are more techno-savvy compared with their counterparties of the yester years.

In today‟s fast changing world, banking environment has become highly competitive and banks are required to respond quickly to the dynamics of fast changing customers‟ expectations. To be able to survive and exceed in this changing market, banks are striving to improve their customer service delivery and productivity through adaptation of electronic banking. Electronic banking is generally an extension of traditional banking, using the internet as an electric delivery channel for banking products and services. The banking today is redefined and re-engineered with the use of IT and banks start offering more sophisticated services to customers with continuous product and process innovation (Tiwari and Kumar, 2012). Today‟s dynamic and stiff market competition forced banks to spend all their resources on improvement of service delivery and value added activities in order to survive and become productive. Yeboah *et al*, (2013) believes that total automation of banking is an imperative need for all banks to attract more customers, provide efficient and quality services, and survive in the emerging new competition, apart from the profit motive which is the primary objective of the banks.

Information technology has become inevitable and is seen as the only way for banks to survive in the increasingly competitive banking arena (Benerjea & Dawinji, 2011). Thus, it just doesn‟t make sense to put off investment in these most basic of technology that lay the foundation for the very future of banking. It is absolutely critical for future revenue and engagements of banks (King, 2013). In fact, many organizations have invested their time and resources for the betterment of their services and products. Yeboah *et. al*, (2013) argued that Banks, in particular have invested huge sums of money in IT, having their products and services basically supported by it. Identifying the IT investment and its role in the banking industry is very crucial point for the success of the modern banks and Yeboah *et, al* (2013) insisted that banks should properly understand the impact of ICT on their efficient service delivery, customer satisfaction and employees‟ productivity in order to maximize the return on its investment. On the other hand, Agbolade (2011) claimed that the most significant shortcoming in the banking industry today is a wide failure on the part of senior management in banks to grasp the importance of technology

and incorporate it into their strategic plans accordingly. In addition to this, the management is oblivious to the current banking situation that requires their determination to fully address all the challenges related with ICT.

Even though many studies have been conducted on impact of ICT on banking performance, limited studies are available in Ethiopia that investigate the impact of ICT on performance of Ethiopian Private Banks and the challenges thereon. Hence, more studies are still required to understand the relevance of ICT in Ethiopian Private Banks and to give a better insight for decision makers of the industry.

Therefore, this study seeks to examine the impact of information and communication technology on performance of Ethiopian Private Banks and to assess the challenges they encounter in providing Technology-based services/products to their customers.

## 1.3 Research Question

Based on the statement of the problem and review of related literature, this study seeks answers for the following questions:

- To what extent does ICT have any effect on customers‟ satisfaction in Ethiopian Private Banks industry?
- To what extent has ICT affected employee performance/productivity in discharging their duties and responsibilities?
- What are the main challenges that discourage customers to use Technology-based products and services provided by the banks?

## 1.4 Research Hypothesis

The study proposes the following hypotheses for empirical testing.

**Hypothesis 1:**

The adaptation of Information and Communication Technology has a significant impact on customers‟ satisfaction in Ethiopian Private Banks‟ Industry.

**Hypothesis Two:**

Application of Information and Communication Technology has affected employees‟ performance in Ethiopian Private Banks industry.

## 1.5. Objective of the study

### 1.5.1 General Objective

The general objective of the study is to examine the impact of Information and communication technology on performance of the Ethiopian private banking industry.

### 1.5.2 Specific Objective

- To examine the impact of Information and Communication Technology on customers‟ satisfaction in Ethiopian private banks industry.
- To examine the impact of Information and Communication Technology on employees‟ performance in Ethiopian private banks industry.
- To investigate the main challenges those discourage customers to use Technology-based services/products of the banks.
- To recommend appropriate measures to be taken to maximize every drop of investment banks made on Information and Communication Technology.

## 1.6. Significance of the study

In today‟s more competitive global market environment, adoption and use of Information and Communication Technology in banking operation is not just an optional decision for banks to ensure their profitability and survival in the future. It is believed that only banks that overhaul the whole of their customer service and delivery system and apply Information and Communication Technology to their operations are likely to survive and prosper in the contemporary business environment. Even though applying Information and Communication Technology into their operation is a recent phenomenon in Ethiopian banking industry, Ethiopian banks should re-examine their service and delivery system in order to cope up with the dynamism of Information and Communication Technology. Thus, senior managers of banks should adequately understand and be able to measure the impact of Information and

Communication Technology on betterment of their performance in general and customer service quality and staff productivity in particular.

However, there are only few studies that examined the role of Information and Communication Technology on banking services in Ethiopia and its challenges thereon. Hence, the purpose of the present study is to explore the role of ICT in the Ethiopian Banking Industry based on selected cases. The result of the study helps bankers, bank managers and any relevant decision maker to be aware of the role Information and Communication Technology plays on performance of Ethiopian private banks. Moreover, the result of the study may provide additional research insight into how Information and Communication Technology affects the performance of banking and inspires other researchers to conduct more researches in the area.

## 1.7 Scope/Delimitation and limitation of the study

This study is confined only to know the impact of ICT on customers‟ satisfaction and employees‟ performance/productivity of selected Ethiopian private banks. The study was conducted based on Dashen Bank and United Bank; for they are pioneers to move towards adopting Information and Communication Technology and networking their branches and to move to core banking which is the platform for all Technology-based services/products. The participants of the study were also selected from Addis Ababa branches of the two selected banks.

The first limitation of the study relates to the sampling procedure i.e. convenience sampling, which limits the generalizability of the research findings. The second limitation relates to the sample size for primary data sources; the number of participants included in the sample may not be good representative of the population. As last limitation, the study failed to measure the financial impact of adoption and use of the ICT in the banking industry. Future research is, therefore, recommended to address the above stated limitations.

## 1.8. Organization of the Study

The study consists of five chapters. Chapter one is the introduction chapter which presents background of the study, statement of the problem, research question, research hypothesis,

objective of the study, significance of the study, scope and limitation of the study. The second chapter deals with review of related literatures regarding the topic of the study. The third chapter discusses the research methodology and methods employed by the current study. Chapter four presents the data analysis results and their interpretation. Finally, based on the analysis and interpretation of the findings, chapter five presents the conclusion and recommendation.

# CHAPTER TWO

# Literature Review

## 2.1 Brief History of Banking in Ethiopia

Modern banking in Ethiopia started in 1905 with the establishment of Abyssinian Bank which was based on a fifty years agreement with the Anglo-Egyptian National Bank. In 1908, a new development bank and two other foreign banks were also established. These banks were criticized for being wholly foreign owned (Abera, 2012). In 1931 Abyssinian Bank was liquidated and replaced by the Bank of Ethiopia, which was the bank of issue until the Italian invasion of 1936. During the Italian occupation, bank of Italy bank notes formed the legal tender. In 1943, the State Bank of Ethiopia was established, with two departments performing the separate functions of an issuing bank and a commercial bank. In 1963, these functions were formally separated and the National Bank of Ethiopia (the central and issuing bank) and the Commercial Bank of Ethiopia were formed (Vijay and Asefa, 2011).

According to Abera (2012), following the declaration of socialism in 1974 the nationalized banks were reorganized and one commercial bank (CBE), a national Bank (recreated in 1976) and two specialized banks i.e. the Agricultural and Industrial bank, renamed recently as the Development Bank of Ethiopia (DBE) and a Housing and Saving Bank, renamed recently as Construction and Business Bank (CBB) were formed.

Following the demise of the Dergue regime in 1991, the Ethiopian People‟s Revolutionary Democratic Front declared a liberal economy system. In line with this, Monetary and Banking proclamation of 1994 established the National Bank of Ethiopia as a judicial entity, separated from the government and outlined its main functions. 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 (Ayele, 2012).

Currently there are 16 private commercial banks and three government banks in the Ethiopian banking industry (see Table 2.1.2.1). There are no foreign banks in the country, and the system remains isolated from the effects of globalization. It seems that policy-makers fear that inviting foreign banks to invest will lead to loss of control over the economy (Vijay and Asefa, 2011).

Despite a rapid increase in the number of local financial institutions since financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world and cash is still the most dominant medium of exchange. The use of check is mostly limited to government institutions, NOGs and some private business and share companies (Worku, 2010).

Table 2.1.2.1: List of Banks in Ethiopia as of June 2014

| ***No.*** | ***Name of Bank*** | ***Establishment Year*** | ***No. of ATM*** | ***No. of POS*** | ***No. of Card Users*** |
|---|---|---|---|---|---|
| 1 | Commercial Bank of Ethiopia | 1963 | 433 | 244 | 973,762 |
| 2 | Awash International Bank | 1994 | 84 | 20 | 48,128 |
| 3 | Bank of Abyssinia | 1996 | - | - | - |
| 4 | Construction & Business Bank | 1975 | - | - | - |
| 5 | Dashen Bank | 1995 | 170 | 827 | 303,040 |
| 6 | Development Bank of Ethiopia | 1901 | - | - | - |
| 7 | Nib International Bank | 1999 | 20 | 100 | 22,349 |
| 8 | United Bank | 1998 | 51 | 10 | 23,527 |
| 9 | Wegagen Bank | 1997 | 92 | 136 | 64,710 |
| 10 | Cooprative Bank of Oromia | 2004 | - | - | - |
| 11 | Lion International Bank | 2006 | - | - | - |
| 12 | Oromia International Bank | 2008 | - | - | - |
| 13 | Zemen Bank | 2008 | 30 | - | 20,515 |
| 14 | Buna International Bank | 2009 | - | - | - |
| 15 | Birhan Bank | 2009 | 4 | - | 1,333 |
| 16 | Abay Bank | 2010 | - | - | - |
| 17 | Addis International Bank | 2011 | - | - | - |
| 18 | Debub Global Bank | 2012 | - | - | - |
| 19 | Enat Bank | 2012 | - | - | - |

***Source**: www.nbe.gov.et*

## 2.1 Importance of ICT in Financial Service Delivery (Conceptual Framework of the Study)

### 2.1.1 Benefit of ICT in Banking Industry

In recent years, the utilization of information technology has been magnificently increased in service industries, particularly, the banking industry, which by using information technology related products such as internet banking, electronic payments, security investments and information exchange, can deliver high quality services to clients with less effort (Jalil-Kerim and Hamdam, 2010). The famous quote of Bill Gates says that "banking is vital to a healthy economy, but banks themselves are not" highlight the crucial nature of electronic forces that are affecting banks more than any other financial service provider group. This transaction of business operation by banks have created new mode of operation called E-Banking (Mai *et. al*., 2007). Web based banking service or E-Banking, the latest generation of electronic banking transaction has opened up new opportunity to the existing banks and financial institutions. It permits business process re-engineering, service borderless market, to achieve zero latency leading to improvements in customer service levels and better risk management because of real-time settlement (Agrawall& Jain, 2013).

According to Ayanda *et. al*. (2011), it is imperative for bank"s management to intensify investment in Information Technology products to facilitate speed, convenience and accurate services, or otherwise they may lose out customers to other competitors. Agrawal and Jain (2013) also agreed that, intense competition among the banks has redefined the concept of the entire banking system; the banks are looking for new ways not only to attract but also to retain their customers and gain competitive advantage over their competitors. They continued that, while banks are striving to strengthen customer relationship and move towards „relationship banking" customers are increasingly moving away from the confines of traditional branch banking and seeking the convenience of remote electronic banking. Information technology and the communication networking systems have revolutionized the working of banks and financial entities all over the world.

Batra and Bhatia (2014) stated the three-directional advantages that have been achieved by advancement of IT in banking sector:

***For the Customer:***

- ✓ Self-inquiry Facilities
- ✓ Remote banking
- ✓ Anytime banking
- ✓ Telebanking
- ✓ Electronic banking
- ✓ Efficient single-window service

***For the Bank:***

During the last decade, banks applied IT to a wide range of back and front office tasks in addition to a great number of new products. The major advantages for a bank to implement IT are:

- ✓ Availability of a wide range of inquiry facilities, assisting the bank in business development and follow-up
- ✓ Immediate replies to customer queries without reference to ledger-keeper as terminals are provided to managers and chief managers.
- ✓ Automatic and prompt carrying out of standing instructions on due date and generation of reports.
- ✓ Generation of various MIS reports and periodical return on due dates.
- ✓ Fast and up-to-date information transfer enabling speedier decisions, by interconnecting computerized branches and controlling office (core banking).

***For the Employees:***

IT has increased their productivity through the following:

- ✓ Accurate computing of cumbersome and time-consuming jobs such as balancing and interest calculations on due dates.
- ✓ Automatic printing of covering schedules, deposit receipts, pass book/pass sheet, freeing the staff from performing these time-consuming jobs, and enabling them to give more attention to the needs of the customers.

- ✓ Signature retrieval facility, assisting in verification of transactions sitting at their own terminal.
- ✓ Avoidance of duplication of entries due to existing of single-point data entry.

### 2.2.2 Relationship between ICT and Organizational Performance: Banking Industry

Most of the initiatives regarding technology are aimed at providing better and more efficient customer service by offering multiple options to the customer. The death of distance, which is a by-product of technology, has become a reality in the banking sector. Technology is also playing a key role in banks‟ strategies for gaining a competitive edge (R.K. Uppal, 2008). According to Alalade *et. al*. (2014), the application of information and communication technology concepts, techniques, policies and implementation strategies to banking service, has become a subject of fundamental importance and concern to all banks and indeed a prerequisite for local and global competitiveness. ICT directly affects how managers decide, how they plan and what products and services are offered in the banking industry.

According to R.K. Uppal (2008), the relationship between IT and banking is fundamentally symbiotic. In the banking sector, IT can reduce costs, increase volumes, and facilitate customized products; similarly, IT requires banking and financial services to facilitate its growth. Alalade *et. al*. (2014) argued that the most significant shortcoming in the banking industry today is a wide spread failure on the part of senior member of management in banks to grasp the importance of technology and incorporate it into their strategic plans accordingly. He continued that banks should re-examine their service and delivery systems in order to properly position them within the framework of the dictates of the dynamism of information and communication technology. Many studies agreed that there is a positive relationship between ICT and performance of banking in terms of quality service delivery, customer satisfaction and attraction, employees‟ productivity, cost reduction, profitability, and effective decision making.

The advancement in technology has played an important role in improving service delivery standards in the banking industry. In its simplest form, Automated Teller machine and deposit machines now allow consumers to carry out banking transactions beyond banking hours. With online banking, individuals can check their account balances and make payments without having to go to the banking hall. There is also, mobile banking which allows individuals to check their

account balance and make fund transfers using their mobile phones. This is gradually creating a cashless society where consumers no longer have to pay for all their purchase with hard cash (Wisdom, 2012). He finally conceded that the growth in the application and acceptance of internet-driven technology means that delivering an enhanced service is more achievable than ever before.

Many industries embark on improving customer satisfaction by getting the latest machines to improve their organization‟s performance. They believe that acquisition of latest technology will improve operating practices and the quality and quantity of their goods and services (Dauda and Akingbade, 2011). Banks provide customer - convenient and inexpensive access to the bank 24 hours a day and 7 days a week. Online banking extends the relationship with the customers through providing financial services right into their home and office. The bank may also enjoy the benefit in terms of increasing customer loyalty and satisfaction (Shaikh, 2014). According to Wisdom (2012), online banking ensures customer satisfaction as it extends financial services to customers outside the banking hall. Similarly, e-banking has provided banks with a large customer base as it has resulted in increased customer loyalty and satisfaction.

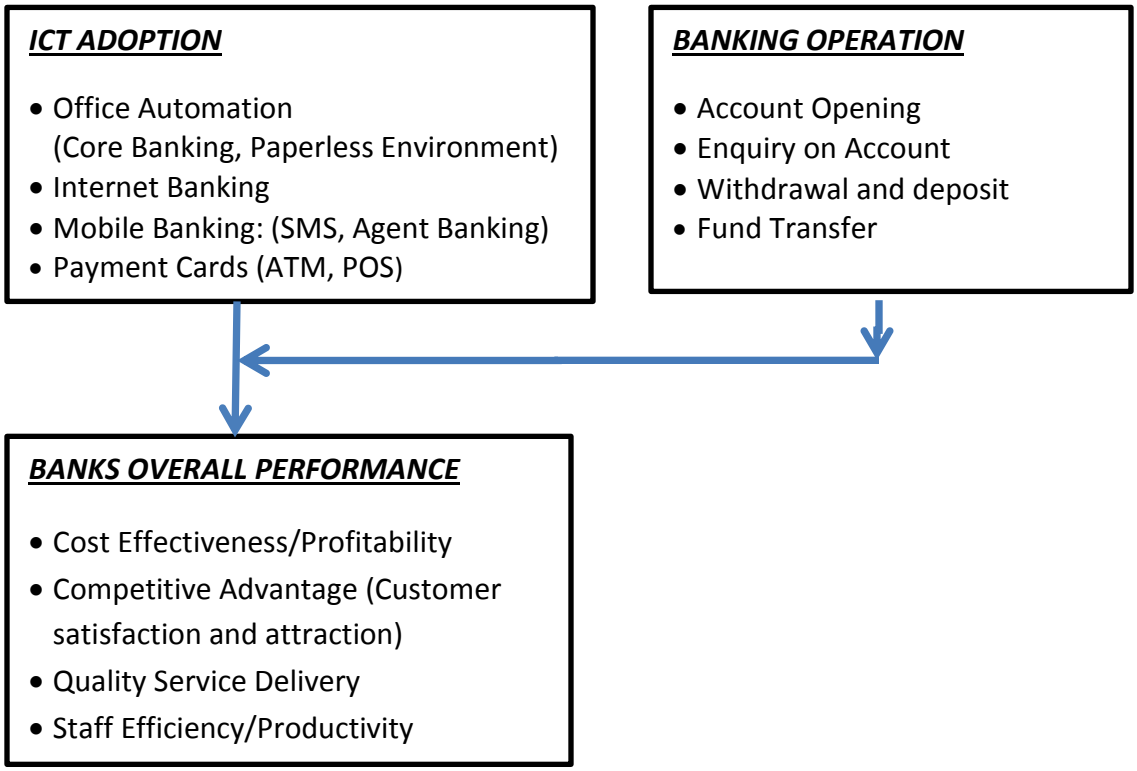
Labor productivity is also used as an indicator of the economic performance of countries, industries and firms (Piget and Kossai, 2013). ICT has productivity increasing effect on labor productivity and total factor productivity of companies. The banking industry is one of the industries that enjoy the largest productivity growth effect of ICT (Luka and Frank, 2012). According to Dauda and Akingbade (2011), there is evidence that a significant and positive relationship between technology innovation and bank employee‟s performance.

ICT investment also facilitates revenue growth through new value propositions, new market and sales channels, and improves management of life cycle. Higher customer satisfaction leads to higher loyalty, which ultimately leads to higher revenue growth. ICT can help firms reduce operational costs, general and administration costs and marketing costs. ICT allows cost reduction through better information sharing and tighter coordination in the supply chain relationship (Piget and Kossai, 2013).

Based on the above and many related literature reviews, the conceptual framework of this study is rooted on the incorporation of ICT facilitated products and services (technology-based services

and products) into banking operation and how they impacted on the overall performance of Ethiopian Private banks in terms of customers‟ satisfaction, staff efficiency/employee performance. This conceptual relationship of ICT and banks‟ performance refers as a base for the research question, hypothesis and motivation of the study throughout the paper. ICT signifies the provision of banking products and services electronically in the form of e-fund transfer technology, telephone banking technology and Internet banking technology; in other words e-banking. E-funds transfer technology focused on ATMs, credit and debit cards and e-cheques while telephone banking technology focused on interactive Voice response and Internet banking focused on the Internet and its applications such as websites and e-mail (Namirembe, 2007).

Fig 2.2.2.1: ***Conceptual Framework relating ICT to the performance of Baking Industry***




Source: *Alalade et. al., (2014).*

### 2.2.3 Types of Technological Facilities/Channels in Banking Industry

Technological innovations have been identified to contribute to the distribution channel of banks. The electronic delivery channels are collectively known as Electronic Banking. Electronic Banking is really not one technology, but an attempt to merge several different technologies. Each of these evolved in different ways, but in recent years groups and industries have

recognized the importance of working together (Oppong *et. al*., 2014). According to Bultum (2014) E-banking can also be defined as a variety of platforms such as internet banking or online banking, TV-based baking, mobile phone banking, and PC banking.

***Table 2.2.3.1****: Delivery Platform available for Electronic Banking*

| ***Types of Service*** | ***Description*** |
|---|---|
| PC Banking (Private Dial Up) | Proprietary software, distributed by the bank, is installed by the customer on their PC. Access to bank via a modem linked directly to the bank. |
| Internet Banking | Access their bank via Internet. |
| Managed network | The bank makes use of an online service provided by another party. |
| TV Based | The use of satellite or cable to deliver account information to the TV screen of the customer (Also internet based) |
| Telephone Banking | Customers access their bank via telephone (own personal ID and password required) |
| Mobile phone banking (SMS, WAP, 3rd generation) | Account with text message (SMS), Internet connection (WAP), or high speed 3rd generation mobile connection (also Intent based) |

***Source:*** *Shaikh, (2014).*

Some of the products and service of electronic banking/ICT that are often used via the above platforms are as follows:

***Core Banking***

In core banking system, banks have a centralized database. There is only one server called HUB. Easy accessibility of data can be possible because of centralized database, which helps management information system (MIS) to take quick and accurate decisions (R.K. Uppal, 2008).

***Automated Teller Machines (ATMs)***

ATM combines a computer terminal, record-keeping system and cash vault in one unit, permitting customers to enter the bank‟s book keeping system with a plastic card containing a personal Identification Number (PIN) or by punching a special code number into the computer

terminal linked to the bank‟s computerized records 24 hours a day. Once access is gained, it offers several retail banking services to customers. ATMs are able to provide a wide range of service, such as making deposits, funds transfer between two or more accounts and bill payments (Oppong *et. al*., 2014).

***Point-of-Sale Transfer Terminals (POS)***

The system allows consumers to pay for retail purchase with a check card, a new name for debit card. The money for the purchase is transferred immediately from account of debit card holder/customer to the store‟s/merchant‟s account at purchase point (Bultum, 2014).

***Telephone Banking***

Telebanking (Telephone Banking) can be considered as a form of remote or virtual banking, which is essentially the delivery of branch financial services via telecommunication devices where the bank customers can perform retail banking transactions by dialing a touch-tone telephone or mobile communication unit, which is connected to an automated system of the bank by utilizing automated voice response (AVR) technology (Oppong *et. al*., 2014).

***Mobile Banking***

Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and fund transfer, by using of short text message (SMS) (Bultum, 2014).

***Personal Computer Banking***

PC-Banking is a service which allows the bank‟s customers to access information about their accounts via a proprietary network, usually with the help of proprietary software installed on their personal computer. Once access is gained, the customer can perform a lot of retail banking functions (Oppong *et. al*., 2014).

***Internet banking***

The idea of internet banking is to give customers access to their bank accounts via a web site and to enable them to enact certain transactions on their accounts, given compliance with stringent

security checks. It is used to provide traditional banking service over the internet (Oppong *et. al*., 2014).

### 2.2.4 ICT and Ethiopian Private Banking Industry

Telecommunication was introduced in Ethiopia in 1894. Despite the very early introduction, Ethiopia has one of the most underdeveloped information and communication technology infrastructures on the continent (GISW, 2008). The sole provider of ICT service of the country, Ethiopian Telecommunication Corporation, newly called Ethio-telecom, has received a monopoly license from the regulator, the Ethiopian Telecommunication Agency (ETA) for efficiency and quality service requirement and infrastructure expansion targets (Adam, 2007). According to GTP 2004 report, in 2010/2011 fiscal year the number of mobile subscription reached 17.26 million while the number of fixed line subscription reached 0.805 million. Similarly internet subscription including mobile internet for the same fiscal year reached 2.661 million.

The rapidly growing information and communication technology is knocking the front door of every organization in the world, where Ethiopian banks would not be exceptional. In the face of rapid expansion of electronic payment system throughout the developed and developing world, Ethiopian‟s financial sector cannot remain an exception in expanding the use of the system (Worku, 2010). Still, the adoption and implementation stage of ICT is one of the most distinguishing development criteria of developing and developed countries.

In Ethiopia cash is still the most dominant medium of exchange, and electronic payment systems are at an embryonic stage (Worku, 2010). Bultum (2014) concurred that the development of E-Commerce, adoption and diffusion of E-banking system is not well developed in Ethiopia. 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. Even though currently there are three government and sixteen private banks in the Ethiopian banking industry, the modern e-banking services like ATMs, Payment cards, Tele banking, Internet banking, Mobile Banking and other are new to the industry.

According to Bultum (2014) Commercial Bank of Ethiopia (CBE) was the first to introduce ATMs to deliver the service to local users. In addition to eight ATM located in Addis Ababa,

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. Worku (2010) Dashen Bank, a forerunner in introducing E-bank in the Ethiopian private banks industry, has launched ATM service for its customers in 2006. Harnessing its leadership with advanced banking technology, Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile banking in April 21, 2009. The agreement signed by three private banks, Awash International Bank, United Bank and Nib International Bank, to launch ATM and POS terminal network together in 2009 has also been another pointing event for development of E-banking in the industry (Bultum, 2014). It also introduced inter-connectivity between banks for the first time.

According to NBE report as of June 2014 there were 884 ATM machines in the country, among which only seven private banks have been able to distribute 451 ATM machines in the industry. Features of E-banking services rendered by Ethiopian banks are presented as follows:

***Table 2.2.4.1****: Features of E-Banking services rendered by Ethiopian Banks*

| ***Electronic Banking Service*** | ***Features of Services Rendered*** |
|---|---|
| Internet Banking | 1. Personal Profile Administration<br>2. Balance Enquiry<br>3. View daily transaction register<br>4. Ability to link accounts together so that transfer can be completed from one account to another<br>5. Customer service enquiry and resolution within seconds<br>6. View check issuance status through the register<br>7. Password change and management features<br>8. Intrusion detection capability |
| ATM Banking | 1. All customers will receive an ATM Card and personal identification number.<br>2. The ATM allows you to receive cash at your convenience. It also allows you to check your balance, make transfer and deposit cash. |
| SMS Banking | 1. Authentication and verification<br>2. Check daily, weekly or monthly balance<br>3. Interactively receive account balance<br>4. Produce a mini statement on your mobile<br>5. Receive alerts and notification on:<br>➢ Low balance<br>➢ Deposit and withdrawal<br>➢ Transfer of funds from your account or into your account |
| Call Center Banking | 1. Secure delegated 24 hours service<br>2. Authentication and verification<br>3. Balance enquiry<br>4. View daily transaction register<br>5. Customer service enquiry and resolution<br>6. Request online statement |

***Source***: *Shaikh (2014).*

## 2.3 Theoretical Framework

### 2.3.1 Measuring Customer Satisfaction

Customer satisfaction can be defined as the company‟s ability to fulfill business, emotional, and psychological needs of its customers. In other word it is a summary of psychological state

resulting when the emotion surrounding disconfirmed expectations is coupled with the consumers‟ prior feeling about the consumption experience (Chavan and Ahmad, 2013). However Kumbhar (2011) argued that a customer satisfaction is an ambiguous and abstract concept. He continued that, actual manifestation of the state of satisfaction will vary from person to person, product to product and service to service.

It is well-researched fact that there is a strong linkage between customer satisfaction and operational performance. According to Qureshi *et. al.* (2013) customer satisfaction has strong influence on the efficiency and financial performance of banks. It has great influence upon performance and profitability of the banks. He also claimed that satisfied customers share their experiences with other people and occupy unambiguous word of mouth (grapevine) advertisement and publication of the banks. This positive word of mouth publication is very helpful in increasing banks relationship and interaction with the whole community. Many literatures found that there is strong relationship between customer satisfaction and organizations efficiencies, operational and financial. The state of satisfaction depends on a number of factors which consolidate as psychological, economic and physical factors. The quality of service is one of the major determinants of the customer satisfaction (Kumbhar, 2011).

Service quality can be defined as the difference between customer expectations for services performance prior to service encounter and their perception of the service received (Wandaogou and Jalulah, 2011). Many past studies develop different dimension and aspects to measure service quality. According to Wandaogou and Jalulah (2011), Parasuraman and his colleagues (1985 & 1988) have developed the dimensions of service quality in their GAP and Extended GAP analysis and based on which they developed that popular SERVQAUL model.

The widely used SERVQUAL model consisted of five dimensions that were measured using a 22-item SERVQUAL scale. The five SERVQUAL dimensions are: Tangibles, Empathy, Assurance, Reliable, and Responsiveness: Tangibles are the physical facilities, equipment, and appearance of personnel**.** Empathy refers to the caring, individualized attention the firm provides its customers. Assurance means knowledge and courtesy of employees and their ability to inspire trust and confidence. Reliability is the ability to perform the promised service dependably and accurately, and Responsiveness refers to willingness to help customers and provide prompt

service. However, due to the differences between traditional service and electronic service, obviously SERVQUAL scale is not suitable for measuring service quality in electronic or internet environment due to the absence of staff, absence of traditional tangible elements, and self-service of customers (Wandaogou and Jalulah, 2011).

Parasuraman *et. al.* (2005) incorporated e-services and conceptualized and constructed a multiple-item scale (E-S-QUAL and E-RecS-QUAL models) to assess electronic service quality. The final E-S-QUAL Scale, consisting of 22 items on four dimensions, which they labeled and defined as follows:

1. Efficiency: The ease and speed of accessing and using the site.
2. Fulfillment: The extent to which the site‟s promises about order delivery and item availability are fulfilled.
3. System availability: The correct technical functioning of the site.
4. Privacy: The degree to which the site is safe and protects customer information.

The e-recovery service quality scale (E-RecS-QUAL) consisting of 11 items on three dimensions:

1. Responsiveness: Effective handling of problems and returns through the site.
2. Compensation: The degree to which the site compensates customers for problems.
3. Contact: The availability of assistance through telephone or online representative.

Available literature shows that, the customer satisfaction is measured via service quality and service quality measured by various measurement tools and instruments developed by various researchers and marketing consultancy organizations (Kumbhar, 2011). In his study, Kumbhar summarized various models constructed by scholars to measure service quality as follows:

Table 2.3.1.1: Summary of related studies

| S.No. | Service/Scale | Author/s | Attributes/Dimensions used in the study |
|---|---|---|---|
| 1 | Kano"s Model | Kano (1984) | Must-be requirements, One-dimensional requirements, Attractive requirements, Reverse Quality. |
| 2 | Perceived SQ Model | Gronroos (1984) | Technical service quality, Functional service quality, Corporate image |
| 3 | SERVQUAL | Parasuraman, Zeithaml and Barry (1985; 1998) | Reliability, Responsiveness, Assurance, Empathy and Tangibles |
| 4 | SERVFERF | Cronin & Taylor (1994) | Reliability, Responsiveness, Assurance, Empathy and Tangibles |
| 5 | E-Commerce | Schefter & Reichheld (2000) | Customer support, on-time delivery, compelling product presentations, convenient and reasonably priced shipping and handling, clear and trustworthy privacy |
| 6 | e-SQ and e-SERVQUAL | Zeithaml, Parasuraman, and Malhotra (2000) | efficiency, reliability, fulfillment, privacy, responsiveness, compensation, and contact |
| 7 | e-Satisfaction | Szymanski and Hise (2000) | Convenience, Merchandising, Easiness, Information, Deign, Financial security |
| 8 | E-loyalty | Gommans, Krishnan, and Scheffold (2001) | Website & Technology, Value Proposition, Customer Service, Brand Building and Trust & Security |
| 9 | SITEQUAL | Yoo and Donthu (2001) | Ease of use, aesthetic design, processing speed, and security |
| 10 | WebQua | Loiacono, Watson and Goodhue (2002) | Information fit to task, interactivity, trust, responsiveness, design, intuitiveness, visual appeal, innovativeness, websites flow, integrated communication, business process and viable substitute, accessibility, speed, navigability and site content. |
| 11 | e-Satisfaction | Anderson and Srinivasan (2003) | convenience motivation, purchase size, inertia, trust and perceived value |
| 12 | E-S-QUAL and E-RecS-QUAL | Parasuraman, Zeithaml & Malhotra in (2005) | Efficiency Fulfillment, System availability, Privacy, Responsiveness, Compensation and Contact |
| 13 | Movie-Related Websites | Cho Yoon, and Joseph Ha (2008), | Ease of use, Usefulness, involvement, information factor, Convenience, technology, Community Factor, Entertainment Factors, Brand Name, Price Factor |
| 14 | BANKZOT | Nadiri, et al (2009 | Desired, adequate, predicted and perceived service quality |

Source: Kumbhar (2011)

Based on the above models and using principal component analysis he identified the following factors that affecting customer‟s satisfaction in banking.

Table 2.3.1.2: Factors Affecting Customer Satisfaction

| S.No. | Construct/Factors | Description |
|---|---|---|
| 1 | System Availability | Up-to-date equipment and physical facilities- Full Branch computerization, Core banking, ATM, POS, internet banking, mobile banking, SMS alerts, credit card, EFT, ECS, E-bill pay |
| 2 | E-Fulfillment | Scope of services offered, availability of global network, digitalization of business information, Variety of services |
| 3 | Accuracy | Error free e-services through e-banking channels |
| 4 | Efficiency | Speed of service (clearing, depositing, enquiry, getting information, money transfer, response etc.), immediate and quick transaction and check out with minimal time. |
| 5 | Security | Trust, privacy, believability, truthfulness, and security, building customer confidence. freedom from danger about money losses, fraud, PIN, password theft; hacking etc. |
| 6 | Responsiveness | Problem handling, recovery of the problem, prompt service, timeliness service, helping nature, employee curtsey , recovery of PIN, password and money losses |
| 7 | Easiness | Easy to use & functioning of ATM, Mobile banking, internet banking, credit card, debit card etc. |
| 8 | Convenience | Customized services, any ware and any time banking, appropriate language support, time saving |
| 9 | Cost Effectiveness | Price, fee, charges, - i.e. commission for fund transfer , interest rate, clearing charges, bill collection and payments‟, transaction charges, charges on Switching of ATM, processing fees etc. price, charges and commissions should be reduce and charges taken by Telecommunication Company, devise designer company, internet service providers |
| 10 | Problem Handling | It refers to problem solving process regarding computerized banking services |
| 11 | Compensation | It refers to recover the losses regarding to problems and inconvenience occurred in using e-banking channels. |
| 12 | Contact | Communication in bank and customer or customers to bank, Via e-mail, SMS, Phone, interactive website, postal communication, fax |
| 13 | Brand Perception | Customers overall perception according to promises given by bank for banking services |
| 14 | Perceived Value | Consolidated perception from banking service in term of perceived quality and money expended for getting banking services. |

Source: Kumbhar (2011)

### 2.3.2 Measuring Staff Productivity

With the unpredictable business environment and intense business competition, the companies are required to reach certain standards by improving their performance to align with such great demands; otherwise, a lot of problems will surface, including running the risk to close down the

business. This performance relates to the firm or individual level which sees the human resource becoming the most determining factor to achieve the organizations‟ objectives (Muda *et. al*., 2014). The concept of performance is something that interests and concerns everybody, whether it is the performance of a car, or individuals and teams in organizations. An employee who performs well is seen as one who achieves good results according to some pre-determined goals (Ojokuku & Sajuyigbe, 2012). Similarly Imran *et. al*, (2014) concurred that a firm‟s resource are extremely important for the firm‟s development, and that human capital is a key resource of a firm.

High employee productivity positively affects a company‟s operational performance. However, if employees are not given the proper resources to do their job easily and efficiently, their productivity will suffer. Innovation technology is one way that employer can boost productivity. According to Dauda & Akingbade (2011) technological innovation rests on the creative ability of human being. Man has the capacity to use his knowledge to create new machines process and method that could enhance or improve the quality of goods and services. Technological advancement is important factor for influencing the improvement of performance. Imran (2014) concluded in his study that, technological advancement has significant impact on employee performance it means that as technology tend to be advanced, performance of employee enhanced.

Technological innovation such as, the use of computer automation and electronic banking influence speed of bank service delivery, enhanced management decision making and saving time (Dauda and Akingbade, 2011). He continued, there is evidence that a significant and positive relationship exit between technology innovation and banks employee‟s performance. For instance, Electronic bank transfers have facilitated improved service delivery by employees, promotes customers retention and customers satisfaction. It is easier for employees to perform all these functions as a result of impact of technological innovation on them. Ojokuku and Sajuyigbe (2012), conclude that the introduction of electronic banking system in the banking sector has helped tremendously to improve the productivity of bank personnel, leading to efficiency and effectiveness in service delivery.

Many studies have identified varies variables or factors that affect employees performance in work place. Saeed *et. al.* (2013) concluded that there are five factors which affect the

performance of employees; manager‟s attitude, organizational culture, personal problem, job content and financial rewards. Although, Muda *et. al.* (2014) found out job stress, motivation and communication as the three influencing factor of employee performance. He also noted that organizational performance can be evaluated by; quality, quantity, knowledge or creativity of individual and accomplished work in specific time.

Najeeb (2013) stated in his literature review that there are four different performance dimensions on which employee are measured named; quality, quantity, dependability and knowledge. According to Mathis & Jackson (2009) Performance is associated with quantity of output, quality of output, timeliness of output, attendance on the job, efficiency of the work, and effectiveness of work completed. Similarly, Najeeb (2013) categorized the above factors in to three dimensions; quantity of work, quality of work and speed of work achievement.

For the purpose of this study, based on the above related literatures, the researcher adopted the following three factors to measure employee performance in banking sector:

Table 2.3.2.1: Measurements of worker performance

| | |
|---|---|
| Employees Performance | Quality of work |
| | Quantity of Work |
| | Speed required to accomplish a specific task |

Source: Najeeb (2013)

## 2. 4 The Challenges of ICT Application on Commercial Banks

Electronic banking services are believed to be superior to those delivered through the traditional banking because of its convenience, speed, relatively low cost, high degree of customization and/or personalization. It is argued that self-service technologies like internet, ATM etc are characterized by flexibility, convenience of location, greater control over service delivery, higher perceived level of customization, fun, enjoyment and even spontaneous delight of customers

(Oppong *et. al*., 2014). However, banking sector faces numerous challenges to adopt advanced technology as well as E-banking applications and seize the opportunities presented by ICT applications in general.

R.K. Uppal (2008) conceded that with the obvious benefits of E-banking; the following factors contribute as major impediments in the smooth implementation of E-banking:

- Start-up Cost:- Many banks have expressed their concern about the huge initial start-up cost for venturing into E-banking.
- Training and Maintenance:-The introduction of E-banking involves 24 hours support environment, quality service to end user and other partners which would necessitate a well-qualified and robust group of skilled people to meet external and internal commitments.
- Lack of skilled personnel:- In a fast technological scenario, the obsolescence of technology is fast and hence there is always shortage of skilled personnel.
- Security:- In paperless banking transactions, many problems of security are involved.
- Legal Issue:- Legal framework for recognizing the validity of banking transaction conducted through the net is still in the process of being put in place.
- Restricted Business:- Not all transactions can be carried out electronically.
- Destruction of pricing mechanism:- Now players in the field have lower cost than old banks. Hence, they can undercut the prices and provide stiff competition to the established banks.

According to Oluwatolani *et. al*. (2011) in developed countries individuals are well connected to the internet via various communication links while in developing countries individuals might not get connected due to several reasons. Otukoya (2014) pointed out the following challenges being faced by Nigerian banks in their attempt to ensure a smooth exchange of electronic data and information:

- The need to build a better infrastructure that will serve as backbone for communication within the banks.
- The need to collaborate in sourcing for new technological equipment that will provide common standard.
- The need to get better in information technology system development and operation by bank management.

- The need to impress by improving the present telecommunications infrastructure.

Similarly Oppong *et. al*. (2014) identified The following challenges that makes it difficult for the Ghanaian banks to provide ideal banking services to the customers; security concerns ( alteration of data, especially by the IT specialist, theft, etc), cost factors(cost of IT infrastructure, training, maintenance, etc),availability of IT skills, perceived customer readiness, lack of familiarity of the customers to IT in the bank, reluctance on the part of the bank to network with other banks, low level of economic development(frequent power failure, low level of education, weak access to internet, etc)and other challenges include fraud and frequent system failures.

## *Challenges in Using ICT Facilities in Ethiopia*

According to Worku (2010), the Electronic banking in Ethiopia is facing lot of challenges due to lack of software, awareness, fear of risk and lack of trained persons in the key organizations. In his finding he pointed out the following challenges that seize the opportunities presented by ICT facilities in the industry:

- *Low level of internet penetration and poorly developed telecommunication infrastructure:* Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvements in e-commerce in Ethiopia. Most rural areas of the country, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities.
- *Lack of suitable legal and regulatory framework for e-commerce and e-payment*: Ethiopian current laws do not accommodate electronic contracts and signatures.
- *Inadequate banking system*
- *Political instabilities in neighboring countries*: Political and economic instabilities in Somalia, Southern Sudan, and Eritrea are threatening traits that do not provide a very conducive environment for e-banking in Ethiopia. Political instabilities inevitably disturb smooth operations of business and free flow of goods and services.
- *High rates of illiteracy*: Low literacy rate is a serious impediment for the adoption of E-Banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of E-Banking, they should not only know how to read and write but also possess basic ICT literacy.

- *High cost of Internet*: The cost of Internet access relative to per capita income is a critical factor. Compared to the developed countries, there are higher costs of entry into the e-commerce market in Ethiopia. These include high start-up investment costs, high costs of computers and telecommunication and licensing requirements
- *Absence of financial networks that links different banks (Banks are not yet automated)*: Most of the banking-transactions currently taking place use credit and debit cards supplied by Visa and MasterCard. For conducting e-banking, the use of credit or debit cards is mandatory thus requiring the need for specialized systems which are not currently available.
- *Frequent power interruption*: Lack of reliable power supply is a key challenge for smoothly running e-banking in Ethiopia.
- *Resistance to changes in technology among customers and staff due to*:
  - Lack of awareness on the benefits of new technologies,
  - Fear of risk,
  - Lack of trained personnel in key organizations,
  - Tendency to be content with the existing structures,
  - People may be resistant to new payment mechanisms
- *Cyber security issues*: Cyber security is a global challenge that requires global and multi-dimensional response with respect to policy, socio-economic, legal and technological aspects. E-banking applications represent a security challenge as they highly depend on critical ICT systems that create vulnerabilities in financial institutions, businesses and potentially harm banking customers. It is imperative for banks to understand and address security concerns in order to leverage the potentials of ICTs in delivering E-banking applications. In the deployment of E-banking application, attention should be drawn to the prevention of cybercrime (i.e. the use of ICTs by individuals to commit fraud and other crimes against banking transactions).

# Chapter Three

# Methodology

## 3.1 Introduction

Research method referred as the techniques and procedures used to obtain and analyze research data, including for example questionnaires, observation, interviews, and statistical and non-statistical techniques whereas research methodology is the theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted (Saunders *et. al.,* 2009).
In order to attain the objective of the study and answer the research questions the study adopted a case study strategy. The case was conducted on two purposely selected Ethiopian private Banks; Dashen Bank and United Bank. Currently there are sixteen private banks in Ethiopia. However, the researcher purposively selected the two banks as they are the pioneer in networking their whole branches (adopting core banking) which is the platform for most technological innovation in the industry. Multiple and holistic case study approach adopted to establish whether the findings of one case occur in other cases and as consequences, the need to generalize from the findings.

## 3.2 Operationalization of the Research Topic

Operationalization of the research topic is to identify the variables involved in this project that is the dependent variables and the independent variables. Therefore the dependent variable, denoted by "Y", has been identified in the study as the performance of Ethiopian private banks which has been measured by customers‟ satisfaction and employees‟ performance. The independent variables, denoted by "X", have been identified in the study as the impact of Information and Communication Technology.

To examine the impact of Information and Communication technology on customers‟ satisfaction, the study used 10 factors of customer satisfaction identified in chapter two, theoretical framework section. Similarly, to examine the impact of Information and Communication Technology on employees‟ performance the study used the three employee performance measurement points identified in chapter two, theoretical framework section.

## 3.3 Research Design

There are three approaches to conduct any research: Qualitative, Quantitative and Mixed approaches. According to Saunders *et. al.* (2009) mixed method approach is the general term for when both qualitative and quantitative data collection techniques and analysis procedures are used in research design. In this study mixed-method approach was employed to ensure effectiveness of the research process as the findings of the qualitative data enhance the findings of quantitative one and the vise versa.

This study used a case study approach. According to Yeboah *et. al*, (2013) a case study approach is particularly appropriate for individual researchers because it gives an opportunity for one aspect of a problem to be studied in some depth within a limited time scale. Studies that establish causal relationships between variables may be termed explanatory research (Saunders *et. al.,* 2009). This study tried to examine the relationship between adaptation and application of ICT in Ethiopian private banks" services/ products and their performance improvement in terms of their customers" satisfaction and employees" performance.

## 3.4 Source of Data

There are two types of data which is usually used in researches, primary and secondary data. Primary data does not actually exist until and unless it is generated through the research process as part of the consultancy or dissertation or project. It will often be collected through techniques such as experimentation, interviewing, observation and surveys. On the other hand Secondary data is information which already exists in some form or other but which was not primarily collected, at least initially, for the purpose of the consultancy exercise at hand. In fact, secondary data is often the start point for data collection in as much as it is the first type of data to be collected (Lancaster, 2005).

This study used primary and secondary source of data. Regarding the primary data the researcher distributed structured questionnaires to relevant participants. In order to strength the result and findings of the study the researcher examined different articles, academic journals, useful academic books and banks" reports as secondary data.

## 3.5 Target population

Target populations of the study were customers and senior staff of the purposely selected two private banks: Dashen Bank and United Bank. The researcher purposely selected customers who have used at least one technology-based service/product of the banks and employees who have worked in their current bank at least for three years. These groups are targeted because the research believes that they are appropriate people to provide appropriate information and answer of the research questions.

## 3.6 Sampling Design

A total of 200 customers and 60 employees of Dashen Bank and United Bank were randomly selected to participate in the study. The participants were selected using convenient sampling technique, Non-probability sampling method (Saunders *et. al.,* 2009). According to Saunders *et. al.* (2009) unlike probability sampling, there are no rules in non-probability sampling techniques. Rather the logical relationship between your sample selection technique and the purpose and focus of your research is important; generalizations being made to theory rather than about a population. Non-probability sampling involves the selection of subject based on assumption regarding the population of interest, which forms the criteria for selection.

Convenience sampling (or haphazard sampling) involves selecting haphazardly those cases that are easiest to obtain for your sample (Saunders *et. al.,* 2009). It involves selecting participants from the part of the population which is close to hand. This strategy was chosen for this study because sampling participants using list of customers who have used at least one of the Technology-based services/products and list of employees who have at least three years work experience was a challenge.

Accordingly, 200 customers and 60 employees were purposefully selected. 100 customers and 30 employees were asked to fill the questionnaires from each bank within five working days.

## 3.7 Data Collection Instrument

The study used two types of structured close ended questionnaires, one for customers and other for employees. Questionnaire distributed for customers has three parts. The first part aimed at the collection of demographic information of the participants. The second part used five point Likert scale which measures the impact of Information and Communication Technology on customers‟ satisfaction. The customers are requested to express their level of agreement or disagreement with the statement. The last part used three point Likert scale which measure the effects of challenges associated with Technology-based services/products on customers. Again the customers were requested to express whether the challenges are affecting them or not. Questionnaire distributed for employees has only two parts. The first part aimed to collect demographic information of the participants. The second part used five point Likert scale to measure the impact of Information and Communication Technology on employees‟ performance.

## 3.8 Method of Data Analysis

In order to reach on meaningful facts and conclusions, the research provided explanation on impact of Information and communication Technology on Ethiopian private banks performance and answered the basic questions of the research. The data collected via the questionnaires was analyzed by Statistical Package for Social Sciences (SPSS). In generating the actual results, frequency tables were generated to determine the number of respondents who expressed their opinion on a particular item. Based on the frequency tables generated from SPSS, descriptive statistic was used to analyze and describe the findings. In order to further test the research hypothesis, the research used One sample test (T-statistic) and linear Regression model. The T-statistic test applied to examine the relationship between the studies‟ dependent and independent variable whereas linear regression model was applied to evaluate the level of significance of the independent variables on the dependent variable.

# CHAPTER FOUR

# Data Presentation, Analysis and Interpretation

## 4.1 Introduction

This chapter covers the presentation, analysis and interpretation of data collected from primary sources. A total of 200 questionnaires were distributed to the two purposefully selected private banks‟ customers, Dashen Bank S.C. and United Bank S.C., in order to collect data about the impact of ICT on customers‟ satisfaction. In addition, 60 questionnaires were distributed for these two banks‟ employees in order to collect data about the impact of ICT on employees‟ performance. As shown in table 4.1.1 out of the questionnaires distributed to 200 customers and 60 employees, replies were obtained from197 customers and 55 employees.

The data collected are presented by frequency tables and charts where ever necessary and to analyze the results Statistical Package for the Social Science (SPSS) is used. The hypothesis test was conducted using T-test and linear simple regression model, and appropriate interpretations were made thereon in accordance with the results of the testing.

Table 4.1.1: Rate of Responses by Respondents

| Questionnaires | Customers | | Employees | |
|---|---|---|---|---|
| | Respondents | Valid Percentage | Respondents | Valid Percentage |
| Returned | 197 | 98.5% | 55 | 92% |
| Not Returned | 3 | 1.5% | 5 | 8% |
| **Total** | **200** | **100%** | **60** | **100%** |

Source: Survey result, 2015

## 4.2 Demographic Data Presentation

### 4.2.1 Customers' Responses:

Customers participated in the survey questionnaires have different personal information. Table 4.2.1 presents the demographic data of participants as follows:

Table 4.2.1: customers‟ demographic information

| S. No. | Variables | Classification of Variables | Frequency | Percentage | Valid Percentage |
|---|---|---|---|---|---|
| 1 | Gender | Male | 121 | 61.4% | 62.1% |
| | | Female | 74 | 37.6% | 37.9% |
| | | Missing | 2 | 1% | |
| 2 | Age (Years old) | 18 or Below | 3 | 1.5% | 1.5% |
| | | 19-28 years | 75 | 38.1% | 38.1% |
| | | 29-38 years | 93 | 47.2% | 47.2% |
| | | 39 or above | 26 | 13.2% | 13.2% |
| 3 | Marital Status | Single | 98 | 49.7% | 49.7% |
| | | Married | 62 | 31.5% | 31.5% |
| | | Divorce | 35 | 17.8% | 17.8% |
| | | Separated | 2 | 1% | 1% |
| | | Widowed | - | - | - |
| 4 | Educational Background | High School Diploma or above | 27 | 13.7% | 13.8% |
| | | Junior college Diploma | 30 | 15.2% | 15.3% |
| | | BA | 112 | 56.9% | 57.1% |
| | | Masters or above | 27 | 13.7% | 13.8% |
| | | Missing | 1 | .5% | |
| 5 | Occupation | Business Managerial | 90 | 45.7% | 47.1% |
| | | Gov‟t Officer | 14 | 7.1% | 7.3% |
| | | Professional | 26 | 13.2% | 13.6% |
| | | Student | 6 | 3% | 3.1% |
| | | Self-employee | 20 | 10.2% | 10.5% |
| | | Unemployed | 4 | 2% | 2.1% |
| | | Other | 31 | 15.7% | 16.2% |
| | | Missing | 6 | 3% | |
| 6 | Length of use of Technology-based services or products | Less than 1 year | 49 | 24.9% | 25.9% |
| | | 1-2 years | 52 | 26.4% | 27.5% |
| | | 2 and above years | 88 | 44.7% | 46.6% |
| | | Missing | 8 | 4.1% | |

Source: Survey result, 2015

As is shown in the above table, 121 of the respondents were male which represent 62.1% of the total respondents, while the 74 were females which are 37.9% of the total respondents. Considering the age groups of the respondents, the higher number of respondents was in the rage of 29-38 years, which represent 47.2%, followed by age groups of 19-28 years and 39 or above years, which represent 38.1% and 13.2% respectively. According to table 4.2.1, most of the respondents were single, representing 49.7% of the total respondents. Married and divorce participants represent 31.5% and 17.8% of the total respondents respectively. The table also showed out of the total participants, 112 and 30 of the respondents have bachelor Degree and

Diploma respectively, while customers who have Master degree or above, and lower than diploma were equal, 27 each. In terms of occupation of the participants, the higher number of the respondents was managerial employees who represented 47.1% of the total response. In addition form the above, it can be deduced that 88 of the respondents, 46.6% of the total, have been using technology-based services/products of the bank for more than two years whereas, 27.5% and 25.9% of the respondents have been using the services/products for 1-2 years and less than a year respectively.

### 4.2.2 Employees' Responses

Employees of the two banks who participated in the survey questionnaires have different personal information. Table 4.2.2 presents the demographic data of participants as follows:

Table 4.2.2: Employees‟ demographic information

| S. No. | Variables | Classification of Variables | Frequency | Percentage | Valid Percentage |
|---|---|---|---|---|---|
| 1 | Gender | Male | 35 | 63.6% | 64.8% |
| | | Female | 19 | 34.5% | 35.2% |
| | | Missing | 1 | 1.8% | - |
| 2 | Age (Years old) | 19-28 years | 14 | 25.5% | 25.5% |
| | | 29-38 years | 33 | 60% | 60% |
| | | 39 or above | 8 | 14.55 | 14.5% |
| 3 | Marital Status | Single | 20 | 36.4% | 36.4% |
| | | Married | 18 | 32.7% | 32.7% |
| | | Divorce | 17 | 30.9% | 30.9% |
| | | Separated | | | |
| | | Widowed | | | |
| 4 | Educational Background | High School Diploma or above | | | |
| | | Junior college Diploma | 2 | 3.6% | 3.6% |
| | | BA | 44 | 80% | 80% |
| | | Masters or above | 9 | 16.4% | 16.4% |
| | | Missing | | | |
| 5 | Position | Non-Managerial | 27 | 49.1% | 50% |
| | | Managerial | 27 | 49.1% | 50% |
| | | Missing | 1 | 1.8% | - |
| 6 | Work Experience | Less than 3 year | 6 | 10.9% | 10.9% |
| | | 3-5 years | 15 | 27.3% | 27.3% |
| | | 5 and above years | 34 | 61.8% | 61.8% |
| | | Missing | | | |

Source: Survey result, 2015

As shown in the above table, 35 of the respondents were male which represents 63.6% of the total respondents, while 19 were females which are 34.5% of the total respondents. Considering the age groups of the respondents, the higher number of respondents was in the range of 29-38 years, which represent 60%, followed by age groups of 19-28 years and 39 or above years, which represent 25.5% and 14.5% respectively. According to table 4.2.2, most of the respondents were single, representing 36.4% of the total respondents. Married and divorce participants represent 32.7% and 30.9% of the total respondents respectively. The table also showed that out of the total participants 44 and 9 of the respondents have bachelor Degree and Masters degree respectively, while employees who have college diploma were only 2. In terms of work position of the participants, both managerial and non-managerial employees had equal share of responses, each 27. In addition, it can be deduced from the above table that only 6 of the respondents served their current bank for less than three years. Out of the respondents 15 employees representing 27.3% served their current bank for three to five years while the remaining 34 employees which represent 61.8%, served their current bank for more than five years.

## 4.3 Descriptive Analysis of Data Collected

### 4.3.1 Impact of ICT on Customers' Satisfaction

The following section seeks to display and analyze the frequency distribution of the responses on the questionnaire items regarding the dependent and independent variables of the first research question; the impact of ICT on customers‟ satisfaction.

*Table 4.3.1.1 This Bank Provides most Technology-based services/products and the services are almost always available:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 4 | 2.0% | 2.0% |
| | Disagree | 22 | 11.2% | 11.2% |
| | Neutral | 33 | 16.8% | 16.8% |
| | Agree | 102 | 51.8% | 51.8% |
| | Strongly agree | 36 | 18.3% | 18.3% |
| | Total | 197 | 100.0% | 100.0% |

Source: Survey result, 2015

As shown on the above table, 138 representing 70% of the respondents agreed that the two banks provide most of Technology-based services/products and the services are almost always

available. 16.8 % and 13.2% of the respondents were neutral and disagree with this statement respectively.

*Table 4.3.1.2: The Technology-based services/products provided by this bank work accurately and are error-free:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 9 | 4.6% | 4.6% |
| | Disagree | 32 | 16.2% | 16.2% |
| | Neutral | 59 | 29.9% | 29.9% |
| | Agree | 77 | 39.1% | 39.1% |
| | Strongly agree | 20 | 10.2% | 10.2% |
| | Total | 197 | 100% | 100% |

Source: Survey result, 2015

From the Above table, it can be deduced that only 97 of the respondents, representing 49.3% of the respondents agreed that the technology-based services/products of the banks work accurately, and are error-free and reliable. 59 of the respondents were neutral representing 29.9% and 41 of the respondents disagreed which account for 20.8% of the total responses.

*Table 4.3.1.3: The Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed for time:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 1 | .5% | .5% |
| | Disagree | 13 | 6.6% | 6.6% |
| | Neutral | 39 | 19.8% | 19.8% |
| | Agree | 92 | 46.7% | 46.7% |
| | Strongly agree | 52 | 26.4% | 26.4% |
| | Total | 197 | 100% | 100% |

Source: Survey result, 2015

Out of the total respondents, 144 customers representing 73.1% agreed that Technology-based services/products allow them to complete transactions quickly and save them a lot of time, especially when they are pressed for time whereas only 14 of the respondents representing 7.1% of the total responses disagree. 39 of the respondents were neutral which represent 19.8% of the total.

*Table 4.3.1.4: I feel Technology-based services/products provided by this bank are safe and the risk associated with them is low:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 1 | .5% | .5% |
| | Disagree | 17 | 8.6% | 8.6% |
| | Neutral | 35 | 17.8% | 17.8% |
| | Agree | 103 | 52.3% | 52.3% |
| | Strongly agree | 41 | 20.8% | 20.8% |
| | Total | 197 | 100% | 100% |

Source: Survey result, 2015

As shown on the above table 144, representing 73.1% of the total respondents, agreed that they feel the Technology-based services/products provided by these banks are safe and the risk associated with them is low. 17.8 % and 9.1% of the total respondents were neutral and disagree with this statement respectively.

*Table 4.3.1.5: The Technology-based services/products provided precise and sufficient information I need (account statement and balance enquiry):*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 2 | 1% | 1% |
| | Disagree | 8 | 4.1% | 4.1% |
| | Neutral | 35 | 17.8% | 18% |
| | Agree | 84 | 42.6% | 43.3% |
| | Strongly agree | 65 | 33% | 33.5% |
| | Total | 194 | 98.5% | 100% |
| | Missing | 3 | 1.5% | - |

Source: Survey result, 2015

Out of the total respondents 149 customers representing 76.8% of the total responses agreed that Technology-based services/products provide precise and sufficient information they need. Only 5.1% of the total respondents or 10 of them disagree with this statement while 35 of the respondents representing 18% of the total respondents were neutral.

*Table 4.3.1.6: The Technology-based services/products provide are easy to use and user-friendly:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 2 | 1% | 1% |
| | Disagree | 13 | 6.6% | 6.7% |
| | Neutral | 29 | 14.7% | 14.9% |
| | Agree | 104 | 52.8% | 53.6% |
| | Strongly agree | 46 | 23.4% | 23.7% |
| | Total | 194 | 98.5% | 100% |
| | Missing | 3 | 1.5% | - |

Source: Survey result, 2015

As shown in the above table 77.3% of the respondents agreed that technology-based services/products of the banks are easy to use and user-friendly. 14.9% of the respondents neither agreed nor disagreed with this statement whereas only 7.7% of the respondents disagreed with this statement.

*Table 4.3.1.7: The Technology-based services/products minimize inconvenience by anywhere and anytime banking (banking at home/office at 24/7):*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 3 | 1.5% | 1.6% |
| | Disagree | 18 | 9.1% | 9.4% |
| | Neutral | 45 | 22.8% | 23.4% |
| | Agree | 75 | 38.1% | 39.1% |
| | Strongly agree | 51 | 25.9% | 26.6% |
| | Total | 192 | 97.5% | 100% |
| | Missing | 5 | 2.5% | |

Source: Survey result, 2015

From the Above table, it can be deduced that 126 respondents, representing 65.7% of the total agreed that the technology-based services/products of the banks minimize inconvenience by providing anywhere and anytime banking. 45 of the respondents were neutral representing 23.4% and only 21 of the respondents disagreed which account for 11% of the total responses.

*Table 4.3.1.8 The charges associated with Technology-based services/products are reasonably fair and minimize the transaction cost of banking:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 3 | 1.5% | 1.5% |
| | Disagree | 14 | 7.1% | 7.2% |
| | Neutral | 38 | 19.3% | 19.6% |
| | Agree | 82 | 41.6% | 42.3% |
| | Strongly agree | 57 | 28.9% | 29.4% |
| | Total | 194 | 98.5% | 100% |
| | Missing | 3 | 1.5% | |

Source: Survey result, 2015

As shown on the above table 139, representing 71.7% of the respondents, agreed that the charges associated with technology-based services/products are reasonably fair and minimize the transaction cost of banking. 19.6 % and 8.7% of the respondents were neutral and disagreed with this statement respectively.

*Table 4.3.1.9When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 8 | 4.1% | 4.2% |
| | Disagree | 35 | 17.8% | 18.3% |
| | Neutral | 60 | 30.5% | 31.4% |
| | Agree | 56 | 28.4% | 29.3% |
| | Strongly agree | 32 | 16.2% | 16.8% |
| | Total | 191 | 97% | 100% |
| | Missing | 6 | 3% | - |

Source: Survey result, 2015

From the above table it can be deduced that only 88 of the respondents which are 46.1% agreed that their requests are always anticipated properly and answered promptly when they contact these banks‟ customer service officers via e-mail, phone, interactive website and fax. Furthermore, 60 of them which comprise 31.4% of the total respondents neither agreed nor disagreed with this statement. 43 of the respondents representing 22.5% disagreed with this statement.

*Table 4.3.1.10: This bank resolves my complaints quickly and offers a fair compensation for its mistakes:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 8 | 4.1% | 4.2% |
| | Disagree | 30 | 15.2% | 15.7% |
| | Neutral | 51 | 25.9% | 26.7% |
| | Agree | 63 | 32% | 33% |
| | Strongly agree | 39 | 19.8% | 20.4% |
| | Total | 191 | 97% | 100% |
| | Missing | 6 | 3% | - |

Source: Survey result, 2015

Out of the total respondents 102 customers representing 53.4% of the total responses agreed that these banks resolve their complaints quickly and offer a fair compensation for their mistakes. Likewise 19.9% of the total respondents or 38 of them disagreed with this statement while 51 of the respondents representing 26.7% of the total respondents were neutral.

*Table 4.3.1.11: Overall, I am satisfied with the bank Technology-based services:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 2 | 1% | 1% |
| | Disagree | 14 | 7.1% | 7.1% |
| | Neutral | 24 | 12.2% | 12.2% |
| | Agree | 104 | 52.8% | 53.1% |
| | Strongly agree | 52 | 26.4% | 26.5% |
| | Total | 196 | 99.5% | 100% |
| | Missing | 1 | .5% | |

Source: Survey result, 2015

Regarding their overall satisfaction on Technology-based services/products, 158 customers, who represent 79.6% of the total agreed whereas only 16 of them representing 8.1% of the total responses disagreed. Furthermore, 24 of them which represent 12.2% of the total respondents neither agreed nor disagreed with the statement.

*Table 4.3.1.12: I say positive things about the bank to other people:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 3 | 1.5% | 1.5% |
| | Disagree | 5 | 2.5% | 2.6% |
| | Neutral | 23 | 11.7% | 11.9% |
| | Agree | 88 | 44.7% | 45.4% |
| | Strongly agree | 75 | 38.1% | 38.7% |
| | Total | 194 | 98.5% | 100% |
| | Missing | 3 | 1.5% | - |

Source: Survey result, 2015

As shown in the above table the majority of the respondents, 84.1% of the total, agreed that they say positive things about the bank to other people. 23 out of the total respondents representing 11.9% of the total were neutral while only 8 respondents, which represent 4.1% of the total, disagree with the statement.

*Table 4.3.1.13: I will encourage friends and relatives to use services offered by the bank:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 3 | 1.5% | 1.6% |
| | Disagree | 7 | 3.6% | 3.6% |
| | Neutral | 19 | 9.6% | 9.9% |
| | Agree | 79 | 40.1% | 41.1% |
| | Strongly agree | 84 | 42.6% | 43.8% |
| | Total | 192 | 97.5% | 100% |
| | Missing | 5 | 2.5% | - |

Source: Survey result, 2015

Out of the total respondents 163 customers representing 84.9 were willing to encourage friends and relatives to use the services offered by the banks. 19 of the respondents which represent 9.9% of the total were neutral while only 10 of the respondents representing 5.2% of the total respondents were disagreed with the statement.

*Table 4.3.1.14 Summary of Descriptive statistics of impact of ICT on Customers' satisfaction*

| | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| This bank provides most of Technology-based services/products and the services are almost always available. | 197 | 1 | 5 | 3.73 | .955 |
| The Technology-based services/products provided by this bank work accurately and are error-free and reliable. | 197 | 1 | 5 | 3.34 | 1.016 |
| The Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed for time. | 197 | 1 | 5 | 3.92 | .877 |
| I feel the Technology-based services/products provided by this bank are safe and the risk associated with them is low. | 197 | 1 | 5 | 3.84 | .869 |
| The Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry). | 194 | 1 | 5 | 4.04 | .881 |
| The Technology-based services/products provided by this bank are easy to use and user-friendly. | 194 | 1 | 5 | 3.92 | .863 |
| The Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7). | 192 | 1 | 5 | 3.80 | .990 |
| The charges associated with Technology-based services/products are reasonably fair and minimize the transaction cost of banking. | 194 | 1 | 5 | 3.91 | .956 |
| When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly. | 191 | 1 | 5 | 3.36 | 1.091 |
| This bank resolves my complaints quickly and offers a fair compensation for its mistakes. | 191 | 1 | 5 | 3.50 | 1.109 |
| Overall, I am satisfied with the bank Technology-based services. | 196 | 1 | 5 | 3.97 | .877 |
| I say positive things about the bank to other people. | 194 | 1 | 5 | 4.17 | .850 |
| I will encourage friends and relatives to use the service offered by the bank. | 192 | 1 | 5 | 4.22 | .883 |

Source: Survey result, 2015

Based on the above table it can be interpreted that, the mean score calculated from the customers‟ responses on statements related with Efficiency, responsiveness and easiness of Technology-based services/products provided by the banks are higher than other mean scores of factors of customers‟ satisfaction. However according to mean scores calculated from the customers‟ responses on statements related with accuracy of Technology-based services/products provided by the banks, problem handling process and complains resolving process of the banks are the least three of factors of customers‟ satisfactions.

### 4.3.2 Impact of ICT on Employee Performance/Productivity

The following section seeks to display and analyze the frequency distribution of the responses on the questionnaire items regarding the dependent and independent variables of the second research question; the impact of ICT on employees performance.

*Table 4.3.2.1 Information and Communication Technology helps employees to achieve a larger number of tasks:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 1 | 1.8% | 1.8% |
| | Neutral | 1 | 1.8% | 1.8% |
| | Agree | 17 | 30.9% | 30.9% |
| | Strongly agree | 36 | 65.5% | 65.5% |
| | Total | 55 | 100% | 100% |

Source: Survey result, 2015

As shown on the above table, out of the total 55 responses 53 employees agree that Information and Communication Technology helps employees to achieve a larger number of tasks. Only two employees were neutral or disagreed.

*Table 4.3.2.2: Information and Communication Information helps to lessen workload of employees:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Neutral | 1 | 1.8% | 1.8% |
| | Agree | 22 | 40% | 40% |
| | Strongly agree | 32 | 58.2% | 58.2% |
| | Total | 55 | 100% | 100% |

Source: Survey result, 2015

Out of the total responses almost all of the employees, 98.2% of the total agreed that Information and Communication Technology helps to lessen workload form employees. None of the respondents disagreed with the statement while only one employee neither agreed nor disagree.

*Table 4.3.2.3: Information and communication Technology helps employees to deliver output timely*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Neutral | 1 | 1.8 | 1.9 |
| | Agree | 18 | 32.7 | 33.3 |
| | Strongly agree | 35 | 63.6 | 64.8 |
| | Missing | 1 | 1.8 | - |
| | Total | 55 | 98.2 | 100 |

Source: Survey result, 2015

From the above table it can be deduced that almost all of the respondents, 53 of employees out of 55 responses, agreed that Information and Communication Technology helps employees to deliver output timely. Only one employee was neutral while none of the respondents disagreed with the statement.

*Table 4.3.2.4: Information and Communication Technology helps employees to reduce errors:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 3 | 5.5% | 5.5% |
| | Neutral | 12 | 21.8% | 21.8% |
| | Agree | 23 | 41.8% | 41.8% |
| | Strongly agree | 17 | 30.9% | 30.9% |
| | Total | 55 | 100% | 100% |

Source: Survey result, 2015

From the above table it can be deduced that 40 employees representing 72.7% of the total respondents agreed that Information and Communication Technology helps employees to reduce errors. Only 3 employees representing 5.5% of the total disagreed while the remaining 21.8% of the total employees neither agreed nor disagreed that Information and Communication Technology helps employees to reduce errors.

*Table 4.3.2.5: Information and Communication Technology helps employees to perform their work within the required specification:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 1 | 1.8% | 1.8% |
| | Neutral | 6 | 10.9% | 10.9% |
| | Agree | 31 | 56.4% | 56.4% |
| | Strongly agree | 17 | 30.9% | 30.9% |
| | Total | 55 | 100% | 100% |

Source: Survey result, 2015

As shown on the above table 48 employees which represent 87.3% of the total respondents agreed that Information and Communication Technology helps employees to perform their work within the required specifications. Out of the total respondents 6 employees were neutral while only one employee disagreed with the statement.

*Table 4.3.2.6: Information and Communication Technology helps employees to improve work continuously:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 1 | 1.8% | 1.9% |
| | Neutral | 2 | 3.6% | 3.8% |
| | Agree | 26 | 47.3% | 49.1% |
| | Strongly agree | 24 | 43.6% | 45.3% |
| | Total | 53 | 96.4% | 100% |
| | Missing | 2 | 3.6% | - |

Source: Survey result, 2015

Out of the total respondents 50 employees representing 94.4% of the total responses agreed that Information and Communication Technology helps employees to improve work continuously whereas, only one employee disagreed with the statement and two of the respondents representing 3.8% of the total responses were neutral.

*Table 4.3.2.7: Information and Communication Technology helps employees to deliver consistent output even in high work pressure:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 1 | 1.8% | 1.9% |
| | Disagree | 3 | 5.5% | 5.7% |
| | Neutral | 9 | 16.4% | 17% |
| | Agree | 25 | 45.5% | 47.2% |
| | Strongly agree | 15 | 27.3% | 28.3% |
| | Total | 53 | 96.4% | 100% |
| | Missing | 2 | 3.6% | |

Source: Survey result, 2015

From the above table it can be deduced that 40 employees who represent 75.5% of the total respondents agreed that Information and Communication Technology helps employees to deliver consistent output even in high work pressure. 9 employees, representing 17% of the total neither agreed nor disagreed with the statement while 4 of the respondents disagreed.

*Table 4.3.2.8: Information and Communication Technology helps employees to improve their effort to learn more and apply new knowledge:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 2 | 3.6% | 3.7% |
| | Disagree | 1 | 1.8% | 1.9% |
| | Neutral | 5 | 9.1% | 9.3% |
| | Agree | 20 | 36.4% | 37% |
| | Strongly agree | 26 | 47.3% | 48.1% |
| | Total | 54 | 98.2% | 100% |
| | Missing | 1 | 1.8% | - |

Source: Survey result, 2015

As shown in the above table the majority of the respondents, 85.1% of the total, agreed that Information and Communication Information helps employees to improve their effort to learn more and apply new knowledge. Out of the total respondents, 5 of them representing 9.3% of the total were neutral Only 3 respondents which represent 5.6% of the total disagreed with the statement.

*Table 4.3.2.9: Information and Communication Technology helps employees to achieve greater flexibility in work:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Strongly disagree | 2 | 3.6% | 3.7% |
| | Disagree | 4 | 7.3% | 7.4% |
| | Neutral | 11 | 20% | 20.4% |
| | Agree | 19 | 34.5% | 35.2% |
| | Strongly agree | 18 | 32.7% | 33.3% |
| | Total | 54 | 98.2% | 100% |
| | Missing | 1 | 1.8% | |

From the Above table, it can be deduced that only 37 of the respondents, representing 68.5% of the respondents agreed that Information and communication Technology helps employees to achieve greater flexibility in work. Eleven of the respondents were neutral representing 20.4% and only 6 of the respondents disagreed which account for 11.1% of the total responses.

*Table 4.3.2.10: Overall, Information and communication Technology enhances performance of bank employees.*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Neutral | 4 | 7.3% | 7.4% |
| | Agree | 25 | 45.5% | 46.3% |
| | Strongly agree | 25 | 45.5% | 46.3% |
| | Total | 54 | 98.2% | 100% |
| | Missing | 1 | 1.8% | - |

Source: Survey result, 2015

From the above table it can be deduced that most of the respondents, 50 employees out of 55, agreed that overall Information and Communication Technology enhances their performance. Only four employees were neutral while none of the respondents disagreed with the statement.

*Table 4.3.2.11: Information and Communication Technology has made work easier and interesting:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 1 | 1.8% | 1.9% |
| | Neutral | 2 | 3.6% | 3.7% |
| | Agree | 25 | 45.5% | 46.3% |
| | Strongly agree | 26 | 47.3% | 48.1% |
| | Total | 54 | 98.2% | 100% |
| | Missing | 1 | 1.8% | - |

Source: Survey result, 2015

Out of the total respondents 51 employees representing 94.4% of the total responses agreed that Information and Communication Technology has made work easier and interesting whereas, only one employee disagreed with the statement two of the respondents representing 3.7% of the total responses were neutral.

*Table 4.3.2.12: Information and Communication Technology improves effectiveness of communication flow (via internet and intranet) and decision making process:*

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | Disagree | 1 | 1.8% | 1.8% |
| | Neutral | 7 | 12.7% | 12.7% |
| | Agree | 24 | 43.6% | 43.6% |
| | Strongly agree | 23 | 41.8% | 41.8% |
| | Total | 55 | 100% | 100% |

Source: Survey result, 2015

From the above table, it can be deduced that 47 employees representing 85.4% of the total population agreed that Information and Communication Technology improves effectiveness of communication flow and decision making process. However, only one employee disagreed with the statement while 7 employees representing 12.7% were neutral.

*Table 4.3.2.13 Summary of Descriptive statistics of impact of ICT on Employees' performance.*

| | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Information and Communication Technology helps employees to achieve a larger number of tasks. | 55 | 2 | 5 | 4.60 | .627 |
| Information and Communication Technology helps to lesson workload of employees. | 55 | 3 | 5 | 4.56 | .536 |
| Information and Communication Technology helps employees to deliver output timely. | 54 | 3 | 5 | 4.63 | .525 |
| Information and Communication Technology helps employees to reduce errors. | 55 | 2 | 5 | 3.98 | .871 |
| Information and Communication Technology helps employees to perform their work within the required specifications. | 55 | 2 | 5 | 4.16 | .688 |
| Information and Communication Technology helps employees to improve work continuously. | 53 | 2 | 5 | 4.38 | .657 |
| Information and Communication Technology helps employees to deliver consistent output even in high work pressure. | 53 | 1 | 5 | 3.94 | .929 |
| Information and Communication Technology helps employees to improve their effort to learn more and apply new knowledge. | 54 | 1 | 5 | 4.24 | .970 |
| Information and Communication Technology helps to achieve greater flexibility in work. | 54 | 1 | 5 | 3.87 | 1.082 |

Source: Survey result, 2015

From the above table it can be interpreted that, based on the average mean score calculated from the employees‟ responses on respective statements, the impact of ICT on handling of large amount of work is higher than its impact on improving quality of work and speed required to accomplish a specific task within specific time. In other word it can be interpreted that, based on average mean score calculated on employees responses, the impact of ICT on speed required to accomplish a specific task is less than average mean score of its impact on other dimension of employee performance measurements.

### 4.3.3 Challenges

Table 4.3.3.1: Summary of Descriptive Statistic of Challenges

| Challenges | N | Min | Max | Mean | Std. Deviation | Rank based on Mean |
|---|---|---|---|---|---|---|
| Lack of confidence with the security on Technology-based services/products. | 194 | 1 | 3 | 1.97 | .733 | 8 |
| Customers do not trust the Technology-based services/products provided by the bank | 195 | 1 | 3 | 1.91 | .740 | 9 |
| Using the Technology-based services/products of the bank is expensive. | 197 | 1 | 3 | 1.65 | .738 | 10 |
| Customers are not familiar with the Technology-based services/products of the bank. | 197 | 1 | 3 | 2.27 | .697 | 3 |
| Lack of sufficient technical and managerial support of the bank. | 195 | 1 | 3 | 2.02 | .736 | 7 |
| The bank is not fast to respond/rectify when transactional errors occur (like: when ATM jammed payment cards or customers' accounts deducted without being paid the full or part of the amount). | 196 | 1 | 3 | 2.09 | .722 | 5 |
| Lack of available Information and Communication technology infrastructure (access to internet, mobile phone and computers). | 191 | 1 | 3 | 2.29 | .744 | 2 |
| Mobile and Internet are not connected well every time due to network problem. | 192 | 1 | 3 | 2.33 | .733 | 1 |
| The system doesn't work efficiently every time we need it, as the bank promised. | 194 | 1 | 3 | 2.16 | .691 | 4 |
| Customers may prefer branch service to Technology-based services/products. | 194 | 1 | 3 | 2.05 | .711 | 6 |

Source: Survey result, 2015

As shown in the above table (table 4.3.3.1), most of the respondents agreed that the major challenge they faced is that mobile and internet connection is low due to network problem. The second major challenge is lack of available infrastructure followed by lack of familiarity with the

technology-based services/products by the customers themselves. „the system does not work efficiently all the time" and „the bank is not fast to respond when transactional errors occur are placed at 4th and 5th rank as per the customers responses.

The least reason that customers ranked as a challenge is the charges associated with Technology-based services/products. Most of respondents feel that the charges associated with the services/products are not expensive enough to prohibit the customers to use the services/products. The 8th and 9th ranked challenges, security and trust, are also considered by the customers as the least reasons that discourage them to use Technology-based services/products provided by the banks.

### 4.4 Hypothesis Testing

#### 4.4.1 Hypothesis One: Impact of ICT on Customer Satisfaction

***Hypothesis***: The adaptation of Information and Communication Technology has a significant impact on customers" satisfaction in Ethiopian Private Banking Industry.

**I. One-Sample Test (T-Statistics)**

To test the first hypothesis of the study, impact of ICT on customers" satisfaction, the One-Sample T test compares the mean score of a sample to a known value.

Table: 4.4.1.1 One Sample T-Statistics

**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Adoption of ICT have significant impact on customers' satisfaction | 191 | 4.1291 | .74588 | .05397 |

Source: Survey result, 2015

Table: 4.4.1.2 One Sample Test

**One-Sample Test**

| | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| Adaption of ICT have significant impact on customers' satisfaction | 76.508 | 190 | .000 | 4.12914 | 4.0227 | 4.2356 |

Source: Survey result, 2015

***Interpretation***

It can be deduced that, the calculated value (t-value) and the p-value for the above statement is 76.508 and .000 at 5% level of significance and 190 degree of freedom.

***Decision (Rejection Rule: Reject Ho if the p-value ≤ α i.e. 0.05)***

From the above table the p-value is .000 which is less than the tabulated value α (.05). Therefore the null hypothesis (Ho) should be rejected in favor of accepting alternative hypothesis ($H_1$). Hence, we can conclude that the adaptation of Information and Communication Technology has a significant impact on customers‟ satisfaction in Ethiopian private banking industry.

**II. Simple Linear Regression Model**

Using simple linear regression model we can explain the extent to which Information and Communication Technology significantly affect customers‟ satisfaction in Ethiopian private banking industry.

Table: 4.4.1.3 linear Regression Model Summary

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.115 | .293 | | 3.811 | .000 |
| | Adaptation of ICT (Factors affecting Customers Satisfaction) | .803 | .077 | .618 | 10.417 | .000 |

a. Dependent Variable: Overall Customer Satisfaction

Source: Survey result, 2015

**Interpretation**

The above Coefficient table shows the simple linear regression model that expresses the relationship between Adaptation of Information and Communication Technology and Customers‟ satisfaction. The model is shown mathematically as follows; Y=a+bX, where y is the overall satisfaction of customers, X is usage of Technology-based services/products, a is a constant factor and b is the value of coefficient. From the above table, the model can be read as Y=1.115+0.803X. This can be interpreted as; the share of using Technology-based services/products by the customer on his/her overall satisfaction is about 80.3%. Based on this we can conclude that the impact of Information and communication Technology on customers‟ satisfaction is very strong.

### 4.4.2 Hypothesis Two: Impact of ICT on Employees' performance/productivity

***Hypothesis***: Application of Information and Communication Technology has affected employees‟ performance in Ethiopian Private Banking industry.

**I. One-Sample Test (T-Statistics)**

To test the second hypothesis of the study, impact of ICT on employees‟ performance, the One-Sample T test compares the mean score of a sample to a known value.

Table: 4.4.2.1 One Sample T-Statistics

**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Application of ICT has affected Employees' Performance. | 53 | 4.3711 | .48331 | .06639 |

Source: Survey result, 2015

***Table 4.4.2.2 One-Sample Test***

**One-Sample Test**

| | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| Application of ICT has affected Employees' Performance. | 65.841 | 52 | .000 | 4.37107 | 4.2379 | 4.5043 |

Source: Survey result, 2015

***Interpretation***

It can be deduced that, the calculated value (t-value) and the p-value for the above statement is 65.841 and .000 at 5% level of significance and 52 degree of freedom respectively.

***Decision (Rejection Rule: Reject Ho if the p-value ≤α)***

From the above table the p-value is .000 which is less than the tabulated value α (.05). Therefore the null hypothesis (Ho) should be rejected in favor of accepting the alternative hypothesis ($H_1$). Hence, we can conclude that the adaptation of Information and Communication Technology has positively affected employees‟ performance in Ethiopian private banking industry.

**II. Simple Linear Regression Model**

Using simple linear regression model we can explain the extent to which Information and Communication Technology has affected employees‟ performance in Ethiopian private banking industry.

Table: 4.4.2.3 linear Regression Model Summary

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.260 | .562 | | 2.243 | .029 |
| | Application of ICT (Quality of Work, Quantity of work and speed required to accomplish a specific work) | .725 | .131 | .620 | 5.530 | .000 |

a. Dependent Variable: Employees‟ performance

Source: Survey result, 2015

**Interpretation**

The above Coefficient table shows the simple linear regression model that expresses the relationship between application of Information and Communication Technology and bank employees‟ performance. The model is shown mathematically as follows; Y=a+bX, where y is the employees‟ performance, X is application of ICT in day-to-day operation of the banks, a is a

constant factor and b is the value of coefficient. From the above table, the model can be read as Y=1.26+0.725X. This can be interpreted as; the share of applying Information and Communication Technology in the banks‟ day-to-day operation on improvement of employees‟ performance is about 72.5%. Based on this we can conclude that the impact of Information and communication Technology on employees‟ performance in Ethiopian private banking industry is very strong.

# Chapter Five

# Conclusions and Recommendations

Today, the banking industry across the globe is embracing Information and Communication Technology as part of business strategy for enhancing its performance towards customer satisfaction, staff productivity, profitability and creating competitive advantage among banking institutions. Especially the role of Information and Communication Technology towards improving service quality which in turn satisfying customer need and expectation, and augmenting the performance of their employees is inevitable. The purpose of this study was to examine the impact of Information and Communication Technology on banks‟ performance: a case of two purposefully selected Ethiopian private banks, namely Dashen Bank S.C. and United Bank S.C. The study particularly examined the impact of Information and Communication technology on customers‟ satisfaction and employees‟ performance as measures of non-financial performance of the banks. In addition the study tried to assess the major challenges that discourage customers to use Technology-based services/products provided by the banks.

## 5.1 Conclusion

### 5.1.1 Impact of Information and communication Technology on Customers' Satisfaction

The results of the study were obtained through close ended questionnaires distributed to 200 customers of the two banks. The researcher tried to examine the level of the customers‟ satisfaction due to the impact of Information and Communication Technology. The following conclusions are drawn based on the findings of the study:

- In general, from the hypothesis tested, it can be concluded that adoption of information and Communication Technology has a significant impact on customers‟ satisfaction. Furthermore, it can be deduced from the linear regression model that there is a strong positive relationship between adoption of Information and Communication technology and customers‟ satisfaction.
- From the descriptive statistics (table 4.3.1.14), it can be concluded that customers agreed that the impact of Information and Communication Technology on Efficiency,

responsiveness and easiness has been greater among the factors affecting customers‟ satisfaction.

- From the descriptive statistics (table 4.3.1.14), it can also be concluded that the impact of Information and Communication Technology on accuracy, problem handling process and complains resolving process of the banks was the least three among the factors affecting customers‟ satisfaction.

### 5.1.2 Impact of ICT on Employees' performance/productivity

The results of the study were obtained through close ended questionnaires distributed for 60 employees of the two banks. The researcher tried to examine the impact of Information and Communication Technology on employees‟ performance measurement criteria; quantity of work, quality of work and speed to accomplish specific tasks. The following conclusions are drawn based on the findings of the study:

- In general, from the hypothesis tested, it can be concluded that adoption of information and Communication Technology has a significant impact on employees‟ performance. Furthermore, it can be deduced from the linear regression that there was a strong relationship between adoption of Information and Communication technology and performance of the two banks‟ employees.
- However, considering the bulky nature of the banks‟ transactions, the impact of Information and Communication Technology on handling of large amount of work was shown in the descriptive statistics (table 4.3.2.13) noticeably higher.

### 5.1.3 Challenges

The results of the study were obtained through close ended questionnaires distributed for 200 customers of the two banks. The researcher tried to assess the challenges that discourage customers to use Technology-based services/products of the banks frequently or at all. The following conclusions are drawn based on the findings of the study:

- From the descriptive statistics (table 4.3.3.1) the finding of the study is consistent with Gemechu‟s (2012) findings. The major challenges from the customers perspectives are

the mobile and internet network connection problem and lack of available Information and communication technology infrastructure in the country. Lack of infrastructure includes insufficient access for internet computer and mobile phone.

- In contrast to Gemechu‟s (2012) findings, this study found that the security issues and trust of customers on Technology-based services/products are the least challenges that discourage customers to use the services/products provided by the banks.

## 5.2 Recommendation

This study raised a number of research questions and developed hypotheses related to the study variables. The purpose of the study was to examine the impact of Information and communication Technology on banks‟ performance in terms of customers‟ satisfaction and employees‟ performance. The study applied survey study on two selected private banks and tried to infer the findings to Ethiopian private banks in general through testing the hypotheses. Based on the conclusions drawn above the following recommendations are forwarded for the concerned bodies:

- Based on the findings of the study and above conclusions the impact of Information and communication Technology on the performance of the two banks in terms of customers‟ satisfaction and employees‟ performance is significant. Therefore, Ethiopian private banks in general and Dashen Bank S.C. and United Bank S.C. in particular should adequately grasp the role of Information and communication Technology in their operational performance and keep synthesizing technological innovations in their strategies and day-to-day operation.
- The role of Information and communication Technology on efficiency, responsiveness and easiness of the banks‟ services and products is satisfactory. However the accuracy of Technology-based services/products, problem handling process and compliant resolving process of the banks are not sufficient enough to satisfy their customers which in turn would diminish their financial and non-financial performance. Therefore, senior managers of the banks should give a good deal of attention for these factors of customer satisfactions.

- Daily transaction of banking industry is enormous compared with other industries. In boosting the capacity of the employees to handle large number of tasks, the role of Information and communication Technology is undeniable. However, bad internet and mobile network connection, and lack of awareness or familiarity of the employees and customers have hindered the impact of Information and Communication Technology on speed of employees to accomplish specific tasks. Therefore the concerned bodies of the banks should intensively invest on capacity building of their employees in terms of modernization and awareness programs for customers.

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# ***Appendix***

**QUESTIONNAIRE**

*Dear Respondents,*

This questionnaire is designed to gather information about the impact of Information and Communication Technology on customers‟ satisfaction and the challenges thereon in Ethiopian private banks. All responses will be used to conduct a study for the partial fulfillment of Executive Masters Thesis in Business Administration. I would like to assure you that you will be guaranteed anonymity as I do not ask your name here and your responses will not be used for any other purposes other than the intended purpose. Besides, this survey should only take about **10 minutes** of your time. I am grateful for your cooperation in advance!

***N.B*** Please put a "√" mark to all your responses in the circle provided beside each statement.

***If you do not use, at least, any one of Technology-based services/products of the bank, please do not fill out the questionnaire.***

## I. Demographic information

**1. Gender**

☐ Male ☐ Female

**2. Age (years old)**

☐ 18 or below ☐ 19~28 ☐ 29~38 ☐ 39 or above

**3. Marital Status**

☐ Single ☐ Married ☐ Divorce ☐ Separated ☐ Widowed

**4. Education background**

☐ High school diploma or below ☐ Junior college diploma ☐ Undergraduate degree (Bachelor‟s degree) ☐ Graduate degree (Master‟s degree) or above

**5. Occupation**

☐ Business (enterprise) managerial and technical personnel

☐ Government officer ☐ Professional (science and education, cultural, health)

☐ Student ☐ Self-employed ☐ Unemployed ☐ Others

**6. Which of the Technology-based services/products of the bank do you use?**

☐ ATM ☐ Mobile Banking ☐ Internet Banking ☐ SMS Alert ☐

Phone Banking ☐ Electronic Fund Transfer

**7. Length of Technology-based services/products use:**

☐ Less than 1 year ☐ 1-2 years ☐ 2 years and above

**II.** This part of questionnaire covers about customer satisfaction in relation with Technology-based services/products provided by this bank. Technology-based banking services/products include: connectivity of branches over the internet, ATM, POS, Mobile banking, Internet Banking, SMS banking and electronic fund transfer. Please indicate how much you agree or disagree with each of the following statements by circling the number that best represents your opinion. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

| S.No. | Research Question | SDA | DA | N | A | SA |
|---|---|---|---|---|---|---|
| **A. Factors Affecting Customer satisfaction** | | | | | | |
| 1. This bank provides most of Technology-based services/products and the services are almost always available. | | 1 | 2 | 3 | 4 | 5 |
| 2. The Technology-based services/products provided by this bank work accurately and are error-free and reliable. | | 1 | 2 | 3 | 4 | 5 |
| 3. The Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed for time. | | 1 | 2 | 3 | 4 | 5 |
| 4. I feel the Technology-based services/products provided by this bank are safe and the risk associated with them is low. | | 1 | 2 | 3 | 4 | 5 |
| 5. The Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry). | | 1 | 2 | 3 | 4 | 5 |
| 6. The Technology-based services/products provided by this bank are easy to use and user-friendly. | | 1 | 2 | 3 | 4 | 5 |
| 7. The Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7). | | 1 | 2 | 3 | 4 | 5 |
| 8. The charges associated with Technology-based services/products are reasonably fair and minimize the transaction cost of banking. | | 1 | 2 | 3 | 4 | 5 |
| 9. When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly. | | 1 | 2 | 3 | 4 | 5 |
| 10. This bank resolves my complaints quickly and offers a fair compensation for its mistakes. | | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| **B. Overall Customer satisfaction** | | | | | |
| 1. Overall, I am satisfied with the bank Technology-based services. | 1 | 2 | 3 | 4 | 5 |
| 2. I say positive things about the bank to other people. | 1 | 2 | 3 | 4 | 5 |
| 3. I will encourage friends and relatives to use the service offered by the bank. | 1 | 2 | 3 | 4 | 5 |

**III.** This part of the questionnaire covers about challenges which discourage customers to use Technology-based services/products of the bank frequently or at all. Please indicate how much the following challenges affect the customers' decision to use Technology-based services/products by circling the number that best represents your opinion. 1 indicates Not at all affecting (NA), 2 indicates somewhat affecting (A), 3 indicates Strongly Affecting (SA).

| S.No. | Challenges | NA | A | SA |
|---|---|---|---|---|
| 1. Lack of confidence with the security on Technology-based services/products. | | 1 | 2 | 3 |
| 2. Customers do not trust the Technology-based services/products provided by the bank | | 1 | 2 | 3 |
| 3. Using the Technology-based services/products of the bank is expensive. | | 1 | 2 | 3 |
| 4. Customers are not familiar with the Technology-based services/products of the bank. | | 1 | 2 | 3 |
| 5. Lack of sufficient technical and managerial support of the bank. | | 1 | 2 | 3 |

| | | | |
|---|---|---|---|
| 6. The bank is not fast to respond/rectify when transactional errors occur (like: when ATM jammed payment cards or customers' accounts deducted without being paid the full or part of the amount). | 1 | 2 | 3 |
| 7. Lack of available Information and Communication technology infrastructure (access to internet, mobile phone and computers). | 1 | 2 | 3 |
| 8. Mobile and Internet are not connected well every time due to network problem. | 1 | 2 | 3 |
| 9. The system doesn't work efficiently every time we need it, as the bank promised. | 1 | 2 | 3 |
| 10. Customers may prefer branch service to Technology-based services/products. | 1 | 2 | 3 |

Thank you.

**QUESTIONNAIRE**

*Dear Respondents,*

This questionnaire is designed to gather information about the impact of Information and Communication Technology on employees‟ performance. All responses will be used to conduct a study for the partial fulfillment of Executive Masters Thesis in Business Administration. I would like to assure you that you will be guaranteed anonymity as I do not ask your name here and your responses will not be used for any other purposes other than the intended purpose. Besides, this survey should only take about **10 minutes** of your time. I am grateful for your cooperation in advance!

***N.B*** Please put a "√" mark to all your responses in the circle provided beside each statement .

## I. Demographic information

**1. Gender**

☐ Male ☐ Female

**2. Age (years old)**

☐ 18 or below ☐ 19~28 ☐ 29~38 ☐ 39 or above

**3. Marital Status**

☐ Single ☐ Married ☐ Divorce ☐ Separated ☐ Widowed

**4. Education background**

☐ High school diploma or below ☐ Junior college diploma ☐ Undergraduate degree (Bachelor‟s degree) ☐ Graduate degree (Master‟s degree) or above

**5. Position**

☐ Non-Managerial Post ☐ Managerial Post

**6. Work Experience**

☐ Less than 3 year ☐ 3-5 years ☐ 5 years and above

II. This part of questionnaire covers about employees' performance/staff productivity in relation to adoption of Information and Communication Technology in bank's day-to-day

operation. Please indicate how much you agree or disagree with each of the following statements by circling the number that best represents your opinion. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

| S.No. | Research Question | SDA | DA | N | A | SA |
|---|---|---|---|---|---|---|
| 1. | Information and Communication Technology helps employees to achieve a larger number of tasks. | 1 | 2 | 3 | 4 | 5 |
| 2. | Information and Communication Technology helps to lesson workload of employees. | 1 | 2 | 3 | 4 | 5 |
| 3. | Information and Communication Technology helps employees to deliver output timely. | 1 | 2 | 3 | 4 | 5 |
| 4 | Information and Communication Technology helps employees to reduce errors. | 1 | 2 | 3 | 4 | 5 |
| 5. | Information and Communication Technology helps employees to perform their work within the required specifications. | 1 | 2 | 3 | 4 | 5 |
| 6. | Information and Communication Technology helps employees to improve work continuously. | 1 | 2 | 3 | 4 | 5 |
| 7. | Information and Communication Technology helps employees to deliver consistent output even in high work pressure. | 1 | 2 | 3 | 4 | 5 |
| 8. | Information and Communication Technology helps employees to improve their effort to learn more and apply new knowledge. | 1 | 2 | 3 | 4 | 5 |
| 9. | Information and Communication Technology helps to achieve greater flexibility in work. | 1 | 2 | 3 | 4 | 5 |
| **Overall Employees Performance** | | | | | | |
| 1. | Overall, Information and Communication Technology enhance performance of bank employees. | 1 | 2 | 3 | 4 | 5 |
| 2. | Information and Communication Technology has made work easier and interesting. | 1 | 2 | 3 | 4 | 5 |
| 3. | Information and Communication Technology improve effectiveness of communication flow (via internet or intranet) and decision making process. | 1 | 2 | 3 | 4 | 5 |

*Thank you*