AN ASSESSMENT OF STRATEGIC TECHNOLOGICAL INNOVATION ON CUSTOMER SATISFACTION: A CASE STUDY OF KCB, NAIROBI

SHEILLAH WECHULI

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS IN BUSINESS ADMINISTRATION DEGREE IN STRATEGIC MANAGEMENT OF MOUNT KENYA UNIVERSITY

JULY, 2025

DECLARATION AND APPROVAL

Declaration

This project is my original work and has never been presented for any academic award in any Institution.

Name: Sheillah Wechuli

Reg. No. MBA/2023/41207

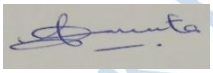
Signature  Date: 11th July 2025

Approval

This project is being submitted for examination with our approval as University supervisors

Name: Dr. Grace Karemu

Institution of Affiliation: Mt. Kenya University

Signature  Date: 13th July 2025

DEDICATION

I dedicate this work to my parents and children, Shanaya Lexi and Alphy Liam. Special dedication to my partner Teddy for his assistance.

ACKNOWLEDGEMENT

I'm utterly appreciative to God for empowering me with insight and fortitude which sustained me throughout this academic journey. I take this opportunity to acknowledge everyone who assisted me during the project. I am exceptionally appreciative to my supervisor Dr. Grace Karemu for providing guidance throughout the process and ensuring quality work. I am thankful for the sincere and invaluable insights. I wish to express gratitude to MKU fraternity, including the lecturers and the staff for the immense support in my academic milestones. I recognize the help of my loving family for the encouragement, support, love and assistance throughout my academic journey.

ABSTRACT

Technological innovation has become one of the most critical success factors for increased market competitiveness. With the robust changes in technology, customer satisfaction is impacted in terms of efficiency of the systems. To remain relevant in the industry and ensure that customers' expectations in terms of innovative technology are fulfilled, it has become imperative for organizations to continuously introduce new innovative products and enhance the existing ones. This study sought to analyse the connection between strategic technological innovations at KCB bank in relation to customers' satisfaction. The study purposes focused on the link among the independent variables which were online banking systems, card products innovation, electronic queue management system and agency banking, and their influence on customer satisfaction. The intervening variable was government regulations. Four hypotheses guided the study. This research was descriptive cross-sectional study since data was obtained from the population at a particular time. It was guided by three theories which include Diffusion of innovation (DOI), Technology acceptance Model (TAM) and Theory of Planned Behaviour (TPB). The research used pre-tested structured questionnaires and interviews for data collection. The target population entailed the entire customer base of 10 KCB branches in Nairobi CBD estimated to be 320,642. The Sample population was obtained based on Krejcie & Morgan, (1970) specimen table which gave the overall number of respondents as 384. In addressing study objectives, both qualitative and quantitative research methods were applied. Primary data was obtained by administering closed and open-ended questionnaires. The questionnaire underwent a test to establish if it was reliable by use of Cronbach's alpha coefficient method. Content validity was applied for testing of validity. Quantitative data was analysed through applying descriptive statistics. This incorporated percentages, frequencies, means as well as standard deviations. To ascertain the link between the variables, both correlation and regression analysis were applied. The study results indicated high levels of customer satisfaction with online banking, card innovations, and EQMS, while satisfaction with agency banking was moderate. Regression results revealed that all independent variables had a positive and statistically significant influence on how satisfied customers were, with online banking innovation showing the strongest effect. The model indicated 62.3% of the variance in customer satisfaction, indicating a strong predictive relationship. The study concludes that online banking innovation, card products innovation, electronic queue management system, and agency banking significantly affect customer satisfaction in the KCB. From this research the recommendation is that the bank should continue to invest in digital platforms, improve agency banking operations, and the integration of innovative products and services into a seamless service experience.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
CBK	Central Bank of Kenya
DOI	Diffusion of Innovation
EFT	Electronic Funds Transfer
EQMS	Electronic Queue Management System
NACOSTI	National Commission of Science Technology and Innovation
POS	Point Of Sale
TAM	Technology Acceptance Model
TBP	Theory of Planned Behaviour

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The section introduces the study area as well as the background. In addition, it covers the statement of the problem and intentions of the study. Research questions, significance and the scope of the research are also covered.

1.1 Background of the Study

Technological innovation has been described by various authors. For instance, Jain (2023) defined technological innovation as the development and the use of new, advanced or upgraded technologies which result in bringing about meaningful advancements in various fields and in different organizations. Technological Innovations in banking is the inception of new inventions that are meant to boost the effectiveness and efficiency of financial services offered to consumers. These include developing new banking services and products, the exploitation of emerging technologies and the application of novel business models together with processes. (Kreger & Zaikovska, 2024).

In the year 2008, the Kenyan Government launched Vision 2030 as a tool for speeding up transformation of the country by the year 2030. One of the pillars was to enhance technology and innovation awareness among the Kenyan population. Banking industry plays a crucial part to ensure the vision is realized. This has necessitated the improvement of technological innovations in the banking sector to align with the vision. (Vision 2030, 2007).Haabozoka (2019) in her research on innovation in banking sector in relation to performance of banks in developing countries argued that the modern business environment requires aggression when it comes to advancement in technology in order to stay relevant in the ever changing business environment

since customers are more informed and have options to select from. For the business to remain relevant and gain competitive advantage, it should invest in robust technology which enables it to offer reliable and prompt services such as consistent and efficient mobile banking and internet banking services.

Several organizations have used technological innovations to boost customer satisfaction. A good example is Apple inc. an American technology company which is known for its innovation of computer software and other gadgets. Baporikar (2022) researched on innovation management case study of Apple Inc. The purpose was to explore Apple's approach to innovation and the influence on client satisfaction. The findings established that innovative strategy has significantly contributed to the company's success. Continuous technological advancements through the introduction of new products and creation of innovative products such as iPhones, iPads and iPods strengthened their respective markets hence boosting the degree of customer satisfaction.

Amazon, an internet-based business, is an e-commerce platform that sells a variety of products online as well as offering digital streaming services, which has boosted its customer satisfaction through pioneering innovative solutions for its customers. Jahan et al (2024) researched on customer satisfaction through innovation focusing on Amazon. The aim was to determine factors influencing customer satisfaction on customers transacting on Amazon. The study concluded that e-commerce has revolutionized shopping experience. Amazon is widely preferred by customers among other e-commerce platforms. The use of technology has resulted in a more convenient lifestyle today though offering variety, quick service and reduced prices, which has remarkably improved customer satisfaction.

In Kenya, Safaricom's customers satisfaction index has greatly been boosted through innovative technologies. The telecommunication company is known for its innovative mobile applications

and impeccable coding skills. According to Ogogo (2023), introduction of new or improved innovative products such as Mpesa and the overdrawing capabilities dubbed fuliza resulted in higher levels of customer satisfaction. Product, process, and marketing innovations are crucial in driving customer satisfaction by enhancing efficiency and effectiveness of systems and applications. She concluded this in her study on how innovations in Safaricom Plc affect customer satisfaction. The aim was to determine the degree to which innovative technology impact clients' satisfaction.

Despite the technological innovations, customers face a variety of challenges thus impacting on the level of customer fulfilment. Patharkar (2020) studied challenges with newfound technological innovations in Indian banking industry. The aim was to investigate the hurdles that customers face with the new technological innovations. He identified online safety and privacy of the customers as a major problem due to increased cyber insecurity, impersonation and fraud. High transaction costs for access of services was also identified as another challenge These challenge result in customers being skeptical about technological innovation leading to low adoption and usage thereby impacting customer contentment with the bank.

Ronoh & Omwenga (2017) in their research examining the role of innovations on performance of Kenya Commercial Bank identified security threat as a major challenge in KCB when it comes to technological innovation. The study established various threats relating to technological innovation which included system intrusion by hackers, identity theft and denial of service as a result of system flooding. This affects customer satisfaction since consumers lose confidence in the banking systems. They argued that this can also lead to reputation risk for the bank if not addressed. Sustainability of the bank would also be at risk.

Mohan (2025) measured how innovative technologies affect client's contentment at Ujjivan Small Finance Bank in India with the purpose of discovering how improvements in digital Banking and customer self-service technologies contribute to overall contentment level among customers. He identified technological illiteracy among customers, lack of adequate infrastructure, and unwillingness to embrace change as some of the hurdles experienced by clients in the adoption of technology. He further emphasized the need for digital literacy training and simplification of online platforms to improve usability.

The connection between technological innovation and clients' satisfaction is important in banking worldwide as backed by various researchers. Looking at the global view, in the United Kingdom, Wu (2024) asserted that introduction of superior innovative technologies has become a game-changer in banking industry in the UK since it has given the banks the capability to provide tailored innovative products based on the preferences of the clients. A good example is the "Talking ATMs" which engage vocally with customers and can cater to what the customer prefers. In his study on the how upsurge of digital banking in the United Kingdom affect clients' satisfaction, he established that advancement in technology to align with the changing customers preferences greatly influences how satisfied clients are with the bank.

Sharma (2022) in India studied the role of innovations on the degree at which customers are satisfied in Indian banks with the goal of determining how customer satisfaction was affected after computerization of bank operations in Bhopal city. He concluded that technological innovation has resulted in improved customer satisfaction which in turn resulted in improved bank performance. In Italy, Vergallo & Mainetti (2022) studied the influence of technology in boosting customer satisfaction in Italian banks. The purpose was to evaluate how innovation in technology in banks influence the level of customer satisfaction. It was established that investing in new

technology and the advancement of existing ones is a crucial factor in sustaining and elevating the degree to which clients are happy.

On the regional level, In South Africa, innovative technologies in the banking sector have become major strategy in maintaining competitive edge over other players in the industry. According to Kariuki et al (2025), The Internet of Things (IoT) has revolutionized banking experience in South African Banking environment. They recommend that in order to keep up with the ever-changing expectations and needs of clients, banking sector in South African should adopt a habit of digital transformation and adoption of robust technologies. They further asserted that banks should also accelerate the implementation of a framework for guidance in usage of IoT and its processes to boost client contentment.

Agolla et al (2018) in Botswana investigated effects resulting from bank innovative strategies on customer satisfaction with the objective of finding out how innovations in the banking sector can persuade, retain and satisfy customers in Botswana banking industry. The findings denoted that, banks which embrace innovation attract and retain customers and elevate the level of customer satisfaction. In Ghana, Ameme & Wireko (2018) studied the influence of technological innovations in Ghanaian Banks. The intention was to find out the association between technological innovations in banks and customer satisfaction. They established that there is extensive connection linking customer satisfaction and innovative technologies in Ghana banking industry. They further established that development of disruptive innovative products and services which are customer friendly enables banks gain competitive advantage.

In Kenya, Margaret & Kinyuru (2018) studied how technology in Kenyan banking industry affect customer relationship with the intention of determining the level to which technological innovation influence quality of service offered to bank customers. The results showed that by improving

service quality through robust technology, customer satisfaction is greatly impacted. Odhiambo and Mang'ana (2022) evaluated innovation of technologies and the role it plays on customer satisfaction in Kenyan banking. The purpose was to explore the part played by various dimensions of technology with regard to customer satisfaction in Kenyan Banks. He concluded that self service channels of technology such as mobile banking and internet banking significantly affect customer satisfaction. They enhance security, reliability, and convenience which improve customer satisfaction and ultimately enhance competitive advantage.

According to CBK's Bank Supervision Annual Report 2023, as at December 31, 2023, the Kenyan banking sector consisted of the banking regulatory authority; CBK, 38 Commercial Banks and 14 Microfinance Banks, KCB being among the 38 Kenyan commercial bank. (Central Bank of Kenya, 2023). The banking Industry has been transforming due to the changes in the financial environment. Annual survey carried out by CBK on banking sector innovation for the year 2020 established that the Kenyan Banking industry has adopted uptake of technology in order to improve customer satisfaction and drive efficiency gains. Most of the financial institutions focused on customer centricity resulting in innovation of products that put the customer first thereby improving customer satisfaction (Central Bank of Kenya, 2020). This study was therefore relevant to KCB since as a financial institution, it sought to investigate the importance of the various innovative technologies on customer satisfaction in order to establish how customers perceive the various technological innovations and ways to improve them.

1.1.1 Online Banking Innovation and Customer Satisfaction

Online banking innovation is a breakthrough in banking innovative strategies. It has made it possible for bank clients to carry out various transactions at the convenience of their personal space. Firdous & Farooqi (2017) researched on online banking quality and the part it plays on

customer satisfaction in India. The intention was to evaluate the link between customer satisfaction and selected internet banking features. They deduced that service quality aspects of internet banking systems considerably affect customer satisfaction. He found out that privacy, efficiency and availability of the system largely contributed to the general customer satisfaction level in regard to internet banking. In Pakistan, Hussain (2023) sought to measure how contented clients were with online banking innovation. The aim was to explore the variables that assist in improving customer fulfillment on online banking users in Pakistan banks. The findings established that increased customer enlightenment and improved quality of online banking system significantly and favorably affects clients satisfaction.

In Sri Lanka, Hewarathna & Hettige (2023) researched on how online banking impacts customer satisfaction with the objective of examining the experience of users as well as quality of online banking systems in banking sector in Sri Lanka. It was established that the efficiency and responsiveness of internet banking systems significantly impacts how satisfied customers are, which is a great determinant on how the customers perceive and interact with systems. Ayinaddis et al (2023) in Ethiopia evaluated online banking standard and its role on customer experience with the intention of examining how mobile banking as well as internet banking quality affect customer satisfaction in Ethiopian banks. They concluded that when mobile and internet systems are available, reliable, fast and convenient customer satisfaction is greatly elevated. Mansour et al (2022) conducted a study on how technology adoption affects client's satisfaction in Jordan banks with the intention of establishing the key aspects that affect customers using online banking. He established that availability, accessibility, quality and interactivity of online banking systems improves customer satisfaction which consequently promotes customer retention resulting in the growth of the financial institution.

1.1.2 Card product Innovation and Customer satisfaction

Card product innovation incorporates debit, credit and prepaid cards. These innovative products have made it possible for customers to purchase goods and receive services without the need to carry physical cash ensuring convenience in payments. In Vietnam, Quan (2020) studied customer satisfaction level towards credit cards where he used tangibility, responsiveness, empathy, assurance and reliability as measures of service quality. It was concluded that all the dimensions reviewed have an influence on the satisfaction level of credit card users. Nzioki (2018) investigated the role of technology integration on delivery of consumer experience in Barclays Bank in Kenya. This was meant to examine how integration of selected technologies affects customer service delivery in the banking sector. He concluded that the use of electronic payments technologies such as debits and credit cards systems has significantly improved access to banking services to bank customers. This has enhanced customer satisfaction by enabling flexibility in making transactions. In India, Swarnalakshmi & Krishna (2023) researched on customer satisfaction in relation to debit cards usage where they sought to explore the impact of usage of debit cards on customer satisfaction. They established that high facilitating and service charges on debit cards result in lower customer satisfaction rate. They concluded that many people do not own the cards because they felt the service charges were high. High income earners use cards more than the lower income earners hence affecting the customer satisfaction rate, especially among the low-income earners leading to revenue loss for the bank due to non-usage.

1.1.3 Electronic Queue Management System and Customer Satisfaction

Queuing process is inevitable in banks and most of the essential service providers. EQMS is therefore a vital tool in management of queues in banking halls thereby streamlining the queuing process. Isiaho & Koech (2023) researched the link between process innovation such as Electronic

Queue Management Systems and performance of banks in Mombasa where they investigated how process innovation affect performance of selected banks in Mombasa. They concluded that EQMS has greatly reduced time spent on queues by customers thereby improving customer services efficiency. This has reduced customer complaints due to service delays thereby improving the level of customer satisfaction. Matelong (2019) conducted a research on technological change management and the impact on competitive edge on banks in Kenya aiming at establishing the influence of selected technological innovations on competitive advantage basing the study on banks in Nakuru Kenya. The research examined how online banking and EQMS affect commercial banks. It was established that online banking and EQMS systems significantly impact the competitive advantage of commercial banks through improved customer satisfaction.

1.1.3 Agency Banking Innovation and Customer Satisfaction

This is another milestone in innovations in the banking industry with a great influence on clients fulfillment. In Nigeria, Abdulkarim & Abubakar (2024) analysed the part played by bank agents' systems in influencing customer satisfaction in First Bank Yola. The objective was to examine how agency banking services effects on customer satisfaction. They found out that convenience of service, accessibility and customer service delivery by the agent influence the degree to which customers are satisfied. Tindi (2017) investigated role played by agency banking to achieve consumers satisfaction in Kenyan banks. This was meant to evaluate the role of bank agents in determining how satisfied bank customers are in Kenyan banking sector. He established that convenience, reliability and quality of bank agents positively impacts customer satisfaction in Kenya banks.

Kazeem (2021) researched on how agency banking services affect customer satisfaction in Nigeria banks with the objective of determining how services offered by bank agents affect customers

satisfaction and financial inclusion. He established that bank agency has significant effect on customer satisfaction. Agent services led to lower resources associated with obtaining bank services by reducing time taken to access banks as well as waiting time at banking halls. They offer service reliability and convenience to bank customers thereby boosting customer satisfaction. This promotes growth of the bank through increased coverage in remote areas and reduced branch congestion.

There are several issues that were not addressed by the other researchers. This study sought to address the research gaps on specific issues. Abdulkarim & Abubakar (2024); Firdous & Farooqi (2017); Hussain (2023); Hewarathna & Hettige (2023) & Ayinaddis et al (2023) studies were not based in Kenya therefore their conclusions cannot be generalized to the Kenyan banking environment. The studies did not establish how technological innovations affect customer satisfaction in Kenyan banking industry specifically KCB. The current study consequently sought to address the conceptual gap since the research will be based on the Kenyan banking industry. Tindi (2017) based the research on bank agents while Isiaho & Koech (2023); Nzioki (2018) & Matelong (2019) based their research on management staff of the banks. This research was, however, based on the customers' perspective and sought to address how the banks' customers feel and are affected by the innovations thereby sought to fill the contextual gap.

1.1.4 Overview of KCB Bank

KCB Group is a financial institution in Kenya which offers financial solution for its commercial and corporate clients. Apart from Kenyan market KCB has other subsidiaries outside Kenya; These include KCB Burundi, Uganda, Sudan, Rwanda and Tanzania. (Kenya Commercial Bank, 2024). KCB has undergone several changes in Management since inception. According to Kenya Commercial Bank (2024), after the Kenyan government gained ownership of the bankin 1970,

John Michuki was appointed by the late President Jomo Kenyatta as the chairman of the KCB board having formerly served as PS in the Ministry of Finance. P. B. Noble, the former National and Grindlays Bank Kenyan manager was appointed as the first General Manager. In 2001, KCB appointed Gareth George as its new Managing Director and CEO. In 2003 he was replaced by Terry Davidson. In 2007, Terry Davidson retired and was succeeded by Martin Oduor Otieno. Joshua Oigara took over from Martin Oduor from 2013 to 2022.KCB Group appointed Paul Russo in 2022 as its Chief Executive Officer who is the current CEO of the bank.

KCB has also evolved a great deal in terms of technological developments since inception. In 1896 when The National Bank of India (currently KCB) started operation in Kenya the technology used was manual weighing scales of different sizes with different weighing stones which was used to determine the amount of rupees. In 1968 the Bank installed its first main frame computer at their head office in Nairobi, which was the central server for all information from the branches in the country. The second mainframe was installed in 1971. At that time only computer operations which involved data entry were done locally. All other functionalities were conducted in Britain. Later in 1972 after the Government of Kenya acquired KCB, the bank installed its own Information Technology division based at Gigiri. In 1974, the bank acquired a computer system which had the ability to input and output data on a magnetic tape. In 1977 they installed two new mainframe computers to replace the previous mainframes which were worn out. (Kenya Bankers Association, 2023)

In 1994 KCB introduced the Swift System, which offered its customers a fast, economical and safer way of sending funds to other banks anywhere in the world. In 1995, the bank launched the internationally accepted KCB VISA Card. In 1999, the bank installed automated teller machines which assisted in reduction of congestion in banking halls. In August 2005, KCB partnered with

Western Union and was able to offer an international money transfer service from its branches countrywide. In 2015, in conjunction with Safaricom PLC, KCB M-PESA, a mobile based account was launched which enabled M-PESA customers to open accounts and borrow loans. This was meant to target the unbanked and customers unable to physically visit the bank for financial services During the year 5 million accounts were opened with transactions totaling to more than 259 billion shillings. (Kenya Commercial Bank, 2024)

In 2007, KCB made a major stride in technology when they launched an advanced core banking system. The platform enabled fast and efficient service delivery. It enabled real time connectivity among all KCB branches in the different countries. The interconnectivity enabled customers to be served at any KCB branch. In 2013 the bank launched KCB M-Benki, targeting the unbanked. The platform allowed remote opening of bank accounts by customers through their mobile phones without physical visit to the bank thus offering a paperless banking that was easy, quick and allowed instant access to all banking services. This revolutionary innovation drove the message of accessibility and convenience. (Kimutai, 2020). In September 2013, KCB rolled out the Electronic Queue Management Systems, (EQMS). The pilot EQMS was installed at KCB Moi Avenue branch and later rolled out to other major branches of the institution. This was aimed at enhancing their customer experience by creating an efficient way to manage the long queue experienced at the banking halls. (Business Daily, 2020).

1.2 Statement of the problem

The Kenyan banking industry has become highly competitive and increasingly digitalized. To remain relevant and gain competitive advantage in today's digital world, technological innovation has become one of the most crucial strategic approaches. KCB has introduced various forms of technological innovation in the recent past. The effects of the introduction and advancement of the

various technological innovations on customer satisfaction in KCB is uncertain. Consequently, the problem this study intended to address was to establish the relationship between strategic technological innovation in KCB and the level of customer contentment.

Various researchers have studied the topic of digital transformation in banking. Some research on the topic, however, concentrated on the effects of technological advancement with respect to service delivery. Sharma (2022) study focused on the degree of client fulfillment after computerization of operations in Indian banks in terms efficiency in service. He did not examine customers' perception in relation to the various technological innovations. Marei et al (2022) research was based on the connection between innovation and customer satisfaction in Jordan banks where the intervening variable was business performance. The above studies focused on service delivery but failed to address the perception of the customer in adopting technological innovations hence the research gap. Moreover, they were not carried out in the Kenya hence can't be generalized for the Kenyan environment due to difference in the macroeconomic environment. The current research therefore was meant to fill this conceptual gap.

Anusuya, (2023) used online survey restricted to a certain age group in Bangalore city in his study. The current study sought to address the methodology gap where the research used questionnaires and interviews and was not limited to an age group but factored representation of the population to include different age groups. Gathee (2018); Isiaho & Koech (2023) &Nzioki (2018) solicited opinions from employees. None of these studies conducted in Kenya based their conclusions on the perception of the customers hence the literature gap. These studies also relied on primary data collected from employees who are responsible for service delivery rather the customers who are the users of the systems. Hence, the current research was also meant to fill this gap and offer a

comprehensive study which focused on customers' perspective addressing the selected forms of technological innovation in KCB Bank in relation to customer satisfaction.

1.3 Study Objectives

1.3.1 General Objective

To analyse how strategic technological innovation influence customer satisfaction in KCB Bank, Nairobi.

1.3.2 Specific Objectives

These include:

i. To establish the effect of online banking innovation on customer satisfaction in KCB, Nairobi.
ii. To assess the role of card products innovation on customer satisfaction in KCB, Nairobi.
iii. To evaluate the effect of electronic queue management system on customer satisfaction in KCB, Nairobi.
iv. To investigate the influence of agency banking on customer satisfaction in KCB, Nairobi.

1.4 Research Hypotheses

i. **$H0_1$:** Online banking innovation has no significant effect on customer satisfaction in KCB, Nairobi?
ii. **$H0_2$:** Card products innovation has no significant influence on customer satisfaction in KCB, Nairobi?
iii. **$H0_3$:** Electronic queue management system has no significant influence on customer satisfaction in KCB, Nairobi?

iv. **$H0_4$:** Agency banking has no significant effect on customer satisfaction in KCB, Nairobi?

1.5 Significance of the Study

The outcome of this project would be beneficial to several stakeholders. They include the following:

1.5.1: Management of KCB

The management of KCB can use the findings for planning and decision making. It would help the management to make informed decisions on the direction to take in terms of technological innovation by understanding the challenges and improving the weak areas for improved customer satisfaction which translates to customer retention. The findings can also be used to identify the type of technological innovations that enhance customer satisfaction.

1.5.2 Other Commercial Banks

Decision makers from other commercial banks can apply the findings to make decisions on emerging innovative technologies to be implemented that have a beneficial effect on customer satisfaction.

1.5.3: Customers

The findings would help customers understand how the bank is aligned with the current technological advancement for efficient services. The customers will also be able to gain knowledge and insight on KCB innovative products.

1.5.4: Other Researchers

Other researchers will be able use this study's findings for reference. The study can provide additional literature sources when researching topics related to technological innovation and customer contentment in the banking environment.

1.6 Scope of the Study

This research sought to examine strategic innovative technologies on customer satisfaction in KCB. The study used online banking systems, card products innovation, agency banking and electronic queue management system (EQMS) as measures of technological innovations in KCB. Customer satisfaction was measured using Customer Retention Rate and Customer Loyalty. This study was based at KCB branches within Nairobi CBD which consisted of 10 branches. Krejcie & Morgan, (1970) table was applied to get a sample of 384 participants. The timeline for the study was 2 months.

1.7 Limitations of the Study

Low response rate was expected to be a limitation in the study due to respondents' schedule and availability. This was mitigated by physically handing and collecting the questionnaires from the participants. Another limitation was on confidentiality and privacy concerns by respondents. This was addressed by assuring the respondents anonymity. Respondents were also shown the letters of introduction from Mount Kenya University, Nairobi County Commissioner of Education, Nairobi County Commissioner as well as NACOSTI permitting the study thereby building the respondents confidence in providing required data.

1.8. Delimitations of the Study

The study was limited to KCB customers within Nairobi CBD. The researcher did not obtain information from other financial service providers such as other commercial banks, investment banks and microfinance institutions. The study was limited to one region that is Nairobi region specifically within the CBD. There are various factors influencing customer satisfaction; however, this study only focused on analysis of selected technological innovations that is online banking, card products innovation, EQMS system and agency banking in banking.

1.9. Assumptions of the Study

One of the assumptions was that the participants replied to the questionnaire honestly which reflected the correct perspectives without biased interests. Another assumption was that the study timeline was sufficient to acquire data from the respondents, analyze it and present. The study also assumed that the sampled population is appropriate and a true representation of the whole population.

1.10. Operational Definition of Key Terms

Customer Satisfaction: Positive frame of mind that customers have about an institution when the services and products offered meet and exceed the customers' desired requirements and expectations. In the case of KCB, this pertains to how well the products and services offered, specifically online banking, card products, EQMS systems and agency banking align with the customers' expectations and desire.

Technological Innovation: Technological Innovations in banking is the inception of new inventions that are meant to boost the effectiveness and efficiency of financial services offered to consumers. These include developing new banking services and products, exploitation of emerging technologies and application of novel business models and processes. In this case technological innovation involves introduction and improvements of bank systems and services such as agency banking, Electronic Queue Management System, card products innovation and online banking.

Electronic Queue Management System: It is a ticketing tool that is installed at the bank to help manage the customer's experience from arrival at the bank to the time they depart. It is used to call waiting customers from a queue to a cashier or service desk at the banking hall thus helping in management of queues.

Online Banking: Self-service capability which enables bank customers to carry out financial transactions such as cash transfers, bill payment, account opening, credit advances among other services online without visiting the bank. The processes can be done at the comfort of the customer's office or home using own computer or mobile phone through the internet or mobile application.

Agency Banking: This is a function regulated by the Central Bank of Kenya where authorized third-party retail businesses are contracted by the banks to offer financial services such as cash deposit and withdrawals, bill payments and account opening to its customers thereby offering alternative channel for banking. Agency banks in KCB are dubbed KCB Mtaani.

Card Products Innovation: These are products that involve authorizing, clearing and settling financial transactions using cards to obtain cash, purchase goods, payment of services or serve as cash wallet. These cards are debit, credit and prepaid cards.

Debit Card: This is a card that is linked to a cardholder's transactional or current account. When the card is used for cash withdrawal or purchases, funds are deducted directly from the card holders' linked account.

Credit Card: This is a revolving limit on a card where the bank allocates a preapproved limit amount to the card holder and can be utilized for purchases or cash withdrawal are repaid later at a fee. The card is not linked to any account. The bank provides monthly statements detailing the card usage and the required payment which the customer settles as per pre agreed arrangement.

Prepaid Card: This is a card issued by commercial banks to its customers and can be used as cash wallets. The customers must load the cards with money before they can be used for purchases. It enables the card holders to pay services and purchase goods using funds stored directly on the card instead of carrying cash. The card is not linked to any account.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Previously written material concerning how technological innovation affect customer satisfaction in KCB has been reviewed here. This would help to examine the existing knowledge about the study and to create a framework within which to interpret the research findings. Theoretical review is covered involving relevant theoretical literature on the objective of the study. Conceptual and theoretical frameworks are covered as well as the summary highlighting key issues raised.

2.1 Empirical Literature Review

This section covers existing written information relating to the selected technological innovations products and customer satisfaction in banking.

2.1.1 Online Banking and Customer Satisfaction

There has been a lot of research done around how online banking affects customer satisfaction. Karim & Mahmud (2018) investigated customer satisfaction in banking sector where they based their study on Janata Bank Limited in Bangladesh. The objective was to assess how contented clients were with online banking. They deduced that online banking systems are not fully satisfactory to the customers due to high service charges. He also concluded that customer satisfaction is highly dependent on efficient network systems and reduced service fees. Enoruwa et al (2023) examined technological innovations and its effect on bank performance in certain West African banks. The study focused on how mobile and internet banking services in West Africa affect the performance of the banks. They concluded that use of disruptive technologies such as online banking increase productivity and offers customers better services in terms convenience and overall standard of living thus improving the degree at which the customers are satisfied.

In India, Kaur et al (2021), researched on the risk of digital banking on how satisfied customers are. The purpose was to find out the risk factors associated with technological innovations such as online banking on client's satisfaction. Their results showed that the customers who interact with online banking platforms and happy with the quality of services offered by the system. Amudhan et al (2022) researched on introduction of adoption of digital banking on customers in rural areas with the purpose of examining the socio-economic features of the customers on adoption of digital banking where they sampled 300 rural customers using digital banking in Bangalore district. They concluded that rural customers of banks may have different attitudes towards digital banking from the urban customers since they face more difficulties in terms of service availability such as mobile network and internet services.

Sanayei & Noroozi (2020) explored the link between online banking systems and customer satisfaction in Iranian private banks. They used a quantitative research method based on the opinions of 280 online banking users. The study revealed that usability, user-friendliness, privacy and efficiency of online banking systems favorably influenced customer satisfaction with security features having the strongest impression. Yaseen & El Qirem (2018) explored how online banking efficiency and effectiveness affects the level at which customers are satisfied based on Jordanian banks. The research employed a survey-based method basing on a sample of 350 customers who frequently used online banking platforms. The conclusions indicated that online banking dimensions, for instance online banking platforms, privacy, responsiveness of the system, and customer support significantly impact customer satisfaction.

Al-Hawari & Ward (2017) assessed how automated service quality affect bank performance and customer satisfaction in Australian banks. They gathered data through structured questionnaires which were distributed to 400 banking customers who regularly used online platforms. Results

showed that reliability and responsiveness of the systems were strong predictors of customer contentment. This consequently had a substantial favorable impact on bank performance. Ayo et al (2018) used a sample of 150 respondents selected from different banks in Lagos to explore the how electronic banking systems affect how satisfied customers are in Nigeria's banks. The survey design method was used to examine responses of the participants. The association between client's contentment and e-banking services was examined by regression analysis. The results showed that, particularly among tech-savvy customers, efficient online banking services which included money transfers, bill payments, and account balance queries greatly increased customer satisfaction level. Mayanja et al (2022) studied advancements of Electronic Fund Transfers (EFT) and the contentment level by customers basing their study in Ugandan banks. The purpose was to establish whether Electronic Funds Transfer positively influences customers' contentment. The results showed that Electronic Funds Transfer positively influenced customer satisfaction. They concluded that EFT provides a secure, fast, reliable and convenient way of moving funds between different banks and accounts. Continuous improvements in EFT systems resulted in an improvement in the degree of clients' contentment and overall performance of the bank.

Kirima, (2019) studied the effect of digital banking on growth of KCB. From his research he established several problems associated with KCB online banking affecting customer satisfaction. Security issues was the major problem ranging from fraud to impersonation. Technical complexities and lack of skill and knowledge to operate the new systems was the second problem followed by the cost of transaction where consumers found it to be expensive. He noted that customers were dissatisfied as a result of these which reduced the uptake and usage of online banking. Failure to solve the problems, the bank risk losing revenues which is acquired from commission and fees from online banking users.

2.1.2 Card Products Innovation and Customer Satisfaction

Robert & Maheshwar. (2020) studied card innovation and user experience in Chennai with the objective of analyzing the perception of customers on use of credit card in Chennai, a city in India. They argued that banks should maintain a customer service department to resolve queries of their customers as well as enlighten them about all the available services, charges and fees which will improve customer contentment. They concluded that an increase is customer awareness on card products' innovation improves the level to which customers are satisfied. Kamar et al (2022) investigated the part played by credit card service quality on the degree of satisfaction for the card users with the aim of determining the degree of satisfaction among customers who were conducting card transactions. He established that the usage of self-services technology in banking environment is an effective way of enhancing quality of service and thereby ensuring customers are satisfied.

Singh & Arora (2017) investigated the role of plastic money innovations which included credit and debit cards in enhancing customer fulfilment in the Indian banks. Using survey method, data from 250 participants across urban centers was collected. The study employed factor analysis and regression to assess customer perceptions. The findings revealed that card product features such as convenience, security, and reward programs significantly influenced customer satisfaction. Sharma & Sharma (2019) explored the role of debit and credit card usage on how customers are satisfied based on information gained from selected banks in India. A sample consisting of 400 bank clients was surveyed. It was concluded that card acceptance, ease of transaction, cashback incentives, and EMV chip security features were positively associated with satisfaction. Private banks scored higher on innovative card offerings compared to public banks.

Anong & Routh (2022). researched consumers' perception on prepaid cards. The aim was to evaluate consumer perception on prepaid cards and whether owning a prepaid card influences the opening of a bank account. It was established that prepaid cards are increasingly recognized and accepted by customers as an alternative method as cash wallet. The main users were majorly the unbanked who constituted of mainly students and unemployed. Prepaid cards conveniences in regard to ease to carry around, more secure than carrying cash, anonymity and controls in terms of ease to control spending are among the factors that improve customer satisfaction. It was however noted that undisclosed fees imposed by the issuers such as cash withdrawal service charges and overdraft charges have a great adverse impact on customer satisfaction.

Osakwe et al (2021) examined the association between payment card innovations and customer contentment in Nigerian banking sector with the aim of establishing how selected card innovative features are perceived by customer. They used a sample of 275 consumers from five major banks. A Likert-based questionnaire measured satisfaction with various card features, such as biometric authentication, smart chip technology, and e-wallet integration. Findings from path analysis showed that innovative card features have a strong favourable effect on perceived reliability and customer satisfaction. The study recommended continuous innovation in card products to meet changing customer expectations.

Karthick (2021) explored client's preference and contentment concerning use of credit cards where he carried out research in Coimbatore city with the purpose of determining what features on credit cards the customers preferred and the level to which customer satisfaction is affected by credit cards cost, customer awareness on cards and service delivery by credit card providers. He established that credit card interest rate, penalties joining fees were reasonably priced in comparison with other bank product offerings thereby having a substantial positive effect on how

satisfied customers are. It was also concluded that customers do not have adequate information on credit cards, which affects the usage. Mbuthia & Datche, (2023) studied strategic technology innovation in relation to performance of Kenyan banks with the intention of exploring how customers perceive bank digital cards. They used a sample of 74 management staff of nine tier one banks in Kenya. It was established that debit cards provide customers an alternative to withdraw funds from any bank digital point thereby boosting customer satisfaction.

2.1.3 Electronic Queue Management System and Customer Satisfaction

Samarina et al (2021) researched on EQMS in commercial banks in in Russia during the condition of economy digitalization using graphic and comparative methods. The purpose was to analyse the effectiveness of EQMS in the banking environment. From the research he established that implementation of EQMS improves customer service standards of the banking network at all touch points as well as allowing management of customers flow which positively influences customer satisfaction. EQMS helps to lessen the wait-time for bank clients, thus improving the quality of services offered. Gimba et al (2020) studied Electronic Queue Management System in banking in Nigeria. The purpose was to examine existing approaches for queue management systems and how they affect customer satisfaction and develop an Electronic Queue Management System that is more flexible. It was concluded that an efficient Electronic Queue Management System should be flexible and ensure queues are efficiently managed, which improves customer satisfaction.

Kumbhar (2018) explored the role of various service quality dimensions, including queue management technologies on customer satisfaction with focus on Indian banking environment. The study highlighted that long wait times were among the top complaints of customers. With the implementation of electronic queuing systems, customers perceived a higher level of organizational efficiency and fairness in service provision, which significantly improved their

satisfaction. The study concluded that EQMS reduced psychological anxiety associated with waiting, thus enhancing the overall customer experience.

Abdullateef et al (2019) evaluated the role of electronic queue systems in enhancing customer satisfaction in Malaysian telecommunication service centers. Using structural equation modeling on data from 380 respondents, they found that perceived control over service time, transparency of waiting order, and information accuracy provided by EQMS were key determinants of satisfaction. The study concluded that customers felt more empowered and less neglected when they received timely updates through display screens and SMS alerts. Similarly, Aderibigbe & Ogunyemi (2020) investigated the implementation of EQMS in Nigerian commercial banks and its influence on customer satisfaction. The researchers collected primary data from 250 bank customers and found that banks that had adopted EQMS scored significantly higher in terms of customer ratings on timeliness, convenience, and fairness. The study also noted that it was more probable for customers using EQMS services to come back for future transactions and refer the bank to others thus underlining the importance of queue innovations in brand loyalty and retention. Abdulle (2021) evaluated role played by EQMS on Customer Service with the intention of identifying the role of EQMS in hospitals in Kenya where she based the study on Premier Hospital in Mombasa, Kenya She concluded that a reliable queue management system boosts customer satisfaction and influences other crucial aspects for the institution such as customer loyalty, positive or negative feedback. Odirichukwu et al (2018) researched on banking queue system in Nigeria with the purpose of identifying ways to minimize bank customers' wait time in queues through proper queue management. The research established that bank customers are not satisfied as a result of delays in service delivery while in bank. The bank management should educate their staff on the application of queuing models to assist and resolve customers' problems. Wamalwa,

Nyongesa & Chepkuto (2018) analyzed the connection between EQMS and the level of patient satisfaction in particular hospitals in Kenya. Their study, involving 300 patients from three public hospitals in Nairobi County, established that queue management systems improved the predictability of service delivery and reduced congestion in waiting areas. The study observed that patients perceived EQMS as a signal of institutional professionalism and respect for their time.

2.1.4 Agency Banking and Customer Satisfaction

Malek et al (2017) examined efficiency of agency banks on financial inclusion. The objective was to examine how effective bank agent are in achievement of financial inclusion in state owned banks in Malaysia. This involved 100 respondents from the banks who were selected using convenience sampling method. It was established that the use of bank agents results in increased customer base due to ease of accessibility to banking services as well as resulting in higher transaction volumes. The service experience of bank agents, their attitude and their principal business greatly affect how satisfied customers are thereby increasing the customer base. He also concluded that recruiting more bank agents ensures that customers in remote areas where there are no bank branches are able to conduct cash transactions without having to physically visit the bank. This in turn leads to an increased customer base and higher transaction volumes.

Al-afeef & Al-Harethi (2020) examined how agency banking affect customer satisfaction in rural Yemen, aiming to draw parallels with similar initiatives in other developing nations. The principal intention was to identify in what ways dimensions, for instance service reliability, agent behavior, availability of mobile-linked banking, and transaction accuracy influenced customer satisfaction in fragile and low-infrastructure environments. The researchers employed a quantitative design, surveying 280 agency banking users from remote villages. They established that there appears to be a solid favourable connection between agent reliability, professionalism, and customer

satisfaction. Respondents particularly valued the accessibility of agents and the integration of mobile banking services.

Osman et al (2023) carried out an empirical exploration on aspects influencing customer satisfaction in relation to agency banking aiming at assessing the level of customer experience with selected agency bank features in Bangladesh. This was based on 286 respondents. They concluded that quality of service, trust, convenience with respect to reduced time and effort to access financial services, accessibility, agents operating hours and security greatly affect customer satisfaction. Banks can improve customer satisfaction by improving service quality, trust, convenience and security relating to agent banks. The result also showed that transaction cost has insignificant role on how satisfied customers are with bank agents' operations in Bangladesh.

Kazeem (2021) examined the role played by agent bank operations on customer satisfaction in Nigerian Banks. The research examined the effect of agency services in terms of quality of service and how convenient and reliable the services are on customers' satisfaction and its effect on financial inclusion. This was based on a sample of 240 customers from Oyo state. It was established that agency banking is an important instrument for financial inclusion as well as for the economic growth of a given nation. Bank agents help in decongesting bank branches, increase access to areas with no branches thereby offering convenient financial services by reducing travel and wait time at banking halls since there is minimal queuing at bank agent terminals.

Mugambi & Imaita (2022) examined the role played by alternative banking avenues on clients satisfaction in KCB, Nairobi region with the purpose exploring how quality of service, readiness of staff and customers readiness in adoption of alternate banking channels such as agency banking affect how satisfied customers are in Kenyan banks. This targeted 4,500 bank employees and agents. The results revealed that the introduction of bank agents by banks has led to improvement

in efficiency, convenience as well as flexibility in conducting bank transactions. Alternative Banking Channels such as agency banking allows customers to have a range of options which are convenient and flexibility.

Ngugi et al (2017) assessed the influence of agency bank on the consumers satisfaction in Kenya, using Equity Bank customers in Nairobi. They aimed specifically to find out how accessibility, cost-effectiveness, service reliability, and convenience influence customers' perceptions of service quality through agency channels. This research was based on the responses of 200 Equity Bank consumers. It was revealed that bank agents significantly improved customer satisfaction, particularly through enhanced convenience and proximity to financial services. Aduda et al (2018) investigated the determinants of clients contentment with bank agents services offered by Kenyan commercial banks. This was aimed to explore how service reliability, turnaround time, agent behavior, and transaction security affect customer satisfaction. They based their study on 300 customers in Nairobi, Kisumu, and Mombasa. Results indicated that transaction turnaround time and agent professionalism were the most significant predictors of satisfaction. Additionally, customers reported high levels of trust in agents who provided secure and accurate services.

Ndirangu & Muturi (2018) evaluated how the introduction of bank agents impacts customer contentment focusing on Murang'a County. This was based on the rural and semi-urban populations within the county who traditionally faced barriers to formal financial services due to different varying factors. The principal intention was to identify how agency banking affected customers' perceptions of service efficiency, cost savings, and accessibility. Interviews were conducted on 250 bank customers and 30 bank agents. It was concluded that inclusion of agency banking significantly enhanced customer satisfaction by reducing travel costs and wait times in banking halls.

Mburu & Okello (2022) conducted a focused study on agency banking services in Mombasa County, focusing on customers of Co-operative Bank. This was meant to analyze how service attributes, that is, accessibility, agent behavior, transaction cost, and service speed, influence customer satisfaction. 150 participants were used to submit their opinions on the selected aspects. They concluded that accessibility and agent behavior were the most influential reasons determining how satisfied customers were, with customers expressing a high level of satisfaction when agents were available in convenient locations and demonstrated courteous, knowledgeable service.

2.1.5 Research Gap

From the sampled written information assessed, several research gaps were discovered which this study sought to address. Majority of the existing studies treat technological tools as isolated interventions - such as agency banking Aduda et al, (2018), card products Sharma & Sharma, (2019), or EQMS (Wamalwa et al, 2018) and very few have focused on broader strategic technological innovation. This narrow focus brings limitations of understanding how banks strategically integrate various technological innovations to enhance customer satisfaction. Moreover, customer satisfaction is often conceptualized using limited operational indicators such as convenience, service speed, or access (Ayo et al 2018).

Anusuya, (2023) in his research on customer contentment in the banking sector sought to determine customers' awareness on the technology incorporated by banks and whether they are educated on it. The research methodology used was online survey restricted to a certain age set in Bangalore city. The current study sought to address the methodology gap where the research will use questionnaires and interviews and will not be limited to age group but will factor representation of the population to include different age groups. Mbuthia & Datche (2023) focused on digital card

systems but failed to include other forms of card systems. The present research was meant to fill the literature gap and incorporate all forms of card products. Samarina et al (2021); Gimba et al (2020) & Odirichukwu et al (2018) failed to comprehensively establish the perception of the customers on adoption of EQMS system in the banking halls. The research methodology used was graphic and comparative. The current research addressed the methodology gap by administering questionnaires to participants in order to obtain an detailed review of how EQMS system affects customer satisfaction.

Mugambi & Imaita (2022) explored the role of alternative banking avenues on clients' satisfaction. The study was carried out on the employees' perspective and failed to include the input of the customers who are the users of the innovations, hence the literature gap. This study targeted to address the gap by involving end users who are KCB customers as the respondents for the purpose of identifying the effects of technological on customer satisfaction. Malek et al (2017) & Kazeem (2021) study was based in Malaysia and Nigeria respectively thereby the finding cannot be generalized to Kenyan banking environment. Additionally, the research was conducted on employees of the selected banks therefore the input of the customers was not obtained. The current study was meant to address that contextual gap. Osman et al (2023) study was restricted to bank agents in Bangladesh consequently the verdicts cannot be generalized. The present study was conducted on KCB customers based in Nairobi, Kenya and captured the customer's perception on KCB Mtaani agents.

2.2 Theoretical Review

Review of theoretical literature will be covered in this section. These are the theories that guided the research. The theories are Technology acceptance Model (TAM), Diffusion of Innovation theory (DOI) and Theory of Planned Behaviour (TPB)

2.2.1 Technology Acceptance Model (TAM)

This was developed by Davis (1986) where he explained that people's attitudes towards technology depend on perceived validity and reliability of the technology. People will most probably adopt and use a specific technology if believe in its usability. The choice of a person to accept and use technology will depend on their evaluation of its desirability. These factors are determined by external variables that could be either cultural, political or social. The more useful customers perceive technology such as online banking, card products, EQMS among other technologically innovative products and services, the higher the level of adoption and usage. Figure 1 shows TAM constructs.

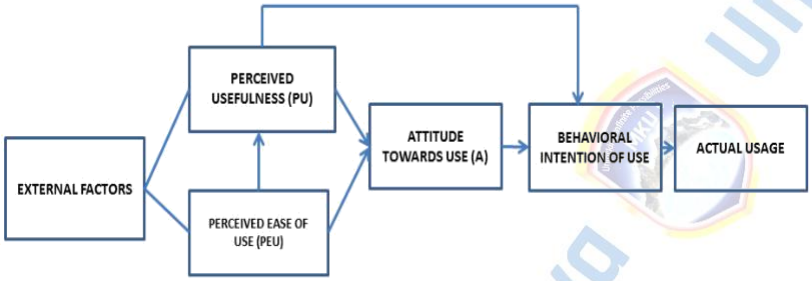


Figure 1: TAM Constructs

Source: Davis (1989)

TAM was applicable in this study since it helped understand customers perception of technological innovation such as card product innovation which affects usage. It helped to explain the adoption or resistance to technological innovations due to their perception of the technology which in the long run affects customer satisfaction.

2.2.2 Diffusion of Innovation (DOI) Theory

DOI was popularized by Rodgers (1962). It describes the passage of a novel idea or product where new technologies are not adopted by the population at once but spread gradually through the social system over time and gains momentum. According to DOI, People are grouped into 5 categories

with respect to their general attitude. The first group being innovators who adopt technology immediately. The second group consists of early adopters who are often opinion leaders. Majority of people fall in the groups of the early majority and late majority. The final cluster consists of the laggards who have the tendency of being to be doubtful about adopting novel ideas and technology. Banks that are at the forefront in adopting technology (innovators) tend to be preferred by customers thereby improving customer contentment.

DOI has been commonly employed by scholars in investigating people's attitudes and behaviours in adopting new technologies. This theory was selected for the study since it helps in explaining how online banking innovation is adopted by the different categories of customers because its success or failure impact customer satisfaction. It helps in understanding how the various technological innovations are adopted and spread among its customers.

2.2.3 Theory of Planned Behaviour (TBP)

This theory was a development made by Ajzen (1991). It describes the relationship between people's intention and behaviours. Based on the theory, a person's attitude to implement a certain behaviour determines their actual action. The stronger their intention to execute a behaviour, the higher the probability that they will perform it. According to TPB, intentions are influenced by three factors; personal attitude towards a particular behaviour either positive or negative, subjective norms which involves the views of others regarding a certain behaviour and perceived behaviour control which is the extent to which one believes they can control their behavior in terms of our own ability. The theory is useful in this research since it assists in explaining the relationship between the attitude of bank customers and how it affects their acceptance and use of technological innovations. It helps explain how customers' attitudes towards the use of online banking and card

products and subjective norms towards agency banking will determine whether they will embrace and use technological innovations or not.

2.3 Conceptual Framework

This research was based on the below conceptual framework highlighting the relationship between the various technological innovations (online banking systems, card products innovation, EQMS and agency banking) and customer satisfaction.

Independent Variable

Technological Innovation

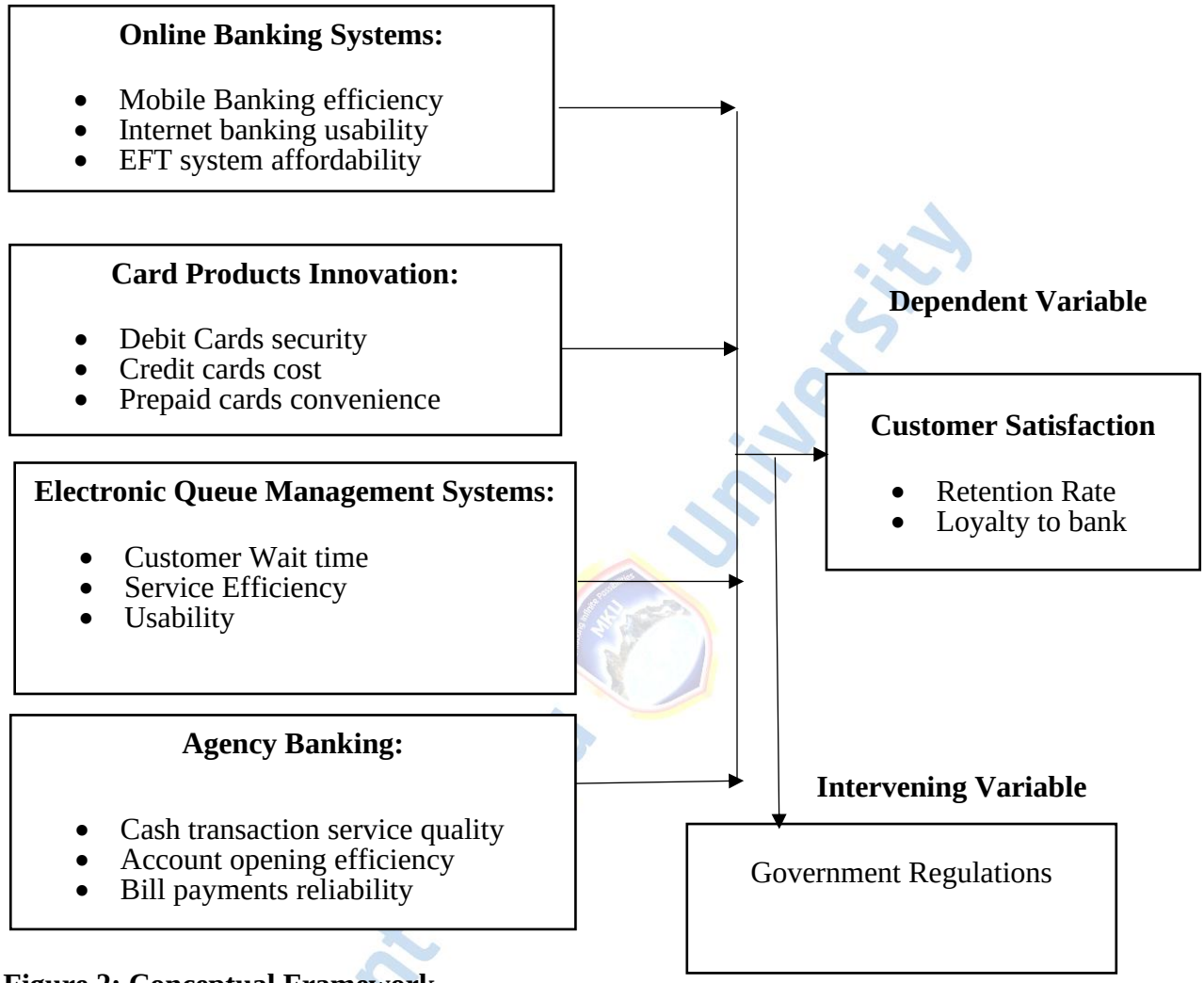


Figure 2: Conceptual Framework

Source: Researcher, 2025

2.4 Summary

This chapter has assessed written material relating to the research topic. Theoretical literature on technological innovation and customer satisfaction was reviewed followed by empirical review of literature on the study topic. Research gaps were also discussed and finally theoretical and conceptual frameworks outlined.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The section contains the research design, the site of the research and the totality of people that was targeted. Sampling procedure applied and how the sample population was obtained is also covered. In addition, data collection methods, analysis techniques as well as ethical principles adhered to is also covered.

3.1 Research Methodology

This is a systematic technique of how the study was carried out. It involves the techniques by which the researcher conducts the work through description, explanation and prediction of phenomena by giving the work plan of research. (Skeekumar, 2023). In this study, quantitative methodology was applied in addressing research objectives. Primary data was collected and analyzed to measure how technological innovations influence customer satisfaction in KCB.

3.2 Research Design

Leedy & Ormrod (2015) defined research design as a plan for a study, which provides the whole framework for data collection and analysis which allows the researcher to test hypotheses. This research was descriptive cross-sectional study since data was gathered from different participants at a moment. The aim was investigating the impact of strategic technological innovations which are online banking, card products innovation, EQMS systems and agency banking on customer satisfaction within the Kenyan banking environment with focus on KCB.

3.3 Research Location

The research was based in Nairobi CBD with participants being KCB business and personal customers from 10 branches in the CBD. The location was selected due to the high traffic and

heterogeneity of customers within the city thereby obtaining wide range of participants. This enables efficient research. The duration of the study was 2 months.

3.4 Target Population

Cooper & Schnider (2005) defined target population as the totality of people who the researcher intends to explore. The target people in this case was the entire customer base of the 10 KCB branches within Nairobi CBD. According to Kenya Commercial Bank (2024), the total number of customers for the 10 branches is estimated at 320,642 as demonstrated below:

Table 1 : Target Population

KCB Branch	Total Population
Biashara Street Branch	11,300
Garden Plaza Branch	10,264
Haille Sellassie Branch	10,186
KICC Branch	12,764
Kimathi Street Branch	23,118
Kipande House Branch	34,933
Moi Avenue Branch	150,849
River Road Branch	19,407
Tom Mboya Branch	27,399
University Way Branch	20,422
Total	**320,642**

Source: Researcher, 2025

3.5 Sampling Procedures and Sample Size

Total population from which a sample was obtained included the entire customers of the 10 KCB branches within Nairobi CBD totaling to 320,642. Kothari (2010) stated that proportional stratification technique is applied while allocating samples to heterogeneous strata in order to arrive at a sample that is proportional to the population in the strata. The 10 KCB branches are heterogeneous, having different customer demographics, needs, branch size and operations therefore the formula is essential in assigning sample sizes per strata for the KCB branches. Krejcie & Morgan, (1970) came up with a formula used to calculate sample sizes that was published. The formular can be used to estimate sample sizes (appendix IX). Using the table, a total population of 320,642 corresponds with 384 respondents.

The sample size obtained (384 customers) was distributed to the branches of KCB in CBD in proportion to the customer base per branch. Sukhatme *et al* (1984) formula was applied to calculate sample sizes for each KCB branch in Nairobi CBD as below:

$$P_m = \frac{Nm}{N} \times h$$

Whereby:

P_m is branch sample size

Nm is Branch population size,

N is total population

h is sample size

Table 2: Sample Size

KCB Branch	Target Population	Sample Size
Biashara Street	11,300	14
Garden Plaza	10,264	12
Haille Sellassie	10,186	12
KICC	12,764	15
Kimathi Street	23,118	28
Kipande House	34,933	42
Moi Avenue	150,849	181
River Road	19,407	23
Tom Mboya	27,399	33
University Way	20,422	24
Total	**320,642**	**n = 384**

Source: Researcher, 2025

3.7 Testing for Validity and Reliability

These were used to measure the quality of research. Reliability evaluated consistency while validity evaluated the accuracy of the research method. This research applied Cronbach's alpha coefficient method to assess reliability. Content validity was applied to determine if the questions in the questionnaire covers all relevant parts of the topics and to guarantee that the questionnaire items satisfactorily captured the intended constructs. In this case, six experts were involved in the review in order to establish if the contents in the questionnaire was appropriate for measurement of how strategic technological innovation affect customer satisfaction.

3.8 Data Collection Methods and Procedure

Primary data was obtained from clients of KCB branches located at Nairobi CBD. This was done by issuing questionnaires to the participants. The questions consisted of a set of pre-determined five pointer Likert scale questions for the close ended questions and open ended questions. The items were appropriately structured on the basis of research objectives. Interviews were also administered in order to obtain detailed responses to the research topic.

3.9 Data Analysis Techniques

Descriptive statistics including mean, frequencies and percentages were applied for the analysis of quantitative data. Descriptive method is relevant since the researcher is able to describe characteristics of both the study elements as well as the results data. Statistical package for social sciences (SPSS) was applied in analyzing the data. To elaborate relationship between the variables, both regression and correlation analysis were used. Tables, figures and pie charts were used in presenting the data from the results and findings. To be able to analysis the strength of the dependent variables and the independent variable and determine the statistical significance, the below regression analysis model was adopted:

$Y= \beta 0+ \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mathscr{E}$

Whereby:

Y= Customer Satisfaction

$\beta 0$ = Intercept

β_1, β_2, β_3 and β_4 = coefficient functions,

X_1= Online Banking Innovation

X_2= Card Products Innovation

X_3= EQMS

X_4= Agency Banking

$\mathscr{E}$ = the error component

3.10 Ethical Considerations

Before beginning the study, permission was secured from KCB. Moreover, the University issued an authorization letter detailing the intention of the research to the participants before involving them in the research process. This ensured authentication of the research process. When engaging the respondents, they were guaranteed confidentiality. In addition, they were advised that involvement was voluntary and were allowed to withdraw at their own will without any repercussion. They were also notified that the information will be used for study reasons only. Letters and permission were obtained from the relevant authorities which included graduate school, NACOSTI, County Director of Education and County Commissioner. During data analysis, accuracy in analysis and reporting was observed. When analyzing and presenting data, the researcher ensured that findings were reported truthfully as presented by the participants. All secondary data used during the research were acknowledged by citing all sources utilized.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

The section comprises of the evaluation of the data that was obtained, its presentation and finally interpretation of the outcomes. The research findings sought to assess the link between strategic technological innovation and customer satisfaction in KCB, Nairobi Region.

4.1 Response Rate

384 questionnaires were issued to solicit required information. From those issued, 323 were fully completed and valid. This is translated to a response rate of 84% which is a sensible level as presented in table 3.

Table 3: Response Rate

Participants	Figure
Number of questionnaires distributed	384
Number of questionnaires gotten back	323
Response level (%)	84

Source: Researcher, 2025

4.2 Validity Test

This is the test of the level of accuracy that the research tool assesses what it is supposed to assess. The study adopted face validity, content validity, and construct of the questionnaire.

4.2.1 Face Validity Test Results

Face validity for the questionnaire was evaluated by the researcher's supervisor who gave her comments and were factored in the questionnaire development.

4.2.2 Content Validity Test Results

This was established using expert review to guarantee that the questionnaire items satisfactorily captured the intended constructs. Six experts were involved in the review. To quantify content validity, two indices were applied: the Scale-Level Content Validity Index based on the Average Method (S-CVI/Ave) and the Universal Agreement Method (S-CVI/UA). The S-CVI/Ave represents the average proportion of items rated as relevant by experts, while the S-CVI/UA reflects the proportion of items for which all experts unanimously agreed on relevance. According to Polit and Beck (2006), an item-level CVI (I-CVI) of 0.78 or higher is considered acceptable, and an S-CVI/Ave of 0.90 or above indicates strong overall content validity. The feedback provided by experts was incorporated to refine the questionnaire before its administration in the main study.

Table 4: Content Validity Index Scores

Construct	S-CVI/Ave	S-CVI/UA
Online banking innovation	0.789	0.83
Card products innovation	0.802	0.72
Electronic queue management system	0.786	0.69
Agency banking	0.790	0.91
Customer satisfaction	0.763	0.87

Source: Researcher, 2025

The results indicate the content validity indices for the various constructs measured in the study. Online banking innovation demonstrated a strong content validity, with an average scale-level content validity index (S-CVI/Ave) of 0.789 and a universal agreement (S-CVI/UA) of 0.83, suggesting good expert consensus on its relevance. Card products innovation showed slightly

higher average validity at 0.802 but a lower universal agreement of 0.72, indicating some variability among experts regarding the uniform relevance of items within this construct. Electronic queue management system had an S-CVI/Ave of 0.786 and a relatively lower S-CVI/UA of 0.69, implying that while the overall relevance was acceptable, fewer items achieved unanimous agreement among experts. Agency banking stood out with a balanced and high validity, having an S-CVI/Ave of 0.790 and the highest S-CVI/UA at 0.91, reflecting strong expert agreement on the clarity and importance of its measurement items. Lastly, the customer satisfaction showed a slightly lower average content validity of 0.763 but a high universal agreement of 0.87, indicating consistent expert endorsement despite a marginally lower average score. Overall, these results reflect generally acceptable content validity across all constructs, with card products innovation showing the strongest expert consensus.

4.3 Reliability Test

This was achieved by employing Cronbach's alpha coefficient. The Cronbach's index threshold adopted is 0.7 as noted by Aniruddha (2020). The findings are illustrated in the below tables.

Table 5: Reliability Results

Variable	Cronbach's Alpha	Items
Online banking innovation	0.811	5
Card products innovation	0.734	4
Electronic queue management system	0.762	3
Agency banking	0.760	4
Customer satisfaction	0.718	4

Source: Researcher, 2025

The reliability analysis results shown in Table 5 signify that all study variables reveal acceptable internal consistency. Specifically, online banking innovation indicates the best reliability having an alpha of 0.811. Agency banking and electronic queue management system also show good reliability, having alpha values of 0.760 nd 0.762 respectively. Card products innovation and customer satisfaction variables registered a lower reliability which are, however, within the acceptable reliability scores of 0.734 and 0.718 respectively. Overall, the results imply that the questionnaire items for each variable are consistently measuring their respective constructs and are suitable for further analysis (Aniruddha, 2020).

4.4 Demographic Information

In this research, the demographic data comprised of the respondents' gender, age bracket, period the respondent has banked with KCB, and the account type held. This is important in understanding the different customer segments based on their different unique demographic features.

4.4.1 Gender

It is evident that gender was relatively balanced in this research between male and female respondents thereby capturing perceptions of both genders. Out of the 323 respondents, 178 responded to be male translating to 55% while 145 indicated as female at 45%. This is illustrated in Figure 2 below

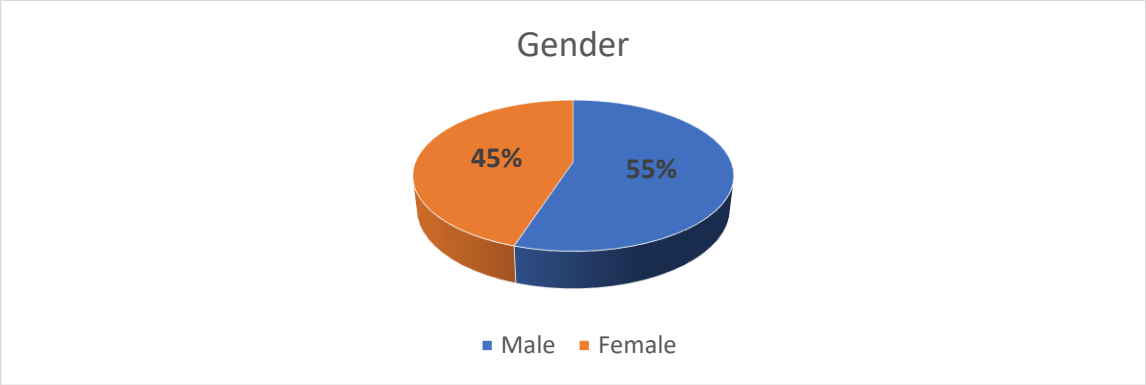


Figure 3: Respondents' Gender

Source: Researcher, 2025

4.4.2 Age Bracket

In this study, 5 age brackets were used to determine the category under which the respondents fell in terms of their ages. This is important since that different age brackets have different preferences and perception. All the age groups were represented. From the data, Under 25 years comprised of 23%, the majority at 33% indicated to be fall on ages 25-34 years, 21% indicated to be fall in ages 35-44 years while 18% indicated to fall under ages 45-54 years. The least number was respondents above 54 years old who were at 5%. These has been illustrated in figure 3 below:

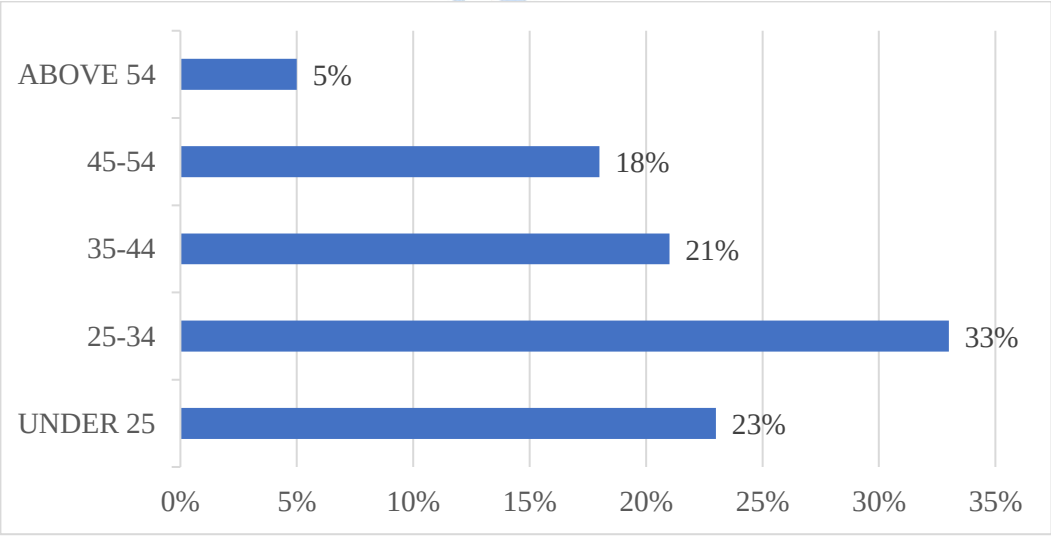


Figure 4: Respondents' Age Bracket

Source: Researcher, 2025

4.4.3 Period Banked with KCB

The period banked with KCB was measured in order to establish banking experience of the respondents with the organization, which can also indicate customer loyalty to KCB. Highest number of the respondents responded that they have banked with KCB for over 10 years at 32% while the least number was those who has banked between 2 to 4 years at 10%. Those who has banked between 8-10 years were 22% and 20% for those who have banked between 5 to 7 years. The respondents who have banked for less than 2 years were at 15%. This is illustrated in Figure 4 below:

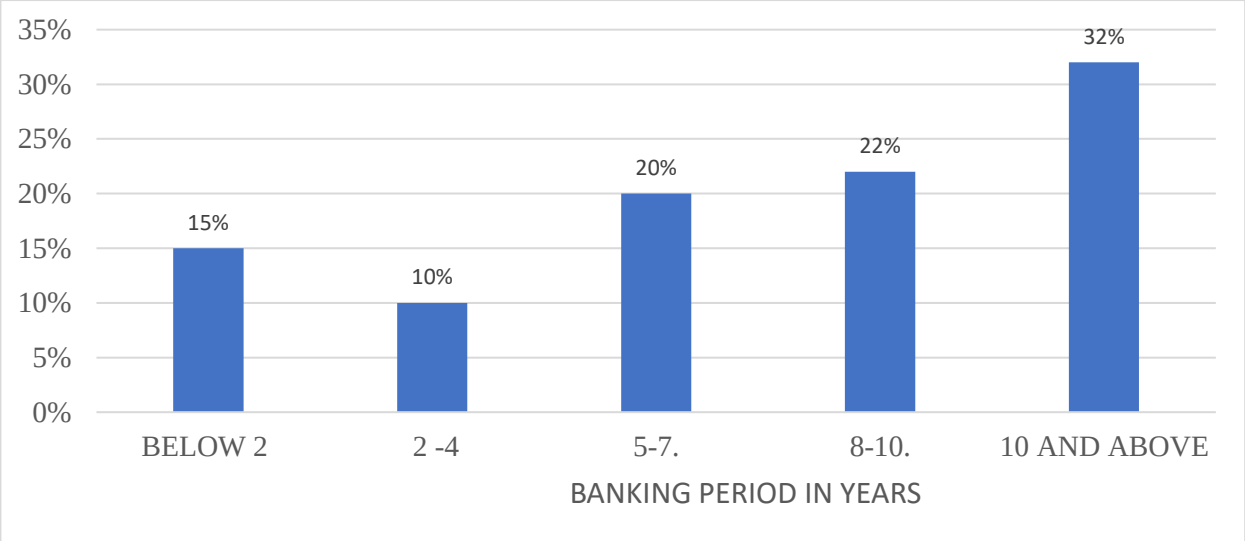


Figure 5: Respondents' period banking with KCB

Source: Researcher, 2025

4.4.4 Account Type with KCB

The respondents were asked about the account type held in KCB in order to establish the segment of customers in KCB. Majority of the respondents held personal account with KCB at 42% while respondents with business accounts were at 33%. Respondents with both personal and business account were 25% of the total as shown in Figure 5 below:

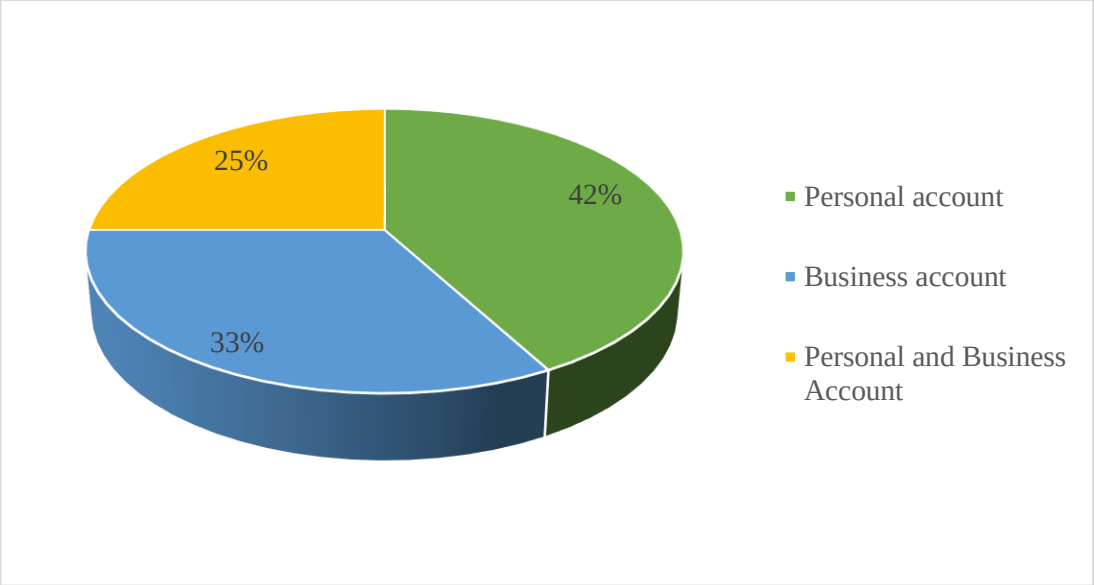


Figure 6: Respondents' KCB account type

Source: Researcher, 2025

4.5 Descriptive Results

The outcomes of the descriptive analysis for the research variables (Online Banking Innovation, Card products Innovation, Electronic Queue Management System and Agency Banking) are presented in this section. Five-point Likert scale was used where 1 demoted strongly disagree and 5 denoted strongly agree.

4.5.1 Online Banking Innovation

The first objective was to establish the level at which online banking systems influence customer satisfaction at KCB Bank. To complete this objective, the participants needed to specify their level at which they were satisfied with the selected online banking innovations.

Table 6: Online Banking Innovation Descriptive Results

	Mean	Std. Deviation
I frequently use KCB mobile banking app since it is friendly and easy to use	4.92	.269
Online banking channels downtime are promptly resolved	3.26	.712
I'm satisfied with KCB internet banking platform since it's easy to navigate through	4.51	.642
I am happy with the security measures taken by KCB when transacting on internet banking.	4.75	.528
Transaction charges for conducting Electronic Funds Transfer in KCB are reasonable	4.44	.323

Source: Researcher, 2025

The descriptive results on online banking innovation at KCB indicate a generally high level of customer satisfaction which represented the highest measure of agreement on online banking innovation. Respondents agreed that they frequently use the KCB mobile banking application due to its user-friendly interface, with a mean score of 4.92. This aligns with conclusions by Enoruwa et al (2023), who identified that usability is a major aspect influencing contentment with online banking services. Further, customers expressed high contentment with the internet banking platform's ease of navigation, evident by a mean of 4.51. They were also in agreement that security measures in online transactions taken by the bank in online transactions (Mean = 4.75). This finding supports Reddy & Megharaja (2021) who found that perceived security fosters trust and

continued usage in digital financial services. In terms of transaction costs, respondents agreed that the charges for electronic fund transfers are reasonable, indicated by a mean of 4.44.

4.5.2 Card Products Innovation

The second objective sought to determine the level at which card products innovation influences customer satisfaction at KCB Bank. The participants needed to specify their level at which they were satisfied with the selected features of card products innovation. The conclusions are shown in Table 7.

Table 7: Card Products Innovation Descriptive Results

	Mean	Std. Deviation
I trust my KCB debit card security features for the safety of my money in terms of fraud protection	3.24	.604
Monetary benefits of using KCB credit card (cash advance, goods payments) outweighs the costs of owning your card (commissions, charges and fees)	3.63	.471
Use of KCB prepaid cards has made online purchase of goods and services easier and convenient.	4.89	.203
I prefer to using KCB cards products when making payments for purchase for goods or services to cash?	4.13	.827

Source: Researcher, 2025

Going by the findings, the highest measure of contentment with regard to card products innovation was the convenience of prepaid card for online transaction with a mean of 4.89 and standard

deviation of 0.203. It is also clear that the respondents were indifferent that KCB credit card benefits outweigh the associated costs, evident with a mean of 3.63 and a SD of 0.471. The lowest measure was on contentment with security features on debit card where they indicated indifference in terms of adequacy of KCB debit card security features in protecting against fraud, evident with a mean of 3.24 and standard deviation of 0.604. At the same time, there was very strong agreement that the use of KCB prepaid cards has made online purchases easier and more convenient, evident by a high mean of 4.89 and a standard deviation of 0.203. Additionally, they agreed that they prefer KCB card products over cash when making payments, indicated by mean of 4.13 and a standard deviation of 0.827. These conclusions are consistent with Quan (2020) & Karthick (2021) who found that card products are widely accepted due to their convenience, particularly in online transactions and cost effectiveness thereby improving customer satisfaction level.

4.5.3 Electronic Queue Management System (EQMS)

The third objective was to establish the level at which Electronic Queue Management System influences customer satisfaction at KCB Bank. The participants needed to specify their level at which they were satisfied with the selected features of Electronic Queue Management System. The conclusions are as tabulated in Table 8.

Table 8: Electronic Queue Management System Descriptive Results

	Mean	Std. Deviation
I'm happy with KCB EQMS since it has resulted in reduced wait time in the banking hall before being served.	4.19	.358
I am satisfied with KCB EQMS since it maintains queue with order and efficiency	4.93	.236
I am satisfied with KCB EQMS hardware since it is easy to operate	4.86	.249

Source: Researcher, 2025

From the above table, the highest measure was that KCB's Electronic Queue Management System maintains queue order and enhances efficiency, as evident by a high mean of 4.93 and a standard deviation of 0.236. Equally, there was strong agreement that the EQMS hardware is easy to operate, with a mean of 4.86 and a standard deviation of 0.249, suggesting users find the system user-friendly and accessible. Respondents also agreed that the EQMS has helped reduce wait times in banking halls, evident with mean of 4.19 and standard deviation of 0.358 though this was the lowest measure. These conclusions affirm the findings of Matelong (2019) & Samarina et al (2021) who emphasized that electronic queue systems improve service delivery by improving operational flow thereby reducing customer frustration. Ease of using EQMS hardware further supports the work of Isiaho & Koech (2023) who noted that the usability of service technology influences customer satisfaction in banking environments.

4.5.4 KCB Agency Banking

The fourth objective was to establish the level at which KCB Agency Banking influences customer satisfaction at KCB Bank. The participants needed to specify their level at which they were satisfied with the selected features of KCB Agency Banking. The conclusions were tabulated in Table 9 as shown.

Table 9: Agency Banking Descriptive Results

	Mean	Std. Deviation
KCB agents always have enough float whenever I require cash deposit and withdrawal services	2.68	.314
I am contented with account opening process at KCB agents because it is efficient	3.11	.203
I find it easy to pay my utility bills such as KRA, SHIF through KCB agents	3.56	.487
KCB Agents are easily accessible whenever I need to transact	2.18	.209

Source: Researcher, 2025

According to the results, the lowest measure on contentment with agency banking innovation was on KCB agents accessibility where a high number of customers failed to agree with the declaration that KCB agents are easily accessible when needed, evident by a mean of 2.18 and a standard deviation of 0.209. Similarly, participants failed to agree with the statement regarding the availability of sufficient float for cash deposits and withdrawals at KCB agents, with a mean of 2.68 and a standard deviation of 0. 314.Participants showed indifferent regarding efficiency of

account opening process at KCB Mtaani agents, as reflected by a mean of 3.11 and a standard deviation of 0.203. The highest measure was on ease to pay utility bills via agents where there was a slight agreement that paying utility bills such as KRA and SHIF through KCB agents is easy, evident by a mean of 3.56 and a standard deviation of 0.487. These conclusions align with Tindi (2017) who observed that the success of agency banking heavily depends on agent reliability, liquidity, and accessibility. The challenges reported regarding agent float and availability echo the concerns raised by Osman et al (2023) who highlighted that poor agent network support and cash shortages undermine customer satisfaction and confidence in agency banking.

4.5.5 Customer Satisfaction

The participants needed to specify their level at which they were satisfied with the selected features of customer satisfaction. The outcomes are as illustrated in Table 10 below.

Table 10: Customer Satisfaction

	Mean	Std. Deviation
I'm satisfied with KCB innovative products and services since the banks has constantly improved their innovative products that suit my financial needs	4.36	.751
I refer KCB to my friends and family because of the innovative products & services	3.97	.445
I am likely to maintain KCB as my main banker due to the innovative products and services	4.80	.412
KCB promotes feedback from customers on technological innovations and address concerns raised	3.18	1.067

Source: Researcher, 2025

The findings as illustrated show that the highest measure was on agreement with the maintenance of KCB as main bankers where the respondents agreed that they are likely to maintain KCB as their main banker due to its innovative features, evident with mean of 4.80 with standard deviation of 0.412. Similarly, they showed agreement that KCB has continually improved its innovative offerings to meet customers' financial needs, evident by a mean of 4.36 with a standard deviation of 0.751. The participants were equally agreeable that they would refer KCB to friends and family because of its innovative services, evident with mean of 3.97 and standard deviation of 0.445. Despite that, there was only moderate agreement on whether KCB promotes and addresses customer feedback regarding technological innovations, evident by mean of 3.18 with standard deviation of 1.067 which was the lower measure under customer satisfaction. The conclusions

align with the conclusions by Agolla et al (2018) & Vergallo & Mainetti (2022), who established that sustained technological innovation enhances customer satisfaction, loyalty, as well as referrals in the banking sector.

4.6 Correlation Analysis

Pearson Product Moments correlation was applied to evaluate the link between strategic technology innovation and customer satisfaction. This was carried out at 95% confidence interval and 5% 2-tailed significance level. The correlation matrix between the study variables is tabulated in Table 11 below.

Table 11: Correlation Analysis Results

		Online banking innovation	Card products innovation	Electronic queue management system	Agency banking	Customer satisfaction
Online banking innovation	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	323				
Card products innovation	Pearson Correlation	.121**	1			
	Sig. (2-tailed)	.000				
	N	323	323			
Electronic queue management system	Pearson Correlation	.055**	.208**	1		
	Sig. (2-tailed)	.043	.029			
	N	323	323	323		
Agency banking	Pearson Correlation	.098**	.042**	.243**	1	
	Sig. (2-tailed)	.017	.005	.020		
	N	323	323	323	323	
Customer satisfaction	Pearson Correlation	.498**	.321**	.269**	.212	1
	Sig. (2-tailed)	.000	.002	.000	.000	
	N	323	323	323	323	323

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher, 2025

The correlation analysis shows that online banking innovation is favourably and significantly correlated with customer satisfaction ($r = .498$, $p < .05$), implying that online banking platforms, strongly influence customer satisfaction at KCB. Card products innovation also shows a significant positive correlation with customer satisfaction ($r = .321$, $p < .05$), implying that innovations in debit, credit, and prepaid card services contribute meaningfully to customer satisfaction. This aligns with findings by Kamar et al (2022) & Anusuya, (2023) who noted that innovative and convenient card solutions increase customer engagement and loyalty.

A positive and significant correlation is also observed between the electronic queue management system and customer satisfaction ($r = .269$, $p < .05$), suggesting that efficient queue handling systems improve service experience in physical banking halls, leading to higher satisfaction. This supports Gimba et al (2020) who found that queue automation enhances customer perceptions of service quality. Agency banking shows a weak but positive correlation with customer satisfaction ($r = .212$, $p < .05$). This is supported by Osman et al (2023) who stressed on the need for improved agent support and infrastructure.

4.7 Multiple Regression Analysis

The regression analysis findings tabulated in Table 12 show the relationship between strategic technology innovation and customer satisfaction.

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.789[a]	.623	.595	.41056

a. Predictors: (Constant), Electronic queue management system, agency banking, online banking innovation, card products innovation

b. Dependent Variable: Customer satisfaction

Source: Researcher, 2025

Model summary findings in Table 12 demonstrate that the correlation coefficient (R = .789) signifies a strong positive relationship between the combined strategic technological innovations and customer satisfaction in KCB. The R^2 value of 0.623 signifies that about 62.3% of the variation in customer satisfaction can be outlined by the four independent variables included in the model. These findings suggest that the model has a good fit and effectively explains the relationship between customer satisfaction and strategic technological innovation. The results are consistent with studies of Ameme & Wireko (2018) where he established that digital innovation strategies significantly boost the level at which customers are satisfied resulting in customer retention.

Table 13: Analysis of Variance Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.649	4	5.412	132.0	.000[b]
	Residual	13.081	318	.041		
	Total	34.730	322			

a. Dependent Variable: Customer satisfaction

b. Predictors: (Constant), Electronic queue management system, agency banking, online banking innovation, Card products innovation

Source: Researcher, 2025

The ANOVA results reveal an F-value of 132.0 with a significance level of p = .000, implying that the model is statistically significant at the 0.00 level. This implies that the combined effect of online banking innovation, card products innovation, electronic queue management system, and agency banking significantly predicts customer satisfaction at KCB.

Table 14: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.206	.596		3.701	.000
	Online banking innovation	.476	.194	.191	2.454	.013
	Card products innovation	.318	.152	.207	2.092	.024
	Electronic queue management system	.246	.091	.118	2.703	.002
	Agency banking	.229	.087	.113	2.632	.008

a. Dependent Variable: Customer satisfaction

Source: Researcher, 2025

From Table 14, the optimal model is:

$$\mathbf{Y = 2.206 + 0.476X_1 + 0.318X_2 + 0.246X_3 + 0.229X_4}$$

The regression model indicates that customer satisfaction at KCB would be 2.206, provided that all other factors are held constant at zero. Moreover, in the regression model, it is indicated that a unit increase in online banking innovation ideally results in an elevation in customer satisfaction by 0.476. A unit increase in card products innovation result in an elevation in customer satisfaction by 0.318. Additionally, a unit increase in the electronic queue management system result in an elevation in customer satisfaction by 0.246, while a unit increase in agency banking would increase customer satisfaction by 0.229. The predictors all had significance levels of 0.05 and below, indicating that each of the independent variables - online banking innovation, card products

innovation, electronic queue management system, and agency banking - is a statistically significant predictor of customer satisfaction at KCB.

4.8 Discussion of Key Findings

The study was meant to analyse the strategic technological innovation and customer satisfaction at KCB Bank in Nairobi. The foremost purpose was to establish the effect of online banking innovation on customer satisfaction. The regression analysis results confirm that online banking innovation pose a positive and statistically significant effect on customer satisfaction ($\beta = 0.191$, $t = 2.454$, $p = 0.013$). Since the p-value (0.013) is less than the significance level ($\alpha = 0.05$), the null hypothesis that online banking innovation has no significant effect on customer satisfaction is rejected. These conclusions are consistent with Enoruwa et al (2023) & Reddy & Megharaja (2021), who found that user-friendly, secure, and accessible digital banking platforms significantly boost customer experience and satisfaction.

The second objective examined the influence of card products' innovation on customer satisfaction. The regression coefficient ($\beta = 0.207$, $t = 2.092$, $p = 0.024$) reveals a positive and statistically significant relationship. Given that the p-value is less than 0.05, the null hypothesis that innovation of card products has no significant effect on customer satisfaction is, therefore, rejected. These findings are consistent with Quan (2020) & Karthick (2021) who emphasized that the value and usability of card products play a critical role in determining customer satisfaction.

The third objective focused on the influence of electronic queue management system (EQMS) on customer satisfaction. The results indicate a significant positive effect ($\beta = 0.118$, $t = 2.703$, $p = 0.002$), suggesting that queue management systems have significant effect on customer satisfaction. As the p-value is below 0.05, the null hypothesis that electronic queue management system has no significant effect on customer satisfaction is rejected. These conclusions are

supported by Matelong (2019) & Samarina et al (2021) who found that queue automation and flow management significantly improve customer service experiences in physical banking environments.

The fourth objective explored the impact of agency banking on customer satisfaction. The regression analysis reveals a statistically significant positive relationship ($\beta = 0.113$, $t = 2.632$, $p = 0.008$), implying that agency banking has significant effect on customer satisfaction. Since the p-value is less than 0.05, the null hypothesis that agency banking has no significant effect on customer satisfaction is rejected. These findings align with Tindi (2017) who reported that agency banking enhances outreach and convenience, especially in underserved and remote areas.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter reviews the research findings and in addition discusses the conclusions and recommendations of the study. Moreover, suggestions for further research are provided.

5.2 Summary of Findings

The study objective was to investigate how strategic technological innovation affect customer satisfaction in Kenya Commercial Bank, Nairobi. The study was divided into three sub-parts which included response rate, demographic information and descriptive statistics. Based on the study findings, the fully completed and returned questionnaires were 323 giving a response rate of 84 percent.

5.2.1 Online Banking Innovation and Customer Satisfaction

On online banking innovation, descriptive analysis revealed that respondents strongly agreed that KCB bank's online banking systems are easy to use, secure, and meet their financial needs, with high mean scores on app usage, navigation, and security. However, they were moderately satisfied with the resolution of system downtimes, indicating a need for improvement in service reliability. Inferential analysis confirmed that online banking innovation significantly and positively influences customer satisfaction. These findings align with Kenya's Vision 2030 objective of enhancing access to financial services through technological innovation and support SDG 9 (Industry, Innovation and Infrastructure) and SDG 8 (Decent Work and Economic Growth) by promoting inclusive, sustainable economic development through digital financial services.

5.2.2 Card Products Innovation and Customer Satisfaction

On card products innovation, descriptive results showed strong agreement that prepaid cards enhance online purchasing convenience and preferred using Kenya Commercial Bank card products over cash. However, they were moderately confident in debit card security and only slightly agreed that the benefits of credit cards outweigh their costs. Regression results showed that card products innovation has a significant positive effect on customer satisfaction, highlighting its contribution to perceived convenience and value. This supports Vision 2030's financial sector reforms aimed at deepening financial inclusion, while also advancing SDG 9 and SDG 1 (No Poverty) by facilitating secure, cashless transactions that reduce barriers to accessing financial services.

5.2.3 Electronic Queue Management System and Customer Satisfaction

On electronic queue management systems, respondents strongly agreed that the Electronic Queue Management System at Kenya Commercial Bank improves order, efficiency, and ease of use, with consistently high mean scores. This reflects a very positive perception of in-branch technological innovation. The regression results further confirmed that Electronic Queue Management System significantly enhances customer satisfaction by improving service delivery and reducing waiting time. Vision 2030’s emphasis on service delivery reforms in public and private institutions, and supports SDG 16 (Peace, Justice, and Strong Institutions) by promoting accountable, responsive, and customer-focused institutions.

5.2.4 Agency Banking and Customer Satisfaction

Descriptive analysis showed that respondents were dissatisfied with agent accessibility and float adequacy, while they remained neutral on the efficiency of account opening and slightly agreed on the ease of paying utility bills. Despite these concerns, regression analysis revealed that agency

banking still significantly contributes to customer satisfaction, suggesting its value lies in convenience and extended reach, even amid operational limitations. These outcomes support Vision 2030's goal of equitable development and service delivery across Kenya, especially in underserved areas, while advancing SDG 10 (Reduced Inequalities) and SDG 1 (No Poverty) by promoting financial inclusion through decentralized banking services.

5.3 Conclusion

The findings revealed that online banking innovation significantly affects customer satisfaction, evident by a regression coefficient of 0.476 ($p = 0.013$). This indicates that enhancing KCB's online banking platforms contributes meaningfully to improved customer satisfaction. Enhanced security features and prompt resolution to online banking platform downtime greatly impact the level of customer contentment hence the need for continuous improvement. Card products innovation also showed a substantial favourable effect on customer satisfaction, with a regression coefficient of 0.318 ($p = 0.024$). This suggests that the continued development of secure, convenient, and valuable card services positively affects customer satisfaction. Customer sensitization on card products is also crucial determinant on the degree to which customers are contented with card products innovations.

The study further deduced that the electronic queue management system significantly affects customer satisfaction ($\beta = 0.246$, $p = 0.002$). This implies that efficient queue handling process in KCB reduces waiting time- and enhances orderliness in the banking hall, leading to increased customer satisfaction. Customers found operating the electronic queue management of system hardware as easy thus boosting the level of satisfaction. Finally, it is concluded that agency banking showed a statistically significant effect on customer satisfaction ($\beta = 0.229$, $p = 0.008$), showing that agency banking significantly enhances customer satisfaction in commercial banks.

Availability of agent float, accessibility to KCB Mtaani agents and efficient service provision by KCB Mtaani agent significantly improve customer satisfaction.

5.4 Recommendations

The study recommends that since online banking innovation indicated a strong impact on customer satisfaction, the bank should continue to invest in system upgrades to ensure platform stability, faster transaction processing, and minimal downtime. Proactive resolution of system issues and regular updates based on user feedback will strengthen digital service delivery. To address moderate customer confidence in debit card security and perceived credit card value, KCB should enhance card security features and review fee structures to increase the cost-benefit appeal. Targeted education campaigns on card benefits and safe usage could also improve user trust and adoption.

Since the electronic queue management system showed a high significant effect on customer satisfaction, KCB should standardize and maintain this system across all branches to ensure consistent service quality. Periodic evaluations and customer feedback mechanisms can help refine its functionality and customer experience further. The study recommends that, in order to increase satisfaction with agency banking, KCB should invest in agent training, expand agent coverage in underserved areas, and ensure adequate float and system uptime. To improve the level of customer satisfaction, the bank needs to address the concern of inadequacy of agent float to improve liquidity and ensure seamless transactions at the agent outlets. In addition, the bank should increase accessibility to agents through recruitment of more KCB Mtaani agents. Strengthening monitoring mechanisms can help maintain consistent service standards across all KCB banking agents.

5.5 Suggestion for Further Research

Since the current study achieved an R^2 of 0.623, indicating that 62.3% of the variance in customer satisfaction is explained by strategic technological innovations, future research should consider exploring additional factors influencing customer satisfaction in the banking sector that were not covered in this study. In addition, a longitudinal study could assess whether the strength of the relationship (R = 0.789) between technological innovations and customer satisfaction remains stable over time, particularly as new innovations emerge and customer expectations evolve. Future studies could also examine comparative analyses across banks to evaluate how technological innovation impacts satisfaction differently in various institutional contexts, including public vs. private banks or rural vs. urban branches.

REFERENCES

Abdulkarim, M. A. & Abubakar, K. (2024). Effects of Agency Banking on Customer Satisfaction: A Study of First Bank in Yola Metropolis, Nigeria. *Nigerian Journal of Accounting and Finance*. 6(1) 148-172.

Abdullateef, A. O., Muktar, S. S. M., & Salleh, S. M. (2019). Electronic queue system and customer satisfaction in telecommunication service centres in Malaysia. *Journal of Marketing and Consumer Research, 23*, pp. 53–62.

Abdulle, F. A (2021). Evaluation of the impact of Electronic Queue Management System on Customer Service in hospitals in Kenya: A Case of Premier Hospital, Mombasa, Kenya. *Unpublished Thesis. USIU, Africa*.

Aderibigbe, M. A., & Ogunyemi, K. O. (2020). The role of queue management systems in improving customer satisfaction: Evidence from Nigerian commercial banks. *Journal of Business and Management Studies, 6*(2),78–88.

Aduda, J., Kiragu, D., & Ndwiga, M. (2018). Determinants of customer satisfaction in agency banking services: A case of Kenyan commercial banks. *Journal of Finance and Investment Analysis, 3*(4), pp. 75–100.

Agolla, J.E., Makara, T & Monametsi, G. (2018). Impact of Banking Innovations on Customer Attraction, Satisfaction and Retention: The Case of Commercial Banks in Botswana. *International Journal of Electronic Banking*. 1(2) 150-170

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*. 50(2) 179-211.

Al-Afeef, M., & Al-Harethi, N. (2020). *The role of agency banking in enhancing customer satisfaction: Evidence from rural Yemen. Journal of Financial Services Marketing, 25*(3), pp. 128–139.

Al-Hawari, M., & Ward, T. (2017). *The effect of automated service quality on Australian banks' financial performance and the mediating role of customer satisfaction. Marketing Intelligence & Planning, 24*(2),127–147.

Ameme, B., & Wireko, J. (2018). Impact of technological innovations on customers in the banking. *The Business and Management Review*, 7, 388

Amudhan, S, Banerjee, S., & Poornima, J. (2022). The impact of digital transformation on banking sector in rural areas. *Journal of Positive School Psychology* 6(2), 763-771

Anong S.T & Routh A. (2022). Prepaid debit cards and banking intention. *International Journal of Bank Marketing*.40(2)

Anusuya, M. (2023). A Study on Customer Satisfaction on Banking Sector. Retrieved from ResearchGate:https://www.researchgate.net/publication/369926182

Ayinaddis,S. G., Taye, B. A., & Yirsaw, B. G. (2023). Examining the effect of electronic banking service quality on customer satisfaction and loyalty: an implication for technological innovation. *Journal of Innovation and Entrepreneurship*. 1-18.

Ayo, C. K., Adewoye, J. O., & Oni, A. A. (2018). The state of e-banking implementation in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences, 1*(1),37–45.

Baporikar, N. (2022). Innovation Management Case Study. *International Journal of Innovation in the Digital Economy*.13(1), 1-11

Business Daily (2020). Why bank queues are now vanishing. Retrieved from https://www.businessdailyafrica.com/bd/lifestyle/why-bank-queues-are-now-vanishing--2060502

Central Bank of Kenya. (2020). *Banking Sector Innovation Survey*. (p. 3): https://www.centralbank.go.ke/uploads/banking_sector_reports/1232186390

Central Bank of Kenya. (2023). *Bank Supervision Annual Report* (p.2): https://www.centralbank.go.ke/uploads/banking_sector_annual_reports/1035327448

Cooper, D. R. & Schindler, P. S. (2005). *Market Research*. McGraw-Hill/Irwin.

Davis, F.D. (1986). *A technology acceptance model for empirically testing new end-user information systems: Theory and results*. Unpublished Doctoral dissertation, Massachusetts Institute of Technology.

Gimba, U.A, Okoronkwo, C. D, Yusuf, M, Musa, A. S, Ali, M.S. (2020). Queue Monitoring System for Bank. Dutse *Journal of Pure and Applied Sciences (DUJOPAS*). 6(2)

Enoruwa, O. K., Onwumere, J. U. J., Ibunor, A. E., Ehigie, H. A., & Ezuem, D. M. (2023) Impact of Technological Innovations on Bank Performance in Selected West African Countries (1997-2020) *International Journal of Professional Business Review* 8(8) 1-88

Firdous, S., & Farooqi, R. (2017). Impact of Internet Banking Service Quality on Customer Satisfaction. *Journal of Internet Banking and Commerce*, 22(1), 1-17.

Gathee, B.W (2018) *The effect of technological innovations on operation management of commercial banks in Kenya: A case of Equity Bank Ltd*. Unpublished Thesis. USIU, Africa.

Skeekumar, D. (2023). What is Research Methodology? Definition, Types, and Examples. PaperPal. https://pp-blog.paperpal.com/academic-writing-guides/what-is-research-methodology

Government of Kenya. (2007) *About vision 2030*. https://vision2030.go.ke/

Haabazoka, L. (2019). A Study of the Effects of Technological Innovations on the Performance of Commercial Banks in Developing Countries - A Case of the Zambian Banking Industry.*The Future of the Global Financial System*.57(1)1246-1280

Hewarathna, T. & Hettige, B. A (2023) A Review on Impact of Online Banking on Customer Satisfaction: A Comparative Analysis of User Experience and Service Quality Factors in Online Banking. *General Sir John Kotelowala Defense University, SriLanka*.

Hussain, A (2023). The Impact of E-Banking on Customer Satisfaction in Pakistan. *Review of Education, Administration and Law (REAL).* 6 (4), 713-726

Isiaho, D. W., & Koech, P., (2023) The effect of strategic process innovation on performance of commercial banks in Mombasa County. *Strategic Journal of Business and Change Management.* 10 (2), 619-634.

Jahan, T., Jabee, A., Blessy, T., Selsiya, T., Sheetal, U., Khushi, U. (2024). Unveiling Customer Contentment: A Study on Customer Satisfaction with Reference to Amazon. *International Research Journal on Advanced Engineering and Management.* 2(4), 688-699.

Jain, N. (2023). *What is Technology Innovation? Definition, Examples and Strategic Management*. Retrieved from Ideascale: https://ideascale.com/blog/what-is-technology-innovation/

Karim, M. & Mahmud, A. (2018). Customer Satisfaction in Banking Sector: A Case Study on Janata Bank Limited. *Noble International Journal of Business and Management Research* 2(11), 90-100

Kariuki, P, Ofusori L,O. & Goyai, M.L.J (2025). Internet of Things on Banking Processes in South Africa: A Systematic Reflection on Innovations, Opportunities and Challenges. *ScienceDirect*. 5(1)

Kazeem, L.O.B (2021). The Effect of Agency Banking Services on Customers' Satisfaction in Nigeria. *Journal of management Science*, 4 (3)

Kenya Bankers Association (2023). *Role of Technology: A history of banking in Kenya*. https://bankinghistory.kba.co.ke/technology/#:~:text=The%20use%20of%20technology

Kenya commercial Bank. (2024). *Our History*. Retrieved from KCB: https://kcbgroup.com/

Kimutai, A. (2020). *Technology makes banking with KCB a great experience*. Retrieved from Nation: https://nation.africa/kenya/kenya-50/ict/technology-makes-banking-with-kcb-a-great-experience-914892

Kirima, A.M. (2019). *Effect of digital banking on growth of commercial banks: at Kenya Commercial Bank.* Doctoral Dissertation, University of Nairobi

Kreger, A & Zaikovska, L. (2024). *Innovations in Banking Industry VS User Experience: Blockchain, Open Banking and AI*. Retrieved from UX strategy: https://theuxda.com/blog/how-banking-can-miss-out-on-success#:~:text=Innovations.

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement, 30*, 607-610.

Kumbhar, V. M. (2018). Factors affecting the customer satisfaction in e-banking: Some evidences form Indian banks. *Management Research and Practice, 3*(4). 1–14.

Leedy, D & Ormrod, J.E. (2015). *Practical Research Planning and Design*. Pearson Education Limited. 11th Edition.

Malek, B.A., Mohtar, S. & Ariffin, A. S. (2017). The factor that affects the effectiveness of agent banking characteristics on financial inclusion performance:. *Journal of Advanced Research in Business and Management Studies*. 7(1) 91-102

Mansour, A., Mansour, Y., Almajali, D., Majali, T., Saa'da, R. J. & Hammouri, Q. (2022). The impact of Technology adoption on Customer Satisfaction in Banking Sector in Jordan. *Journal of Positive School Psychology* 6(6), 6200 – 6209.

Marei, A., Al-Haddada, S., Daoudb, L., Habashnehc, A. Farizc, R. & Aldamisic, R. (2022). The impact of innovation on customer satisfaction in the commercial banks: Business performance as a mediating variable. *Uncertain Supply Chain Management*, 10

Matelong, L. (2019). *Influence of Technological Change Management on Competitive Advantage of Tier 1 Commercial Banks in Nakuru, Kenya*. Unpublished Thesis. Kabarak University.

Mayanja, S. N., Mayanja, N. S., & Omwono, G. A. (2022). Evolution of E-Funds Transfer and its Impact on Customer Satisfaction. *International Journal of Education, Business and Economics Research (IJEBER)*. 2(2) 1-11.

Mburu, F. N., & Okello, M. A. (2022). Customer satisfaction with agency banking services in Co-operative Bank: A case of Mombasa County, Kenya. *African Journal of Business Management, 16*(2), 45–58.

Mbuthia, P. M., & Datche, E. A. (2023). Strategic technological innovations and performance of commercial banks in Kenya. *The Strategic Journal of Business & Change Management*, 10 (2), 1055 – 1068.

Mohan KB, (2025). Measuring the Impact of Technological Innovations on Customer Satisfaction at Ujjivan Small Finance Bank. *International Journal of Research Publication and Reviews*. 6(2) 681-690.

Kamar, K, Sahusilawane, W, Oktawiranti. A, Adi. P, Cakranegara, C & Rahayu, N (2022). Effect of Service Quality on the Satisfaction Level of Credit Card Customers. Budapest *International Research and Critics Institute-Journal*. 5(4)

Karthick, D. E (2021). A Study on Customer Preference and Satisfaction towards using credit cards with special reference to Coimbatore city. *International Journal of Advances in Engineering and Management (IJAEM)*. 3(9)

Kaur, B., Kiran, S., Grima, S. & Rupeika, R. (2021). Digital Banking in Northern India: The Risks on Customer Satisfaction. *MDPI Journal*. 9(11)

Margaret G. W. & Kinyuru, R. N. (2018). Digital banking and customer relationship in banking industry in Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(2), 14-32

Mugambi, S.W., & Imaita, I. (2022). The influence of alternate banking channels on customer satisfaction at Kenya commercial bank in Nairobi, Kenya. *International Academic Journal of Human Resource and Business Administration* 3(10) 461-518

Ndirangu, L., & Muturi, W. (2018). Effect of agency banking on customer satisfaction in Kenya: A survey of rural areas in Murang'a County. *International Journal of Economics, Commerce and Management, 3*(4), 762–775.

Ngugi, B. K., Gakure, R. W., & Gekara, M. (2017). *The influence of agency banking on customer satisfaction: A case of Equity Bank customers in Nairobi County, Kenya*. *International Journal of Social Sciences and Entrepreneurship, 1*(5), pp. 1–17.

Nzioki, A. M. (2018) *The effect of technology integration strategy on the customer service delivery at the Barclays bank of Kenya*. Unpublished Thesis. USIU, Africa.

Odhiambo, O. E & Mang'ana, R. (2022). Strategic Adoption of Technological Innovations on Competitive Advantage of Commercial Banks in Kenya. *Journal of Business and Strategic Management*. 7(2) 16-36

Odirichukwu, J.C., Lekara, T. & Odii, J.N. (2018). Banking Queue System in Nigeria. *Computing, Information Systems, Development Informatics & Allied Research Journal*. 5(1) 95-106

Ogogo, S.A. (2023). *Influence of Innovation on Customer Satisfaction: A Case of Customers of Safaricom Plc*. Unpublished Thesis. Strathmore Univeristy.

Osakwe, C. N., Okeke, T. C., & Ifeoma, I. E. (2021). Innovative payment card systems and customer satisfaction in Nigerian retail banking. *African Journal of Business Management, 15*(4), 95–104.

Osman, A.Z.R., Ashraf, M.A. & Hoque, S.S. (2023). Factors Influencing Clients' Satisfaction Of Agent Banking: An Empirical Exploration. *International Journal of Professional Business Review*. 8(9) 1-21.

Quan, V. D. H (2020). Customer satisfaction level towards credit cards. *Ho Chi Minh City Open University Journal of Science*. 4(2), 42-53.

Patharkar, N. (2020) *A Study on the Challenges and New Technological Innovations in the Indian Banking Sector*. Retrieved from Research Gate. https://www.researchgate.net/publication/342880974.

Reddy, A.K., & Megharaja B. (2021). Impact Of E-Banking On Customer Satisfaction. *Parlach's Journal Of Archaeology Of Egypt/Egyptology* 18(8), 4220-4221

Robert, P. W., & Maheshwar, A. (2020). A study on effect of credit card on customer satisfaction in Chennai. *The Journal of Contemporary Issues in Business and Government*, 26(2).

Rogers, E. M. (1962). Bibliography on the diffusion of innovations. Mimeo Bulletin A.E. 328

Ronoh, D.C & Omwenga, J. (2017). Role of Financial Innovations on Financial Performance of Commercial Banks in Kenya: A Case of KCB Bank Kenya Limited. *International Journal of Management and Commerce Innovations*, 5(1), 248-257

Samarina, E. A., Khrushchev, R. V. & Khairullina, A. R. (2021). Electronic Queue Management System In Commercial Banks In Conditions Of Economy Digitalization. *European Proceedings of Social and Behavioral Sciences.*

Sanayei, A., & Noroozi, A. (2020). The effect of e-banking service quality on customer satisfaction: Evidence from private banks in Iran. *International Journal of Bank Marketing, 38*(6), 1271–1289.

Sharma, R. (2022). A Study on Innovation in Banking and its Impact on Customer. *Integrated Journal for Research in Arts and Humanities,* 2(3).

Sharma, A., & Sharma, V. (2019). *Plastic money usage and customer satisfaction: A comparative study of public and private sector banks in India. Journal of Management Research and Analysis, 6*(2), pp. 60–67.

Singh, S., & Arora, R. (2017). A comparative study of banking services and customer satisfaction in public, private, and foreign banks. *Journal of Economics and Behavioral Studies, 2*(10), pp. 56–65.

Sukhatme, P. V., Sukhatme, B. V., Sukhatme, S., & Asok, C. (1984). *Sampling Theory of Surveys with Applications.* Ames, Iowa: Iowa State University Press.

Swarnalakshmi, R,. & Krishna, M. V. (2023). A Study on Customer Satisfaction Towards Usage Of Debit Card. *EPRA International Journal of Research and Development* 8(5)

The Kenya Commercial Bank Story. (2023). Retrieved from Privatization Commission: https://privatisation.go.ke/the-kenya-commercial-bank-story/

Tindi, P. (2017). Effects of Agency Banking on Customer Satisfaction in the Banking Industry in Kenya. *International Academic Journal of Economics and Finance*. 2(3), 141-160.

Vergallo, R. & Mainetti, L. (2022). *The role of technology in improving the Customer Experience in the banking sector*. ResearchGate: https://www.researchgate.net/publication

Wamalwa, J. W., Nyongesa, M. N., & Chepkuto, P. K. (2018). Effect of electronic queue management systems on service delivery in public hospitals in Nairobi County, Kenya. *International Journal of Academic Research in Business and Social Sciences, 8*(10). 234–247.

Wu, Z (2024) The Rise of Digital Banking in the UK Financial Sector and Its Impact on Commercial Banks. *Advances in Economics Management and Political Sciences* 120(1)

Yaseen, S. G., & El Qirem, I. A. (2018). Intention to use e-banking services in the Jordanian commercial banks. *International Journal of Bank Marketing, 36*(3),557–571.

APPENDICES

APPENDIX I: QUESTIONNAIRE

This questionnaire is meant to obtain information on how the selected technological innovations affect customer satisfaction for KCB customers. Kindly answer accurately. Your name is not mandatory in order to maintain anonymity.

On the closed ended questions, you will be guided by the below Likert scale:

1=Strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

SECTION I: BACKGROUND INFORMATION

Instructions: Tick where applicable

1. **Gender**

☐ Female

☐ Male

2. **Age bracket**

☐ Under 25 years ☐ 35-44 years ☐ Above 54 years

☐ 25-34 years ☐ 45-54

3. **For how many years have you maintained an account with KCB?**

☐ 2 years and below ☐ 5-7 years ☐ Above 10 years

☐ 2-4 years ☐ 8-10 years

4. **Which type of account do you operate with KCB**

☐ Personal account ☐ Both Personal and Business accounts

☐ Business account

SECTION II: ONLINE BANKING SYSTEMS

5. **Are you satisfied with Online Banking Systems in KCB**?

☐ Yes ☐ No

Kindly state the reason for your answer

Kindly indicate your choice on the consensus level with the stated statements regarding online banking innovations by ticking the appropriate answer on the provided spaces guided by the Likert scale

		1	**2**	**3**	**4**	**5**
6	I frequently use KCB mobile banking app since it is friendly and easy to use					
7	Online banking channels downtime are promptly resolved					
8	I'm satisfied with KCB internet banking platform since it's easy to navigate through					
9	I am happy with the security measures taken by KCB when transacting on internet banking.					
10	Transaction charges for conducting EFT in KCB are reasonable					

SECTION III: CARD PRODUCTS INNOVATIONS

6. **Are you satisfied with Card Products Innovations in KCB**?

☐ Yes ☐ No

Kindly state the reason for your answer

Kindly indicate your choice on the consensus level with the stated statements regarding card products innovation by ticking the appropriate answer on the provided spaces guided by the Likert scale

		1	2	3	4	5
10	I trust my KCB debit card security features for the safety of my money in terms of fraud protection					
11	Monetary benefits of using KCB credit card (cash advance, goods payments) outweighs the costs of owning your card (commissions, charges and fees)					
12	Use of KCB prepaid cards has made online purchase of goods and services easier and convenient.					
13	I prefer to using KCB cards products when making payments for purchase for goods or services to cash?					

SECTION IV: Electronic Queue Management System (EQMS)

7. **Are you satisfied with EQMS in KCB**?

☐ Yes ☐ No

Kindly state the reason for your answer

Kindly indicate your choice on the consensus level with the stated statements regarding Electronic Queue Management System by ticking the appropriate answer on the provided spaces guided by the Likert scale

		1	**2**	**3**	**4**	**5**
14	I'm happy with KCB EQMS since it has resulted in reduced wait time in the banking hall before being served.					
15	I am satisfied with KCB EQMS since it maintains queue with order and efficiency					
16	I am satisfied with KCB EQMS hardware since it is easy to operate					

SECTION V: AGENCY BANKING

8. **Are you satisfied with Agency banking in KCB**?

☐ Yes ☐ No

Kindly state the reason for your answer

Kindly indicate your choice on the consensus level the stated statements regarding agency banking by ticking the appropriate answer on the provided spaces guided by the Likert scale

		1	**2**	**3**	**4**	**5**
17	KCB agents always have enough float whenever I require cash deposit and withdrawal services					
18	I am contented with Account opening process at KCB agents because it is efficient					
19	I find it easy to pay my utility bills such as KRA, SHIF through KCB agents					
20	KCB Agents are easily accessible whenever I need to transact					

SECTION VI: CUSTOMER SATISFACTION

Kindly indicate your choice on the consensus level with the stated statements regarding customer satisfaction by ticking the appropriate answer on the provided spaces guided by the Likert scale

	Customer Loyalty	**1**	**2**	**3**	**4**	**5**
21	I'm satisfied with KCB innovative products and services since the banks has constantly improved their innovative products that suit my financial needs					
22	I refer KCB to my friends and family because of their innovative products and services					
	Customer Retention					
23	I am likely to maintain KCB as my main banker due to the innovative products and services					
24	KCB promotes feedback from customers on technological innovations and address concerns raised					

26. How can KCB improve your overall experience with regard to the above Technological Innovations?

I appreciate your participation.

APPENDIX II: ERC CERTIFICATE

Mount Kenya University

REF: **MKU/ISERC/4953**
TO: **SHEILLAH WECHULI**

Date: 11 April 2025

REG: **MBA/2023/41207**

Dear Sir/Madam,

RE: STRATEGIC TECHNOLOGICAL INNOVATION AND CUSTOMER SATISFACTION: A CASE STUDY OF KCB, NAIROBI

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3675.** The approval period is **11/04/2025 - 10/04/2026.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: +254 20 287 8000, Cell: +254 709 153 000
Email: info@mku.ac.ke, Web: www.mku.ac.ke

APPENDIX III: INTRODUCTION LETTER FROM MKU

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MBA/2023/41207

11th April, 2025

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: SHEILLAH WECHULI – REGISTRATION NO. MBA/2023/41207

The purpose of this letter is to introduce the above named student who is pursuing **Master of Business Administration** in the department of **Accounting and Finance** in the school of **Business and Economics.**

The title of the research is **"Strategic Technological Innovation and Customer Satisfaction: A Case Study of KCB, Nairobi."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **April, 2025 and June, 2025.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director,
Graduate Studies

Dr. Samuel M. Karenga, PhD
Director, Graduate Studies
Enc.

APPENDIX IV: NACOSTI RESEARCH LICENCE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 811227

Date of Issue: 10/May/2025

RESEARCH LICENSE

This is to Certify that Miss.. Sheila Wechuli of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: STRATEGIC TECHNOLOGICAL INNOVATION AND CUSTOMER SATISFACTION: A CASE STUDY OF KCB, NAIROBI for the period ending : 10/May/2026.

License No: NACOSTI/P/25/4173216

811227

Applicant Identification Number

Deputy Director
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX V: RESARCH AUTHORIZATION

Ministry Of Education Authorization

Republic of Kenya

MINISTRY OF EDUCATION
STATE DEPARTMENT FOR BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone; Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

When replying please quote

REGIONAL DIRECTOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: RDE/NRB/RES/1/65 Vol. II(42) Date: 16TH MAY 2025

Miss. Sheila Wechuli
Mount Kenya University

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from National Commission for Science, Technology & Innovation, regarding research authorization in Nairobi County on the topic: **"Strategic Technological Innovation and Customer Satisfaction: A case Study of KCB, in Nairobi Kenya".**

For a period ending 10th May, 2026.

This office has no objection and authority is hereby granted on the condition that the exercise will be carried out within the ethical and professional standards as required.

A report on the exercise will be required on completion.

REGIONAL DIRECTOR OF EDUCATION
NAIROBI
16 MAY 2025
MINISTRY OF EDUCATION

DR. GLADYS MALONZA
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI.

SGS

County Commissioner Research Authorization

OFFICE OF THE PRESIDENT

MINISTRY OF INTERIOR AND NATIONAL ADMINISTRATION
STATE DEPARTMENT FOR INTERNAL SECURITY AND NATIONAL ADMINISTRATION

Telegrams.....
Telephone: Nairobi 316845, 341666
When replying please quote

COUNTY COMMISSIONER
NAIROBI COUNTY
P.O. Box 30124-00100
NAIROBI

REF: ED 10/6 VOL: XXX1 (34) **15th May, 2025**

Miss. Sheila Wechuli
MOUNT KENYA UNIVERSITY

RE: RESEARCH AUTHORIZATION

Your letter dated 14th May, 2025 refers.

This office has no objection and authority is hereby granted to conduct research on the topic **"Strategic Technological Innovation and Customer Satisfaction: A Case Study of KCB, NAIROBI"** for the period ending 10th May, 2026.

COUNTY COMMISSIONER
NAIROBI COUNTY
P.O. Box 30124-00100, NBI
TEL: 341666

LEAH N. KAGWE
For: COUNTY COMMISIONER
NAIROBI COUNTY

Copy to: All Deputy County Commissioner
NAIROBI SUBCOUNTIES

APPENDIX VI: TURNITIN REPORT

First Page

SHEILLAH WECHULI PROJECT

by SHEILLAH WECHULI

Submission date: 14-Jul-2025 12:01PM (UTC+0300)
Submission ID: 2714814477
File name: SHEILLAH_WECHULI.docx (9.24M)
Word count: 20042
Character count: 117797

Second Page

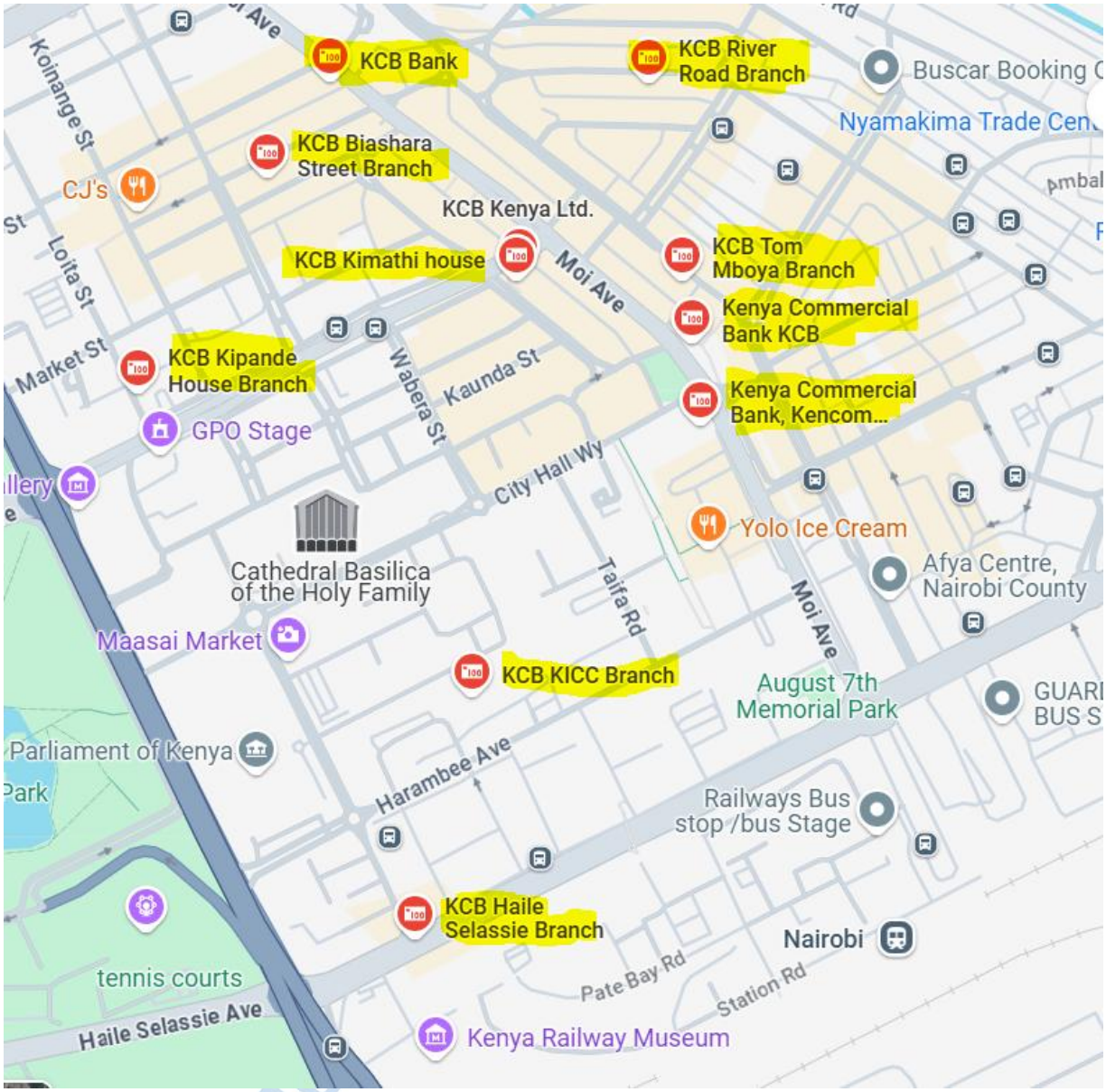
AN ASSESSMENT OF STRATEGIC TECHNOLOGICAL INNOVATION ON CUSTOMER SATISFACTION: A CASE STUDY OF KCB, NAIROBI

SHEILLAH WECHULI

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS IN BUSINESS ADMINISTRATION DEGREE IN STRATEGIC MANAGEMENT OF MOUNT KENYA UNIVERSITY

JULY 2025

APPENDIX VII: RESEARCH SITE MAP



APPENDIX VIII: SAMPLE SIZE FOR EACH KCB BRANCH

Branch/ Strata	$n_h = \frac{N_h}{N} \times n$	Stratum Sample Size
Biashara Street	$\frac{11,300 \times 384}{320, 642}$	14
Garden Plaza	$\frac{10,264 \times 384}{320, 642}$	12
Haille Sellassie	$\frac{10,186 \times 384}{320, 642}$	12
KICC	$\frac{12,764 \times 384}{320, 642}$	15
Kimathi Street	$\frac{23,118 \times 384}{320, 642}$	28
Kipande House	$\frac{34,933 \times 384}{320, 642}$	42
Moi Avenue	$\frac{150,849 \times 384}{320, 642}$	181
River Road	$\frac{19,401 \times 384}{320, 642}$	23
Tom Mboya	$\frac{27,399 \times 384}{320, 642}$	33
University Way	$\frac{20,422 \times 384}{320, 642}$	24
Total Sample size		**n = 384**

Source: Researcher, 2025

APPENDIX IX: SAMPLE SIZE TABLE

N	n	N	n	N	n
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	165	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367

130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Where N is The total population, n is Sample size

Source: Krejcie and Morgan (1970, pp.608).