CHALLENGES AND EFFECTS OF INFORMATION COMMUNICATION TECHNOLOGY ON CUSTOMERS' SATISFACTION AND EMPLOYEES' PERFORMANCE: A CASE OF AWASH BANK AND BANK OF ABYSSINIA

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ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a University advisor.

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Asmamaw Getie (Asst. Prof.) Signature & Date

St. Mary's University, Addis Ababa

Declaration

I hereby declare that the study which is being presented in this thesis entitled “Challenges and effects of ICT on customers’ satisfaction and employees’ performance: a case of Awash Bank and Bank of Abyssinia” is original work of my own. It had not been presented for a partial fulfillment for any educational qualification at this university or any other and in any projects by any means, and all the resources materials used for this thesis had been accordingly acknowledged.

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WONDESEN TSEGAYE Date

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ACCRONYMS

ATM	AUTOMATED TELLER MACHINES
AVR	AUTOMATED VOICE RESPONSE
BOA	BANK OF ABYSSINIA
CBE	COMMERCIAL BANK OF ETHIOPIA
DBE	DEVELOPMENT BANK OF ETHIOPIA
ETA	THE ETHIOPIAN TELECOMMUNICATION AGENCY
ICT	INFORMATION COMMUNICATION TECHNOLOGY
MIS	MANAGEMENT INFORMATION SYSTEM
NBE	NATIONAL BANK OF ETHIOPIA
PIN	PERSONAL IDENTIFICATION NUMBER
POS	POINT-OF-SALE TRANSFER TERMINALS
PCB	PERSONAL COMPUTER BANKING
SMS	SMSSHORT TEXT MESSAGE

Abstract

This research seeks to determine Challenges and effects of ICT on customers' satisfaction and employee performance of awash bank and bank of Abyssinia. It evaluated the banks using customer and employee satisfaction as independent variables. In addition, the research sought to identify the most significant obstacles customers face when utilizing technology-based services and products. This study utilized a case-study methodology. In this research, primary and secondary data are the two types of information typically employed. The study's target populations were customers and senior management of the two private banks, Awash Bank and Abyssinia Bank. Awash Bank and Abyssinia Bank selected 100 customers and 30 employees at random to represent 10 percent of the target population for the study. For the research, a structured questionnaire was used to collect pertinent data. Version 16 of the Statistical Package for the Social Sciences (SPSS) was utilized to analyze the questionnaire data. To determine the significance of the independent variables on the dependent variable, a T-statistics test was conducted. According to the findings of the study, information and communication technology has a substantial positive impact on customer and employee satisfaction in the selected private banks. The simple linear regression analysis also revealed positive coefficients of 0.803 and 0.725 for customer satisfaction and employee performance, respectively, indicating a strong positive relationship between information and communication technology and the satisfaction of bank customers and employees. The research also revealed that mobile and internet connectivity issues, as well as a lack of information and communication infrastructures, are the major obstacles discouraging customers from using technology-based services and products of banks. In Ethiopian private banks, information and communication technology has had a positive impact on customer and employee satisfaction.

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

CHAPTER ONE

Introduction

1.1. Background of the Study

Information and communication technology (ICT) is the automation of processes, controls, and information generation through the use of computers, telecommunications, software, and other devices to ensure the smooth and efficient operation of activities. It refers to the integration of electronic technology with the information requirements of a business at all levels (Agbolade, 2011). Information technology is defined by Laudon (2015) as all the hardware and software a company requires to meet its business goals. Therefore, it can be defined in a business setting as "a collection of interconnected components that gather (or retrieve), store, and distribute information to enable organizational decision-making and control (Yeboah et. al., 2017).

The application of information technology to corporate strategies has been central to the competitive process during the past few decades. As the economy advances from lower to higher stages of development, business processes are transitioning from less sophisticated and complex manufacturing procedures to more modern and sophisticated methods. Information technology has significantly altered the input-output connection of production operations in this regard. With ICT at the heart of the change curve, business organizations, particularly the banking industry, operate in a complicated and competitive environment defined by changing conditions and a highly unpredictable economic climate Agbolade, 2016).

In addition, the rapid dissemination of ICT in the contemporary business environment over the past few decades has changed the business processes and organizational strategies of numerous firms. Numerous studies demonstrate that the constant and rapid advancement of technology and scientific knowledge has inspired global businesses. Rapid advances in computer and communication technology have affected how organizations conduct business and make a decision, which has a direct role on their operational effectiveness. In this regard, Chakrabarty 2017argues that technology has changed every business in the world by enabling the quicker and more cost-effective distribution of goods and services to clients who, in the past, could not have

afforded them. In addition, producers of goods and services were able to remain viable and lucrative.

With intensifying global competition and the rapid dissemination of information, the future of many businesses is contingent on their capacity to innovate Talegeta, 2014. Along with innovations, information technology is one of the most essential organizational tools, and it plays a crucial role in the creation of new products and services. Rai et al. (2015) acknowledged that IT offers new kinds of customer service, new distribution channels, new information-based goods, enhanced efficiency, and the ability to affect industrial structure. According to Agrawal and Jain (2013), the primary drivers of innovation have been the globalization of the financial system, deregulatory policies, and significant technological breakthroughs. Thus, in increasingly integrated financial systems confronted with greater volatility, increased competition, and a wide range of risks, financial innovation has become essential to provide new products and strategies that better suit different market and time conditions and meet the diverse needs of financial system participants.

Like other corporate organizations, banks are implementing innovative products and services to secure their long-term existence and meet customers' evolving expectations. Banks should endeavor to meet their clients' expectations in this fierce, globally competitive market through superior customer service and enhanced customer relationship management. According to Agrawal and Jain (2013), while banks are aiming to build client ties and transition to relationship banking, customers are increasingly seeking the convenience of remote electronic banking and migrating away from traditional branch banking. In this sense, information technology and the communication networking system have changed the operations of banks and other financial institutions worldwide.

Undoubtedly, the majority of corporate companies, especially banks, view computer technology as a vital capability for gaining a competitive edge. In this regard, Jalal-Karim and Hamdan (2014) concurred that, in recent years, the use of information technology has increased in service industries, particularly the banking industry, which, by employing information technology-related products such as internet banking, electronic payments, security investments, and information exchange, is able to provide clients with higher-quality services with less effort.

Theoretically, alternative banking channels/e-channels will improve the performance of banking services and boost customer satisfaction by delivering anytime, anywhere, multi-way banking services with a variety of services, conveniences, speed, efficiency, security, and cost-effectiveness (Kumbhar, 2016). Therefore, each bank should emphasize the effect of technology on customer happiness and employee productivity.

In 1905, the Bank of Abyssinia, a private enterprise managed by the Bank of Egypt, established banking in Ethiopia (Asefa, 2017). However, the entrance of information technology into the banking sector is a phenomenon of the past decade. Currently, the majority of Ethiopian banks offer technologically-based services and products to its customers, including ATM (payment cards), mobile banking, Internet banking, SMS banking, and electronic fund transfers. Gemechu (2015) suggested that technological innovation plays a vital role in the banking industry by producing value for banks and customers and allowing customers to conduct financial transactions without visiting a physical bank. Nonetheless, banks in Ethiopia continue to engage in aggressive branch growth and longer office hours. According to Asefa (2016), electronic banking in Ethiopia has numerous obstacles due to a lack of software, awareness, risk aversion, and skilled individuals in the business. To be competitive on a local and global scale, Ethiopian private banks must acknowledge the importance of information and communication technology to their performance and accurately analyze the challenge it provides.

1.2.Statement of the Problem

Information and communication technology (ICT) have brought about a complete paradigm shift in the banking industry's performance and customer service delivery (Aliyu and Tasmin, 2017). The banking system is gradually transitioning from conventional banking to relationship banking. Historically, the relationship between the bank and its customers was conducted face-to-face in a branch, whereas in modern banking, customers demand more flexible and readily available services at all times and in all locations. Due to its role in acquiring and analyzing data, technology has had a significant role in banking services. The banking industry has experienced significant technological advancements in the 21stcentury. In general, ICT enables modern banks to meet the expectations of their technologically savvy and technologically demanding customers.

In today's world of rapid change, the banking environment has become intensely competitive, and banks must respond swiftly to rapidly changing customer expectations. To survive and thrive in this dynamic market, banks are implementing electronic banking to enhance their customer service delivery and productivity. In general, electronic banking is an extension of conventional banking that utilizes the Internet as an electronic delivery channel for banking products and services.

With IT, banking has been redefined and re-engineered, and banks have begun to offer more sophisticated services to customers through continuous product and process innovation (Tiwari and Kumar, 2015). In order to survive and become productive, banks must invest all of their resources in the enhancement of service delivery and value-added activities due to today's dynamic and intense market competition. Yeboah et al. (2014) believe that total automation of banking is essential for all banks to attract more customers, provide efficient and quality services, and survive in the emerging new competition, in addition to the profit motive, which is the primary goal of the banks.

Information technology has become a necessity and is viewed as the only way for banks to survive in the increasingly competitive banking industry (Benerjea & Dawinji, 2018). Consequently, it makes no sense to delay investment in these fundamental technologies that form the basis for the future of banking. It is crucial for the future revenue and engagements of banks (King, 2017). Numerous organizations have, in fact, invested time and resources in the enhancement of their services and products. Yeboah et al. (2017) argued that banks have invested enormous sums of money in IT, with their products and services relying heavily on it. Identifying IT investment and its role in the banking industry is crucial to the success of contemporary banks, and Yeboah et al. (2015) emphasized that banks must understand the role of ICT on their efficient service delivery, customer satisfaction, and employee productivity to maximize the return on investment. On the other hand, Agbolade (2015) argued that the most significant flaw in the banking industry today is a widespread failure by senior management in banks to recognize the significance of technology and incorporate it accordingly into their

strategic plans. In addition, the management is unaware of the current banking environment, which necessitates their determination to fully address all ICT-related challenges.

Despite the fact that numerous studies have been conducted on the role of ICT on banking performance, few studies exist in Ethiopia that investigate the role of ICT on the performance of Ethiopian private banks and the associated challenges. Therefore, additional research is necessary to comprehend the significance of ICT in Ethiopian Private Banks and to provide industry decision-makers with a deeper understanding.

Consequently, this study aims to assess the role of information and communication technologies on the performance of Ethiopian private banks, as well as the challenges they face in providing technology-based services and products to 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 and employees' satisfaction in selected Private Banks industry?
- To what extent has ICT impacted 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.Objective of the study

1.4.1. General Objective

The main goal of the study is to find out the role of information and communication technology on customers' satisfaction and employees' performance of the private banking industry in Ethiopia.

1.4.2. Specific Objective

- To examine the role of Information and Communication Technology on customers' satisfaction in selected private banks industry.
- To examine the role of Information and Communication Technology on employees' performance in selected private banks industry.
- To investigate the main challenges those discourage customers to use Technology-based services/products of the banks.

1.5.Research Hypothesis

The study proposes the following hypotheses for empirical testing.

Hypothesis 1:

H1: In the Ethiopian private banking industry, the adoption of information and communication technology has a significant impact on customer satisfaction.

Hypothesis Two:

H1: The use of information and communication technology has influenced employee performance in the Ethiopian private banking industry.

1.6.Significance of the study

Banks must now adopt and use information and communication technologies in their operations if they want to make money and stay in business in today's more competitive global market. People think that in the current business environment, banks will only survive and do well if they completely change their customer service and delivery systems and use information and communication technologies. Even though Ethiopian banks have only recently started using information and communication technology, they should rethink their service and delivery systems to keep up with how fast information and communication technology is changing. But not many studies have looked at how information and communication technology affects banking services in Ethiopia and the problems that come with it. So, the goal of this study is to

look into the role of information and communication technology (ICT) in the Ethiopian banking industry using a number of case studies. The results of this study help bankers, bank managers, and other decision-makers understand how information and communication technology affects the performance of private banks in Ethiopia. The study's results may also give more information about how information and communication technologies affect how well banks do their jobs and encourage other researchers to do more work in the field.

1.7.Scope of the study

This study only looks at how ICT affects customer satisfaction, performance, and productivity at a few private banks in Ethiopia. The study focused on Awash Bank and Abyssinia Bank because they were the first to use information and communication technology, connect their branches, and switch to core banking, which is the basis for all services and products that use technology. People will also be picked from the branches of the two chosen banks in Addis Ababa.

1.8.Limitation of the study

The Many employees in the selected organization refuse to take questioners claiming time constraint. Even those who took questioners to complete had taken several days. Therefore, the researcher had to wait several days to collect the questioners. Hence, the time and unavailability of some employees (managers) due to some offices works were among major constraints faced by the researcher during conducting of this study. This may have delayed the analysis and inclusion of some relevant findings.

1.9.Organization of the study

There are five parts to the study. Chapter 1 is the introduction. It talks about the study's background, the problem, the research question, the research hypothesis, the study's goal, its importance, and its scope and limits. The second chapter is a review of the literature that is related to the study's topic. The third chapter talks about how this study did its research and what methods were used. In Chapter 4, the results of the data analysis and how they should be interpreted are shown. Lastly, chapter five gives the conclusion and recommendation based on the analysis and interpretation of the findings.

CHAPTER TWO

2. Literature Review

2.1.Brief History of Banking in Ethiopia

The establishment of the Abyssinian Bank in 1905, which was based on a fifty-year agreement with the Anglo-Egyptian National Bank, marked the beginning of modern banking in Ethiopia. Also established in 1908 were a new development bank and two other foreign banks. These banks were criticized for their foreign ownership Gemechu, 2012. During the Italian occupation, legal tender consisted of banknotes issued by the Bank of Italy. The State Bank of Ethiopia was founded in 1943, with two divisions performing the distinct functions of an issuing bank and a commercial bank. In 1963, the National Bank of Ethiopia (the central and issuing bank) and the Commercial Bank of Ethiopia were formally established (Vijay and Asefa, 2011).

According to Assefa 2011), following the 1974 declaration of socialism, the nationalized banks were reorganized into one commercial bank (CBE), a national bank (recreated in 1976), and two specialized banks, namely the Agricultural and Industrial bank, renamed recently as the Development Bank of Ethiopia (DBE), and a Housing and Saving Bank, renamed recently as the Construction and Business Bank (CBB).

The Ethiopian People's Revolutionary Democratic Front declared a liberal economic system following the fall of the Dergue regime in 1991. In accordance with this, the Monetary and Banking Proclamation of 1994 separated the National Bank of Ethiopia from the government and outlined its primary functions. The Monetary and Banking Proclamation No. 83/1994 and the Banking Business Licensing and Supervision Proclamation No. 84/1994 established the legal framework for investment in the banking sector (Ayele, 2012).

Currently, 16 private commercial banks and three government banks are operating in Ethiopia (see Table 2.1.2.1). There are no foreign banks in the country, and its financial system remains unaffected by globalization. Policymakers fear that allowing foreign banks to invest will result in a loss of economic control Vijay and Asefa, 2011. Despite a rapid increase in the number of local financial institutions since the introduction of financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world, and cash remains the

predominant medium of exchange. Checks are primarily used by government institutions, non-profit organizations, and a few private businesses and stock companies (Worku, 2010).

2.2.Importance of ICT in Financial Service Delivery (Conceptual Framework of the Study)

2.2.1. Benefit of ICT in Banking Industry

In recent years, there has been a tremendous increase in the use of information technology in service industries, particularly the banking industry, which, by utilizing information technology-related products such as internet banking, electronic payments, security investments, and information exchange, can provide clients with high-quality services with less effort (Jalil-Kerim and Hamdam, 2010). The famous quote by Bill Gates, "banking is vital to a healthy economy, but banks themselves are not," highlights the significance of electronic forces that affect banks more than any other group of financial service providers. This business transaction by banks has created a new mode of operation known as E-Banking (Mai et al., 2007). E-Banking, the most recent generation of electronic banking transactions, has created new opportunities for banks and financial institutions. It enables business process re-engineering and borderless markets to achieve zero latency, resulting in enhanced customer service levels and enhanced risk management due to real-time settlement (Agrawall & Jain, 2013).

According to Ayanda et al. (2011), it is imperative for a bank's management to increase investment in information technology products to facilitate speed, convenience, and accurate services; otherwise, the bank risks losing customers to rivals. Agrawal and Jain (2013) concurred that intense competition among banks has redefined the concept of the entire banking system; banks are seeking new ways to not only attract, but also retain customers and gain a competitive edge over rivals. As banks strive to strengthen customer relationships and move toward "relationship banking," customers are increasingly moving away from traditional branch banking and seeking the convenience of remote electronic banking, they said. Globally, information technology and communication networking systems have revolutionized the operations of banks and other financial institutions. Relationship between ICT and Organizational Performance: Banking Industry

By providing customers with a variety of options, the majority of technological initiatives are intended to improve and streamline customer service. In the banking industry, the death of distance, a byproduct of technology, has become a reality. Technology also plays a crucial role in the competitive advantage strategies of banks (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 services has become a fundamental concern for all banks and a prerequisite for local and global competitiveness. The banking industry's decision-makers, planners, and products and services are directly influenced by ICT.

According to R.K. Uppal (2008), IT and banking have a fundamentally symbiotic relationship. IT can reduce costs, increase volume, and facilitate customized products in the banking industry. Similarly, the growth of IT requires banking and financial services. Alalade et al. (2014) argued that the most significant flaw in the banking industry today is the widespread failure of senior management in banks to recognize the significance of technology and incorporate it accordingly into their strategic plans. He continued by suggesting that banks should reevaluate their service and delivery systems in order to position them appropriately within the context of the dynamic nature of information and communication technology. Numerous studies concur that there is a correlation between ICT and banking performance in terms of quality service delivery, customer satisfaction and attraction, employee productivity, cost reduction, profitability, and effective decision-making.

The development of technology has significantly contributed to the improvement of service delivery standards in the banking industry. In their most basic form, automated teller machines (ATMs) and deposit machines now enable consumers to conduct banking transactions outside of normal banking hours. Individuals can check their account balances and make payments without having to physically visit a bank. Additionally, there is mobile banking, which enables individuals to check their account balance and transfer funds using their mobile phones. This is gradually establishing a cashless society in which consumers are no longer required to pay for all purchases in hard currency (Wisdom, 2012). He finally conceded that the increased application and acceptance of internet-based technology makes it more feasible than ever before to provide an enhanced service.

Many industries seek to increase customer satisfaction by acquiring the most advanced machinery to boost their organization's efficiency. They believe that acquiring cutting-edge technology will enhance their operating procedures and the quality and quantity of their products and services (Dauda and Akingbade, 2011). 24 hours a day, seven days a week, customers have convenient and inexpensive access to their bank. Online banking strengthens customer relationships by bringing financial services directly to their homes and offices. Additionally, the bank may benefit from increased customer loyalty and satisfaction (Shaikh, 2014). According to Wisdom (2012), online banking ensures customer satisfaction by extending financial services beyond the bank lobby. E-banking has provided banks with a large customer base due to the increased customer loyalty and satisfaction it has fostered.

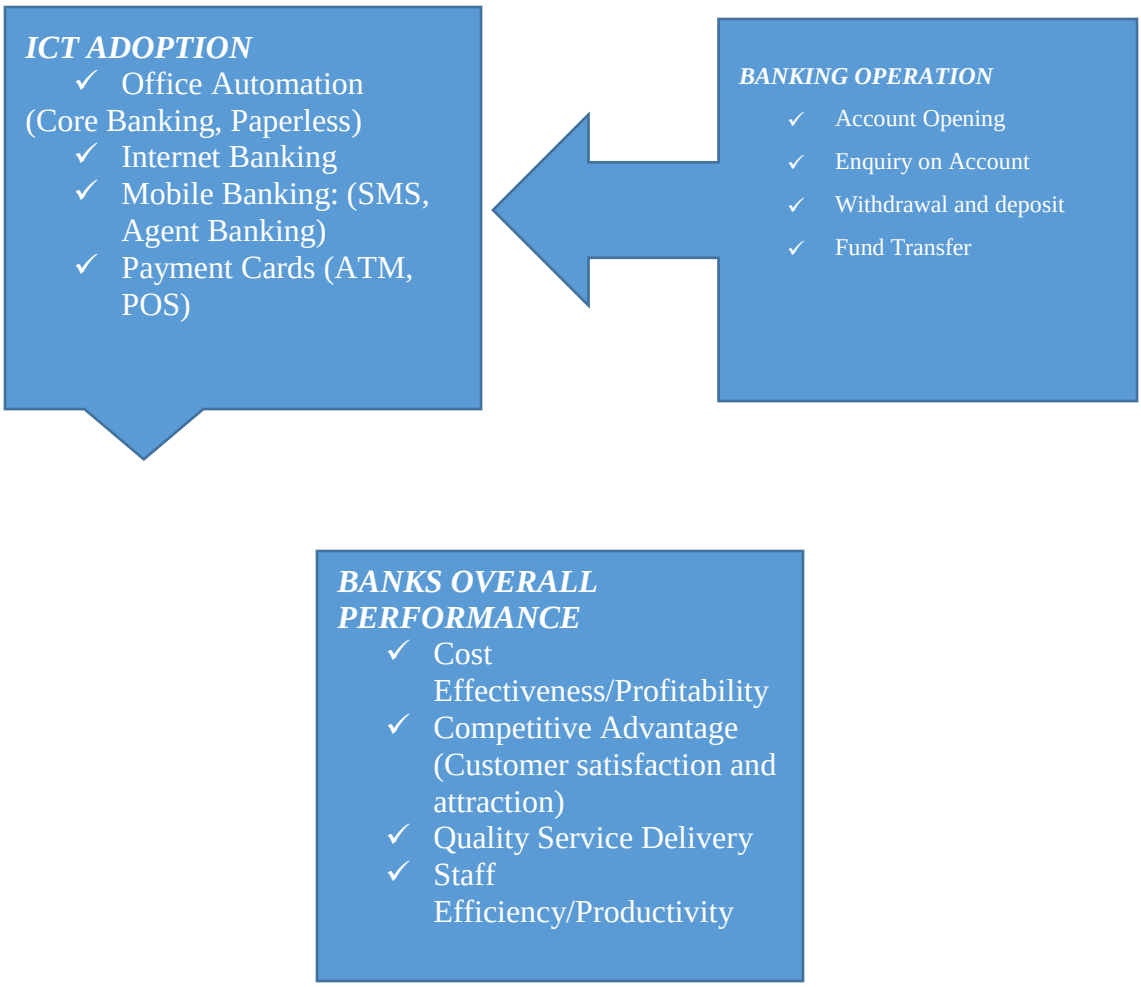
Additionally, labor productivity serves as an indicator of the economic performance of nations, industries, and businesses (Piget and Kossai, 2013). ICT has a positive role on the labor productivity and total factor productivity of businesses. The banking industry is one of the industries where ICT has had the greatest role on productivity growth (Luka and Frank, 2012). According to Dauda and Akingbade (2011), there is evidence of a significant and favorable relationship between technological innovation and the performance of bank employees.

Additionally, ICT investment facilitates revenue growth via new value propositions, new markets, and new sales channels, and improves life cycle management. Greater customer satisfaction results in greater customer loyalty, which ultimately contributes to accelerated revenue growth. ICT can help businesses reduce their operational, general and administrative, and marketing expenses. ICT enables cost reduction through improved information sharing and supply chain relationship coordination (Piget and Kossai, 2013).

This study's conceptual framework is based on the incorporation of ICT-facilitated products and services (technology-based services and products) into banking operations and their role on the overall performance of Ethiopian private banks with respect to customer satisfaction, staff efficiency, and employee performance. The conceptual relationship between ICT and bank performance serves as the basis for the research question, hypothesis, and motivation throughout the paper. ICT refers to the electronic delivery of banking products and services via e-fund transfer technology, telephone banking technology, and Internet banking technology; i.e. e-

banking. E-funds transfer technology centered on ATMs, credit and debit cards, and e-checks, whereas telephone banking technology centered on interactive voice response and Internet banking technology centered on the Internet and its applications, including 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).*

2.2.2. Types of Technological Facilities/Channels in Banking Industry

It has been determined that technological innovations contribute to banks' distribution channels. The collective term for the electronic delivery channels is electronic banking. Electronic banking is not a single technology, but rather an attempt to combine multiple technologies.

In recent years, groups and industries have recognized the importance of collaborating despite their distinct histories (Oppong et al., 2014). According to Bultum (2014), e-banking can also be defined as a variety of platforms, including internet banking or online banking, television-based banking, mobile phone banking, and personal computer banking.

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, 2018).

Automated Teller Machines (ATMs)

A computerized ATM combines a computer terminal, record-keeping system, and cash vault into one unit, allowing customers to access the bank's bookkeeping system 24 hours a day 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. After gaining access, it provides several retail banking services to customers. In addition, ATMs can facilitate a variety of services, including deposits, transfers between two or more accounts, and bill payments (Oppong et. al., 2014).

Point-of-Sale Transfer Terminals (POS)

The system enables consumers to make retail purchases using check cards, the new name for debit cards. At the point of sale, the debit card holder/account customer's information is immediately transferred to the store's or merchant's account (Bultum, 2015).

Telephone Banking

Telebanking (Telephone Banking) is a form of remote or virtual banking, which is essentially the delivery of branch financial services via telecommunication devices where bank customers can conduct retail banking transactions by dialing a touch-tone telephone or mobile communication unit, which is connected to an automated system of the bank 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, 2015).

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).

2.2.3. ICT and Ethiopian Private Banking Industry

Ethiopia introduced telecommunications in 1894. Ethiopia has one of the continent's most underdeveloped information and communication technology infrastructures despite its very early introduction (GISW, 2008). Ethiopian Telecommunication Corporation, now known as Ethio-telecom, is the sole provider of ICT services in the country. The Ethiopian Telecommunication Agency (ETA) has granted Ethio-telecom a monopoly license to meet efficiency and quality

service requirements and infrastructure expansion goals (Adam, 2007). According to the GTP 2004 report, mobile subscriptions reached 17.26 million during the 2010/2011 fiscal year, while fixed line subscriptions reached 0.80 million. During the same fiscal year, internet subscriptions, including mobile internet, reached 2,661 million.

The rapidly expanding information and communication technologies are knocking on the doors of every organization on the planet, including Ethiopian banks.

Ethiopia's financial sector cannot be an exception to the rapid expansion of electronic payment systems in the developed and developing worlds (Worku, 2014). Still, the stage of ICT adoption and implementation is one of the most distinguishing development indicators between developing and developed nations.

In Ethiopia, cash remains the predominant form of payment, and electronic payment systems are in their infancy (Worku, 2014). Bultum (2015) concurred that the development of e-commerce, adoption, and spread of e-banking systems in Ethiopia are inadequate. All banks in Ethiopia are behind the technological curve, and they should establish a clear timeline for their technological integration and advancement. Even though there are currently three government banks and sixteen private banks in Ethiopia, the modern e-banking services such as ATMs, payment cards, telebanking, Internet banking, and Mobile Banking are new to the industry.

According to Bultum (2014), the Commercial Bank of Ethiopia (CBE) was the first institution to introduce ATMs for local customers. In addition to its eight Addis Ababa-based ATMs, CBE has been a visa member since November 14, 2005. Due to a lack of adequate infrastructure, the organization was unable to reap the benefits of its membership. Worku (2014) In 2016, Awash Bank, a pioneer in introducing E-banking to the Ethiopian private banking industry, introduced ATM services for its customers. On April 21, 2009, Awash Bank signed an agreement with iVery, a South African e-payment technology company, for the introduction of mobile banking, leveraging its leadership in advanced banking technology. The agreement signed by three private banks, Awash International Bank, Abyssinia Bank, and Nib International Bank, to launch ATM and POS terminal networks jointly in 2009 has also been a turning point in the industry's evolution toward E-banking (Bultum, 2014). Additionally, it introduced interbank connectivity for the first time.

According to the NBE report, there were 884 ATMs in the country as of June 2014, of which only seven private banks were able to distribute 451 ATMs in the industry. The characteristics of e-banking services offered by Ethiopian banks are outlined below:

2.3.Theoretical Framework

2.3.1. Measuring Customer Satisfaction

Customer satisfaction can be defined as a company's capacity to satisfy the customers' business, emotional, and psychological needs. In other words, it describes the psychological state that occurs when the emotion associated with unconfirmed expectations is combined with the consumer's prior feelings about the consumption experience (Chavan and Ahmad, 2016). According to Kumbhar (2017), customer satisfaction is a vague and abstract concept. The actual manifestation of happiness differs from person to person, product to product, and service to service, he continued.

According to extensive research, there is a strong correlation between customer satisfaction and operational performance. According to Qureshi et al. (2015), customer satisfaction has a significant role on the efficiency and profitability of banks. It has a significant role on the efficiency and profitability of banks. He also asserted that satisfied customers share their positive experiences with others and occupy unambiguous word-of-mouth (grapevine) advertising and bank publications. This publication of positive word-of-mouth is very useful for enhancing the banks' relationships and community involvement. Numerous studies have found a strong correlation between customer satisfaction and the operational and financial efficiencies of an organization. Several psychological, economic, and physical variables influence the level of happiness. Service quality is a major factor in determining customer satisfaction (Kumbhar, 2017).

Service quality can be defined as the difference between customer expectations for service performance prior to a service encounter and the customer's perception of the actual service received (Wandaogou and Jalulah, 2011). Numerous past studies have developed various dimensions and facets for measuring service quality. According to Wandaogou and Jalulah (2018), Parasuraman and his colleagues (1985 and 1988) developed the dimensions of service

quality in their GAP and Extended GAP analyses, on the basis of which the well-known SERVQAUL model was developed.

The widely used SERVQUAL model included five dimensions that were measured with a 22-item SERVQUAL scale. The five dimensions of SERVQUAL are Tangibles, Empathy, Assurance, Dependability, and Responsiveness. Physical facilities, equipment, and personnel appearance are examples of tangibles. Empathy refers to the firm's considerate, individualized customer service. The knowledge and courtesy of employees, as well as their capacity to inspire trust and confidence, constitute assurance. Reliability is the capacity to provide the promised service dependably and accurately, whereas responsiveness is the disposition to assist customers and provide prompt service. Due to the differences between traditional service and electronic service, the SERVQUAL scale is obviously unsuitable for measuring service quality in an electronic or internet environment due to the absence of staff, the absence of tangible traditional elements, and customer self-service (Wandaogou and Jalulah, 2011).

To evaluate electronic service quality, et al. (2015) incorporated e-services and conceptualized and constructed a multiple-item scale (E-S-QUAL and E-RecS-QUAL models). The final E-S-QUAL Scale consists of 22 items on four dimensions, as labeled and defined below:

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).

2.3.2. Measuring Staff Productivity

Due to the unpredictability of the business environment and the ferocity of the business competition, companies are required to meet certain standards by enhancing their performance to align with such high demands; failing to do so will result in a number of problems, including the possibility of the business failing. This performance relates to the firm or individual level, where human resources are regarded as the most crucial factor in achieving the organization's objectives (Muda et al., 2014). Everyone is interested in and concerned with performance, whether it be automobile performance or the performance of individuals and teams within organizations. A high-performing employee is one who achieves positive results in accordance with predetermined objectives (Ojokuku & Sajuyigbe, 2015).

Similarly, Imran et al. (2017) concurred that a firm's resources are crucial to its development and that human capital is an essential resource.

High employee productivity influences the operational performance of a business in a positive way. However, if employees are not provided with the resources necessary to perform their duties easily and effectively, their output will suffer. Employers can increase productivity by utilizing innovative technologies. According to Dauda and Akingbade (2018), technological innovation depends on human creativity.

Man has the ability to use his knowledge to develop new machines, processes, and procedures that could enhance or improve the quality of goods and services. The development of technology is a significant factor in the enhancement of performance. In his study, Imran 2014 concluded that technological advancement has a substantial effect on employee performance. It indicates that as technology advances, employee performance improves.

Innovations in technology, such as the use of computer automation and electronic banking, accelerate the delivery of bank services, improve management decision-making, and save time (Dauda and Akingbade, 2016). There is evidence of a significant and positive relationship between technological innovation and the performance of bank employees, he continued. For example, electronic bank transfers have enabled improved service delivery by employees, thereby promoting customer retention and satisfaction. The role of technological innovation on employees makes it simpler for them to carry out all of these responsibilities. Ojokuku and Sajuyigbe (2013) conclude that the introduction of electronic banking systems in the banking sector has significantly increased the productivity of bank personnel, resulting in improved service delivery efficiency.

Numerous studies have identified various variables or factors that influence the performance of employees on the job. Five factors affect employee performance, according to Saeed et al. (2013): the manager's attitude, organizational culture, personal problems, job content, and financial rewards. Muda et al. (2014) identified job stress, motivation, and communication as the three influencing factors of employee performance. He also noted that organizational performance can be measured by the quality, quantity, knowledge, or creativity of an individual and the amount of work completed within a given time frame.

In his literature review, Najeeb (2014) stated that there are four different performance dimensions that employees are evaluated on: quality, quantity, dependability, and knowledge. According to Mathis and Jackson (2017), performance is correlated with output quantity, output quality, and output timeliness, attendance on the job, work efficiency, and work effectiveness. Similarly, Najeeb (2013) classified the aforementioned variables into three dimensions: quantity of work, quality of work, and rate of work completion.

To measure employee performance in the banking industry for the purposes of this study, the researcher adopted the following three factors based on the aforementioned literature:

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 thought to be superior to traditional banking services due to their convenience, speed, low cost, and high degree of customization and/or personalization. Self-service technologies, such as the internet and ATMs, are said to be distinguished by their flexibility, convenience of location, greater control over service delivery, a higher perceived level of customization, fun, enjoyment, and even spontaneous delight of customers (Oppong et al., 2014). However, the banking industry faces numerous challenges in adopting advanced technology, E-banking applications, and capitalizing on the opportunities presented by ICT applications in general.

R.K. Uppal (20) acknowledged that, despite the obvious benefits of E-banking, the following factors serve as major impediments to its smooth implementation:

- 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. (2017), people in developed countries are well connected to the internet via various communication links, whereas people in developing countries may not be connected for a variety of reasons. Otukoya (2015) identified the following challenges that Nigerian banks face in their efforts to ensure the 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 obstacles that make it difficult for Ghanaian banks to provide ideal banking services to their customers: security concerns (data alteration, especially by the IT specialist, theft, etc.), cost factors (cost of IT infrastructure, training, and maintenance, etc.), availability of IT skills, perceived customer readiness, lack of familiarity of the customers with IT in the bank, and bank reluctance (frequent power failure, low level of education, weak access to the internet, etc.) Also problematic are fraud and frequent system breakdowns.

2.4.1. Challenges in Using ICT Facilities in Ethiopia

Electronic banking in Ethiopia, according to Worku (2014), is hampered by a lack of software, awareness, risk aversion, and trained personnel in key organizations. He identified the following barriers to capitalizing on the opportunities presented by ICT infrastructure in the business sector in his findings: Internet penetration is low, and telecommunications infrastructure is underdeveloped. Inadequate legal and regulatory frameworks for e-commerce and e-payments

Ethiopia's current laws prohibit electronic contracts and signatures. insufficient banking system, Political unrest in neighboring countries, High illiteracy rates Low literacy, high Internet costs In the absence of financial networks that connect various banks, Power outages are common. As a result of, customers and employees are resistant to technological changes. Cyber security concerns

2.4.2. Empirical Literature Review

Mitra and Chaya (1996) found that higher IT investments were associated with lower average production costs, lower average total costs, and higher average overhead costs. They also found that larger companies spent more on IT as a percentage of their revenues than smaller companies. However, they did not find any evidence IT investment reduced labor costs in organizations. Aki (2002) analyzed the structural change in Finnish banking sector from the period 1993 to 2002 which showed that 42 per cent of households have internet connection with banks and 90 per cent have mobile banking services.

The author concluded that main goals of management of technology were to improve customer satisfaction, reduce cost and develop new methods to collect and analyze the customer information. Arora (2003) made an attempt to prove that technology had a definitive role in facilitating transactions in the banking sector; and the impact of technology had resulted into the introduction of new products and services by various banks in India. The author discussed various initiatives taken by the banks to manage transformation and these initiatives had brought customers the convenience of anywhere, anytime banking.

The author concluded that technology was a facilitator for advancement in the core business of banking and not an end in itself. Jain and Hundal (2006) described the importance of mobile banking and barriers in the adoption of mobile banking. The paper examined the forces that can act as barriers in mobile banking service adoption. The objective of the study was to find the reasons why the people had not fully accepted the technology though it provided much

advantage to the banking customers as compared to previous technologies. The paper attempted to identify the various barriers, viz. access problems, dissatisfaction and inability of service providers in the adoption of mobile banking services.

The results of the study indicated that consumers got disheartened by the complicated function while accessing the mobile banking services which lead to rise in their dissatisfaction level, as no proper guidance was provided to them. The researchers suggested that service providers should be aware of the problems of their customers. The findings of the study gave a brief outlook for the practical implication for managers and policy-makers who have to make strategies and decisions in order to cater the unexplored service market. Boateng and Molla (2006) indicated that the operational constraints of internet banking is associated with the customer location, the need to maintain customer satisfaction and the capabilities of the Bank's main software to act as an influential factors in motivating the decision to enter electronic banking services and consequently influencing the usage experience and thus affecting the level of satisfaction.

Agboola (2001) studied the impact of computer automation on banking services in Lagos and concluded that electronic banking has tremendously improved the services of the banks to their customers. As a follow up, Agboola evaluated the response of Nigeria banks to the adoption of ICT. He evaluated the nature and degree of adoption of innovative technologies, the degree of utilization of the identified technologies and the impact of the adoption of IT devices on banks operations using both structural analyses and the impact analysis model. He concluded that ICTs impacted positively on all the criteria that formed the basis of evaluation namely; competitive strength, market segmentation, improved revenue, proper forecasting and modernization for global impact, and time saving, error rate reduction, management decisions and speed of transaction for local impact.

CHAPTER THREE

3. Methodology

3.1. Introduction

This chapter describes the study methods utilized to achieve the stated research objectives. It provides a full outline of the processes used by the researcher to conduct this study. It describes the research design, data source and type, sampling strategy and procedures, data gathering method, data processing approach, and presentation

Research methods are the techniques and procedures used to obtain and analyze research data, such as questionnaires, observation, interviews, and statistical and non-statistical techniques, whereas research methodology is the theory of how research should be conducted, including the theoretical and philosophical assumptions upon which research is based as well as the implications of these for the method or methods adopted (Saunders et al., 2009).

3.2. Research Approach

A case study approach was utilized to achieve the study's objective and address the research questions. The investigation focus on two selected Ethiopian private banks: Awash Bank and Abyssinia Bank. In Ethiopia, there are twenty-nine private banks. Nonetheless, the researcher chose these two banks because they are the pioneers in networking their entire branches (adopting core banking), which is the foundation for the majority of technological innovation in the industry. The need to generalize from the findings has necessitated the adoption of multiple and holistic case study approaches to determine whether the findings of one case occur in other cases.

3.2. Research Design

Different research designs may be utilized to investigate business problems. On the basis of how researchers pose their research questions and present their findings, the research design can be divided into three major categories: exploratory, descriptive, and explanatory (Saunders et al., 2009). This study employed a descriptive research design to assess the role of Communication technology on customers' and employees' satisfaction in selected private banks of Ethiopia. A descriptive study, as opposed to an exploratory study, would provide readers with a reassuring answer to the research question posed in the first chapter of this research paper.

3.3. Source of Data

Primary and secondary data are the two types of information typically employed in scientific research. Primary data does not exist until they are generated through the research process as part of a consulting engagement, dissertation, or project. Typically, it is gathered through experimentation, interviews, observations, and surveys. Secondary data, on the other hand, refers to information that already exists in some form but was not initially collected for the purpose of the consultancy exercise at hand. In fact, secondary data is frequently the starting point for data collection because it is the first type of data collected (Lancaster, 2005).

This study utilized both primary and secondary data sources. Concerning primary data, the researcher distributed structured questionnaires to appropriate participants. As secondary data, the researcher examined various articles, academic journals, useful academic books, and bank reports in order to strengthen the study's results and conclusions.

3.4. Target population

Customers and senior management of the two private banks, Awash Bank and Abyssinia Bank, which comprised the study's target populations. The total number of employees worked in the selected private banks is 267. The researcher selected 100customers who have utilized at least one technology-based service or product of the banks and 30employees who have been working at their current bank for a minimum of three years. These groups are targeted because, according

to the research, they are the most qualified to provide pertinent data and answer some of the research questions.

3.4. Sampling Design

Random selection has been used to include 100 customers and 30 employees of Awash Bank and Abyssinia Bank in the study. The participants are selected using a practical sampling method, non-probability sampling (Saunders et al., 2009). In contrast to probability sampling, there are no rules in non-probability sampling techniques, according to Saunders et al. (2009). It is more important to consider the logical relationship between your sample selection technique and the purpose and focus of your research; theory-based generalizations are made rather than population-based generalizations. Non-probability sampling involves selecting subjects based on an assumption about the population of interest, which serves as the selection criteria.

Convenience sampling (or haphazard sampling) entails randomly selecting the easiest-to-obtain cases for your sample Saunders et al., 2009. It involves selecting participants from the nearest portion of the population. Using a list of customers who have used at least one of the technology-based services/products and a list of employees with at least three years of work experience to sample participants for this study is challenging. Consequently, 100 customers and 30 employees were selected on purposive sampling method. Each bank was required 50 customers and 15 employees to complete questionnaires within five business days.

3.5. Data Collection Instrument

The research employed two types of structured close-ended questionnaires, one for customers and one for employees. The questionnaire that was given to customers is divided into three sections. The first section was designed to collect demographic information about the participants. The second part of the study employed a five-point Likert scale to assess the role of information and communication technology on customer satisfaction. Customers were asked to express how much they agree or disagree with the statement. The final section includes a three-point Likert scale that assesses the role of challenges associated with technology-based services and products on customers. Customers were asked once more whether the challenges were

affecting them or not. Employees were given a one-page questionnaire with only two questions. The first section was targeted to collect demographic information from participants. The second section includes a five-point Likert scale for assessing the role of information and communication technology on employee performance.

The researcher used a questionnaire because it is easier to administer and collect data with, as well as more cost- and time-efficient. There was closed-ended questions on the questionnaire.

3.6. Method of Data Analysis

The study targeted to explain the role of information and communication technology on the performance of Ethiopian private banks and provided answers to the study's fundamental questions. The questionnaire data analyzed by the Statistical Package for Social Sciences (SPSS). In order to determine the number of respondents who express an opinion on a specific item, frequency tables have been generated when the actual results are generated. Descriptive statistics used to analyze and describe the findings based on the frequency tables generated by SPSS. The research used one sample test (T-statistic) and a linear regression model to further test the research hypothesis. The T-statistic test is used to investigate the relationship between the dependent and independent variables in the study, while a linear regression model is used to determine the level of significance of the independent variables on the dependent variable.

CHAPTER FOUR

Data Presentation, Analysis and Interpretation

4.1. Introduction

This chapter discusses the presentation, analysis, and interpretation of primary source data. A total of 100 questionnaires were distributed to the customers of Bank of Abyssinia and Awash Bank in order to collect information regarding the impact of ICT on customer satisfaction. In addition, 30 questionnaires were distributed to employees of these two banks in order to collect information regarding the influence of ICT on employee performance. As shown in Table 4.1.1, 97 customers and all the 30 employees responded to the 100 questionnaires distributed to 100 customers and 30 employees.

To analyze the results, Statistical Package for the Social Sciences (SPSS) is used to analyze the collected data presented in frequency tables and bar graphs, as appropriate. The hypothesis test was conducted using the T-test and the linear simple regression model, and the results were interpreted in accordance with the testing outcomes.

Table 4.1: Rate of Responses by Respondents

Questionnaires	Customers		Employers	
	Respondents	Percentage	Respondents	Percentage
Returned	97	97%	30	100%
Not Returned	3	3%	0	0%
Total	100	100%	30	100%

4.2**Descriptive Analysis of Data Collected**

4.2.1 The Role of ICT on Customers' Satisfaction

The purpose of the subsequent section is to display and analyze the frequency distribution of the responses to the questionnaire items pertaining to the dependent and independent variables of the first research question, namely the role of ICT on customer satisfaction.

***Table 4.2: T*his bank offers almost all services and products that are based on technology, and the services are almost always available.**

	Frequency	Percent
Strongly disagree	2	2.00%
Disagree	11	11.20%
Neutral	16	16.80%
Agree	50	51.80%
Strongly agree	18	18.30%
Total	97	100.00%

Source field Survey 2022

As can be seen in the table that is located above, 68 respondents, which represents 70.1 percent of the total, agreed and strongly agreed that the two banks provide the majority of technology-based services and products, and that the services are almost always accessible. This statement was received with either neutrality or disagreement from 13.20% and 16.80% of the respondents, respectively. It is reasonable to infer from this that the banks have provided services that are reliant on technological advancements and are always accessible to customers.

***Table 4.3:* This bank provides accurate, error-free, and dependable technological services and products.**

	Frequency	Percent
Strongly disagree	4	4.60%
Disagree	16	16.20%
Neutral	29	29.90%
Agree	38	39.10%

Strongly agree	10	10.20%
Total	97	100.00%

Source field Survey 2022

From the data presented in the table above, it is possible to draw the conclusion that only 48 of the total respondents (or 49.30%) and strongly agreedthat the technology-based services and products offered by banks are reliable, error-free, and accurate. 29 of the respondents took a neutral stance, which accounted for 29.9% of the total, while 16 of the respondents took an unfavorable stance, which accounted for 16.20% of the responses.. As a result, one can reach the reasonable conclusion that the banks offered dependable and error-free technological services and products.

Table 4.4: **The services and products that are based on technology help me get things done quickly and save me a lot of time, especially when I am in a hurry.**

	Frequency	Percent
Strongly disagree	0	0.00%
Disagree	6	6.60%
Neutral	19	19.80%
Agree	46	47.42%
Strongly agree	26	26.90%
Total	97	100.00%

Source field Survey 2022

Only 6 customers, or 6.60% of all respondents, did not agree that technology-based services and products enable them to complete transactions quickly and save them a great deal of time, particularly when they are pressed for time. This means that 46 customers, or 73.32 % of all respondents, were in agreement with this statement. There were 19 respondents who did not care either way, which accounts for 19.80 % of the total.The findings presented above allow for the possibility of drawing the conclusion that the services and products offered by banks significantly aided customers in reducing the amount of time that was wasted.

Table*4.5*: **I believe this bank's technology-based services and products are secure, and their related risk is low.**

	Frequency	Percent

Strongly disagree	0	0.00%
Disagree	8	8.60%
Neutral	17	17.80%
Agree	51	52.80%
Strongly agree	20	20.80%
Total	97	100.00%

Source field Survey 2022

As can be seen in the table that follows, 73.6 percent of the total respondents agreed and strongly agreed that the technology-based services and products that these banks provide are safe, and that the risk that is associated with them is minimal. There were 8 respondents who disagreed with the statement. 17 respondents either did not agree or disagreed with this statement. Therefore, it is possible to say that the services and products that are provided by the banks are safe, and that the risk that is associated with them is minimal.

***Table* 1.*6:* The services and products based on technology give me the exact and enough information I need (account statement and balance inquiry).**

	Frequency	Percent
Strongly disagree	1	1.02%
Disagree	5	5.58%
Neutral	17	17.77%
Agree	41	42.64%
Strongly agree	32	32.99%
Total	97	100.00%

Source field Survey 2022

Customers numbering 58, or 75.63 percent of the total number of respondents, agreed and strongly agreedthat technology-based services and products give them the accurate and adequate information they require. There were 17 respondents who did not have an opinion either way, making up 17.77 percent of the total, while there were 5 respondents who were against the statement, making up 5.58 percent of the total.As a result, the customers were given an accurate statement as well as the option to check their balance.

***Table 4.7:* This bank's tech-based services and products are easy to use and friendly to customers.**

	Frequency	Percent
Strongly disagree	3	2.54%
Disagree	6	6.60%
Neutral	14	14.72%
Agree	51	52.79%
Strongly agree	23	23.35%
Total	97	100.00%

Source field Survey 2022

As can be seen in the table that came before it, 76.14 percent of respondents were in agreement with the statement that the technology-based services and products that banks provide are user friendly and easy to operate. This neither/nor statement was met with disagreement from only 6.60% of respondents, while 14.72% of respondents offered responses that neither agreed nor disagreed with the statement. As a result, the services and products that are offered by banks are designed with the customer's convenience in mind.

Table 4.8: **The technology-based services and products make life easier by letting you bank from home or at the office, day or night, 24/7**

	Frequency	Percent
Strongly disagree	1	1.52%
Disagree	9	9.14%
Neutral	22	22.84%
Agree	39	40.61%
Strongly agree	25	25.89%
Total	97	100.00%

Source field Survey 2022

It can be deduced from the table above that 64respondents, or 66.51% of the total, agreed and strongly agreedthat the technology-based services and products of banks minimize inconvenience by allowing banking at any time and place. 22 respondents were neutral, representing 22.84 % of the total, while only 9 respondents disagreed, representing 9.14 % of the total responses.Therefore, services and products based on technology make life easier by allowing customers to bank from the comfort of their own homes or offices, day or night, around the clock.

Table 4.9. **The fees for technology-based services and products are fair and help keep the cost of banking transactions down.**

	Frequency	Percent
Strongly disagree	1	1.52%
Disagree	8	8.63%
Neutral	20	19.29%
Agree	40	41.62%
Strongly agree	28	28.93%
Total	97	100.00%

Source field Survey 2022

As shown in the table above, 68respondents, or 70.55%, agreed that the fees associated with technology-based services and products are reasonable and minimize banking transaction costs. 19.29% and 8.63 % of respondents, respectively, were neutral and disagreed with this statement.

As a consequence of the findings presented above, it is plausible to assert that the prices charged for the technologically-based products and services mentioned earlier are reasonable and contribute to the maintenance of low transaction costs.

Table4.10:**when I contact this bank's customer service by e-mail, phone, an interactive or website, my needs are always understood and met quickly.**

	Frequency	Percent
Strongly disagree	4	4.06%
Disagree	17	17.77%
Neutral	30	30.46%
Agree	18	19.29%
Strongly agree	28	28.93%
Total	197	100.00%

Source field Survey 2022

From the above table, we can deduce that 46of the respondents, or 48.22 %, agreed and strongly agreed that their requests are always anticipated correctly and answered promptly when they contact customer service representatives of these banks via e-mail, phone, interactive website, and fax. In addition, 30 of them, or 30.46 % of the total sample, neither agreed nor disagreed with this statement. 21 respondents, or 21.83 %, expressed disagreement with this statement although the level of their disagreement varies. When customers of these banks contact customer service via e-mail, the phone, or an interactive website, their needs are always understood and quickly met. As a result, it is possible to say that these banks provide excellent customer service.

Table 4.11: **This bank resolves my complaints quickly and offers a fair compensation for its mistakes.**

	Frequency	Percent
Strongly disagree	4	4.06%
Disagree	15	15.23%
Neutral	26	26.80%
Agree	33	34.02%
Strongly agree	19	19.80%
Total	97	100.00%

Source field Survey 2022

52customers, or 53.82% of the total number of respondents, agreed and strongly agreedthat these banks resolve their complaints quickly and compensate them fairly for their mistakes. Similarly, 15 respondents, or 15.23 % of the total sample, disagreed with this statement, while 26 respondents or 26.80 % of the total sample, were neutral. 19 and 4 respondents strongly agree and disagree respectively with the stated statement.As a result, one can reach the reasonable conclusion that these financial institutions respond expeditiously to the concerns raised by their customers and provide appropriate compensation for the errors they make.

Table4.12: **Overall, I am satisfied with the bank Technology-based services.**

	Frequency	Percent
Strongly disagree	1	1.02%
Disagree	7	7.11%
Neutral	12	12.18%
Agree	51	52.79%
Strongly agree	26	26.90%
Total	97	100.00%

Source field Survey 2022

Regarding their overall satisfaction with technology-based services and products, 77 customers, or 79.69 % of the total, agreed and strongly agreed, while only 8 customers, or 8.12 % of the total, were not. In addition, 12.18 percent of respondents, or 12 individuals, did not agree or disagree with the statement. Therefore, it is safe for me to say that the majority of customers are pleased with the technology-based services provided by the banks.

Table 4.13: **I tell other people good things about the bank.**

	Frequency	Percent
Strongly disagree	1	1.52%
Disagree	2	2.54%

Neutral	11	11.68%
Agree	45	46.19%
Strongly agree	37	38.07%
Total	97	100.00%

Source field Survey 2022

The majority of respondents, 84.26% of the total, agreed and strongly agreedthat they would speak positively about the bank to others, as shown in the table above. Only 3 respondents, or 4.06 % of the total, disagreed with the statement, while 11respondents or 11.68 % of the total, were neutral.

Table4.14: **I will urge my friends and family to utilize the bank's services.**

	Frequency	Percent
Strongly disagree	1	1.52%
Disagree	3	3.55%
Neutral	12	12.18%
Agree	40	40.10%
Strongly agree	41	42.64%
Total	97	100.00%

Source field Survey 2022

81 customers, or 83.50 percent of the total respondents, were willing to recommend bank services to friends and family. 12 respondents, or 12.18 % of the total, were neutral on the statement, while only 4 respondents, or 5.07 % of the total, disagreed.Therefore, it is possible to say that the contentment they obtained from the technology-based services prompted them to encourage friends and family to make use of the bank's offerings in order to receive the same level of satisfaction they had received.

Table 4.15: Summary of Descriptive statistics of role of ICT on Customers' satisfaction

Statement	N	Min	Max	Mean	Std. Deviation
This bank offers almost all services and products that are based on technology, and the services are almost always available.	97	1	5	3.73	0.955
This bank provides accurate, error-free, and dependable technological services and products.	97	1	5	3.34	1.016
The services and products that are based on technology help me get things done quickly and save me a lot of time, especially when I am in a hurry.	97	1	5	3.92	0.877

I believe this bank's technology-based services and products are secure, and their related risk is low.	97	1	5	3.84	0.869
The services and products based on technology give me the exact and enough information I need (account statement and balance inquiry).	97	1	5	4.04	0.881
This bank's tech-based services and products are easy to use and friendly to customers.	97	1	5	3.92	0.863
The technology-based services and products make life easier by letting you bank from home or at the office, day or night, 24/7.	97	1	5	3.8	0.99
The fees for technology-based services and products are fair and help keep the cost of banking transactions down.	97	1	5	3.91	0.956
When I contact this bank's customer service by e-mail, phone, an interactive website, or fax, my needs are always understood and met quickly.	97	1	5	3.36	1.091
This bank resolves my complaints quickly and offers a fair compensation for its mistakes.	97	1	5	3.5	1.109
This bank offers almost all services and products that are based on technology, and the services are almost always available.	97	1	5	3.97	0.877
This bank provides accurate, error-free, and dependable technological services and products.	97	1	5	4.17	0.85
The services and products that are based on technology help me get things done quickly and save me a lot of time, especially when I am in a hurry.	97	1	5	4.22	0.883

Source field Survey 2022

Based on the data presented in the table above, it can be concluded that the mean score calculated from customers' responses regarding the efficiency, responsiveness, and simplicity of technology-based services/products provided by banks is higher than other mean scores for customer satisfaction factors.

Nevertheless, according to the mean scores calculated from customer responses regarding the accuracy of technology-based services/products provided by the banks, the problem-handling process and the complaint-resolution process of the banks are among the lowest three customer satisfaction factors.

4.2.2 The Role of ICT on Employee Performance/Productivity

The purpose of the subsequent section is to display and analyze the frequency distribution of the responses to the questionnaire items pertaining to the dependent and independent variables of the second research question, namely the role of ICT in employee performance.

Table 4.16: Information and Communication Technology helps employees to achieve a larger number of tasks:

	Frequency	Percent
Disagree	1	1.82%
Neutral	1	1.82%
Agree	8	30.91%
Strongly agree	20	65.45%
Total	30	100.00%

Source field Survey 2022

As shown in the table above, 28 employees out of the total 30 responses agree and strongly agreed that information and communication technologies facilitate the completion of a greater number of tasks. Two employees were either neutral or disagreeable. Therefore, it is possible to say that the services based on technology make the tasks easier to complete.

Table 4.17: Information and Communication Information helps to lessen workload of employees:

	Frequency	Percent
Neutral	1	1.82%
Agree	12	40.00%
Strongly agree	17	58.18%
Total	30	100.00%

Source field Survey 2022

The vast majority of respondents agreed and strongly agreedthat information and communication technology helps to reduce the workload of employees. 98.18 % concurred. One employee was the only respondent who was neither in agreement nor disagreement with the statement. Given the findings presented above, it is reasonable to draw the conclusion that advancements in information and communication technology make it possible to reduce the amount of work required of employees.

Table4.18: Information and communication Technology helps employees to deliver output timely

	Frequency	Percent
Neutral	1	1.82%
Agree	10	32.73%
Strongly agree	19	63.64%
Total	30	100.00%

Source field Survey 2022

According to the data in the table above, the vast majority of respondents, 29 out of 30, agreeand strongly agreed that information and communication technologies help employees meet deadlines. One employee was neutral, while none of the respondents disagreed. As a result of the findings presented above, one can reach the conclusion that information and communication technology assists employees in delivering output on time.

Table 4.19: Information and Communication Technology helps employees to reduce errors:

	Frequency	Percent
Disagree	1	5.45%
Neutral	7	21.82%
Agree	13	41.82%
Strongly agree	9	30.91%
Total	30	100.00%

Source field Survey 2022

It can be deduced from the table above that 22 employees, or 72.73 % of all respondents, agree and strongly agreedthat information and communication technology helps employees reduce errors. Only one employee, or 5.45% of the total, disagreed, while 21.82 % of the total employees were neither in favor nor opposed to the statement that information and communication technology helps employees reduce errors. Therefore, the use of information and communication technology assists workers in making fewer mistakes.

Table 4.20: Information and Communication Technology helps employees to perform their work within the required specification:

	Frequency	Percent
Disagree	1	1.82%
Neutral	3	10.91%
Agree	17	56.36%
Strongly agree	9	30.91%
Total	30	100.00%

Source field Survey 2022

As shown in the table above, 26 employees, or 87.27% of the total respondents, agreedand strongly agreed that information and communication technology assists employees in completing their work according to the specifications specified. Three out of the total number of respondents were neutral, while only one disagreed with the statement. Therefore, one could say that information and communication technology assists workers in completing their work according to the required specifications.

Table 4.21: Information and Communication Technology helps employees to improve work continuously:

	Frequency	Percent
Disagree	1	1.82%
Neutral	2	7.27%
Agree	14	47.27%
Strongly agree	13	43.64%
Total	30	100.00%

Source field Survey 2022

27 employees, representing 90.91 % of the total responses, agreedand strongly agreed that information and communication technology helps employees to continuously improve their work; only one employee disagreed, and two respondents, representing 7.27 % of the total responses, were neutral.

Therefore, one could say that information and communication technology assists workers in continuously improving their work.

Table 4.22: Information and Communication Technology helps employees to deliver consistent output even in high work pressure:

	Frequency	Percent
Strongly Disagree	1	1.82%

Disagree	2	5.45%
Neutral	5	18.18%
Agree	14	45.45%
Strongly agree	8	29.09%
Total	30	100.00%

Source field Survey 2022

From the table above, it can be deduced that22 employees, or 74.54 % of the total respondents, agreeand strongly agreed that information and communication technologies enable employees to produce consistent results despite high work pressure.5 employees, or 18.18 % of the total, were neither in agreement nor disagreement with the statement, while 3 employees disagreed. Therefore, it is plausible to assert that advancements in information and communication technology enable workers to maintain a consistent output despite the increased demands of their jobs.

Table 4.23: Information and Communication Technology helps employees to improve their effort to learn more and apply new knowledge:

	Frequency	Percent
Strongly Disagree	1	3.64%
Disagree	1	1.82%
Neutral	3	10.91%
Agree	11	36.36%
Strongly agree	14	47.27%
Total	30	100.00%

Source field Survey 2022

As shown in the table above, the majority of respondents, 83.63 %, agreed and strongly agreed that information and communication information aids employees in their efforts to learn more and apply new information. Neutral responses were provided by 3 of the total respondents, or 10.91 % of the total. Only two respondents, or 5.46% of the total, were opposed to the statement. As a result, it is reasonable to hypothesize that developments in information and communication technology enable workers to become more effective in their efforts to acquire new information and put that information to use.

Table4.24: Information and Communication Technology helps employees to achieve greater flexibility in work:

	Frequency	Percent

Strongly Disagree	1	3.64%
Disagree	2	7.27%
Neutral	6	20.00%
Agree	10	34.55%
Strongly agree	10	32.73%
Missing	1	1.82%
Total	30	100.00%

Source field Survey 2022

From the table above, it can be deduced that only 20 respondents, or 67.28 % of the total, agree and strongly agreedthat information and communication technologies help employees achieve greater flexibility at work. Six respondents were neutral, accounting for 20.00 % of the responses, while only three respondents disagreed, accounting for 10.91 % of the responses. As a consequence of this, it is a reasonable inference to hypothesize that advancements in information and communication technology assist workers in achieving greater flexibility in their work.

Table 4.25: Overall, Information and communication Technology enhances performance of bank employees.

	Frequency	Percent
Neutral	2	7.27%
Agree	14	47.27%
Strongly agree	14	45.45%
Total	30	100.00%

Source field Survey 2022

It can be deduced from the table above that the majority of respondents, 28 out of 55, agree and strongly agreed that information and communication technology enhances their performance. None of the respondents disagreed with the statement, and only two employees were neutral. As a result of this, it is a reasonable inference that advancements in general information and communication technology make bank employees more productive.

Table 4.26: Information and Communication Technology has made work easier and interesting:

	Frequency	Percent
Disagree	1	1.82%
Neutral	1	3.64%
Agree	14	45.45%
Strongly agree	14	47.27%

Total	30	100.00%

Source field Survey 2022

28 employees, or 92.72% of all respondents, agreed and strongly agreedthat information and communication technology has made work easier and more interesting, while only one employee disagreed. One respondent, or 3.64 % of the total number of responses, were neutral. As a direct consequence of this, it is a logical conclusion to draw that developments in information and communication technology have made work simpler and more engaging.

Table 4.27: Information and Communication Technology improves effectiveness of communication flow (via internet and intranet) and decision making process:

	Frequency	Percent
Disagree	1	3.33%
Neutral	4	13.33%
Agree	13	43.33%
Strongly agree	12	40.00%
Total	30	100.00%

Source field Survey 2022

According to the table above, 25 employees, or 83.33 % of the total population, agreedand strongly agreed that information and communication technology improves communication flow and decision making. One employee disagreed with the statement, while four employees or 13.33 %, and were neutral. As a direct result of this, it is reasonable to draw the conclusion that advancements in information and communication technology enhance the efficiency of communication flow (via the internet and intranet), as well as the process of making decisions.

Table4.28: Summary of Descriptive statistics of role of ICT on Employees' performance.

Statement	N	Min	Max	Mean	Std. Deviation
Information and communication technology makes it possible for employees to do more things.	30	2	5	4.60	.627
Information and communication technology makes it easier for employees to do their work.	30	3	5	4.56	.536
Information and communication technology makes it easier for workers to get their work done on time.	29	3	5	4.63	.525
Information and communication technologies aid in the reduction of employee errors.	30	2	5	3.98	.871
Information and communication technology aids employees in completing their work according to the requirements.	30	2	5	4.16	.688
Information and communication technology enables	29	2	5	4.38	.657

employees to continuously improve their work.					
Information and communication technologies enable employees to produce consistent results despite intense work pressure.	29	1	5	3.94	.929
Information and communication technology facilitates employees' efforts to acquire and apply new information.	29	1	5	4.24	.970

Source field Survey 2022

On the basis of the average mean score calculated from the responses of the employees to the respective statements, it can be concluded that the role of ICT in managing large volumes of work is greater than its role in enhancing the quality of work and the speed required to complete a specific task within a specific timeframe. In other words, based on the average mean score calculated from employee responses, it can be inferred that the role of ICT on the speed required to complete a specific task is lower than its average mean score on other dimensions of employee performance measurements.

4.2.3 Challenges

Table 2Table 4.31: Summary of Descriptive Statistic of Challenges

Statement	N	Min	Max	Mean	Std. Deviation	Rank based on Mean
Lack of trust in the security of technology-based products and services.	96	1	3	1.97	.733	8
Customers lack confidence in the bank's technological services and products.	96	1	3	1.91	.740	9
Utilizing the bank's technological services and products is costly.	97	1	3	1.65	.738	10
Customers are unfamiliar with the bank's technological services and products.	97	1	3	2.27	.697	3
Insufficient managerial and technical support from the bank.	96	1	3	2.02	.736	7
The bank is slow to respond or correct transactional errors, such as when an ATM jams payment cards or when customers' accounts are debited without having been paid in full or in part.	97	1	3	2.09	.722	5
Absence of information and communications technology infrastructure (access to the internet, mobile phones, and computers).	94	1	3	2.29	.744	2

Mobile and Internet connections are not always reliable due to network issues.	95	1	3	2.33	.733	1
As promised by the bank, the system does not operate efficiently every time it is required.	96	1	3	2.16	.691	4

Source field Survey 2022

As shown in the preceding table (table 4.31), the majority of respondents concurred that poor mobile and internet connectivity due to network issues is the greatest obstacle they face. The second major obstacle is the lack of available infrastructure, followed by the customers' unfamiliarity with technology-based services and products. According to customer feedback, the system is not always efficient and the bank is slow to respond when transactional errors occur.

Thus, we can say that customers ranked the fees associated with technology-based products and services as the least difficult. According to the majority of respondents, the fees associated with the services and products are not prohibitively expensive. Customers cite the eighth and ninth-ranked challenges, security and trust, as reasons for their reluctance to utilize technology-based services and products offered by banks.

4.3 Hypothesis Testing

4.3.1 Hypothesis One: Role of ICT on Customer Satisfaction

Hypothesis: based on the results found in table 4.4.1.1., the adaptation of Information and Communication Technology has a significant role on customers' satisfaction in Ethiopian Private Banking Industry.

I. One-Sample Test (T-Statistics)

To test the first hypothesis of the study, role of ICT on customers' satisfaction, the One-Sample T test compares the mean score of a sample to a known value.

Table 4. 29: One Sample T-Statistics

One Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Adoption of ICT have significant role on customers' satisfaction	94	4.1291	.74588	.05397

Source field Survey 2022

Table: 4.30: One Sample Test

One Sample-Test

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

Source field Survey 2022

Interpretation

The calculated value (t-value) and p-value for the preceding statement are 76.508 and.000 at a significance level of 5% and 190 degrees of freedom, respectively.

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

The p-value is.000, which is less than the value listed in the table (.05). Therefore, the alternative hypothesis (Ha) should be accepted and the null hypothesis (Ho) should be rejected (H1). Therefore, we can conclude that the adoption of information and communication technology has a substantial impact on customer satisfaction in the Ethiopian private banking sector.

II. Simple Linear Regression Model

The p-value is 0.000, which is less than the tabulated value, as shown in the table above (.05). Therefore, the null hypothesis (Ho) must be rejected and the alternative hypothesis (Ha) must be accepted (H1). Consequently, we can conclude that the adoption of information and

communication technologies has a significant impact on customer satisfaction in the Ethiopian private banking sector.

Table: 4.3 1 linear Regression Model Summary

Coefficients [a]

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

Source field Survey 2022

a. Dependent Variable: Overall Customer Satisfaction

The correlation between the adaptation of information and communication technology and customer satisfaction is depicted in the table of coefficients presented above. The model is mathematically represented as Y = a + bx, where y is the overall customer satisfaction, X is the utilization of technology-based services and products, and is a constant factor, and b is the coefficient value. The model can be derived from the preceding table as Y = 1.115+0.803x. This can be interpreted as: the percentage of customers who use technology-based services and products indicates their overall satisfaction is approximately 80.3%. This suggests that the impact of information and communication technology on customer satisfaction is substantial.

4.3.2 Hypothesis Two: Role of ICT on Employees' performance/productivity

Hypothesis: table 4.4.2.1, one simple taste reveals that Application of Information and Communication Technology has affected employees' satisfaction in Ethiopian Private Banking industry.

I. One-Sample Test (T-Statistics)

To test the second hypothesis of the study, role of ICT on employees' satisfaction, the One-Sample T test compares the mean score of a sample to a known value.

Table:4. 3 2: 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 field Survey 2022

Table *4.33: 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 impacted Employees' satisfaction.	65.841	52	.000	4.37107	4.2379	4.5043

Source field Survey 2022

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 (H1). Hence, we can conclude that the adaptation of Information and Communication Technology has positively affected employees' satisfaction in Ethiopian private banking industry.

Table: 4.34: linear Regression Model Summary

Coefficients [a]

				t	Sig.
	B	Std. Error	Beta		
(Constant)	1.260	.562	2.243	.029	(Constant)
Application of ICT (Quality of Work, employees' satisfaction)	.725	.131	.620	5.530	.000

Source field Survey 2022

Interpretation

The correlation between the application of information and communication technology and the performance of bank employees is expressed in the table of coefficients presented above. Y is employee performance, X is the use of ICT in the day-to-day operations of banks, an is a constant factor, and b is a coefficient value. The model can be derived from the preceding table as Y = 1.26+0.725X. This can be interpreted as: the application of information and communication technology in the day-to-day operations of banks improves employee performance by approximately 72.5 percent. Based on this, we can conclude that information and communication technology has a significant impact on employee performance in the Ethiopian private banking sector.

CHAPTER FIVE

5. Conclusions and Recommendations

The objective of this study was to assess the role of information and communication technologies on customers' and employees' satisfaction in selected private banks of Ethiopia. Two Ethiopian private banks, Bank of Abyssinia and Awash Bank, have been singled out for examination. In addition, the study sought to identify the most significant challenges that deter bank clients from utilizing technology-based services and products. To achieve the stated objectives, descriptive analysis expressed in percentages, frequencies, and figures was used.

5.1 Conclusion

Through the distribution of 100 closed-ended questionnaires to customers of the two banks, the study's findings were determined. Based on the findings of the study, the following conclusions are drawn:

- According to the data obtained from the questionnaire, the banks have provided services that are reliant on technological advancements such as dependable and error-free technological services and products and are always accessible to customers. Therefore, it is possible to say that the services and products that are provided by the banks are safe, and that the risk that is associated with them is minimal.
- The data obtained indicated that the services and products offered by banks significantly aided customers in reducing the amount of time that was wasted before as well as the services and products that are offered by banks are designed with the customer's convenience in mind

- According to the information from respondents, services and products based on technology make life easier by allowing customers to bank from the comfort of their own homes or offices, day or night, around the clock.

- As a consequence of the findings presented above, it is plausible to assert that the prices charged for the technologically-based products and services mentioned earlier are reasonable and contribute to the maintenance of low transaction costs
- As a consequence of the information received from the respondents, it is reasonable to conclude that these banks do not respond promptly to client complaints and do not provide adequate compensation for their mistakes.

- One could say that customers'' satisfaction with the technology-based services prompted them to encourage their friends and family to utilize the bank's offerings in order to achieve the same level of satisfaction.

- According to the mean scores calculated from customer responses regarding the accuracy of technology-based services and products provided by the banks, the banks' problem-

handling and complaint-resolution processes are among the three least satisfying customer factors.

- It is reasonable to conclude, based on the aforementioned findings, which advances in information and communication technology make it possible for employees to perform less work.
- As a result of the aforementioned findings, one can conclude that information and communication technology aids employees in meeting deadlines.
- It is plausible to hypothesize that advancements in information and communication technology allow workers to be more satisfied with their efforts to acquire new information and apply it.

- In other words, based on the average mean score calculated from employee responses, it can be inferred that the role of ICT on the speed required to complete a specific task is lower than its average mean score on other dimensions of employee performance measurements.

- We can conclude that the adoption of information and communication technologies has a significant impact on customer satisfaction in the Ethiopian private banking sector.

5.1.3 Challenges

The results of the study came from 100 customers of the two banks who filled out closed-ended questionnaires. The researcher tried to figure out what stops people from using technology-based bank products or services often or at all. From what the study showed, we can say the following:

- The descriptive statistics show that the study's results are the same as Abera's (2015). From the customer's point of view, the biggest problems are problems connecting to mobile and internet networks and a lack of information and communication technology infrastructure. Infrastructure that isn't good enough includes not having enough Internet and cell phone access.

- Contrary to Abera (2015), this study discovered that security concerns and customer trust in technology-based services and products are the least major impediments to customers' use of bank services.

5.2 Recommendation

Several research questions and hypotheses about the study variables came out of this research. The goal of the study was to find out how information and communication technologies affect how well a bank does in terms of how happy its customers are and how well its employees do their jobs. The study surveyed two private banks and tested hypotheses to see if the results could be applied to all private banks in Ethiopia. Based on the previous conclusions, the following suggestions are sent to the right people:

- Based on what the study found and what was said above, information and communication technology has a big impact on how happy customers are and how well employees do their jobs at the two banks. So, Ethiopian private banks in general, and Bank of Abyssinia and Awash Bank in particular, need to understand the role of information and communication technology in their operational performance and continue to incorporate technological innovations into their strategies and day-to-day operations.
- Information and communication technology does a good job of making bank services and products more useful, effective, and quick to respond to customer needs. But the accuracy of technology-based services and products, problem-handling processes, and compliant problem-solving processes of the banks are not enough to satisfy their customers, which would hurt their financial and non-financial performance. So, bank executives should pay close attention to these factors that make customers satisfied.
- The contribution of information and communication technology to improving the efficacy, responsiveness, and usability of bank services and products is satisfactory. However, the accuracy of the banks' technology-based services and products, problem-handling processes, and compliant problem-resolution processes is insufficient to satisfy their customers, leading to a deterioration in their financial and nonfinancial performance. Therefore, bank executives should pay particular attention to these determinants of customers' satisfaction.

- In the event that a customer raises a complaint, the respective bank should address their issues as soon as possible and compensate them fairly for any mistakes they may have made.

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Appendix I

QUESTIONNAIRE

Dear Respondents,

This questionnaire is intended to collect information about the role of information and communication technology in customer satisfaction and the challenges associated with it in Ethiopian private banks. All responses will be used in a study to fulfill a portion of an executive master's thesis in business administration. I'd like to assure you that you will remain anonymous because I don't ask for your name here, and your responses will not be used for anything other than the intended purpose. Furthermore, this survey should only take you about 10 minutes to complete. I appreciate 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 bank's technological services or products do you utilize?

☐ 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 section of the questionnaire addresses consumer satisfaction with the bank's technologically-based services and products. Banking services and products based on technology include internet connectivity of branches, ATMs, POS systems, mobile banking, Internet banking, SMS banking, and electronic financial transfers. Please indicate your level of agreement or disagreement with each of the following statements by circling the appropriate number. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

S/N	Research Question	SDA	DA	N	A	SA
A. Factors Affecting Customer's Satisfactions						
1	This bank offers almost all services and products that are based on technology, and the services are almost always available.	1	2	3	4	5
2	This bank provides accurate, error-free, and dependable technological services and products.	1	2	3	4	5
3	The services and products that are based on technology help me get things done quickly and save me a lot of time, especially when I am in a hurry.	1	2	3	4	5
4	I believe this bank's technology-based services and products are secure, and their related risk is low.	1	2	3	4	5
5	The services and products based on technology give me the exact and enough information I need (account statement and balance inquiry).	1	2	3	4	5
6	This bank's tech-based services and products are easy to use and friendly to customers.	1	2	3	4	5
7	The technology-based services and products make life easier by letting you bank from home or at the office, day or night, 24/7.	1	2	3	4	5
8	The fees for technology-based services and products are fair and help keep the cost of banking transactions down.	1	2	3	4	5
9	When I contact this bank's customer service by e-mail, phone, an interactive website, or fax, my needs are always understood and met quickly.	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 tell other people good things about the bank.	1	2	3	4	5
3	I will urge my friends and family to utilize the bank's	1	2	3	4	5

	services.					

III. This section of the questionnaire addresses challenges that discourage customers from using the bank's technology-based products and services frequently or at all. Please circle the number that best reflects your opinion regarding the impact of each of the following obstacles on customers' decisions to utilize technology-based services and products. 1 indicates Not at all affecting (NA), 2 indicates somewhat affecting (A), 3 indicates Strongly Affecting (SA).

S/N	Challenges	NA	A	SA
1	Lack of trust in the security of technology-based products and services.			
2	Customers lack confidence in the bank's technological services and products.			
3	Utilizing the bank's technological services and products is costly.			
4	Customers are unfamiliar with the bank's technological services and products.			
5	Insufficient managerial and technical support from the bank.			
6	The bank is slow to respond or correct transactional errors, such as when an ATM jams payment cards or when customers' accounts are debited without having been paid in full or in part.			
7	Absence of information and communications technology infrastructure (access to the internet, mobile phones, and computers).			
8	Mobile and Internet connections are not always reliable due to network issues.			
9	As promised by the bank, the system does not operate efficiently every time it is required.			

THANK YOU!!

QUESTIONNAIRE

Dear Respondents,

The purpose of this questionnaire is to collect data regarding the role of information and communication technology on employee performance. All responses will be used to conduct a study in partial fulfillment of a business administration accounting and finance master's thesis. I would like to assure you that your anonymity will be protected, as I am not requesting your name and your responses will not be used for any purpose other than those intended. In addition, this survey should only require approximately 10 minutes of your time. I am anticipatory grateful for your cooperation!

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 section of the questionnaire addresses the performance and productivity of employees in connection to the implementation of information and communication technologies in the bank's daily operations. Please indicate your level of agreement or disagreement with each of the following statements by circling the appropriate number. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

S/N	**Research Question**	SDA	DA	N	A	SA
Research Question						
1	Information and communication technology makes it possible for employees to do more things.	1	2	3	4	5
2	Information and communication technology makes it easier for employees to do their work.	1	2	3	4	5

3	Information and communication technology makes it easier for workers to get their work done on time.	1	2	3	4	5
4	Information and communication technologies aid in the reduction of employee errors.	1	2	3	4	5
5	Information and communication technology aids employees in completing their work according to the requirements.	1	2	3	4	5
6	Information and communication technology enables employees to continuously improve their work.	1	2	3	4	5
7	Information and communication technologies enable employees to produce consistent results despite intense work pressure.	1	2	3	4	5
8	Information and communication technology facilitates employees' efforts to acquire and apply new information.	1	2	3	4	5
	Employee performance in general					
1	In general, information and communication technologies help bank employees do their jobs better.	1	2	3	4	5
2	Information and communication technologies have made work more manageable and enjoyable.	1	2	3	4	5
3	Information and communication technologies enhance the efficacy of communication (via the internet or intranet) and decision making.	1	2	3	4	5

THANK YOU!!