INTEGRATION OF TECHNOLOGICAL SYSTEMS AND EMPLOYEE PERFORMANCE IN SELECTED COMMERCIAL BANKS IN ELDORET KENYA

BY

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DECLARATION

Declaration by student

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DEDICATION

I dedicate this work to banking firms in Kenya. The information may be important in their integration of technological systems.

ACKNOWLEDGEMENT

To begin with, I wish to register my immeasurable thanks to the Almighty God who is the source of wisdom and encouragement, for seeing me through the time of admission to this time. I also acknowledge my supervisors Prof. Leonard S. Mulongo and Prof. Peter Omboto PhD for their limitless guidance to me prior to and during the entire duration. Their time and thought provoking insights was very much appreciated.

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ABSTRACT

Sustainability of banks is dependent on how well the services are rendered to clients. Therefore, the role played by employees in the Banking sector cannot be underestimated. In their quest to improve on employee performance, banks have turned to adoption and integration of technology in their daily operations. Based on the way systems are planned, introduced and implemented, employees can either embrace productively or otherwise. This study therefore sought to examine the effect of integration of technological systems on employee performance in selected commercial banks in Eldoret, Kenya. The study was guided by the following specific objectives: to identify types of technological systems integrated in commercial banks and their impact on employee performance in commercial banks in Kenya, to assess the effect of employee involvement in system development and technological integration process on employee performance in commercial banks in Kenya, to determine the level of technological systems integration in commercial banks and the impact employee performance in Kenya, to establish the ease of use of technological systems integrated in commercial banks on employee performance in Kenya. The study targeted 277 employees of selected commercial banks in Eldoret, Kenya. Simple random sampling technique was used to select a sample size of 164 employees. The researcher also used purposive sampling technique to select 6 managers or head of departments from participating banks as the key informants. This implied a sample size of 170 was used in this study. The study adopted explanatory design. Data collection tools included a semi structured questionnaire and an interview schedule administered by the researcher. Data was analyzed using descriptive and inferential statistics; specifically, multinomial logistic regression model was used to test the hypotheses. The study findings established that integrating technological systems, employee involvement in system development and technological integration process, the purpose for technological systems integration and ease of use of technological systems integrated had a positive and significant effect on employee performance with respective coefficients given as $\beta = 0.798$ ($p = 0.001$), $\beta = 0.047$ ($p = 0.005$), $\beta = 0.582$ ($p = 0.024$) and $\beta = 1.467$ ($p = 0.002$). It is therefore concluded that working conditions defined by integration of technological systems provide employees with opportunities to learn new skills thus improving performance. It can also be concluded that there is low involvement of employees in the planning and integration process of technology. Automated teller machines, internet banking and mobile banking were popular technological systems embraced by most banks and that website related technology services were least utilized. Therefore, it is recommended that commercial banks to leverage integration of technological systems in their operations as it leads to increased performance of bank employees resulting to improved return on investment. Further, banks should be sensitive to employee needs and capacity building through involvement in the planning and integration process via training, piloting and feedback to enable them perform better.

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DEFINITION OF KEY TERMS

Commercial Bank: Bank that offers a broad range of deposit accounts, including checking, savings and time deposits and extends loans to individuals and business

Employee Performance: The job related activities expected of a worker and how well those activities were executed

System Integration: process of linking together software and employees to act as a coordinated whole in the banking industry.

System: is an aggregation of subsystems cooperating so that the system is able to deliver the overarching functionality in the bank.

Technological Systems: Virtually all technological inventions and innovations in the bank

Technology Adoption: The process of appropriating a technology and putting it into use for one's own purposes; the act by an individual, organization, or community of choosing a technology and putting it into effect.

Technology: The branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment.

ACRONYMS AND ABBREVIATION

ATM: Automated Teller Machine

EFT: Electronic Funds Transfer

EFT: Electronic Funds Transfer at Point of Sale

GSM: Global System for Mobile Communication

IT: Information Technology

ICT: Information Communication and Technology

NACOSTI: National Commission for Science, Technology and Innovation

PAC: Public Access Computing

PIN: Personal Identification Number

PoS: Point of Sale

SMS: Short Messaging Service

OCR: Optical Character Recognition

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter covers the background of the study, statement of the problem, general and specific objectives of the study, hypothesis of the study, scope of the study, justification and significance of the study and finally the study limitations.

1.2 Background to the Study

The banking sector plays an integral role in facilitating activities that contribute to economic growth and development in the world. Banks mobilise savings from individuals, institutions and organisations for lending to individuals and institutions to facilitate various enterprise activities in different sectors of the economy. Bank loans facilitate commerce (Cano & Domenech-Asensi, 2011). As societies evolved through innovations in information communication and technology areas, banks have also evolved in tandem from the traditional banking that were majorly manual in operations to adoption of modern information technology in running core activities of deposit taking, money transfer services and facilitation of payments. In many countries across the globe where banks are considered real locomotives that support the entire economy, the evolution of banks, and of the banking system, in general, has preceded economic development (Acholiya and Keshari, 2013). Therefore, a strong, healthy and sustainable banking system is very essential for the overall development of an economy and failure of which may lead to collapse of the economy as a whole.

The banking sector includes a lot of key players, including retail and commercial banks, investment and development banks, mobile (telecommunication) network operators, and financial institutions Ryu et al., (2014). Information and Communication Technology (ICT) has changed how business is conducted, how individuals live, work

and think (Gu, et al., 2009). This has led to mounting competition amongst banks and has also paved way for innovations and exciting banking products and services globally (Acholiya & Keshari, 2013).

Information technology has been the cornerstone of recent financial sector reforms aimed at increasing the speed and reliability of financial operations and of initiatives to strengthen the banking sector. Therefore, adoption of Integration of Information Technology (IT) has provided the banking industry with the wherewithal to deal with the challenges the new economy poses. The IT revolution has set the stage for an unprecedented global increase in financial activities. The progress of technology and the development of worldwide networks have significantly reduced the cost of global funds transfer.

Most developing nations of America, Africa, Latin and Asia experience delay and challenges in harnessing their natural, material and employees abilities for socio-economic development as a result of their inability to utilize science and technology. This is not unconnected with the failure of their governments to encourage technology innovation and/or lack of commitment of their people to innovate. However, the developed nations in Europe and America, along with a select number of emerging economies in Asia like China, Singapore, and Malaysia, among other Asian economies known for rapid growth, have achieved global market dominance by effectively utilizing science and technology to convert their available resources, both material and natural, as well as their workforce, into goods and services.

Technology arises from the learned knowledge and technical abilities of humans in effectively performing tasks (Khalil, 2000). The acquisition, utilization, and upkeep of technology are pivotal elements for the survival of all organizations. It functions as their

life force, though it necessitates human involvement for its realization. Businesses invest in training their employees to enhance their knowledge and skills, preparing them for the adoption of novel technologies (Dauda & Akingbade, 2011). Technological advancement merges employees with technology. The pursuit of more effective methods to produce diverse, high-quality goods and services that cater to customer demands often compels scientists and engineers to exhibit creativity and innovation (Dauda, 2010). The origins of technological growth, shifts, and novelties invariably lie with individuals. It is these individuals (employees) who conceive, initiate, utilize, and oversee ideas that lay the groundwork and direction for technology.

According to Shaikh and Karjaluoto, (2015), mobile banking has been in use since the 1990s. this has since been expanded to entrench technology into the operations of the banks to include mobile banking services, contactless payments, Short Messages Services (SMS) banking, Unstructured Supplementary Service Data (USSD) codes, Automated Teller Machines (ATMs), debit and credit cards, mobile money, telephone banking, wireless Point of Sale (POS), internet banking among others.

Therefore, on a global scale, financial institutions are actively seeking technological remedies to effectively respond to the inherent difficulties presented by the ever-changing operational landscape. Those banks that commit to technological advancement will establish their supremacy within the fiercely competitive worldwide market. Consequently, a significant portion of banks are now firmly persuaded that dedicating resources to technological advancements is a foundational requirement (Arnaboldi & Claeys, 2010).

1.2.1 Commercial Banking in Kenya

Commercial banks play a very key role in the economic growth of any country. In Kenya, the sector holds assets worth 63% of the Gross Domestic Product (GDP), (CBK, 2011). Even with the extensive transformations experienced by the banking sector over the last two decades, not to mention since 1943, one constant remains: customers' fundamental need for banking services. Nonetheless, the context and approach through which these services are delivered have undergone significant alterations due to the dynamic shifts in the global landscape. Evidently, people's requirements have evolved, and so has the fundamental essence of the banking services they demand. Banks have had to adapt to evolving societal demands, where individuals not only consider having a bank account as a right rather than a privilege but also recognize the value of their business to the bank. Should the bank fail to cater to their needs, customers are aware that they have the option to seek services elsewhere (Engler & Essinger, 2000). Consequently, the strategies and methods employed by banks to fulfill these needs differ markedly today. Ultimately, banks are endeavoring to offer services with profitability in mind.

The emergence of commercial banking in Kenya can be traced back to commercial ties within East Africa, which were in existence during the latter part of the 19th Century. According to information from the Kenya Bankers Association, the National Bank of India was founded in Kenya in 1896 subsequent to the establishment of British colonial rule in the region. This was succeeded by the establishment of the Standard Bank of South Africa in 1910. In the year 1916, the National Bank of South Africa merged with Anglo Egyptian Bank Ltd, resulting in the formation of Barclays Bank (dominion colonial). Both the Standard Bank of South Africa and Barclays Bank were essentially branches of British banks headquartered in London (Kingoo, 2011).

The British banks established themselves in Kenya in line with their practice of following the development of trade in their colonies and focusing on financing international trade. The National Bank of India operated mainly in India, while the Standard Bank of South Africa had its main business in South Africa. Because these banks had ties to Europe, South Africa, and India, their operations were influenced by their businesses in those regions. They primarily dealt with customers from their respective areas. The initial sources of deposits were the open opportunities for traders and settlers who had come to Kenya and the growing community. The surplus that remained unused in Kenya was invested in London. Deposits were also made locally. This situation persisted primarily because there was a gap between bankers and prospective borrowers. In the long run, these banks exported capital from Kenya, an underdeveloped country, to a developed country (Cobas, 2001).

After fifty years, Barclays Bank and Standard Bank came to dominate the system exclusively. The banking landscape in Kenya underwent a revitalization during the 1960s, and in 1968, the Cooperative Bank of Kenya commenced operations. Similarly, in the same year, the National Bank of Kenya acquired the operations of Ottoman. Subsequently, in 1971, the National and Grindlays Bank, which had functioned as a retail commercial bank until December 7, 1971, underwent nationalization and transformed into Kenya Commercial Bank, with the government possessing 60% of the bank's shares. The Merchant Bank division was integrated into a novel institution, Grindlays Bank International Ltd, which later evolved into Stanbic Bank (Berger, 2003).

In the year 1974, American banks made their debut in Kenya, specifically the first National Bank of Chicago and the first National City Bank of New York. Presently, Kenya boasts a total of 43 licensed commercial banks, consisting of 31 with local

ownership and 12 under foreign ownership. Notable foreign-owned financial institutions in Kenya encompass Citibank, Habib Bank, Standard Chartered, and Barclays Bank (Eyadat & Kozak, 2005).

Within Kenya, the government holds significant ownership in three commercial banks. The remaining local commercial banks are primarily owned by individual families. These Kenyan commercial banks accept deposits from individuals and generate profits by utilizing these deposits to extend loans to businesses at elevated interest rates. Their operations are overseen by regulations stipulated in the Central Bank Act and the Companies' Act, outlining their permitted activities, regulations for publishing financial statements, minimum capital prerequisites, and reserve mandates.

Kenyan banks have witnessed innovative strides, including the integration of ATMs, smart cards, internet banking, and mobile banking (Cabas, 2001). Moreover, Omwonsa (2009) observed that the expected outcome of Kenya's vision 2030 is to produce annual economic growth rates of 10% by targeting sectors of tourism, agriculture, manufacturing, trade, information technology and financial services. The aim of Kenya vision 2030 is to produce "A globally competitive and prosperous country with high quality of life anchored on three pillars, political, economic and social.

According to GOK (2007), the 2030 vision for financial services to create a vibrant and globally competitive financial sector in Kenya that will create jobs and also promote high levels of savings to finance Kenya's overall investment needs. As part of Kenya's macro-economic goals, savings rates will rise from 17% to 30% of GDP in about a decade. This will be achieved through measures that include increasing of bank deposits from 44% to 80% of GDP and by a declining cost of borrowed capital i.e. interest rates. The country will also decrease the share of population without access to finance from

85% to below 70% at present and increase stock market capitalisation from 50% to 90% of GDP. Savings of up to 10% of GDP for investment are expected to be realised from remittances, foreign direct investments (FDI), overseas development assistance (ODA) and sovereign bonds. Reforms in the banking sector will be undertaken to facilitate the transformation of the large number of small banks in Kenya to few larger and stronger ones. Credit referencing will be introduced. To achieve these goals, commercial banks have competitively considered technological system integration to enhance output.

1.2.2 Integration of Technological Systems in Commercial Banks in Kenya

The Central Bank of Kenya (CBK), serving as the country's monetary authority, holds exclusive responsibility for overseeing the regulation of the banking sector in Kenya. Together, the banks unite within the overarching organization designated as the Kenya Bankers Association (KBA) for the purpose of advocacy. In the most recent years, Kenya's banking sector has experienced significant technological transformations where Information Technology (IT) investments and adoption has become a very important component in achieving organizational objectives. Significant efforts have been undertaken to integrate technology extensively and intensively within the banking sector, contributing to the advancement of banks' objectives. The initial applications of electronic and communication technologies in banks primarily centered around office automation tools. Tools like telephones, telex, and facsimile were deployed to enhance the efficiency and swiftness of client service processes.

Furthermore, as new entrants joined the banking arena, competition heightened, leading to the widespread use of personal computers (PCs). Kenyan banks began employing PCs for back-office functions, subsequently extending their utilization to serve clients at teller stations. Progress in computer technology triggered the adoption

of fresh IT investments, reshaping the banking landscape in the country. Among these innovations, the most transformative have been the automated teller machines (ATMs) and mobile banking services, proving to be highly successful channels for consumer banking. Additionally, other technological advancements in the banking sector encompass internet banking, telephone banking, electronic funds transfer, and more.

This study was therefore motivated by the recent surge in the adoption of information and technology within the banking industry and its implications for employee performance.

1.3 Statement of the Problem

The envisioned result of Kenya's vision for 2030 is to achieve an annual economic growth rate of 10%. This objective is pursued by targeting various sectors, including tourism, agriculture, manufacturing, trade, information technology, and financial services. Consequently, many industries are actively enhancing their operations by integrating cutting-edge technological systems into their service delivery platforms to contribute substantively to this growth rate goal.

The banking sector is also actively engaging in this endeavour to leverage advanced technology for elevating service delivery standards. This initiative is based on the conviction that the adoption and implementation of the latest technology will enhance operational efficiency, service quality, and quantity. It is notable that the banking industry is undergoing significant transformation in terms of the utilization and adoption of technological systems to offer competitive products and services to customers.

However, it is acknowledged that while innovation has led to remarkable technological advancements, the intricacies of modern technology necessitate a strategic

amalgamation of diverse innovations that incorporate various aspects of technology, human capital, and management practices. Therefore, within the context of modern technology integration in service delivery, managers must cultivate an enabling work environment that fosters collaboration and team-networking, motivating employees to embrace adaptation and innovation for the sake of organizational survival and competitive performance.

Traditionally, employees play a pivotal role, especially in fortifying the bank-customer relationship, which significantly influences overall bank performance. Yet, it is frequently observed that the process of adopting technological systems in Kenyan commercial banks is largely top-down, with minimal involvement from employees. Consequently, this approach has resulted in a sluggish pace or suboptimal achievement of enhanced employee performance in the banking sector. This is evident through indicators like long queues, extended loan processing times, service speed, work quality, task confidence, and more, as depicted in employee appraisal reports.

The integration of technology is anticipated to heighten the efficiency and effectiveness of employees, enabling them to complete tasks more efficiently within shorter timeframes. The success of these systems' planning, introduction, and implementation can either lead to productive employee embrace or the opposite. The evaluation of technology's impact in the banking sector has predominantly focused on customer satisfaction levels and bank performance. However, the adoption of technological systems and innovations does not occur simultaneously in a social system. Therefore, this study endeavours to scrutinize the impact of technological system integration on employee performance within commercial banks in Kenya.

1.4 Research Objectives

1.4.1 General Objective of the Study

The main objective of the study was to establish the effect of integration of technological systems on employee performance in selected commercial banks in Kenya.

1.4.2 Specific Objectives

The study was ably guided by the following specific objectives:

i. To identify types of technological systems integrated in banks and their impact on employee performance in selected commercial banks in Kenya.
ii. To assess the effect of employee involvement in system development and technological integration process on employee performance in selected commercial banks in Kenya.
iii. To determine the purpose/function(s) of technological systems integrated in selected commercial banks and their impact employee performance in Kenya.
iv. To establish the impact of ease of use of technological systems integrated in selected commercial banks on employee performance in Kenya.

1.5 Hypotheses of the Study

The study sought to test the following null hypotheses:

H_{01}: The type of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya

H_{02}: Employees involvement in system development and technological integration process has no significant effect on employee performance in selected commercial banks in Kenya

H_{03}: The purpose/function(s) of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya

H_{04}: Ease of use of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya

1.6 Significance of the Study

The results of the study may inform bank management on how to integrate employee needs and technology adoption process for enhanced employee performance. The management of banks also used the findings to realize the possible challenges faced by the employees when using newly adopted technology and address them through appropriate training programs for enhanced employee performance in an ever changing technological environment. Agile organizations must adapt to the wave of changes if they would like to remain profitable, relevant, competitive and competent in the days to come by providing effective training programmes in computer and simulations. The study will also inform innovators of technology on how to design employee friendly technologies that could guarantee employee enhanced performance. These study findings also contribute to body of academic knowledge and provoke further research in this area of technology and employee performance.

1.7 Scope of the Study

The study focused on selected major commercial banks operating in the Eldoret town, Kenya. The selected banks have a wide national coverage in the entire county. Basing on this inclusion criterion, Absa Bank (formally Barclays Bank), Kenya Commercial Bank, Standard Bank, National Bank of Kenya, Co-operative Bank and Equity Bank formed the target group. The geographical scope will be Eldoret Municipality in the North Rift because it is a commercial hub with diverse product and clientele that widely use technology. For commercial banks that have more than one branch in the study area, only one branch will be considered in the study because of homogeneity of technology

systems used by the bank employees. All employees that are directly involved with technology use within their job duties were included in the study.

1.8 Limitations of the Study

The applied selected respondents from the banks which put constraints on the generalization of results to chosen firms and chosen county contexts. The sample selection may be limiting as a representation of overall population. In addition, the narrow and specific focus of this study means the results are limited to the listed commercial banks only which may not translate to other industry and national contexts. Methodology used required both qualitative and quantitative methods of data collection however the analysis was more on qualitative. Both qualitative and quantitative methods should be given equal considerations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter presents a synthesis of the major theories underpinning the study and a review of empirical literature on the study variables. This review will assist the researcher to identify the research gap. The chapter also presents a summary of the literature reviewed, the conceptual framework and operationalization of the study variable.

2.2 Key Concepts of the Study

2.2.1 Technological Systems

A technological system refers to a set of interconnected components that has been designed to fulfil a particular function without further human design input or enhance human performance of particular functions. Technological systems transform, store, transport, or control materials, energy, and/or information for a particular purpose. In the banking sector, use and adoption of technological systems enhances service delivery by improving the efficiency and efficacy of the employees

2.2.2 Ease of use of Technological Systems

According to IGI global ease (EOU) of technological systems refers to the degree which a particular technological system can be used without much effort. EOU is therefore a precursor to usefulness of any technological system adopted. Both are believed to be important factors in determining the acceptance and use of information systems. Involvement of employees throughout the process of integrating technological improvement is expected positively affect adoption and therefore EOU and usefulness of the technological system being adopted in an organisation.

2.2.3 Employee Involvement

Employee involvement is about the level of input in decision-making that employees have regarding which business activities they perform. It is different from employee participation which refers to the actual business activities that employees perform. Employee involvement has been conceptualized to mean the level of input by employees on decisions involving integration of technology in commercial banks

2.2.4 Employee Performance

Employee performance has been conceptualized to mean how an employee fulfills their job duties and executes their required tasks. It refers to the effectiveness, quality, and efficiency of their output. Performance also contributes to our assessment of how valuable an employee is to the organization.

2.2.5 Commercial banks

According to the CBK, commercial bank refers to a financial institution that accepts deposits, offers checking account services, makes various loans, and offers basic financial products like certificates of deposit (CDs) and savings accounts to individuals and businesses enterprises and institutions. Commercial banks play a very key role in the economic growth of any country. In Kenya, the sector holds assets worth 63% of the Gross Domestic Product (GDP), (CBK, 2011).

2.3 Theoretical Literature Review

The established theory underpinning the study is the Diffusion of Innovation Theory (DIT), Technology Acceptance Model (TAM), and Resource Based Theory (RBT). A detailed presentation on the theories is in the section that follows.

2.3.1 Innovation Diffusion Theory

The study employed innovation diffusion theory by Rogers, (1995). The Theory of Innovation Diffusion now in its fourth edition (1995), has become a classic in the field of technology. Innovation diffusion is based on the notion that adoption of an innovation involves the spontaneous or planned spread of new ideas. According to Rogers, (1995) defines an innovation as an idea, practice, or object that is perceived as new. Rogers 1995 stresses that it is the perception of change that is important; if the idea seems new to the potential adopter then it should be considered to be an innovation. Rogers approaches the topic of innovation diffusion by considering a variety of case studies. The prime concern in all studies was the identification of factors that affect the speed with which an innovation is adopted, or that cause it not to be adopted at all. In diffusion theory the existence of an innovation is seen to cause uncertainty in the minds of potential adopters (Berlyne 1962), and uncertainty implies a lack of predictability and of information. Diffusion theory contends that a technological innovation embodies information, and so its adoption acts to reduce uncertainty. There are thus four main elements of diffusion of innovation: characteristic of the innovation itself, the nature of the communication channels, the passage of time, and the social system through which the innovation diffuses (Rogers 1995).

The Innovation Diffusion theory asserts that human beings are consistently the initiators of technological progress, alterations, and novel ideas. It is individuals who generate, launch, employ, and oversee concepts that serve as the foundational principles and trajectories of technology. The theory provides a clear understanding that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder

adoption of the innovation. This will then determine technological integration which as a result affect employee performance.

Innovative encounters and prospects can arise from unforeseen events, creative insights, operational necessities, shifts within industries and markets, alterations in demographics, shifts in perspective, and novel insights. When comprehended and effectively handled, all of these factors collectively influence the incorporation of technology in the banking sector, subsequently impacting the performance of employees.

2.3.2 Technology Acceptance Model

The Technology Acceptance Model (TAM) was initially introduced by Davis in 1989. TAM offers a predictive framework for gauging users' endorsement and adoption of technology. This model illustrates that various determinants impact users' decisions when it comes to integrating new technology into their practices. Lawrence and Shay (1986) highlight that numerous organizations are investing in and incorporating new technology to keep pace with the dynamic external environment. The model is designed to accommodate modifications that enhance cost-effectiveness and operational efficiency. However, the fundamental principles of TAM do not comprehensively elucidate the connection between technological advancements and the factors that impact usability, which ultimately dictate the level of user acceptance (Moon & Kim, 2001).

The factors critical in shaping users' decisions regarding the assimilation of technology are Perceived Usefulness and Perceived Ease-of-Use. Perceived Usefulness signifies users' belief in the system's potential to enhance efficiency (Prasad & Harker, 1997).

Perceived Ease-of-Use, on the other hand, reflects users' perception that utilizing specific systems would enhance their productivity (Davis, 1989).

TAM elaborates on the objective of adopting and utilizing technology in regular processes or service provision. This model is pertinent to this study as it provides a comprehensive delineation of users' levels of acceptance and usage of technological advancements within an organizational context. In the process of embracing technological progress, acceptance marks the initial and pivotal stage, presenting a dual implication. Firstly, acceptance precedes adoption, thereby augmenting previous theories and models. Secondly, acceptance shapes users' attitudes and perceptions, which subsequently influence usability efficiency, ultimately determining productivity levels (Lawrence & Shay, 1986).

According to Brynjolfsson and Hitt (1996), well-strategized adoption, operational efficiency, and system productivity are contingent upon the acceptance of technological advancements. It is, therefore, reasonable to deduce that without acceptance, the significance of the other theories would be rendered futile and irrelevant. Although acceptance forms an initial phase, it also plays a role in moulding attitudes, influencing adoption, and dictating usability efficiency.

2.3.3 Resource Based Theory

The Resource-Based Theory (RBT) proposes that organizations are positioned to gain a competitive edge over rivals due to the possession of strategic assets (Barney, 1991). This development of competitive advantage subsequently bolsters the organization's ability to enhance employee performance and thereby achieve favourable profits. A strategic resource holds exceptional value and is irreplaceable or interchangeable. The value of such a resource is evaluated based on its potential to leverage opportunities

while effectively managing potential threats (Wernerfelt, 1984). Prehalad and Gary (1990) assert that companies align their resources, abilities, and expertise into core competencies to establish a competitive advantage over competitors. In this context, core competencies denote the activities that an organization specializes in and outperforms its rivals (Chi, 1994).

A strategy forms an integral component of a firm's objectives and goals. Acting as an action plan, a strategy establishes a connection between goals and executable steps to realize the mission and vision (Barney and Clark, 2009). A well-aligned strategy, in harmony with an organization's objectives, plays a pivotal role in aggregating and allocating resources within a viable framework, taking into account organizational capabilities, the external environment, and competitive maneuvers by rivals. Mintzberg (1994) defines strategy as a coordinated plan designed to achieve specific goals and objectives.

2.4 Empirical Literature Review

2.4.1 Banking Technology Systems

The effective and satisfactory delivery of services to clients by most banks in numerous developing countries remains a challenge due to the persistent utilization of conventional methods in their service provision. Consequently, these banks have faced a scenario where their employees' roles and the conventional service functions they offered have lost priority. Instead, these banks are progressively relying on technology, along with its associated quality concerns (Al-Hawari, Ward, & Newby, 2009). To confront this challenge, many of these banks are departing from traditional customer service approaches and are introducing information and communication technologies as substitutes, aiming to achieve effective and satisfactory customer service.

The proliferation of novel information and communication technologies within the financial sector has profoundly impacted how banks deliver services to their customers. These technologies have empowered banks in developed economies to provide gratifying customer service by strengthening their capacity to develop intricate products, establish improved market structures, and execute reliable risk control techniques. A reflection of this influence can be seen through the introduction of self-service technologies, which have enabled banks to establish electronically mediated multi-channel service delivery platforms for their clientele (Sanda M.A & Arhin E, 2011). These platforms, encompassing ATMs, telephone banking, internet banking, and mobile banking, serve as efficient mediums for both product sales and customer service. Consequently, the banking sector in numerous developing countries has undergone rapid changes, both legally and technologically.

Among the many alterations, the adoption of money counting machines and automated teller machines (ATMs) has been implemented to reduce workload and cater to customer demands. This has streamlined various bank operations, such as manual cash counting by tellers and handwritten cash deposit records. To gain a competitive edge within the banking industry, many banks in developing economies have introduced innovative banking products and services (such as consumer credit schemes and electronic funds transfer services) for their clients, often integrated with ATMs as service delivery platforms.

The integration of computers in banking began in the early 1950s, with the initial utilization of large commercial computers to process check transactions via magnetic ink character recognition. The introduction of the automated clearinghouse in the early 1970s facilitated electronic funds transfer (EFT) and the subsequent launch of ATMs

(Bureau of Labor Statistics, 1993). Present statistics indicate that workers within the finance industry employ computers more extensively compared to other industries.

As of October 1993, 84.5 percent of workers in the finance sector, including banking, utilized computers (Bureau of the Census, 1993). Sales data for computer equipment reveals that in 1993, the depository institutions sector (mainly consisting of commercial banks) ranked 19th out of 77 industries in terms of sales to computer equipment manufacturers. To curb the substantial expenses linked with maintaining traditional physical branches manned by tellers, banks have increasingly embraced ATM and other computer technologies. Transactions conducted via ATMs, along with those conducted over the phone, have largely replaced transactions that were formerly managed by human tellers.

2.4.2 Technologies Adopted in the Banking Industry

To address the demands for swift, effective, and dependable services, participants within the industry are progressively employing technology to gain insights into customers' behavior trends and preferences. A well-established outsourcing support structure (encompassing technology and operations) is increasingly utilized to furnish services and manage expenses. Examples of such functions include Automated Teller Machine networks, card processing, bill presentation and payments, software development, call center operations, and network management.

Electronic banking can be defined as the execution of bank transactions through electronic devices. Illustrations of these devices encompass computer systems, Global System for Mobile Communication (GSM) phones, Automated Teller Machines (ATMs), internet facilities, Optical Character Recognition (OCR), and smart cards, among others. E-banking capitalizes on the resources of the digital era to create

opportunities both on local and global scales. It significantly reduces transaction costs and introduces novel banking avenues that tackle the challenges of time and distance. In the realm of e-banking, banking opportunities extend across local, global, and immediate spheres [Hawkins, J, (2001), Jide A, (2002)].

2.4.2.1 Internet Banking/On-Line Banking

Leveraging information technology, online banking facilitates the option of electronically managing bill payments and various transactions. Electronic payments can be instantly credited or debited. This allows customers to settle payments for goods and services without necessitating physical cash handling, reducing the risk associated with dealing with significant amounts of money. Internet banking serves as the principal avenue for Public Access Computing (PAC), offering a conducive platform for banks to experiment with home banking delivery (Bill, 1996). This concept has led to the creation of virtual reality bank branches within the United States. An illustrative example is the Electronic Courtyard developed collaboratively by the Global Payment System Visa and the US software company Worlds Inc. This platform empowers customers to review account balances, transfer funds, and apply for loans. Using three-dimensional graphics, customers can navigate various rooms and interact with virtual bank tellers, loan officers, and financial advisors. Visa's remote banking subsidiary, Visa Interactive, establishes links between banks and customers, ensuring secure technology to safeguard transferred account data (Agboola, 2006).

2.4.2.2 Automated Teller Machines

The Automated Teller Machines (ATMs) are a computer-controlled device that dispenses cash, and may provide other services to customers who identify themselves with a Personal Identification Number. ATM dispenses cash at any time of the day and

night, unlike the traditional method where customers have to queue for a very long time in order to withdraw cash or transfer funds. It encompasses a fusion of a computer terminal, record-keeping mechanism, and cash repository all within a single apparatus. This setup enables customers to access the bank's accounting system through a plastic card embedded with a Personal Identification Number (PIN) or by inputting a designated code into the computer terminal, which stays connected to the bank's computerized records around the clock. The combined functions of both automated and human tellers result in enhanced bank productivity during operational hours. Furthermore, it serves as a time-saving option for customers compared to waiting in bank queues, allowing customers to channel the saved time into other productive pursuits. ATMs offer a cost-effective means of attaining heightened efficiency, as they achieve greater productivity within a given time frame when compared to human tellers.

2.4.2.3 Global System for Mobile Communication Banking

This mode of e-banking makes use of the Global System for Mobile communication (GSM) phones as the primary electronic device. GSM has improved the operational efficiency of many banks in the country. The mobile banking services basically allow customers to operate their accounts with the operating banks from mobile phones to a large extent as long as their phones and network support SMS (short messaging service). The user could be able to check account balance up to his two last transactions.

2.4.2.4 Electronic Funds Transfer

In today's era, customers are now empowered to electronically transfer funds across the world without encountering any difficulties or delays, in stark contrast to the conventional approach before the emergence of information technology. Back then, funds experienced significant delays before reaching their intended recipients. The

Point of Sale (POS) Electronic Funds Transfer (EFT) system is a real-time mechanism that empowers customers to immediately transfer funds from their bank accounts to merchant accounts while making purchases at point-of-sale locations. Activation of an Electronic Fund Transfer Process occurs through a debit card within a POS (Chorafas, 1988). The utilization of EFT at POS leads to heightened banking efficiency, as it directs efforts away from clerical tasks related to handling checks and cash withdrawals for shopping purposes, and instead focuses on promptly meeting customer shopping payment needs. Importantly, this system operates beyond regular banking hours, ensuring ongoing bank productivity even after traditional banking hours conclude. It also serves to save customers both time and effort, eliminating the need to visit bank branches or ATMs for cash withdrawals. This time and energy saved can then be channeled into more productive endeavors.

2.5 Technological System Integration Process among Commercial Banks

Although technology holds the potential to enhance instruction, the process of integrating technology into banking operations is neither swift nor straightforward. The challenges in this endeavor have been extensively detailed: time constraints; limited availability of hardware, software, and support; deficient leadership and a lack of shared vision or rationale for technology adoption; inadequate training and assistance; and the intricate impacts of current assessment methods on gauging the benefits for employees and customers, which may not be easily quantified through standardized tests (U.S. Congress, Office of Technology Assessment, 1995).

Willis (1993) introduces several additional noteworthy dimensions to the challenges that employees are likely to encounter: the intricacies of technological integration demand a complex and challenging learning process; many employees experience feelings of isolation; opportunities for experimentation, exploration, and studying

innovations are essential but infrequent in the banking sector; top-down initiatives tend to falter over time; resistance and resentment can undermine projects; the element of ownership is pivotal to success; administrative backing plays a crucial role; the absence, inadequacy, or inconsistency of support stands as a major cause of failure; and theories of change provide valuable guidance in managing the process of transformation.

Technological advancements, such as computer automation and electronic banking, significantly impact the speed of service delivery, enhance management decision-making, and economize time (Alu, 2002). The realm of Information and Communication Technology (ICT) has introduced self-service facilities, like automated customer service machines, where prospective bank customers can directly complete their account opening formalities online. It assists customers in verifying their account details and provides instructions on obtaining their checkbooks, credit, and debit cards (Agboola, 2001).

Technological innovation encompasses the physical devices and software that interconnect various computer hardware components and facilitate data transfer between different locations (Laudon and Laudon; 2001 & 2010). ICT products in use within the banking industry include Automated Teller Machines, Smart Cards, Telephone Banking, Electronic Funds Transfer, Electronic Data Interchange, and Electronic Home and Office Banking. The advent of Electronic Banking has significantly elevated the quality of banking services offered to customers (Agboola, 2001).

Innovations in information processing, telecommunications, and associated technologies, collectively referred to as "information technology" (IT), are often credited with driving robust growth in numerous economies (Coombs et al, 1987). It

becomes evident, therefore, that technological innovation influences not only banking and financial services but also the trajectory of an economy and its potential for sustained expansion.

2.6 Effect of Technology Systems Integration on Employee Performance in Commercial Banks

The connection between banking technology and employee performance is so intertwined that it's nearly inconceivable to envision one without the other in the present era. Banking technology is integral to employee performance, much like an engine is to a ship. Just as a ship's engine propels it forward, banking technology propels employee performance forward (Engler & Essinger, 2000). In the banking landscape, technology has transformed from a mere tool for process automation to a revolutionary means of providing services to customers, encompassing novel delivery channels and payment systems (Engler & Essinger, 2000).

The level of dedication shown by firms in investing in their employees' human capital has a direct impact on employees' willingness to reciprocate with increased effort and commitment towards enhancing their skills and performance (Rosseau, 2001; Tsui et al., 1997; Whitener, 2001). Consequently, the more conducive the environment cultivated by firms in terms of providing ample opportunities for skill-enhancing training, the greater the potential for employees' performance capabilities to escalate, all else being equal. The perceived availability of training opportunities to bolster skills is likely to influence and be influenced by employees' openness to new technologies and their perception of the value and necessity of acquiring new skills.

Information technology has not only enabled banks to deliver resilient and cost-effective services to their customers but has also empowered banks to make more

informed decisions. In this context, the role of a data warehouse is particularly pivotal. A data warehouse entails collecting data from various disparate sources to construct a centralized repository for data storage and analysis. Within a bank, a data warehouse typically accommodates both internal data and information concerning competitors. Subsequently, data mining techniques can be applied to glean insights from a data warehouse, leading to knowledge discovery (Hwang, Ku, Yen, & Cheng, 2004).

A study by Dauda & Akingbade (2011) on Nigerian banks indicates that there is evidence that a significant and positive relationship exist between technology innovation and banks employee's performance. Investments on technology offers several retail banking services to customers, saves customer's time and improves banks service delivery which leads to high profitability and efficient performance. The research indicates a substantial correlation between technological innovation and the performance of employees in Nigerian banks. This connection arises from the fact that a majority of the surveyed banks have integrated various technological advancements such as ATM money dispensers, telephone banking, internet banking, personal computer banking, branch networking, and electronic bank transfers. These technological implementations have not only facilitated enhanced service delivery by employees but have also bolstered customer retention and satisfaction, ultimately leading to increased returns on investment. Employees find it more feasible to undertake these tasks due to the positive impact of technological innovation on their capabilities. Within the banking context, employees form the backbone of these institutions, playing an integral and influential role in contributing to the company's financial outcomes and competitive positioning (Inyang, 2010).

For banks, achieving a sustainable competitive edge hinges on their human resources, particularly the workforce's distinctive talents, including adaptability, innovation,

exceptional performance, heightened productivity, and personalized customer service. These traits among employees substantially contribute to shaping the firm's competitive stance, as per Porter (1985).

The nexus between human resource performance and technological evolution is closely interlinked. Effective management of technological change necessitates a collaborative human resource approach. While individuals can pioneer innovation and achieve noteworthy technological advancements, the intricacies of modern technology underscore the importance of synergizing various innovative elements encompassing diverse technological facets. As such, human resources must function both independently and cooperatively, harmonizing their innovative efforts to create novel technologies, products, and services. The potential of individual innovation is maximized when combined with the contributions of others. Conversely, collective innovation cannot thrive without individual innovation; these two dimensions remain distinct but synergistically fuel the production process's outcome when effectively amalgamated and managed (Burns and Stalker, 1961); (Cimoli and Dosi, 1988).

In general, existing studies have concluded two positive effects regarding the relation between IT and banks' performance. First, IT can reduce banks' operational costs (the cost advantage). For example, internet helps banks to conduct standardized, low value-added transactions (e.g. bill payments, balance inquiries, account transfer) through the online channel, while focusing their resources into specialized, high-value added transactions (e.g.small business lending, personal trust services, investment banking) through branches. Second, IT can facilitate transactions among customers within the same network (the network effect) (see Farrell and Saloner, 1985; Katz and Shapiro, 1985; Economides and Salop, 1992).

Certain research replicates the Solow Paradox by suggesting that Information Technology (IT) might lead to a reduction in productivity. This concept, outlined by Solow (1987), illustrates how the computer age is visibly ubiquitous, yet this progress doesn't seem to reflect in productivity figures. Shu and Strassmann (2005) investigated the performance of 12 US banks spanning from 1989 to 1997 and determined that despite IT being one of the least influential productive factors, it couldn't drive an increase in banks' profitability. Conversely, some studies align with the notion that IT expenditure yields a positive impact on business value. Kozak (2005) examined how advancements in IT affected the profit and cost efficiencies of the US banking sector from 1992 to 2003. The research established a positive association between the extent of IT implementation and both profitability and cost reductions. The inconsistency in empirical outcomes can be attributed to disparities in measurement techniques and econometric methodologies (Berger, 2003; Tam, 1998).

2.7 Challenges of Technological Systems Use Among Employees of Commercial Banks

The application of ICT required high degree of knowledge, expertise and skills by all categories of employees. Training of employees takes huge amount of money and time to implement, and most employees have not really mastered all aspect of ICT necessary for their effective performance (Dauda & Akingbade, 2011). Mistakes made by staff members can result in significant financial consequences for banks. Furthermore, Information and Communication Technology (ICT) has the potential to be misused for fraudulent activities, encompassing actions like money laundering, unauthorized withdrawals, and various manipulations. Implementing ICT requires substantial capital investment and relies on a consistent power supply, which is unreliable in Nigeria. A substantial portion of funds is currently allocated by numerous banks to secure power

supply and generate electricity. Additionally, ICT has contributed to a reduction in the workforce, as computers have taken over numerous banking transactions (ibid).

2.8 Employee Performance

Employee performance has been conceptualized to mean how an employee fulfills their job duties and executes their required tasks. Resource-based theory suggests that a firm's resources are extremely important for the firm's development, and that human capital is a key resource of a firm (Imran, 2014). Employee performance also contributes to the assessment of how valuable an employee is to the organization. It refers to the effectiveness, quality, and efficiency of their output.

As outlined by Pavitt (1990) and Huselid (1995), technological progress originates from internal development, which in turn arises from the competence of employees. So there exist a close relationship between technological advancement and employee performance. Dauda & Akingbade, 2011 further posit that technologies can only lead to increased productivity or improve performance when combined with other resources effectively by human resources or when done effectively, and use technology productively and ethically.

Employee can more rapidly acquire new knowledge and further advancement competencies through training (Chi *et al*., 1989). The motivation of employees directly impacts technological progress, as indicated by Hennessey and Amabile (1998). Organizations can enhance the skills and effectiveness of their employees through training and development initiatives. Research demonstrates that investing in employees' decision-making abilities, teamwork capabilities, and problem-solving aptitude leads to increased overall outcomes for firms. Some studies have found a positive correlation between training and employee productivity within certain

organizations. Training is not a short-term endeavor; it is an ongoing and structured process. Organizations undertake an analysis of employee needs and the firm's requirements, and then they implement a tailored training program based on this assessment. The training approach chosen aligns with the employees' profiles and also aligns with the organization's objectives (Singh & Mohanty, 2012).

2.9 Research Gap

The majority of the literature examined has concentrated on the influence of technological progress on employee performance within the banking sector. However, none of the research seems to have tackled the topic of the integration of technological systems and its effect on employee performance within Kenyan commercial banks. Consequently, this study is designed to undertake an empirical investigation into this particular area.

2.10 Conceptual Framework.

According to Serem et al., (2013) and Mugenda and Mugenda, (2013) a conceptual framework is a concise description of the phenomena under study accompanied by a visual depiction of the major variables of the study to show the relationships between dependent variable and the independent variables. It is a scheme of concepts or variables that a study operationalizes in accordance to research objectives. The conceptualized framework gleaned from the study specific objectives is presented in figure 2.5.

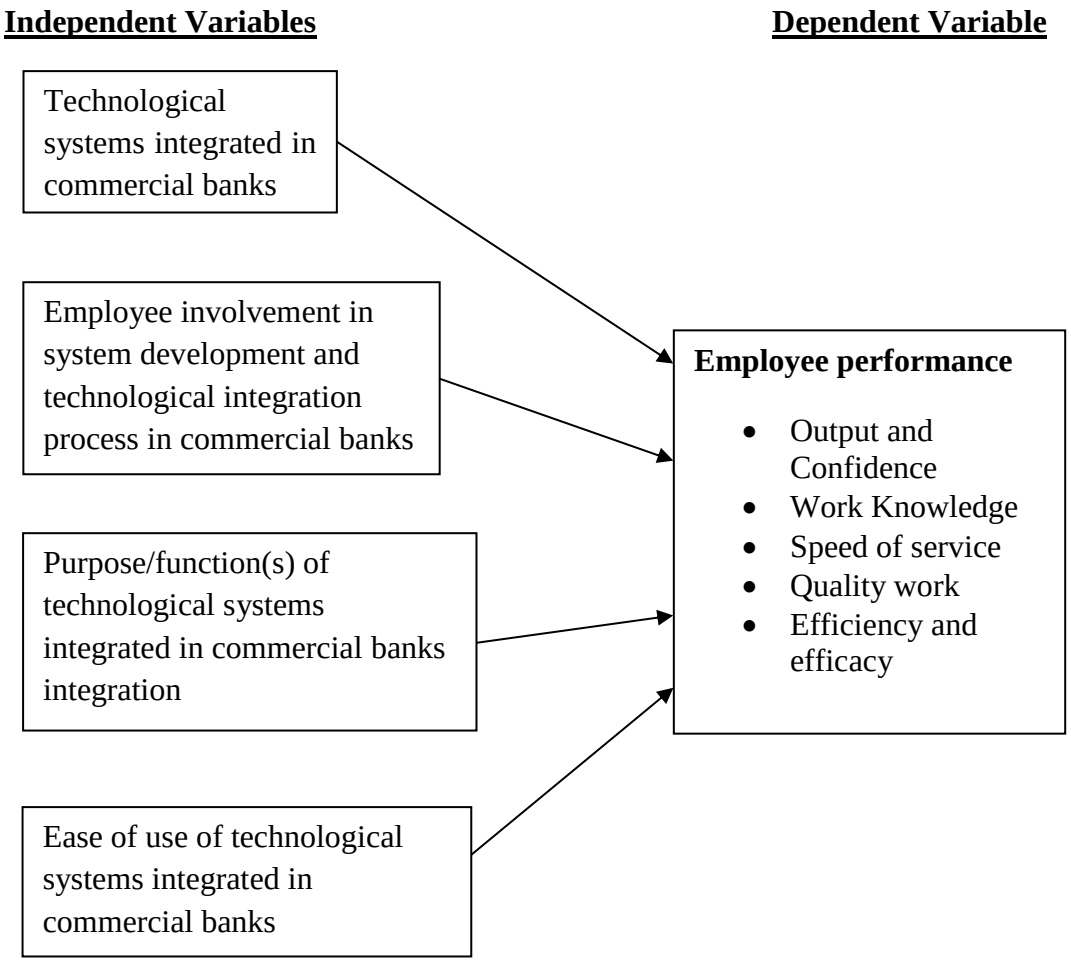

Figure 2.1: Conceptual Framework
Source: Author 2022

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter presents the study area, research design, target population, sampling technique and sample size, data collection instrument and data collection procedure, data analysis and presentations techniques, model specification, validity and reliability of data collection procedures.

A proper research approach is essential for framing research issues and elucidating the phenomena under investigation (Ngulube 2015). According to Willis (2007), methodology serves to delineate multiple facets of a study: its structure, the process of gathering data, techniques for data analysis, participant selection, and specifics of any interventions, if applicable. Drawing from Willis' explanation, research methodology functions as a blueprint or perspective through which a researcher devises a sequence of actions to gain insights and address the research problem. Ngulube (2015) acknowledges that the knowledge generated within any scientific field hinges primarily on the employed methodology. This is the context in which the conceptual framework was conceived for this study.

3.2 The Study Area

The study focused on the integration of technological systems in commercial banks in Kenya and employee performance. The study was carried out in Eldoret, Uasin Gishu County. Eldoret is the commercial hub of North Rift Valley where demand and use of technology is high among customers. Therefore, it is believed that the types of technological system used in this location are the same across the banks and branches. Selected commercial banks in Eldoret Kenya therefore formed unit of analysis.

According to Trochim & Donnelly, (2001) a unit of analysis is the major entity being analysed in a study.

3.3 Research Design

A research design is a basic arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose and objectives. Macmillan and Schumacher (2001) offer a definition of research design, characterizing it as a strategy employed to choose participants, research locations, and techniques for gathering data in order to address the research inquiries. Additionally, they highlight that a well-constructed research design aims to yield outcomes that are perceived as reliable.

There are several designs of research that one can use depending on the nature of the study requirements. These can range from experimental design, longitudinal design, descriptive design, explanatory research design, correlation design or explanatory design (John, 2018; Saunders, 2012; Shmueli, 2010).

This study adopted an explanatory research design. Explanatory research aims to identify the cause-and-effect relationships between variables. It seeks to answer questions about why certain phenomena occur and what factors contribute to observed outcomes. The study involved an in-depth investigation on the causal effect of technological adoption and employee performance in selected commercial banks in Eldoret, Kenya by collecting facts, views, opinions, attitudes and suggestions from the respondents. Information/data was collected at a specific moment in time with the purpose of elucidating the characteristics of the current situations, recognizing the benchmarks against which the current situations can be juxtaposed, and establishing the connections present among particular occurrences.

3.4 Target Population

The target population refers to the entire group of things, events, people or variables of interest that have common observable characteristics that researcher wishes to investigate (Sekaran, 2011). The target population was composed of the top tier commercial banks operating in the Eldoret town, Kenya as per the 2019 Central Bank of Kenya classification. These banks have a wide national coverage and largest asset base in the entire county. These banks include ABSA Bank, Kenya Commercial Bank, Standard Bank, National Bank of Kenya, Co-operative Bank and Equity Bank. The location used is Eldoret Municipality (a commercial hub of North Rift Valley) where demand and use of technology is high among customers. Therefore, the types of technological system used in this location are the same across the banks and branches countrywide. This implies that the banks have the same mode of operations in all their branches as they are normally networked where one can access his/her account from any of them. These banks have about 277 employees in total as shown in table 3.1. These selected banks have elements of the old and new generations; they operated paper based systems at inception and later adjusted at the dawn of ICT revolution.

Table 3.1: Target Population

Bank	Number of employees
Kenya Commercial Bank	36
Co-operative Bank	50
Standard Bank	25
Barclays Bank	61
National Bank of Kenya	60
Equity Bank	45
TOTAL	**277**

Source: Author, 2014

3.5 Sampling Procedure

The study used stratified sampling technique to group employees (each bank forms a strata). According to Oso and Onen (2005), stratified sampling technique is a technique

that identifies subgroups in the population and their proportions and select from each subgroup to form a sample. It groups a population into separate homogenous subsets that share similar characteristics so as to ensure equitable representation of the population in the sample. Simple random sampling technique will be used to select employees from each bank proportionately. Purposive sampling will be used to select one key informant who is in top management or head of departments from participating banks. Using a sample size calculation (Patterson, &Reid, 1996).

$$n = \frac{N}{[(1 + N(e)^2)]}$$

Where n = sample size, N = population size (277) and e = accepted level of error taking alpha as 0.05

A total of 164 employees and 6 Managers constituted the sample. Thus the sample for the study was 170 respondents as shown in table 3.2 below:

Table 3.2: Sample Size

Bank	Population size	Sample size
Kenya Commercial	36	21
Co-operative	50	30
Standard	25	15
Barclays	61	36
National	60	35
Equity	45	27
Key informants	**6**	**6**
TOTAL	**283**	**170**

Source: Author, 2014

3.6 Data Collection Instruments

During a single phase of data collection, both qualitative and quantitative data were simultaneously obtained. The researcher believes that this combination offers strengths that complement each other and weaknesses that do not overlap. Data was gathered through questionnaires and interviews, serving as the primary sources, while secondary data was acquired through document review. The questions on the interview schedule

and questionnaires mirror the thematic areas outlined in the research questions, divided into various sections.

Questionnaires represent the most widely used data collection instrument in research studies. As Fowler (2002) suggests, crafting a questionnaire involves selecting appropriate questions that align with the study's research inquiries, testing their suitability for asking and answering as intended. The sample population will be administered questionnaires to collect data from respondents. A questionnaire is a structured set of questions designed to elicit information for subsequent data analysis. It involves presenting a collection of items for the respondent to answer, typically in written form. Questionnaires possess clear advantages over alternative data collection methods. They offer efficiency, affordability, and the ability to gather data from a significantly larger sample. Particularly in fields like education and the social sciences, questionnaires hold importance for collecting information about populations. They can also capture non-observable elements, such as feelings, motivation, attitudes, achievements, and individual experiences

The questionnaires covered questions about the technological systems integrated in commercial banks and their impact on employee performance in commercial banks in Kenya, employee involvement in system development and technological integration process on employee performance in commercial banks in Kenya, the level of technological systems integration in commercial banks and the impact employee performance in Kenya and ease of use of technological systems integrated in commercial banks on employee performance in Kenya. Data collection from respondents was carried out using a semi-structured questionnaire. According to Kumar (2005), interviews prove valuable for acquiring comprehensive insights into personal sentiments and viewpoints. Interviews offer an effective approach to engage

participants and acquire a more thorough and in-depth understanding of the phenomenon. To achieve this, semi-structured interviews will be conducted with top management, deans, and directors. Serem et al. (2013) illustrate that semi-structured interviews, as their name implies, retain a certain level of structure to ensure coverage of essential topics, yet they maintain an informal nature, enabling interviewers greater flexibility in gathering a broader range of information. Additionally, they allow exploration of intriguing aspects and facilitate the collection of highly detailed information pertaining to the selected subject. This study used structured interview. Interview schedule makes it possible to obtain data required to meet specific objectives of the study. When well conducted, interviews can produce in depth data possible with other instruments.

3.7 Validity and Reliability of Research Instrument

The concepts of reliability and validity hold paramount importance and are central considerations in research, aimed at improving the precision and dependability of the appraisal and analysis of a research investigation (Tarakol and Dennick 2011). Reliability pertains to the replicability of findings in a research study (Serem et al. 2013; Saunders et al. 2012; Babbie 2004), while validity signifies the accuracy or correctness of conclusions drawn from the research (McBurney and White 2010).

3.7.1 Validity of the Study

According to Nachiamas (1999) validity refers to the accuracy and meaningfulness of inferences. Thatcher 2010; Kothari 2004 indicates that validity refers to the degree to which a tool gauges its intended measurement. This suggests that research effectively gauges the elements it set out to assess or how accurate (closely aligned with reality) the research outcomes are (Gibbs 2012). Serem et al. (2013) state that a distinct correlation should exist between a concept's definition and its operationalization. This

criterion seeks to determine whether the linkage is solidly established or if a discrepancy exists between the sought-after information and the data obtained. It is also the degree to which the results obtained from the analysis of the data actually represent the phenomenon under study. It is the determination of whether research instruments measure what is purported to measure.

There exist various fundamental techniques for assessing validity (Serem et al 2013; Saunders 2012; Yin 2003), encompassing construct validity (which involves establishing accurate operational measures for the concepts in question), internal validity (entailing the establishment of a cause-and-effect connection between two variables, demonstrating that certain conditions lead to other conditions), external validity (establishing the scope to which a study's findings can be applied to broader contexts. It deals with the question: Can a study's research outcomes be extended to other relevant settings or groups?), and content validity (the degree to which a measurement tool adequately covers the subject under investigation. Pre-testing represents a method employed in content validation).

In this research, the research instrument's validity hinged upon the expert evaluation of its content, assessing how accurately the instrument gauged its intended measurements. The content validity was assessed through two approaches. Firstly, the researcher engaged in discussions about the items in the research instruments with managers. Their insights played a role in bolstering the research instrument's validity. Secondly, a pilot study was conducted involving two banks not included in the main study to establish the research instruments' validity. Subsequently, the researcher distributed questionnaires to a portion of the respondents to gauge the discrepancies in their responses.

3.7.2 Reliability of Research Instrument

Kothari (1992) defines reliability of the research tools as the ability of that test to consistently yield the same results when repeated measurements are taken of the same individual under the same conditions. Saunders et al (2012) explains that reliability is the ability of the data collection techniques and analytic procedures to produce consistent findings if they are repeated on another occasion or if they were replicated by a different researcher. This notion aligns with Payne and Payne's (2004) viewpoint that reliability is characterized as the quality of a measuring device for social phenomena, particularly within the quantitative methods framework, which yields consistent measurements when the phenomena are stable, regardless of how it is utilized, under the condition that the foundational circumstances remain unchanged.

To evaluate the level of reliability, researchers have developed various methodologies, such as the test-retest approach, split-half method, utilization of established measures, and parallel forms (Serem et al. 2013; Saunders et al. 2012; Krishnaswami and Ranganathan 2010). In the test-retest approach, as explained by Serem et al., the same data collection instrument is employed on the same group of individuals multiple times, and the resulting outcomes are statistically compared. Since the identical instrument is used with the same group, there should theoretically exist a robust correlation between the two sets of data, leading to the calculation of a statistical measure known as the correlation coefficient. In practical terms, a value ranging from 0.3 to 0.7 is considered indicative of satisfactory reliability for the instrument. Utilizing established measures constitutes another approach to addressing reliability concerns. Serem et al. elaborate that this involves adopting an instrument that has already been validated.

Regarding the split-half method, Saunders et al. (2012) explain that the questions are randomly divided into two sets, and the responses from each set are correlated with

those from the other set. The two sets should consistently measure the targeted variable in a similar manner.

According to the study reliability therefore implies the extent to which consistent results can be achieved through the use of the same instruments with the same respondents at different intervals.

To ascertain the research instruments' reliability, a pre-testing phase was conducted during the pilot study involving two banks not included in the main study: K-Rep bank and Trans-national bank. This approach was favored due to its greater precision in assessing the instrument's stability. The insights gathered from the pilot study's feedback assisted the researcher in refining the data collection instrument to guarantee its alignment with the study's objectives. In a case where it was discovered that the items in the questionnaire were difficult for the respondents, they were rectified accordingly.

3.8 Data Collection Procedure

The researcher had an introductory letter for respondents describing the institution of the researcher, role of research and research ethics. Data was collected using interviews with the employees of the sampled banks at their business sites. The pre-tested questionnaire was administered by the researcher with the help of three experienced research assistants. These research assistants were trained on the handling of the research tools and the topic under study before being allowed to collect data. The research assistants were closely supervised by the researcher during data collection. The questionnaire took approximately twenty minutes to administer. Data collection took about two weeks.

3.9 Measurement of Study Variables

Table 3.3: Measurement of Study Variables

Variables	Indicators	Measurement Scale	Tools of Analysis	Type of analysis
Technological systems integrated in commercial banks	- Presence of technological systems integrated in commercial banks (i.e. ATMs, Electronic Banking – EFTs, Internet Banking, and Mobile Banking).	Nominal Ordinal	Frequency percentage	Descriptive & Inferential
Engagement of employees in the process of system development and integration of technology.	- The assessment of employees' level of engagement in the process of integrating technology: - Their evaluation of participation in systems development - Their contribution to planning and implementing changes in system actions - Participation in the training programs for systems use - Participation in the systems implementation	Nominal Ordinal	Frequency percentage	Descriptive & Inferential
Purpose of technological systems integration in commercial banks and their use	- Purpose for adopted or improved technology system infrastructure	Nominal Ordinal	Frequency percentage	Descriptive and Inferential
Ease of use of technological systems integrated in commercial banks	- Technological systems are flexible to interact with - Learning to use technological systems is easy - Using technological systems requires mental effort - Confident in using the new Technological systems.	Nominal Ordinal	Frequency percentage	Descriptive and Inferential
Employee performance	- Integration of technology improves working conditions - Integration of technology offers me chances to acquire and learn new skills - Incorporating technology opens up avenues for advancement to more advanced and financially rewarding positions - Integration of technology leads to more return on investments - - Technological system use competence: confidence and capacity to perform various tasks	Nominal Ordinal	Frequency percentage	Descriptive and Inferential

3.10 Data Analysis

Both qualitative and quantitative data were gathered. The initial data was subsequently organized using coding and tabulation. Additionally, editing was undertaken to enhance the precision of the data coding. To establish the main characteristics of the study variables descriptive and inferential statistics was used where the data of each variable was grouped into mutually exhaustive and exclusive groups. This was presented in tables. Following analysis encompassed the utilization of linear regression to evaluate the correlation between the integration of technology and the performance of employees. To establish the statistical significance of the respective hypotheses chi square test of association and logistic regression were used. Chi square test of independence is used to test the null hypothesis that there is no association between two variables against the alternative that there is some association between the two variables. The null hypothesis is always rejected when the p value of the chi square test has a p value of less than the chosen level of significance (usually but not always 0.05). Further, thematic analysis was done on the interviews that were administered to the managers.

A chi square test is defined as

$$\chi^2 = \sum \left[\frac{(O_i - E_i)^2}{E_i} \right] \ldots\ldots\ldots 3.1$$

Where O_i is the observed frequency and E_i is the expected frequency.

The qualitative interview data was analysed using the thematic analysis

3.11 Model Specification

This study adopted the multinomial logistic regression model to examine integration of technological systems in commercial banks in Kenya and employee performance. The

multinomial logistic regression model is a regression technique suitable for handling dichotomous data. This approach is applicable when the response variable presents more than two potential outcomes, signifying not only success and failure but also the presence or absence of a specific attribute. Alternatively, the multinomial logistic regression model serves the purpose of predicting a nominal dependent variable based on one or multiple independent variables. It can be seen as an extension of binomial logistic regression, accommodating a dependent variable with more than two distinct categories.

Consequently, the objective of the multinomial logistic regression model is to ascertain the probabilities of selecting from different alternative categories. In this context, the dependent variable comprises two categories, namely ease of use and self-efficacy, which are used to characterize performance. In this study, the models developed can be expressed in terms of alternative probabilities (Pi) for a model encompassing J categories and K explanatory variables (Hensher et al., 2005) as follows.

$$p_i = \frac{e^{(\alpha_i + \sum_{k=1}^{K} \beta_{ik} X_k)}}{\sum_{j=1}^{J} e^{(\alpha_j + \sum_{k=1}^{K} \beta_{jk} X_k)}} \ldots\ldots\ldots 3.2$$

Where,

α_i: Constant

β_{ik}: Coefficient of the explanatory variable k and X_k is an explanatory variable k.

X_1: Technological systems integrated in commercial banks

X_2: Employees involvement in system development and technological integration process

X_3: Purpose of technological systems integration in commercial banks

X_4: Ease of use of technological systems integrated in commercial banks

p_i: Probability of improving employee performance

The model outlined above was employed in practice to empirically accomplish the study's goal. The coefficient of determination (R^2) was utilized to assess the model's adequacy in terms of goodness of fit and its explanatory capability.

3.12 Diagnostic Tests

To ensure validity of the model, a number of diagnostics were carried out. These included, normality test using Jarque-Bera test, presence of severe Multicollinearity using Variance Inflation Factor and Heteroscedasticity using Breusch-Pagan-Godfrey test.

3.12.1 Normality Test

Before making statistical inference about the data, The Jarque-Bera test was applied to test if the skewness and kurtosis of the sampled data followed normal distribution. The Jarque-Bera normality test has a common theory which suggests that fluctuations are normally distributed. The following mathematical model is based on the Jarque-Bera test;

$$JB=\frac{T}{6}\left[T^{-1}\sum_{t=1}^{T}\left(\hat{\varepsilon}_t^{\,p}\right)^3\right]^2+\frac{T}{24}\left[T^{-1}\sum_{t=1}^{T}\left(\hat{\varepsilon}_t^{\,p}\right)^4-3\right]^2 \quad \ldots\ldots\ldots 3.3$$

The test statistic was used to test a pair of hypotheses

$$H_0: E\left(\varepsilon_t^{\,p}\right)^3=0 \text{ and } E\left(\varepsilon_t^{\,p}\right)^4=3 \text{versus } H_1: E\left(\varepsilon_t^{\,p}\right)^3\neq 0 \text{ or } E\left(\varepsilon_t^{\,p}\right)^4\neq 3 \quad \ldots\ldots\ldots 3.4$$

The expected skewness of a sample from a normal distribution is expected to be zero, which is equal to kurtosis of three according to Thadewald & Büning (2007).

3.12.2 Multicollinearity Test

To verify the existence of multicollinearity in the projected model, the variance inflation factor (VIF) was added. VIF tests how the slope projections have been increased by variation. High VIFs represent an improvement in variances in estimated coefficients of regression due to collinearity between predictor variables over variances obtained when orthogonal predictors are (Murray et al., 2012). Multicollinearity models have reduced accuracy and have trouble predicting (Midi, Sarkar & Rana, 2010). It determines VIF for each of the independent variables in the model. The following equation is calculated in calculating VIF.

$$VIF_k = {}^{1}/_{1 - R_K^2} \dots\dots\dots 3.5$$

VIF_k is the variance inflation factor of each of the independent variables in the model and R_K^2 is the coefficient of multiple determination of the variable k

3.12.3 Breusch – Pagan/Cook – Weisberg Test for Heteroscedasticity

Breusch–Pagan/Cook–Weisberg test for Heteroscedasticity is designed to detect any form of linear heteroscedasticty. Presence of heteroscedasticity implies that the error variances are biased (Papadopoulos & Tsionas, 2020). This study utilized Breusch & Pagan (1979) test to detect presence of heteroscedasticity which estimates the following linear equation 3.8

$$e_1^2 = \beta_1 + \beta_2 \widehat{y_1} + \mu_1 \dots\dots\dots 3.6$$

3.13 Ethical Consideration

The researcher secured an introductory letter from Moi University, School of Business and Economics to seek a permit to carry out research which was obtained from National Council for Science and Technology (NACOSTI). The researcher also obtained informed consent from the respondents before administering the questionnaires and

conducting the interviews, those who wished to pull out of the research process at any stage were freed to do so. The researcher guaranteed the respondents that the data they share would remain confidential and solely be employed for the purpose of conducting data analysis. To ensure anonymity of data, the respondents were not required to indicate their names on the questionnaires and completed questionnaires were kept safely locked up after use.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Overview

This chapter presents the outcomes of the research, which are derived from the established objectives and hypotheses. It thoroughly examines the study's variables and estimates the conceptual model outlined in chapter two. This chapter presents response rate, reliability index and demographic information of the sampled respondents such age distribution, gender and marital status of the respondents and level of education. Diagnostic checks such as Jarque Bera test for normality, variance inflation factor (VIF) test for multicollinearity and Breusch Pagan test for heteroscedasticity. Further, multinomial logistic regression, marginal effects estimation, relative risk ratios are also discussed. The last section of this chapter discusses in detailed the findings of the results and test of hypotheses.

4.2 Data Cleaning and Coding

Prior to analysing the collected data, the questionnaires form the field were screened and checked for errors and outliers. Data cleaning involved examining for missing values in the returned questionnaires. Outlier detection is important for effective modeling and accuracy of the results. Jaccard and Turrisi (2003) and Jose (2013) avers that an outlier can change the output and reduces the accuracy of results as well as the statistical significance. According to (Aguinis, 2004, Fichman *et al*. 2005, and Jose, 2013) when outliers are detected, they are deleted. Tabachnick and Fidell (2013), also posit that missing values which are less than 5 percent are replaced with the value of the mean. After removing outliers, data was then coded and posted to excel spread sheet and then exported to SPSS version 23.0 econometric software for analysis.

4.3 Response Rate

The number of questionnaires administered were 164 in number. A total of 163 questionnaires were properly filled and returned representing an overall successful response rate of 99.4 per cent. This high response rate is explained by the personalized approach the researcher adopted in following up respondents through phone call reminders and personal visits. Duncan *et al.,* (2015), observed that a 50 per cent response rate is adequate, 60 per cent good and above, while 70 per cent rated very well. The six managers and departmental heads were also successfully interviewed. This made total responses to be 170.

4.4 Demographic Characteristics of the Respondents

85 (50 per cent) of the respondents were male where us 78 (45.9 per cent) were female this is an indication that both genders were fairly involved in this research and thus the findings of this study did not suffer from gender biasness. Further, 80 (47.1 per cent) were aged between 21 – 30 years, 49 (30.1 per cent) of the respondents were aged between 31 – 40 years. A very small proportion 4 (2.4 per cent) were aged below 20 years. 30 (10.4 per cent) of the respondents were above 40 years.

More than half 88 (54 per cent) of the respondents were single which account for almost a similar proportion aged 21 – 30. This is an indication that respondents were well distributed in terms of their age thus the study involved respondents whose ages were evenly and distributed.

A critical majority of the respondents, 103 (63.2 per cent) had university level education. This is an indication that most of the respondents engaged in this study had university degrees as their highest level of education. This is an evidence that banking sector prefer young university graduates to remain competitive. The industry is

increasingly becoming technological and young employees are more likely to adapt to the demands of the ever changing technology.

The median number of years (IQR) worked with the current bank was 7 years. Employee retention is very crucial in any organisation. Banks train and retain their employees to build up capacity and a competitive organizational culture that addresses the ever dynamic customer needs. This is portrayed in the mean number of years worked by the employees in the current bank of seven years, the oldest having worked for fifteen years. This is summarised in table 4.1.

Table 4.1: Socio Demographic Characteristics

Characteristic	**Frequency**	**(%)**
Gender		
Male	85	50.0
Female	78	45.9
Age (in years)		
< 20	4	2.4
21 – 30	80	49.1
31 – 40	49	30.1
41 – 50	26	16.3
> 50	4	2.4
Marital status		
Single	88	54
Married	59	36.2
Divorced	1	0.6
Separated	5	3.1
Widowed	10	6.1
Education		
Secondary	00.0	0
Technical/Vocation	27	16.6
College	33	20.0
University	103	63.2
Total	163	100.0

Source: Authors survey data, 2019

4.5 Reliability Test Index

This study determined the internal consistency of the items use to measure parameters under study. It is the consistency of the people's response across the items on a multiple-item measure. The items are supposed to reflect the same underlying parameter so that people's scores should be correlated with each other. When the responses of the people to different items are not correlated with each other, then it could no longer make sense to claim that they are all measuring the same underlying constructs. Internal consistency is assessed by collecting and analyzing the data.

Cronbach alpha was used in this study to measure reliability index. It is a measure of scale reliability. The results shown in Table 4.2 revealed that all the coefficients had a reliability coefficient of 0.7222 representing 72.22 percent consistency which is above the accepted thresholds of 70 percent as postulated by Lee *Cronbach* (1951).

Table 4.2: Reliability Test

Average inter-item covariance	0.0781
Number of items in the scale	8
Scale Reliability Coefficient	**0.7222**

Source: Authors Survey Data, 2019

4.6 Diagnostic Tests

The researcher tested some of the multivariate linear regression assumptions. These tests included, normality test using Jarque-Bera, multicollinearity using variance inflation factors and heteroskedasticity by Breusch-Pagan-Godfrey test.

4.6.1 Normality Test

Jarque-Bera test was used to test for normality of the estimated multinomial model. Jarque- Bera (1982, 1987) has the null hypothesis that the residuals of the variables are

normally distributed while the alternative hypothesis states that the resulting residuals does not follow a normal distribution

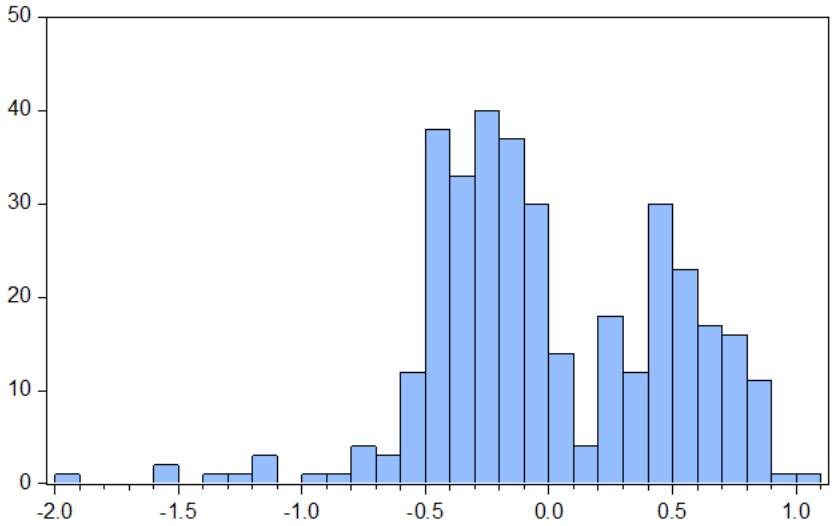

Figure 4.1: Jarque-Bera Test for Normality

From the results in figure 4.1 the reported Jarque-Bera statistic is 2.91 while the probability value is 0.23 which is greater than 0.05 level of significance and it accepted the null hypothesis that the residuals are normally distributed and thus there is no violation of the assumption of normality. This implies that the sample was obtained from a normal population. These results is demonstrated by histogram graph which shows is relatively bell shaped indicating a normal distribution. Skewness which is a measure of asymmetry of the probability distribution of a variable about its mean and it represents the amount and direction of skewness reported a value of -0.1826 while the kurtosis which represents the sharpness of the central peak relative to the standard bell curve showed a value of 3.2538. Kurtosis value of 3.2538 which is greater than three indicates that the residuals are relative peaked hence leptokurtic.

4.6.2 Variance Inflation Factor Test for Multicollinearity

Table 4.3 presents the output of variance inflation factor (VIF) of each variable in the study. It measures the severity of multicollinearity in a given data set.

Table 4.3: Results of Variance Inflation Factor

Variable	**VIF**	**1/VIF (Tolerance Factor)**
Technological systems integrated in commercial banks	1.08	0.9154
Employees involvement in system development and technological integration process	1.55	0.6386
Purpose of technological systems integration	1.22	0.8347
Ease of use of technological systems integrated	1.04	0.9847
Mean VIF	**1.22**	

Source: Authors Survey Data, 2020

VIF suggest that an increase in variance as a result of collinearity makes the coefficient unreliable, inconsistent and reduces statistical significance. When variance inflation factor is equal to one, then the K^{th} independent variable are not correlated with other independent variables which implies that multicollinearity does not exist in the regression model. According to Menard (2002) a VIF greater than 10 indicates that presence of collinearity. The average VIF was 1.25 which is less than 10 which indicated absence of multicollinearity hence, it was concluded that the model suffered no multicollinearity.

4.6.3 Heteroscedasticity Test

Table 4.4 presents the results of Breusch-Pagan-Godfrey Test for Heteroscedasticity. Breusch-Pagan-Godfrey test has the null hypothesis that heteroscedasticity does not exist while the alternative hypothesis states that there is homoscedasticity. In table 4.3

shows the set of statistics and the results of auxiliary regression on which they are based. The *p* – values were all less than 0.05. Thus the null hypothesis of existence of heteroscedasticity was rejected and it was concluded that the errors in the regression model are homoscedastic.

Table 4.4: Breusch-Pagan-Godfrey Test for Heteroscedasticity

F-statistic	4.129990	Prob. F(6,347)		0.0005
Obs*R-squared	23.59487	Prob. Chi-Square(6)		0.0006
Scaled explained SS	25.54800	Prob. Chi-Square(6)		0.0003
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.831671	0.148565	5.598014	0.0000
Technological systems integrated	-0.077639	0.039575	-1.961817	0.0506
Employees involvement in system development and technological integration process	-0.047007	0.031444	-1.494929	0.1358
Purpose of technological systems integration	-0.061785	0.033350	-1.852600	0.0648
Ease of use of technological systems integrated	-0.052421	0.036462	-1.437709	0.1514
R-squared	0.066652	Mean dependent var		0.230213
Adjusted R-squared	0.050514	S.D. dependent var		0.346100
S.E. of regression	0.337245	Akaike info criterion		0.683564
Sum squared resid	39.46587	Schwarz criterion		0.760076
Log likelihood	-113.9909	Hannan-Quinn criteria.		0.714006
F-statistic	4.129990	Durbin-Watson stat		1.701430
Prob(F-statistic)	0.000507			

Source: Authors Survey Data, 2019

4.7 Employee Involvement in Systems Development and Technological Integration Process

The study also sought to evaluate how the technological system integration process takes place among commercial banks and reasons for engaging technology system, infrastructure systems development and employee participation. Employee preparedness through training and systems piloting and appraisals were addressed.

4.7.1 Reasons for Improving and Adopting Technology System Infrastructure

The participants were requested to express their opinions regarding the reasons behind banks' adoption or enhancement of technology system infrastructure. A significant number indicated that the primary motives were customer attraction, engagement, and the transformation of business operations. On average 73.6 per cent of the respondents agreed that the main reason for adopting technology was for attracting and engaging customers, 59.5 per cent agreed that the main reason for adopting technology was for managing risks, 71.2 per cent agreed that the main reason for adopting technology was for transforming business operations, 60.7 per cent agreed that the main reason for adopting technology was for optimizing operational efficiency, 31.8 per cent agreed that the main reason for adopting technology was for simplifying information technology (IT) infrastructure and finally 62.5 per cent agreed that the main reason for adopting technology was for enhancing employee performance. his finding aligns with prior studies that demonstrate a positive correlation between the degree of embracing or enhancing technology system infrastructure and employee performance (Berger, 2003; Tam, 1998). The data is summarised in table 4.5.

Table 4.5: Reasons for Improving and Adopting Technology System Infrastructure

Reason	Disagree (%)	Neutral (%)	Agree (%)
Attracting and engaging customers	18 (11.1)	25 (15.3)	120 (73.6)
Managing risks	13 (8)	53 (32.5)	97 (59.5)
Transforming business operations	3 (1.8)	44 (27)	116 (71.2)
Optimizing operational efficiency	11 (6.7)	53 (32.5)	99 (60.7)
Simplifying IT infrastructure	15 (9.2)	96 (58.9)	52 (31.8)
Enhance employee performance	39 (23.9)	22 (13.5)	102 (62.5)

4.7.2 Employee Participation during Technological Integration Process

The majority of respondents (66.5 percent) indicated their disagreement with regard to their involvement in systems development and participation in the planning of systems change actions. However, over half of the respondents (62.2 percent) affirmed their participation in training programs for utilizing the system. These outcomes are consistent with a study conducted in Asia that highlights how a sporadic emphasis has been placed on direct involvement, such as organizational participation or employee input, in broader organizational decisions. Earlier literature proposed the significance of such channels for managerial goals, particularly in facilitating organizational change (Blumberg, 1998). An overview of the findings concerning employee participation during the process of technological integration is presented in Table 4.6.

Table 4.6: Employee Participation during Technological Integration Process

Technological integration process	Disagree (%)	Neutral (%)	Agree (%)
Participated in systems development	107 (66.5)	26 (16.1)	28 (17.3)
Involved in planning of systems change action	125 (80.1)	13 (8.3)	18 (11.5)
Participated in training programs for system use	22 (14.1)	37 (23.7)	97 (62.2)
Participated in piloting systems at branch	61 (39.1)	22 (14.1)	73 (46.8)
Asked for feedback after piloting	94 (58.4)	28 (17.4)	39 (24.2)
All employees participate in system implementation	70 (43.7)	38 (23.8	52 (32.5)

Employee engagement in the development of technological systems holds crucial importance for achieving successful adoption and utilization. Involving employees signifies an assessment of their requirements, aiming to integrate technology to address

these specific needs. A substantial majority of employees indicated their non-involvement in the planning of systems change actions. To ensure effectiveness in their roles, the adoption process must be well-structured, affording employees ample time to adapt. Despite the provision of training, a significant number of respondents did not concur with this aspect, suggesting a lack of confidence in the training outcomes.

For the effective implementation of new technology systems, it is essential to carry out pilot tests at the branch level, utilizing feedback from these pilots to enhance the integration process. As evident from the findings, banks often do not seek the input of all employees during pilot tests, which results in only a limited number of employees participating in system implementation. If a new system is not adequately integrated, it could adversely impact employee performance, negating the anticipated advantages. Employees are the cornerstone of these banks, playing a pivotal role in contributing significantly to corporate profitability and competitiveness (Inyang, 2010). Therefore, banks attain sustainable competitive advantages through their workforce, emphasizing the significance of the people factor.

4.8 Extent to which Technological Systems Integrated in Commercial Banks

The study sought to establish the extent to which banks have integrated the use of different technological platforms i.e. Internet Banking (IB) Automated Teller Machines (ATMs), Global System for Mobile Communication (Mobile Banking) and Electronic Funds Transfer (EFTs) in service delivery that then enhances performance of the employees. The results are summarised in figure 4.2.

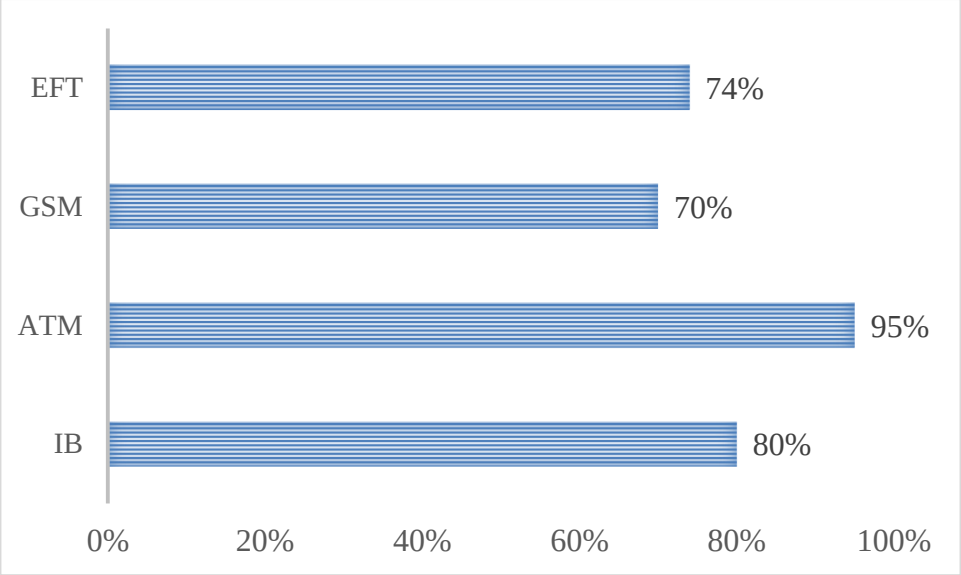

Figure 4.2: Extent to which Technological Systems Integrated in Commercial Banks

The banking industry has successfully used Internet Banking (IB) Automated Teller Machines (ATMs), Global System for Mobile Communication (Mobile Banking) and Electronic Funds Transfer (EFTs). Employee reported that they are able to utilize these services successfully. This technology has revitalized the performance of banks over the last decades. Extended lines of clients and interruptions in the transmission of information have been reduced and employees have been able to serve many customers with a variety of services and products within a short period of time. This is in line with previous study on technology integration, with the rise of technology, banking customers are living in a connected world with their experience from other industries influencing their expectations from their financial services provider. This has led to an evolving customer-bank relationship necessitating banks to be more customer-centric by embedding themselves in customers' lives to meet rising customer experience expectations. However, banks have been facing challenges in meeting customer expectations, as they are troubled with legacy challenges both in terms of technology and culture (Dileep, 2017).

4.9 Technology System Integration and Employee Performance

A significant number of participants concurred that the modern technological systems present chances for acquiring fresh skills, while also noting that these newer technological systems enhance working conditions, as outlined in Table 4.7.

Table 4.7: Impact of Technological System Integration on Employee Performance

Impact of Technological System Integration on Employee Performance	Agree (%)	Undecided (%)	Disagree (%)
Newer technological systems improve working conditions	92 (56.4)	50 (30.7)	21 (12.9)
Newer technological systems provide opportunities to learn new skills	116 (71.2)	33 (20.2)	14 (8.6)
Recent technological systems offer prospects for advancement to more elevated positions and better compensated employment opportunities.	27 (16.5)	75 (46.0)	61 (37.4)
Utilization of modern technology systems has elevated the performance of bank employees, resulting in higher return on investment.	77 (47.2)	59 (36.2)	27 (16.6)

The survey participants were asked to express their viewpoints regarding the impact of adopting technological systems on employee performance. Over half (56.4 percent) of the respondents acknowledged that newer technological systems improve working conditions, while around a third (30.7 percent) remained undecided. A significant portion of respondents (71.2 percent) agreed that new technological systems offer opportunities for skill enhancement. A smaller fraction (20.2 percent) remained unsure about whether newer technological systems create chances for higher-level positions

and better-paying jobs, with 8.6 percent disagreeing. This response might suggest that employees may not wholeheartedly embrace technology training due to doubts about its potential for career growth. Nearly half (47.2 percent) of respondents agreed that the utilization of new technological systems enhances the performance of bank employees, resulting in increased return on investment. The effective implementation of technological systems can notably impact employee performance by involving all employees. About one-third of respondents concurred that they had not yet fully mastered the skills necessary for their roles, although the majority affirmed their confidence in their ability to handle primary job responsibilities and various tasks.

Respondents were prompted to assess their significance in their respective work areas. The majority agreed that their job performance was crucial to their work sector. They also stated that they exerted a notable influence on the success of their work areas. A manager corroborated this information, affirming that newer technological systems indeed provide avenues for acquiring new skills. The manager emphasized that:

> *"due to time constraints and pressure, quite often time to have all employees trained on new systems is limited and so it forces the management to adopt the technologies without familiarization"* (Bank Manager, Eldoret, 2013).

4.10 Technological System Use and Employee Competence

More than half of the respondents reported to agree that they were sure about their aptitude to execute key roles and that they have the capacity to perform various job tasks as in table 4.8. Most of the employees were capable of performing their duties better and had mastered the skills necessary for their jobs. Therefore, technological system use improved employee competence. This mirrors a prior study's findings, which illustrated that trained employees demonstrated competence; higher scores indicated greater involvement of employees in strategic decisions. The hierarchical

nature of this measure is evident in the observation that the average number of topics on which employees could express their opinions increased across successive tiers. This measure also displayed a strong association with the perceived level of influence employees believed they could exert over organizational changes affecting their tasks (not documented) (Perlow, 2014).

Additionally, as depicted in Table 4.8, a substantial majority concurred that the quality of their job performance holds significance in their respective work areas. They also affirmed their notable impact on their work areas' success and acknowledged the relevance of their contributions to the broader success within their work domains.

Table 4.8: Technological System use and Employee Competence

Competence	**Agree (%)**	**Undecided (%)**	**Disagree (%)**
Have not mastered the skills necessary for my job	52 (34.9)	24 (16.1)	73 (49)
Confident about ability to do main job	107 (71.8)	29 (19.5)	13 (8.7)
Capable of performing various job tasks	99 (66.4)	36 (24.2)	14 (9.4)
How well I do my job is important to my work area	130 (86.1)	18 (11.9)	3 (2)
Have significant influence on the success of work area	141 (93.4)	8 (5.3)	2 (1.3)
Is important to the success of my work area that I do my job well	141 (93.4)	8 (5.3)	2 (1.3)

Another of the managers confirmed the information that novel technological systems provide chances and opportunities to learn and acquire new skill sets.

4.11 Technological System Use and the Need to Learn New Skills

Over three quarters of the respondents agreed that they could do better in their current job if they got more training and that they need to learn more skills to perform their current job very well (table 4.9)

From these findings, technological system adoption has a significant relationship on employee skills and employee performance. Majority of the respondents disagreed that they had more skills than they needed. 89.4% agreed that they could do better in their current jobs if they got more training while 82.8% agreed they needed to learn more skills to perform their current job very well. The findings of the study show that employee training on technological systems should be an adequate prerequisite to enhance employee skills and performance. This conform with Porter (1985), who proposed that the unique talents among employees, including flexibility, innovation, superior performance, high productivity and personal customer service are ways employees provide a critical ingredient in developing a firm's competitive position.

Table 4.9: Need to Learn New Skills on Technology Systems

Need	Agree (%)	Undecided (%)	Disagree (%)
Have more skills than I need	37 (24.5)	22 (14.6)	92 (60.9)
Could do better in my current job if got more training	135 (89.4)	2 (1.3)	14 (9.3)
Need to learn more skills to perform my current job very well	125 (82.8)	10 (6.6)	16 (10.6)

4.12 Employee Performance with Integrated Technology

4.12.1 Ease/Simplicity of use and proficiency or Competence with Technological Systems

More than three-quarters of the respondents expressed agreement that using technological systems necessitates cognitive effort, while others differed in opinion, believing that these systems might be challenging to operate (as shown in table 4.8).

These challenges align with previous research findings that revealed employees making errors with significant financial ramifications for banks. Information and communication technology (ICT) could also be exploited for fraudulent activities such as money laundering, unauthorized withdrawals, and various forms of manipulation. ICT demands substantial investment and relies on consistent power supply, which is sporadic in Nigeria. A substantial amount of money is presently allocated by most banks to secure power supply and electricity generation. Moreover, ICT has led to a reduction in the workforce, given that computer systems have taken over a significant portion of bank transactions (Agboola, 2001).

Table 4.10: Ease of use and competence in using technological systems

Item	Agree (%)	Undecided (%)	Disagree (%)
Interaction with technological systems is clear and understandable	97 (65.5)	32 (21.6)	19 (12.8)
Find technological systems flexible to interact with	85 (58.2)	47 (32.2)	14 (9.6)
Learning to use is easy	71 (48)	52 (35.1)	25(16.9)
Would be easy to become skillful at using the systems	95 (64.2)	47 (31.8)	6 (4.1)
Using technological systems requires mental efforts	121(81.8)	21 (14.2)	6 (4.1)
Belief technological systems will be difficult to use	18 (12.2)	26 (17.6)	104 (70.3)

4.12.2 Self Efficacy

As indicated in table 4.11, most participants expressed a lack of confidence in using technology without any initial guidance, whereas others affirmed that they would feel confident with assistance to initiate, having undergone an initial lesson, or having the option to seek help if faced with difficulties.

Table 4.11: Self Efficacy

Efficacy	Agree (%)	Undecided (%)	Disagree (%)
Would feel assured about using even without the need for a demonstration	28 (18.5)	28 (18.5)	95 (62.9)
Prior knowledge of how to operate the system	114 (76)	27 (18)	9 (6)
Seen someone else using it before	49 (32.5)	74 (49)	28 (18.5)
If someone assisted get started	126 (83.4)	19 (12.6)	6 (4)
First gone through a lesson	136 (90.1)	9(6)	6 (4)
Can call someone to assist if stuck	138 (91.4)	6 (4)	7 (4.6)

4.13 Multinomial Logistic Regression Model

The objectives of the study were modeled using multinomial logistic regression approach. This is because the employee performance which is the dependent variable is a nominal variable. The multinomial logistic regression employs the logarithm of odds for the modeled outcomes, structured as a linear combination of the predictor variables. For instance, in this study the predictor variables are involvement of employee in system development and technological integration process in commercial banks, types of technological systems integrated in commercial banks, extent to which technological systems are integrated in commercial banks, ease of use of technological systems integrated in commercial banks

The outcomes displayed in table 4.12 pertain to the multinomial logistic regression. The output consists of several components. The initial one is the iteration log, which signifies the speed of the model's convergence. The initial iteration (Iteration 0) pertains to the log likelihood of the null or empty model, denoting a model lacking predictors (independent variables). It's evident that with each iteration, the log likelihood progressively increases, as the aim is to maximize this value. Once the disparity between consecutive iterations becomes exceptionally small, the model is deemed to have achieved convergence, and the iterative process concludes. The model reached convergence after six iterations, with a log likelihood value of -225.756. This value indicates the swiftness of the model's convergence.

Table 4.12: Multinomial Logistic Regression Results

Iteration 0: log likelihood = -271.471						
Iteration 1: log likelihood = -227.81169						
Iteration 2: log likelihood = -226.01708						
Iteration 3: log likelihood = -225.79784						
Iteration 4: log likelihood = -225.76087						
Iteration 5: log likelihood = -225.75634						
Multinomial Logistic Regression				Number of Obs.	= 163	
				LR chi2(12)	= 91.43	
				Prob > chi2	= 0.000	
Log likelihood = -225.75634				Pseudo R2	= 0.1684	
Integration of Technological Systems	**Coef.**	**Std. Err**	**z**	**p >|z|**	**[95% Interval]**	**Conf.**
Technological systems integrated	0.798	0.219	-0.77	0.001**	0.449	1.354
Employee involvement in system development and technological integration process	0.047	0.658	2.67	0.005**	0.3422	0.838
Purpose of technological systems integration	0.582	0.138	-2.23	0.024**	0.336	0.931
Ease of use of Technological systems integrated	1.467	0.107	-3.44	0.002**	0.313	0.731
Constant	8.1347	524.3569	0.02	0.008**	-1035.855	1019.586

'*' indicates significance at 5 per cent level

The total numbers of returned questionnaires were 163. The log ratio (LR) test is 91.43 and its significance of probability 0.000 shows that the model (multinomial logistic model) used to estimate parameters is a best fit. From the regression analysis results, all the variables are positively significant at 5 per cent level of significance. In particular we interpret that there is a significant positive correlation between technological systems being integrated to improve working conditions, provide opportunities to learn new skills, integrating technological systems increases performance of bank employees leading to more return on investment. However, there was no significant correlation between integration of technological systems and chances for advancement to more elevated positions with better remuneration. ($r = 0.045, p = 0.562$)

4.14 Summary of Hypotheses Test Results

Table 4.13 presents a summary of the hypothesis test results

Table 4.13: Summary of Hypotheses Test Results

Hypothesis	Coefficient	p-value	Result
H_{01}**:** The type of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya	$\beta_1 = 0.798$	0.001	Reject
H_{02}: Employee involvement in system development and technological integration process has no significant effect on employee performance in selected commercial banks in Kenya.	$\beta_2 = 0.047$	0.005	Reject
H_{03}: The purpose/function(s) of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya.	$\beta_3 = 0.582$	0.024	Reject
H_{04}: Ease of use of technological systems integrated has no significant effect on employee performance in selected commercial banks in Kenya.	$\beta_4 = 1.467$	0.002	Reject

Note: sig at $\rho < 0.05$

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This chapter presents the summary of regression findings, concluding comments of the study drawn from the findings and recommendations on the implications of the research on policy and practice and suggestions for further research.

5.2 Summary

The acquisition, utilization, and upkeep of technology stand as pivotal determinants for organizational survival across all sectors. Although technological innovation within systems is anticipated to bolster employee performance, this enhancement doesn't always occur instantaneously as presumed. The manner in which these systems are strategized, introduced, and implemented plays a critical role in whether employees embrace enhanced productivity or not. Given the competitive landscape of Kenya's banking industry, investment in and adoption of information and communication technology (ICT) have become vital components for achieving organizational goals.

This research delved into the impact of integrating technological systems on employee performance through a survey of selected commercial banks in Eldoret, Kenya. The principal aim of this study was to examine how the integration of technological systems affects employee performance within chosen commercial banks in Kenya. The study was guided by the following specific objectives: to identify types of technological systems integrated in banks and their impact on employee performance in selected commercial banks in Kenya; to assess the effect of employee involvement in system development and technological integration process on employee performance in selected commercial banks in Kenya; to determine the purpose/function(s) of

technological systems integrated in selected commercial banks and the impact employee performance in Kenya; to establish the impact of ease of use of technological systems integrated in selected commercial banks on employee performance in Kenya.

A descriptive research design was used on a target population of 277 employees and 6 managers. 164 employees were randomly selected and one manager or head of department from each of the six banks involved in the study. Field data was collected using questionnaires and interviews and analyzed both qualitatively and quantitatively. The bank employees were equally distributed by gender and over half of them were aged below thirty. The mean number of years worked by the respondents was 7 years implying that turnover rate was low in the banks.

5.2.1 Technological Systems Integrated in Banks and their Impact on Employee Performance in Selected Commercial Banks in Kenya

The first objective of the study sought to assess the technological systems being applied among selected commercial banks in Eldoret, Kenya. The findings of the study established that, largely all banks incorporated the use of internet banking and automated teller machines. Global System Mobile Banking and electronic banking technologies were also fairly integrated by the commercial banks.

The participants also verified their use of customer relationship management systems (CRM). This capability has emerged through the introduction of customer retention management systems (CRM). However, the majority of banks did not employ website-integrated systems for placing orders of products and services via their websites. This kind of system represents a recent innovation and, although adopted by banks, has not led to an enhancement in the performance of bank employees. This implies that employees find it challenging to adapt to new technologies, ultimately impacting their

output performance. This observation is consistent with earlier research that proposes technological innovations like computer automation and electronic banking influence the pace of delivering bank services, elevate managerial decision-making, and save time (Alu, 2002). Information and Communication Technology has facilitated self-service facilities, such as automated customer service machines, enabling potential bank customers to complete their account opening documents directly online. This technology assists customers in verifying their account details and receiving instructions regarding the receipt of their checkbooks, credit, and debit cards (Agboola, 2001).

5.2.2 Employee Involvement in System Development and Technological Integration Process on Employee Performance in Selected Commercial Banks in Kenya

The findings further revealed that employee involvement in the integrations process was low. The employees did not participate in systems development, planning of system change action and only few participated in piloting systems at the branch. The findings of the study also revealed that newer technological systems improve working conditions of employees and provide opportunities to learn new skills. Nevertheless, the participants did not concur with the notion that newer technological systems offer prospects for advancement to higher-level, higher-paying positions. A minority of respondents endorsed the belief that the adoption of new technological systems enhances the performance of bank employees, resulting in increased return on investment. A substantial number of employees expressed the sentiment that they could achieve better results in their current roles with additional training and the acquisition of more skills.

5.2.3 Purpose of Technological Systems Integrated in Selected Commercial Banks and their Impact Employee Performance in Kenya

The findings revealed that commercial banks integrate technological systems for different purposes and functions among them including; attracting, enticing and involving customers, overseeing business risks, reshaping operational processes, maximizing operational effectiveness, and streamlining information technology infrastructure. All of these were established to have positive effect on employee performance.

5.2.4 Ease of Use of Technological Systems Integrated in Selected Commercial Banks on Employee Performance in Kenya

The study's results demonstrated that fewer than half of the participants concurred that acquiring the skill to use technology is uncomplicated. A significant majority of respondents indicated that utilizing technological systems demands cognitive effort. However, the respondents held the viewpoint that utilizing technological systems was not complex. Another obstacle identified was self-efficacy. Participants expressed confidence in their ability to use technology even without assistance. They noted a preference for having someone help them initiate the process, provide an initial lesson, or be available for guidance if they encountered difficulties.

The study's findings disclosed that a poorly integrated new system could potentially disrupt employee performance, contradicting the anticipated benefits.

5.3 Conclusion

This study adopted the multinomial logistic regression model to examine integration of technological systems in commercial banks in Kenya and employee performance.

The first objective was to identify types of technological systems integrated in banks and their impact on employee performance in selected commercial banks in Kenya. The findings of the study indicated that the banks had integrated technological systems that improved employee performance on service delivery. The coefficient of this variable was positive and statistically significant, $\beta_1 = 0.798: \rho = 0.001 < 0.05$. As a result, the extended customer queues and information transmission delays have been mitigated, allowing employees to attend to a higher number of customers. The results also unveiled that the incorporation of website systems has not yielded successful outcomes. Based on the study's outcomes, it can be inferred that ATM, internet banking, and mobile banking technology systems are the most prevalent in Kenyan commercial banks.

The second objective was to assess the effect of employee involvement in system development and technological integration process on employee performance in selected commercial banks in Kenya. The study results showed that involvement of employee in system development and technological integration process has a positive and significant effect on employee performance. $\beta_2 = 0.047: \rho = 0.005 < 0.05$. Therefore, the null hypothesis was rejected. A significant proportion of the workforce did not participate in the formulation of strategies for altering the systems, which has had an adverse impact on their job performance. It is therefore concluded that employee participation in the planning and incorporation process of technology is minimal.

The third objective was to determine the purpose/function(s) of technological systems integrated on employee performance. The study results indicated that purpose/function(s) of technological systems integrated has significant effect on employee performance. $\beta_2 = 0.0582: \rho = 0.024 < 0.05$. New technologies are

integrated to ameliorate routine commercial banking operational issues. Therefore, the results indicate integration of technology for different functions performed by commercial banks enhances employee working conditions, leading to an improvement in their performance.

The fourth objective was to establish the impact of ease of use of technological systems integrated in selected commercial banks on employee performance in Kenya. The study results indicated that ease of use of technological systems integrated has a positive and significant effect on employee performance. $\beta_2 = 1.467: \rho = 0.002 < 0.05$. The findings established that, use of technological systems require mental effort necessary for self-efficacy and competence. Therefore, how easily users (employees) can use a technological product will determine technology acceptance and thus the usefulness of the technology in improving employee performance.

5.4 Recommendations

The study recommends an expansion and utilization of technology, advocating for the enhancement of employee skills through the integration of technological systems, ultimately resulting in improved bank employee performance and increased return on investment. Given that a considerable number of employees continue to face challenges when carrying out their tasks using technological systems, it is recommended that banks actively engage their employees in the planning and integration process. This can be achieved through training, piloting, and soliciting feedback, all aimed at enabling employees to perform at a higher level.

It is also recommended that commercial banks should invest more in integrating different technological systems for improving employee performance in the following functions; attracting, drawing in and captivating customers, overseeing business

uncertainties, reshaping business processes, enhancing operational effectiveness, and streamlining information technology infrastructure. All of these were established to have positive effect on employee performance.

Finally, as a as a proposal for future research, it would be intriguing to investigate the correlation between technological advancement and the operational efficiency of Kenyan commercial banks.

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APPENDICES

Appendix 1: Questionnaire

Dear respondent,

I am a Master of Human Resource and Development student at Moi University School of Human Resource and development carrying out a research on "*Technological systems and employee performance in the banking sector : A survey of selected commercial banks in North Rift."* The research is meant for academic purpose only. You are kindly requested to provide answers to these questions as honestly and precisely as possible. The information provided will be kept **confidential**. In case of any questions kindly contact me on 0723635007.

Section A. Personal Characteristics

1. Gender:

1. Male [ ]
2. Female [ ]

2. Age in years

1.Below 20 (reference) [ ]

2.21 – 30 [ ]

3.31 – 40 [ ]

4.51 – 60 [ ]

5.Above 61 [ ]

3.Number of years worked with the current bank……

4. Marital status:

1. Single [ ]
2. Married [ ]

3. Divorced [ ]

4. Separated [ ]

5. Widowed [ ]

5. Educational background

Secondary Education [ ]

Technical/vocational [ ]

College diploma [ ]

University degree [ ]

Section B: Technology adoption and use.

6. On a Likert scale of 1 to 5, where [1] strongly disagree and [5] strongly agree, in your view, why has the bank adopted or improved technology system infrastructure?

Attracting and engaging customers [1] [2] [3] [4] [5]

Managing risk [1] [2] [3] [4] [5]

Transforming business operations [1] [2] [3] [4] [5]

Optimizing operational efficiency [1] [2] [3] [4] [5]

Simplifying IT infrastructure [1] [2] [3] [4] [5]

Enhance employee performance [1] [2] [3] [4] [5]

Others (specify) ……

7. Please indicate the type of technological systems that are integrated in your bank? Tick as may apply (Multiple responses).

Internet-banking/online banking [ ]

Automated teller machines (ATM) [ ]

E-commerce on website offering third party products and services [ ]

Global System for Mobile communication (GSM) banking [ ]

Electronic Funds Transfer (EFT) [ ]

Website integrated/connected with other IS systems [ ]

Customer relation management systems (CRM) [ ]

Others (Specify)……

8. Please indicate to what extent has your bank integrated successfully the following technological system functions in enhancing you performance where, [1] Never [2] Often [3] Quite Often [4] Always

Internet-banking/online banking [1] [2] [3] [4]

Automated teller machines (ATM) [1] [2] [3] [4]

E-commerce on website offering third party products and services [1] [2] [3] [4]

Global System for Mobile communication (GSM) banking [1] [2] [3] [4]

Electronic Funds Transfer (EFT) [1] [2] [3] [4]

Website integrated/connected with other IS systems [1] [2] [3] [4]

Customer relation management systems (CRM) [1] [2] [3] [4]

Others (Specify)……

9. How do you rate your involvement in the technological integration process in your bank? [1] Strongly Disagree [2] Disagree [3] Neutral [4] Agree [5] Strongly Agree.

Participated in the systems development [1] [2] [3] [4] [5]

Involved in the planning of systems change action [1] [2] [3] [4] [5]

Participated in the training programs for systems use [1] [2] [3] [4] [5]

Participated in the piloting of the systems at your branch [1] [2] [3] [4] [5]

After piloting were you asked for any feed-back [1] [2] [3] [4] [5]

All employees participated in the systems implementation [1] [2] [3] [4] [5]

Section C: Technology and Employee Performance

10. What is your view to what extent has the adopted technological systems affected your performance in the organization? (where, [1] strongly disagree, [2] Disagree, [3] Undecided, [4] Agree,[5] strongly agree)

Newer technological systems improve working conditions. [1] [2] [3] [4] [5]

Newer technological systems provide me with opportunities to learn new skills. [1] [2] [3] [4] [5]

Newer technological systems provide opportunities to get promoted to higher level, higher paying jobs [1] [2] [3] [4] [5]

The use of new technological systems has increased the performance of banks employees which in turn leads to more return on investments [1] [2] [3] [4] [5]

Others (Specify)……

11. How do you rate your technological system use competence?

I have not mastered the skills necessary for my job. [1] [2] [3] [4] [5]

I am confident about my ability to do my main job. [1] [2] [3] [4] [5]

I am capable of performing all of my various job tasks. [1] [2] [3] [4] [5]

Others (Specify)……

12. How do you rate your performance in your work area?

How well I do my job is important to my work area. [1] [2] [3] [4] [5]

I have a significant influence on the success of our work area.[1] [2] [3] [4] [5]

It is important to the success of my work area that I do my job well. [1] [2] [3] [4] [5]

Others (Specify)……

13. In your view do you need to learn new skills on use of new technological systems?

I have more skills than I need to perform my current job very well [1] [2] [3] [4] [5]

could do better in my current job if I got more training. [1] [2] [3] [4] [5]

I need to learn more skills to perform my current job very well [1] [2] [3] [4] [5]

Others (Specify)……

Section D: Challenges: Employee Performance

Please indicate to what extent you perceive ease of use and confidence in using technological system(s) in your work area (Where, [1] strongly disagree, [2] Disagree, [3] Undecided, [4] Agree, [5] strongly agree)

14. Ease of use

My interaction with technological system(s) is clear and understandable

[1] [2] [3] [4] [5]

I find technological systems flexible to interact with [1] [2] [3] [4] [5]

Learning to use technological systems is easy [1] [2] [3] [4] [5]

It would be easy for me to become skillful at using the technological systems

[1] [2] [3] [4] [5]

Using technological systems requires mental effort [1] [2] [3] [4] [5]

I believe technological systems will be difficult to use [1] [2] [3] [4] [5]

Others (Specify)……

15. Self-Efficacy

I would be confident in using the new Technological systems:

Even if there is no one around to show me how to use it [1] [2] [3] [4] [5]

Only if have prior knowledge of how to operate the system [1] [2] [3] [4] [5]

Only if I have seen someone else using it before I try it myself [1] [2] [3] [4] [5]

If someone will assist me to get started [1] [2] [3] [4] [5]

If I had first gone through a lesson on how to use it [1] [2] [3] [4] [5]

If I can call on someone to assist if I get struck [1] [2] [3] [4] [5]

Others (Specify)……

Appendix 2: Interview Schedule

Dear respondent,

I am an MHRD student at Moi University School of Human Resource Development carrying out a research on "*Technological systems and employee performance in the banking sector: A survey of selected commercial banks in North Rift."* The research is meant for academic purpose only. You are kindly requested to provide answers to these questions as honestly and precisely as possible. The interview will take **less than 20 minutes**. In case of any questions kindly contact me on 0723635007

1. What are the types of technology adopted/used by your institution?

……

2. How does new technology adoption and use impact on employee performance in your institution?

……

3. What are the challenges faced by employees in technology use in your institution?

……

……

4. What are the appropriate strategies used in technology use for enhanced employee performance in your institution?

……

……

Appendix 3: Research permit

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673550
Mobile: 0713 788 787 , 0735 404 245
Fax: 254-020-2213215
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: NCST/RCD/13/013/71

Date: 17th June 2013

Faith Lentoimaga
Moi University
P.O Box 3900-30100
Eldoret.

RE: RESEARCH AUTHORIZATION

Following your application dated **10th June, 2013** for authority to carry out research on ***"Technological systems and employee performance in the banking sector in Kenya: A survey of selected commercial banks in North Rift, Kenya."*** I am pleased to inform you that you have been authorized to undertake research in **North Rift District** for a period ending **31st December, 2013.**

You are advised to report to **the Managers of Selected Banks** before embarking on the research project.

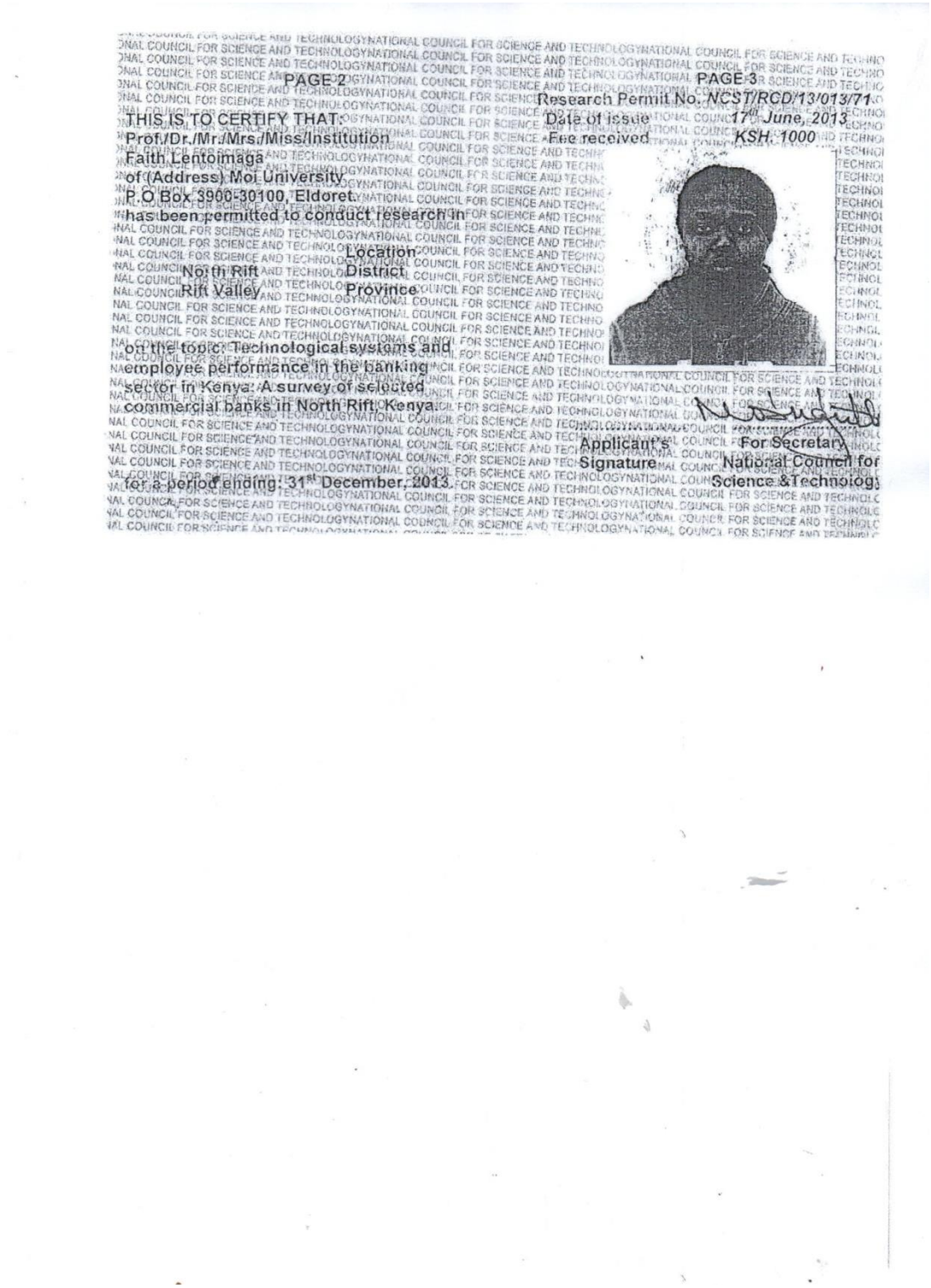
On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:
The Manager
Selected Bank.

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development".

Appendix 4: National Commission for Science, Technology and Innovation (NACOSTI) License



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THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Faith Lentoimaga
of (Address) Moi University
P.O Box 3900-30100, Eldoret
has been permitted to conduct research in
Location
North Rift
District
Rift Valley
Province
on the topic: Technological systems and employee performance in the banking sector in Kenya: A survey of selected commercial banks in North Rift, Kenya.
for a period ending: 31st December, 2013.

Applicant's Signature

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Research Permit No. NCST/RCD/13/013/71
Date of issue 17th June, 2013
Fee received KSH. 1000

For Secretary
National Council for Science &Technology