2020

Influence of digital transformation processes on customer relationship management among commercial banks in Kenya.

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INFLUENCE OF DIGITAL TRANSFORMATION PROCESSES ON CUSTOMER RELATIONSHIP MANAGEMENT AMONG COMMERCIAL BANKS IN KENYA

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MBA/111074/2018

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THEAWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA) AT STRATHMORE UNIVERSITY

OCTOBER 2020

DECLARATION

Student's Declaration

I, the undersigned, declare that this dissertation is my original work and has not been submitted for examination in any other institution.

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Sign: … **……** **Date: …19th October 2020**

Supervisor's Approval

This research dissertation has been submitted for examination with my approval as the university supervisor

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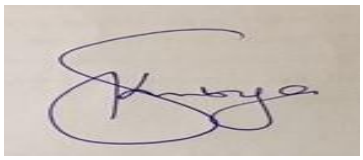

Sign: ……. **Date: 21st October 2020**

ABSTRACT

In a world where consumer needs are ever-changing, there is a need to critically examine how modern technologies are affecting the customer relationships within banks. Commercial banks have acknowledged that digital transformation processes are crucial to fostering the performance of commercial banks. However, the benefits of adopting the various systems have not been extensively established. The current study investigated the effect of digital transformation processes on customer relationship management within Kenyan banks. The research specifically investigated the influence of service automation, data analytics, and digital channels on customer relationship management. The study was anchored on the Resource-Based View, and the identity, differentiate, interact, and customize theory. A descriptive research design was adopted and the unit of analysis was the 41 commercial banks in Kenya. The study sampled the chief technology officer, human resource managers, and operation managers from each of the commercial banks. The sample was determined using the Yamane formula. 94 respondents were sampled using questionnaires which were the main data collection tool. A pre-test of the research instrument was carried out on 10% of the respondents to support reliability testing. The study adopted a mix of drop and pick, as well as Google forms to collect data. The collected research data were analyzed quantitatively using both descriptive and inferential statistics with findings being presented using bar graphs, charts, and tables as deemed appropriate. The study achieved a 90% response rate from the sample participants. The study found there is a statistically significant relationship between digital transformation processes and customer relationship management in commercial banks. The study identified that service automation and digital channels have a significant positive influence on customer relationship management. The research found an insignificant effect of data analytics on customer relationship management. The study concludes that improving service automation and utilization of digital channels can result in better customer satisfaction, loyalty, retention, and customer handling experiences. The study recommends that commercial banks should improve their utilization of data analytics and business process engineering to achieve better customer relationship management. The research recommends that banks should foster their reliance on social networking and automation processes to drive customer relationship management. The study was limited only to three digital transformation processes; hence there is a need for a further study taking into consideration more proxies of digital transformation.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
API	Application Programming Interface
ATM	Automated Teller Machines
CBK	Central Bank of Kenya
CRM	Customer Relationship Management
IDIC	Identify, Differentiate, Interact and Customise Theory
IT	Information Technology
KBA	Kenya Bankers Association
NACOSTI	National Commission for Science Technology and Innovation
RBV	Resource-Based View
VIF	Variance Inflation Factor

OPERATIONAL DEFINITION OF TERMS

Customer Relationship Management	This is the integrated effort of identifying, maintaining and building up a network with individual customers and continuously strengthening the mutual benefit (Hassan, Nawaz, Lashari, & Zafar, 2015)
Data Analytics	This refers to the various qualitative and quantitative techniques and processes used to enhance productivity through the utilization of business data (Ndambo, 2016)
Digital Channels	These are the various electronic channels and tools being adopted and utilized within commercial banks to deliver their products and services (Heinonen & Michelsson, 2010)
Service Automation	This is the process of integrating all the functionalities and processes of the firm into technological-based platforms (Muluka, 2015)

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

With the emergence of new technologies, marketers are now able to access a wider market, understand each customer better, choose whom to do business with, and better manage customers' behaviour and attitude. As a result, there is a growing demand for a customer-focused approach to institution operations (Thuo, Kibera, K'Obonyo, & Wainaina, 2011). Customer Relationship Management - CRM though a modern concept, has had its tenets such as; customer orientation, database marketing, and relationship marketing in existence for a long time (Soliman, 2011). According to Sheth, Parvatiyar, and Shainesh (2009), increased competition has forced institutions to develop stronger relationships with their clients.

In today's competitive world, firms strive to remain competitive in the long-run through effective customer relationship management (CRM) (Vallabh, Radder, & Venter, 2015). The current global competition, coupled with the regular economic fluctuations, has led to the need for both the product and service industries to plan and monitor their customers' reactions (Abdullateef, Mokhtar, & Yusoff, 2011). Although the use of CRM is increasing at organizational levels, the various initiatives being implemented still face high failure rates ranging between 50%-70% (Awasthi & Sangle, 2012).

Gartner Group (2015) revealed that the global CRM market recorded a double-digit growth rate between the years 2007 and 2014, with a growth rate of 17.5%. Technological investments that enhance productivity, improve product visibility, and give insight to customer behavior are expected to continue growing despite the economic downturn (Hassan, Nawaz, Lashari, & Zafar, 2015). Abbasi and Weigand (2017) indicate that there was a 4% increase in investment in information technology among commercial banks in North America, Europe, Asia- Pacific and Latin America; spending a total of $241billion in 2016 alone. This is because investments in IT capability of financial institutions offers a new frontier of service provision to be explored and improves the levels of customer satisfaction due to increased options to access financial services.

In Egypt, Sadek, Youssef, Ghonein, and Tantawy (2012) focussed on the effect of CRM on non-financial components of commercial banks, revealed that the selected banks for the study applied CRM. However, the level of application differed from bank to bank. 100% of the selected banks agreed that CRM implementation helped them increase their marketing

performance in terms of attracting new customers, customer satisfaction, market share, and sales growth. Consistently, Mutua (2011) found that customer satisfaction practices had been embraced to a great extent by Kenyan banks with an average score of 3.8 out of 5.

Thuo, Kibera, and K'Obonyo (2011) found that commercial banks have embraced CRM in Kenya for a considerable period, with 79.4% of the banks reporting to have been implementing CRM for a period of more than five years. Even with this high rate of adoption, it's still not clear whether the CRM practices are yielding the expected results of customer satisfaction, high-value customers, customer retention, and ultimately increased marketing effectiveness. Mwangi (2013) assessed how CRM affects the achievement of sustainable competitive advantage and reported that CRM practices are key sources of competitive advantage for Kenyan banks, Chege (2013) found that most Kenyan banks were implementing CRM strategies and that most of these institutions were realizing improvements in performance.

1.1.1 Digital Transformation Processes

Technological advancement has disrupted the financial industry and has led to turbulence that requires firms to be innovative. Industries internationally are being reorganized and upturned by digital computing and new technologies (Berman & Payne, 2018). Technological diffusion and digital advances have led to new ways of creating, co-producing, and distributing value (Berti, Mulligan & Yap, 2017). Borges, Marine and Ibrahim (2020) indicates that digital technologies have become integral in every aspect of the banking industry. This has resulted in several financial institutions pursuing digital transformation with a view of reaping benefits from these various technologies. The report indicates that despite increasing adoption, digital banking transformation has resulted in a 44% improvement in customer experience, 33% on innovation processes, 31% in increasing marketing and sales, and 40% in accelerating digitalization of products and services.

Hanna (2015) indicates that digital transformation processes incorporate several factors that promote the effective adoption of information communication technology (ICT) and its' diffusion into the organization. Solis, Li, and Szymanski (2014) define digital transformation as 'realignment of, or new investment in, technology and business models to more effectively engage digital customers at every touchpoint in the customer experience life cycle.". On the other hand, Berman (2012) notes that digital transformation focuses on the ability of the organization to reorganize the customer value proposition as well as further transforming the organization operations by leveraging on new technologies to foster customer interactions.

Mavlutova and Volkova (2018) notes that digital transformation in commercial banks focuses on more than just providing online platforms and mobile functionality within commercial banks. The report indicates the four main pillars of digital transformation are: refocussing consumer experience, leveraging on data, redefining the operating model of the bank as well as building a digital-driven organization. Slack Report (2019) is of the view that commercial banks are implementing digital transformation efforts with a view of meeting consumers' demands and to match the current pace of innovation within the financial sector. The report indicates that digital transformation begins with the adoption of digital workplaces, creating support and learning programs, offering cloud-based services as well as focusing on data-driven processes for collecting and analyzing customer data.

Gatner Group (2018) indicates that digital transformation is attained in commercial banks through migrating to systems of engagement that offer better digital experience such as real-time payment systems, adopting artificial intelligence, adopting mobile capabilities, digital cloud-based platforms, and automation of traditional banking processes. Josh (2018) examined digital transformation within commercial banks and indicate that only 33% of bank technology executives have seen a realization of competitiveness in their banks as a result of digital capabilities. The study indicates that digital transformation is focussed on data analytics, digital channels, and automation of bank processes. Borges, Marine and Ibrahim (2020) indicates that digital transformation has resulted in digital-only banks, better data processing, electronic banking, and leveraging on big data analytics. The current study sought to establish the nature of the influence of data analytics Slack Report (2019): service automation Gatner Group (2018): and digital channels Mavlutova and Volkova (2018): on the customer relationship management in commercial banks as results of digital transformation processes.

Regarding service automation, Josh (2018) advocates for an increased shift from paper-based processes within the commercial banks to eliminate information search and application processes, increasing service requests, account maintenance, and inquiry handling through automated service offerings. Matt (2019) indicates that automation supports better product innovation, the introduction of chatbots, artificial intelligence, and faster payment processes. Al-Hawari (2011) examined automation in UAE retail banking and indicate that increased automation of service offerings within commercial banks improved customer delight, trust, and commitment as a result of efficient service provision. Automation can be known to have different effects on different customers. It may make the process easier and faster but may also

expose the consumer to different risks. This has thus made automation to be a good and effective indicator of how digital transformation affects customer relationship management.

Matt (2019) indicates that data analytics are key in the data transformation process towards promoting customer experience through cohesive data management, better client profiling, and supporting analysis for making informed decisions. Borges, Marine and Ibrahim (2020) found that data analytics have enabled banks to improve client relationships, deepen sales among clients, identify client weaknesses, and help in targetting high-value accounts. Moiso and Minerva (2012) concluded that personal data management within commercial banks is expected to enhance personalized service offerings and improved customer management within banks. This has known to add value to customers, but the effect on customers has yet to be studied in detail.

Mutoni (2018) indicates that there is an increase in the demand for digital channels and virtual account management in banking owing to the increasing customer experience that is offered through the platforms. These channels allow customers to undertaking digital account opening and loan applications, which foster customer satisfaction. Larsson andViitaoja (2017) found out that the digitalization process in Swedish banks improved customer relations. The results also indicate that the implementation of digital banks posed challenges in customer proficiency and experiences. Heinonen and Michelsson (2010) indicate that digital and interpersonal contacts were key to creating customer relationships in Finnish banks. The study found that digital marketing activities positively improved relationship management within banks. Most of these studies examined have determined the final effect on customer relationships while they did not consider how the process to transform digitally is affecting the customer relationship. This study sought to determine how the digital transformation process affects customer relationship management among commercial banks in Kenya.

1.1.2 Customer Relationship Management

Globally, increased competition has necessitated firms to introduce new strategies aimed at ensuring that they remain competitive. This has resulted in firms investing in policies to ensure that they are able to retain their already acquired customers so as to ensure long-term sustainability (Madeira, Jorge, Sousa, Moreira, & Mainardes, 2014). According to Yao and Khong (2012), developing a customer relationship management system would enable an organization to gain a competitive advantage over the others in the marketplace. CRM system

is a component of the people, the processes, and the adopted technologies that improve customer service efficiency (Mueller, 2010).

Reinartz, Kraft, and Hoyer, (2005) conceptualized that the CRM process evolves with distinctive phases and that the processes are a longitudinal phenomenon. CRM emphasizes on cooperative and collaborative relationships between the firm and its customers and other marketing actors with the aims of directing all the organizational activities towards creating and maintaining a customer (Rababah, Molod, & Ibrahim, 2011). Jennex (2012) defines customer relationship management as the procedures, policies, and innovations that businesses adopt to maintain and interpret customer communication and information throughout the business-customer relationship. According to Buttle (2009), CRM is not only about Information Technology but is actually about all the internal and external processes that help deliver value to targeted customers.

CRM makes use of emerging technology to provide fast and effective customer service through the development of a relationship using information collected from customer databases. It aims at bringing onboard new clients for the organization, maintaining the existing customer, and growing the relationship using the current customers (Brink & Berndt, 2009). CRM enables firms to offer customers more personalized products and services, cultivate more customer relationships, put in place customer-focused structures, culture, policies, and a reward system (Kubi & Doku, 2010). CRM further facilitates a deeper understanding of customer needs, expectations, and motivations (Soliman, 2011). Advancements in technology enable organizations to manage the data collected from customer communication and interaction (Taylor, 2011). CRM is expected to continue advancing and expanding to higher capabilities due to the continued adoption of CRM systems by businesses for the management of customer relationships (Sulaiman, Abdullah, & Ridzuan, 2014).

The adoption of effective CRM policies, businesses will increase revenues by providing products and services that meet customer expectations, providing quality customer services by collecting market research on customers, enabling customer service staff to close transactions more swiftly, and maintaining existing and new customers (Brink & Berndt, 2009). CRM holds enormous possibilities and benefits such as increased customer retention and loyalty, improved quality, efficient procedures, the innovation of operation, enhanced service delivery, competitiveness, trust, and efficiency (Azad & Ahmadi, 2015). The study further established that CRM encouraged firms to reduce operational costs through the adoption of online

marketing channels in Kenya. Makau (2015) noted that the banking sector applied CRM to improve service delivery and product portfolio.

Ng'ang' a (2017) argues that CRM helps improve customer value, satisfaction, and retention. This is because of the intense communication maintained between the organization and its customers, which enables the sharing of information on the changing customers' needs and desires so that the organization can align its operations. With increased customer satisfaction, communication, and complaints handling, there is increased customer retention and customer loyalty. While various studies have shown various conceptualization of CRM in commercial banks; this study examined customer relationship management with a focus on customer attrition, customer retention, customer satisfaction, customer communication, complaints handling, and customer loyalty. The study sought to establish how the digital transformation process affects these factors.

1.1.3 Commercial Banks in Kenya

The financial service industry is constantly changing, and technology is playing a big role in the transformation in product development and service offering within the industry (Kelly & Kerr, 2017). Technological advancement and availability of connectivity have played a role in disrupting the financial industry who had to be innovative. The financial firms have had to be innovative to grow and survive the turbulence in the environment, especially to meet customer needs (Sarmah & Rahman, 2018). In such a turbulent environment, the firm has to be innovative and develop dynamic capabilities to maintain competitiveness (Chen et al., 2017). This enables them to exploit their resources, integrate their business capabilities, and establish competencies to provide customers with quality services (Sun & Pang, 2017).

In the wake of intense global and local competition, commercial banks in Kenya have realized that long term mutually beneficial relationships are the way forward (Muro, 2011). In particular commercial banks have recognized the need to not only attract customers but also to forge and maintain long-term relationships with them to create a competitive edge in an ever-increasing competitive marketplace (Mwangi, 2013). Thus, the banks have embraced relationship marketing and undertaken organization-wide strategies to manage and nurture their interaction with customers (Mutua, 2011).

According to KPMG (2014), in Africa, only 6 out of every ten customers are willing to repeat business with their banks, similar to those who report that they would recommend their bank to others. Country averages for customers with both repurchase and recommendation intentions

vary significantly: Ghana (44%); Senegal (43%); Botswana (46%); Tanzania (55%); Uganda (65%) and Kenya (55%). Despite the robust relationship marketing strategies adopted by commercial banks in Kenya, there is insufficient tangible evidence of the quality of these relationships. Furthermore, with the increasing evolution in technologies within Kenyan commercial banks and the implementation of digital transformation processes, research work must be conducted within the Kenyan banks to examine the link between the various digital transformation processes and customer relationship management. As of December 2019, 41 operational commercial banks in Kenya are regulated by the Central Bank of Kenya.

1.2 Statement of the Problem

Borges, Marine and Ibrahim (2020) notes that various commercial banks have acknowledged that digital transformation processes are key to fostering the performance of commercial banks. However, the progress and benefits of these processes have been inconsistent and slow in being realized on the bottom line of commercial banks. Statistics indicate that only 17% of commercial banks have adopted transformation to scale. In comparison, 41% of commercial banks had adopted digital transformation partially, 38% of commercial banks indicated the processes were in design level, and 11% of commercial banks had limited deployment of digital transformation processes (Pramanik, Kirtania, & Pani, 2019). Samini, Aghaie, and Shahriari (2012) found that adopting CRM best practices was a big challenge for many organizations, with a significant percentage of the executives surveyed evaluating their capabilities to be poor or below average with an average score of between 17% to 37%.

Muro (2011) revealed that commercial banks in Kenya have put in place different CRM systems, which include customer relations management systems, transaction processing systems, executive support systems, and decision support systems. The study also found that customer relations management systems are widely used, with a majority of the banks rating it at a percentage score of 77.5%. Misati (2018) acknowledges that digital financial services are key to enhancing efficiency within the banking sector; however, their gap in closing the gap between technology and bank customers. Mutoni (2018) indicates that leveraging on the disruptive digital platforms would be key to enhancing competitiveness and growth within commercial banks. As much as the above studies show the key role of digital technologies, there is limited knowledge on the role of digital transformation processes towards improving customer relationship management within Kenyan Banks. The current research primarily focused on solving this knowledge gap.

Several studies have sought to examine the impact of the digital transformation process on commercial banks. Carmen, Macarena, David, and Pablo (2016) examined the digital transformation of the global banking industry and indicates that this has been implemented through the development of new channels, adoption of technology infrastructure, and deep organization changes, which leads to better customer satisfaction and competitiveness. Ortstad and Binan (2017) studied the effects of the digital transformation process on banks' relationships with customers in Sweden. They found that there has been an increase in automated customer relationships which has improved satisfaction levels. Regionally, there have been very few studies, including Sadek, Youssef, Ghonein, and Tantawy (2012), who studied the effect of Customer relationship management on commercial banks in Egypt and determined that an increase in CRM increases the profitability and overall success of the bank. Muluka (2015) studied the influence of digital banking on customer satisfaction in the National bank of Kenya and notes that there accessibility of digital banking, adaptability of digital banking, and speed of transactions positively improves customer satisfaction.

From the above studies, it is evident that there is increasing adoption of digital transformation processes within commercial banks. However, insufficient data is indicating how the adoption of digital transformation processes can affect customer relationship management within Kenyan banks, thus creating an empirical gap. With the increasing proliferation of digitalized banking processes, this gap needs to be solved to enhance available empirical evidence. Thus it is important for the available evidence to be expanded and establish if any of the digital transformation processes can influence the level of customer relationship management hence the need for this research.

1.3 Objectives of the Study

The main objective of the research was to establish the effect of digital transformation processes on customer relationship management within commercial banks in Kenya

1.3.1 Specific Objectives

i. To establish the effect of service automation on customer relationship management within commercial banks in Kenya
ii. To determine the effect of data analytics on customer relationship management within commercial banks in Kenya
iii. To establish the effect of digital channels on customer relationship management within commercial banks in Kenya

1.4 Research Questions

i. What is the effect of service automation on customer relationship management within commercial banks in Kenya?
ii. What is the effect of data analytics on customer relationship management within commercial banks in Kenya?
iii. What is the effect of digital channels on customer relationship management within commercial banks in Kenya?

1.5 Significance of the Study

This study is expected to benefit the management of commercial banks, the regulatory authority, the bankers' association, and academicians in various measures. To the management of commercial banks, these results will provide insights on how the various digital transformation processes can be vital in supporting better customer experience within the banks.

The findings will also help to stimulate debate within the Kenya Bankers Association (KBA) on how best to seek strategic alliances with telecommunication firms and other players in the financial sector in implementing emerging digital transformation processes such as Application Programming Interface - API revolution and other FinTech solutions.

To the CBK, the results can be integral in systematically designing regulations for the adoption of digital transformation processes as well as creating a conducive environment to support the enhanced adoption of emerging technologies. The study findings are also expected to benefit scholars by acting as a source of knowledge on the various digital transformation processes and CRM in Kenya. Further, the results are expected to foster the available empirical evidence and act as future reference material for researchers examining CRM in Kenyan banks.

1.6 Scope of the Study

The research scope was geographically be focussed on commercial banks operating within Nairobi City County. The contextual scope of the research focused on the digital transformation processes and customer relationship management within the commercial banks. The theoretical scope of the study focused on the Resource-Based View and the Identify, Differentiate, Interact, and Customise Theory. The study adopted a quantitative methodology with the unit of analysis being personnel working within the commercial banks. The time scope of the study was constrained between the period of May 2020 to July 2020.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature focusing on the research variables. The chapter specifically presented a review of the theoretical foundations of the research, a review of the empirical literature, a summary of the literature and research gaps as well as the presentation of the conceptual framework.

2.2 Theoretical Review

The theoretical framework is a set of concepts and ideas, showing the proposed relationships among these concepts or variables (Creswell, 2007). This study adopted the Resource-Based View, the Identify, Differentiate, Interact, and Customise Theory.

2.2.1 Resource-Based View

A brainchild of Penrose (1959), RBV views the firm as a bundle of resources and capabilities that are heterogeneously distributed across the firm as it persists over time (Ambrosine & Bowman, 2009). This theory advocates for companies to develop peculiar and diversely distributed resources effectively so as to attain sustainable competitive advantage (Barney J. , 2010). Powell (2007) argued that the capability of a firm in the market was seen in terms of its resources and competencies. The main assumption of this theory is that resources are different for each firm and that thus unique nature of firm resources will remain so over a long period of time. In an equilibrium, the firm will become super profitable since it will possess the right balance of resources. However, this view has been dismissed as static (Barney, 2001).

Success is a product of the firm's ability to identify or create competencies that are unique and distinctive from its competitors (Ghobadian & O'Regan, 2008). Resources may be tangible, intangible, and personnel-based (Grant, 2001). Intangible resources include possessions as structure, technology, and processes. This theory, therefore, analyses the firm's ability to assemble, integrate, and manage these resources (Aragon-Correa & Sharma, 2003). Success is, therefore, dependent on whether the firm will make use of these rare and imitable resources effectively to minimize costs and generate wealth for customers (Barney, 2010). The clustering and inter-fitting of these resources into the system to improve organizational performance is key to getting a better comprehension of a firm's competitive advantage and firm performance (Bridoux, 2004).

Foss (2011) argues that a firm's unique resources and capabilities primarily drove a collection of evolving capabilities that was managed dynamically in pursuit of above-average returns, the difference in firms' performance over time through a synergistic combination and integration of sets of resources. Nicolai (2011) indicates that the RBV is efficient and practical because it focuses on the strengths of the assets and capabilities of the firm and their ventures by also incorporating market opportunity, industry conditions, and competition. The RBV fails to address how to identify and utilize future resources and how to refresh, re-integrate or reconfigure the existing resources when the markets become stressed or severely impacted (Ambrosini & Bowman, 2009).

The resource-based view offers a critical way of examining how a firm can reconfigure its resources and capabilities and integrate them into its operations for better firm performance. In the same vein, the introduction of digital transformation processes in commercial banks is dependent on a reconfiguration of the firm unique systems, processes, and capabilities with a view of enhancing customer experience. The theory is of relevance since the current study is examining how the digital transformation processes can be harnessed as unique resources and capabilities of the firm that can be utilized in supporting better operations and provision of banking services.

2.2.2 The Identify, Differentiate, Interact and Customise Theory

A product of Peppers and Rogers (2001), the Identify, Differentiate, Interact, and Customise model notes that companies have to take four key steps. The theory's main aim is to enhance the nature of the relationship between the customer and the service provider. Identification of the customers should be the first step. This is then followed by developing a deep understanding of the identified targets (Peppers & Rogers, 2004). On the company's end, it has to collect personal information about the customer, their name, address, and purchasing history. This may not be possible to carry out at all points of interaction which is why the firm has to ensure that it sets up a system for effective information sharing across the different departments. The banks should additionally ensure that this information is arranged systematically to ensure that information about a customer can be obtained and linked through different departments (Akhgar, Siddiqi, Foster, Siddiqi, & Akhgar, 2002).

Different customers have different value to the bank making it paramount for banks to identify unique needs from each customer. Before enrolling any offer, it is necessary to identify the value that each customer brings to the firm (Peppers & Rogers, 2001). Each interaction with a

customer is an opportunity for the company to learn a little about the customer's individual preferences. The data collected may be useful when tailoring offers that may benefit the individual customer thus increasing satisfaction levels to the individual customer. An example would be for regular users to receive hastened services to ensure that they feel valued by the company thus remain loyal (Chen & Popovich, 2003).

This theory explains why firms should use technology infrastructure not only to identify but also differentiate, interact, and customize the types of services they provide to customers. This improves loyalty and retention capacity of the particular firm (Peppers & Rogers, 2004). The choice of strategy adopted by an organization and infrastructure selected to attain organizational goals is informed by the tenets of this theory hence this theory was relevant to the current research as it helped in explaining the rationale behind commercial banks' utilization of various technologies to identify, differentiate and customize customer's needs to improve customer relationship management. This theory thus anchored the dependent variable of this study.

2.3 Empirical Review

The empirical review section contained a systematic review of previous studies in line with the research objectives. This helped in identifying the various research gaps that the current research sought to solve.

2.3.1 Service Automation and Customer Relationship Management

Sivaraks, Krairit, and Tang (2011) examined the effects of e-CRM on the customer–bank relationship quality and outcomes in Thailand. The study adopted a survey research design focusing on 684 customers drawn from Thai commercial banks. The collected data was analyzed using structural equation modeling. The findings indicate there is a positive association between automated customer-based service attributes with the outcome of customer-bank relationships. The study indicates there is an indirect effect of service customization on relationship quality in commercial banks. The study however focused on the quality of customer-bank relationships in Thailand, while the current study investigated CRM within Kenyan banks.

Yang (2012) investigated the link between service capabilities and customer relationship management of Taiwan commercial banks. The study adopted a quantitative approach with two samples being analyzed among bank staff and bank customers using multiple regression analysis techniques. The results of the study indicate that information knowledge management,

conjoint service capabilities, and marketing knowledge positively influenced the effectiveness of CRM performance. The research, however, did not examine the adoption of digital transformation processes, which was the focus of the current study.

Khanna and Gupta's (2015) research focused on customer's perception of bank technology for innovative delivery channels of public sector banks (PSBs) of India. The study relied on a survey methodology that utilized a structured research questionnaire. The study adopted random sampling in selecting 304 respondents. The collected data was analyzed using descriptive and inferential analysis. The study results indicate that the delivery of financial products and services through innovative and automated channels enhances effectiveness and customer satisfaction. The study also notes that the sense of security and safety of innovative delivery channels are key to effective customer management. The research, however, fails to examine the link between innovative delivery of bank services and CRM within commercial banks, which is the focus of the current study.

Adewale, Ibidunni, Badejo, Odu, and Adoghe (2014) studied the biometric-enabled E-Banking in Nigeria banks with a focus on the management and customers' perspectives. The study adopted an empirical evaluation, with 740 respondents being selected for the survey. The collected research data was analyzed using descriptive statistics and T-tests. The findings indicate that customers strongly support the adoption of biometric automated teller machines, which enhanced the efficiency and security in making transactions. The study, however, failed to examine customer relationship management perspectives, which are the focus of the current study.

Abdullai and Nyaoga (2017) examined the effect of automated teller machines usage on the operational performance of commercial banks in Nakuru County, Kenya. The research employed a correlation cross-sectional research design with the population of the study being drawn from the 28 commercial banks in Nakuru. The study relied on structured questionnaires in the data collection process. The findings indicate that ATM usage had positively influenced the operational performance of commercial banks. The study indicates that ATMs positively enhanced bank efficiency in service offerings improves customer access and increased convenience in the provision of services. The research, however, fails to link the automation to the customer relationship management practices within the commercial banks, which the current study examined. (Mukwasi & Seymour, 2016) investigated the relationship between customer relationship management and delivery of IT services among South African higher

learning institutions. The study involved practitioner-based inquiries to assess the effect of various CRM initiatives on implementation of IT services among higher education institutions. Findings revealed that CRM in key in effective IT service delivery, improving customer experience especially in situations where the customers are internal. This study focussed on for non-profit institutions while this study focussed on financial institutions.

Mohamud (2016) conducted a study on the relationship between automated queuing and the experience of Kenya Commercial Bank retail customers in Nairobi, Kenya. The study adopted a descriptive cross-sectional research design with the population of study being the account holders at Kenya Commercial Bank. The study collected research data using a structured research questionnaire. The results indicate that there is a positive link between the automated queuing system and customer experience. The study indicates that automation improved satisfaction among customers as it resulted in better monitoring of customer traffic and increased efficiency within the bank. The study, however, does not consider other processes of digital transformation, such as data analytics and digital channels, that the current study examined. On investigating Impact of information technology innovation on firm performance in Kenya, (Chege, Wang, & Suntu, 2020) issued questionnaires to 240 entrepreneurs and applied structural equation modelling in the analysis to determine the association between technology development and customer management among SMEs in Kenya. Findings indicated that innovative technological strategies positively influence firm productivity. The study focussed on SMEs registered under the Youth Enterprise Development Fund (YEDF) while the current focusses on banks.

2.3.2 Data Analytics and Customer Relationship Management

Qingsong, Hong, and Xiao (2018) examined the application of data mining technology in customer relationship management of commercial banks in China. The study applied Logistic regression to examine the customer response, forecasting, and application of different marketing campaigns. Through in-depth analysis, the study indicates that customer characteristics were applied in designing and implementing different marketing campaigns. The research indicates that data mining offered commercial bank management with valuable data that enable them to make better business decisions and provide quality financial services to customers, which improved customer relationship management. The study was focused on Chinese commercial banks, while the current study examines CRM within Kenyan banks.

Orenga-Roglá and Chalmeta (2016) studied social customer relationship management through the utilization of Web 2.0 and Big Data technologies. The study was conducted within ten months with 250 employees being considered in the research. The study adopted both qualitative and quantitative research data. The results of the study indicate that the adoption of bid data analysis enabled the firm management to design customer profiles that were more suited to customer preferences and enabled better customer service management. The study indicates that Big Data allows for better sharing of customer knowledge and the implementation of technology infrastructure that allows for better social customer relationship management. The study was conducted within retail service firms, while the current study examined CRM within the banking industry.

(Anshari, Almunawar, Lim, & Al-Mudimigh, 2019) conducted a literature review and thematic analysis of recent studies to determine the relationship between big data and customer relationship management. It was determined that adoption of big data and CRM practices has increased the level of aggressiveness in which businesses approach marketing. The study noted that big data enhances personalization which improves satisfaction levels among customers. Big data has enabled businesses to enhance service delivery through customer engagement, attention, participation and personalization. The study fails to assess other factors such as service automation on CRM.

Krishna and Ravi (2016) examined evolutionary computing applied to customer relationship management within Indian commercial banks. The study adopted an empirical review of 78 papers that were published between 1998-2015. The findings of the research indicate that the adoption of evolutionary computing practices such as data mining, data analytics, data optimization positively improved customer relationship management. The study indicates that increasing the design and implementation of modern computing technologies have enhanced the formulation of better customer relationship practices within commercial banks. The research relies on a desktop review of previous research work, while the current study utilized primary research data.

Nderi (2014) examined the relationship between business analytics and performance of commercial banks in Kenya. The research employed a cross-sectional research design with the population of the study being drawn from the 44 commercial banks in Kenya. The study applied both descriptive and inferential analysis. The study indicates that the application of business analytics in commercial banks actively improved the performance of commercial banks. The

study indicates that business analytics can be integrated into credit and loan processing, market analysis, business process improvement, and reengineering, predicting customer financial habits as well as fraud detection and prevention. The study focused on the performance of commercial banks, while this study examines the effect of data analytics on CRM within commercial banks in Kenya.

Mang'unyi, Khabala, and Govender (2017) examined the relationship between e-CRM and customer loyalty within Kenyan Commercial Bank. The study adopted a cross-sectional survey design that collected research data using convenience sampling from customers using a self-administered questionnaire. The data were analyzed using correlation and multiple regression analysis. The results of the study indicate that utilization of client data pre-service offerings, use of digital tools in CRM are key to improving customer loyalty. The study indicates that the utilization of modern technologies will result in better bank relationships with their customers. The study was, however, conducted within a single commercial bank and focuses on customer loyalty while the current study examines CRM in the Kenyan banking industry.

Ndambo (2016) studied the link between big data analytics and competitive advantage of commercial banks and insurance companies in Nairobi, Kenya. The study employed a descriptive research design focusing on 42 commercial banks and 49 insurance firms in Kenya. The research applied a structured research questionnaire in the data collection with both descriptive and regression analyses being adopted. The study indicates that most of the firms have invested in data storage facilities, have invested in advanced data analytics tools and business intelligence for reporting and analyzing customers. The results show that the application of big data analytics systems leads to better insights that improve decision making within the firms. The research concludes that big data analytics positively improves the competitive advantage of commercial banks and insurance firms. The study, however, focuses on competitive advantage while the current study examines customer relationship management within commercial banks.

2.3.3 Digital Channels and Customer Relationship Management

Asfour and Haddad (2014) studied the impact of mobile banking on enhancing customers' E-satisfaction within commercial banks in Jordan. The study focused on the digitalization of banking with the increasing availability of bank services through mobile banking. The study collected research data from a sample of 360 customers with structured questionnaires being adopted in the research. Findings indicate that mobile banking services positively contributed

to increased customer satisfaction as a result of increased privacy and accessibility of their banking services. The research, however, fails to examine CRM practices, which are the focus of the current study.

Ephrem (2016) conducted a study on the impact of electronic banking service on customers' satisfaction in selected commercial banks in Addis Ababa. The study employed descriptive research, with 160 questionnaires being utilized in collecting research data. The research utilized descriptive, ANOVA analysis, and multiple regression analysis. The findings of the study indicate that electronic banking positively influenced customer satisfaction. The study notes that infrastructural barriers such as network failure, low level of internet penetration, unreliable power supply, requirements of heavy investment, and lack of ICT knowledge have limited the digitalization of commercial banks in Ethiopia. The study focuses on customer satisfaction, while the current study explored CRM in Kenyan banks.

Simon and Thomas (2016) examined the effect of electronic banking on customer satisfaction in selected commercial banks, Kenya. The study adopted a descriptive research design focusing on the Tier I bank in Kenya. The study relied on a structured research questionnaire, and the data were analyzed using descriptive and inferential analysis. The study indicates that the flexibility of internet banking influences the customer satisfaction of commercial banks. The study also concludes that the convenience of mobile banking affects customer satisfaction to a greater extent. The study also notes that the usefulness and friendliness of internet banking had a low influence on customer satisfaction. The study fails to consider other aspects such as data analytics and service automation and how they affect CRM within the banking industry.

Margaret and Njuguna (2018) studied the effects of online interactivity on customer relationships in the banking industry in Kenya. The research adopted a descriptive research design with research data being collected from the 42 commercial banks in Kenya. The study focused on how digital banking and online interactivity have affected the bank-customer relationship. The data collected was analyzed using descriptive and inferential analysis. The findings indicate that online interactivity significantly and positively influences the nature of customer relationships within commercial banks. The study indicates that commercial banks should foster the implementation of digital banking, which enhances user-friendliness, online customer feedback, and relations with tech-savvy customers. The study is convergent to the current research; however, it does not incorporate the impact of data analytics and service automation on CRM within Kenyan banks.

Githuku and Kinyuru (2018) conducted a study on the link between digital banking and customer relationship in the banking industry in Kenya. The research employed a descriptive research design, with 120 customers being selected from 6 commercial banks in Nairobi City County. The study collected primary data that was analyzed using descriptive statistics and linear regression analysis. The results indicate that the adoption of digital banks has contributed to cost efficiency in the management of customers. The research indicates that ease of interaction, decision support tools, customer care opportunities, as well as ease and flexibility in conducting transactions online is positively associated with customer relationship across commercial banks. The study doesn't exhaustively examine digital transformation processes and their interaction with CRM in commercial banks since it fails to consider data analytics in the research.

Wanjau (2013) investigated the effect of customer relationship management on customer retention in commercial banking institutions in Kenya. The study targeted front desk employees at Kenya Commercial Bank. After descriptive and statistical analyses was carried out on the questionnaires which had been used as data collection tools, it was determined that technology adoption encourages brand awareness, loyalty and promotion initiatives. However, it was noted that the locals were not comprehend the need for some of the modern banking initiatives and instead preferred conventional banking methods, leading to the recommendations that it is necessary to educate the public about emergent technologies. The study focused on performance of KCB while the current study focusses on all financial institutions.

MujtabaIshaq and Daubner (2020) conducted a study on digital customer experience management and reported that there is a positive user experience is an indicator of digital maturity, and has numerous advantages to firm performance. Further, it was noted that there are emergent digital technologies such as cloud computing, mobile computing and social media which are all instrumental in enhancing customer management. This study recommends that businesses adopt appropriate technological systems to ensure customer experience in enhanced, hence ensuring long-term customer relationship management.

2.4 Summary of Research Gaps

From the discussion in the previous section the study was able to identify a number of research gaps that informed conducting the current research. Abdullai and Nyaoga (2017) did not establish if service automation within commercial banks predicted customer relationship management practices. Nderi (2014) in their study focussed on the banks performance while

current research investigated customer relationship management in Kenyan banks. Margaret and Njuguna (2018) in their study did not examine how usage of data analytics and service automation influenced customer relationship management in Kenyan banks. The various research gaps are presented in the table below.

Table 2.1 Research Gaps

Author	Title	Research Findings	Research Gap
Margaret and Njuguna (2018)	Effects of online interactivity on customer relationship in the banking industry in Kenya	The findings indicate that online interactivity significantly and positively influences the nature of customer relationships within commercial banks	The study is convergent to the current research however it does not incorporate the impact of data analytics and service automation on CRM within Kenyan banks
Abdullai and Nyaoga (2017)	Effect of automated teller machines usage on the operational performance of commercial banks in Kenya	The findings indicate that ATM usage had positively influenced the operational performance of the commercial banks	The research, however, fails to link the automation to the customer relationship management practices within the commercial banks which the current study examined
Mang'unyi, Khabala, and Govender (2017)	Relationship between e-CRM and customer loyalty within Kenyan Commercial Bank	The study indicates that the utilization of modern technologies will result in better bank relationships with their customers	The study was however conducted within a single commercial bank and focuses on customer loyalty while the current study examines CRM in the Kenyan banking industry
Ndambo (2016)	Big data analytics and competitive advantage of commercial banks and insurance companies in Nairobi, Kenya	The results show that the application of big data analytics systems leads to better insights which improve decision making within the firms	The study, however, focuses on competitive advantage while the current study examines customer relationship management within commercial banks
Khanna and Gupta (2015)	Customer's perception about banks technology for innovative delivery channels of public sector banks of India	The study notes that the sense of security and safety of innovative delivery channels are key to effective customer management	The research, however, fails to examine the link between innovative delivery of bank services and CRM within commercial banks, which is the focus of the current study.

Source: Researcher (2020)

From the review of the empirical literature, it is evident that studies on the digital transformation process and its link to customer relationship management have been widely conducted. However, the varying study context and methodologies applied have resulted in various research gaps that the study summarizes in the above table 2.1.

2.5 Conceptual Framework

A conceptual framework has been defined as the visual or a written product that explains, either in a narrative form or graphically, the main things that are to be studied, including the key factors, variables or concepts, and the relationships that are presumed to exist among them (Rogers, 2016). The below conceptual framework presented the hypothesized interaction between digital transformation processes and customer relationship management.

Independent Variables **Dependent Variable**

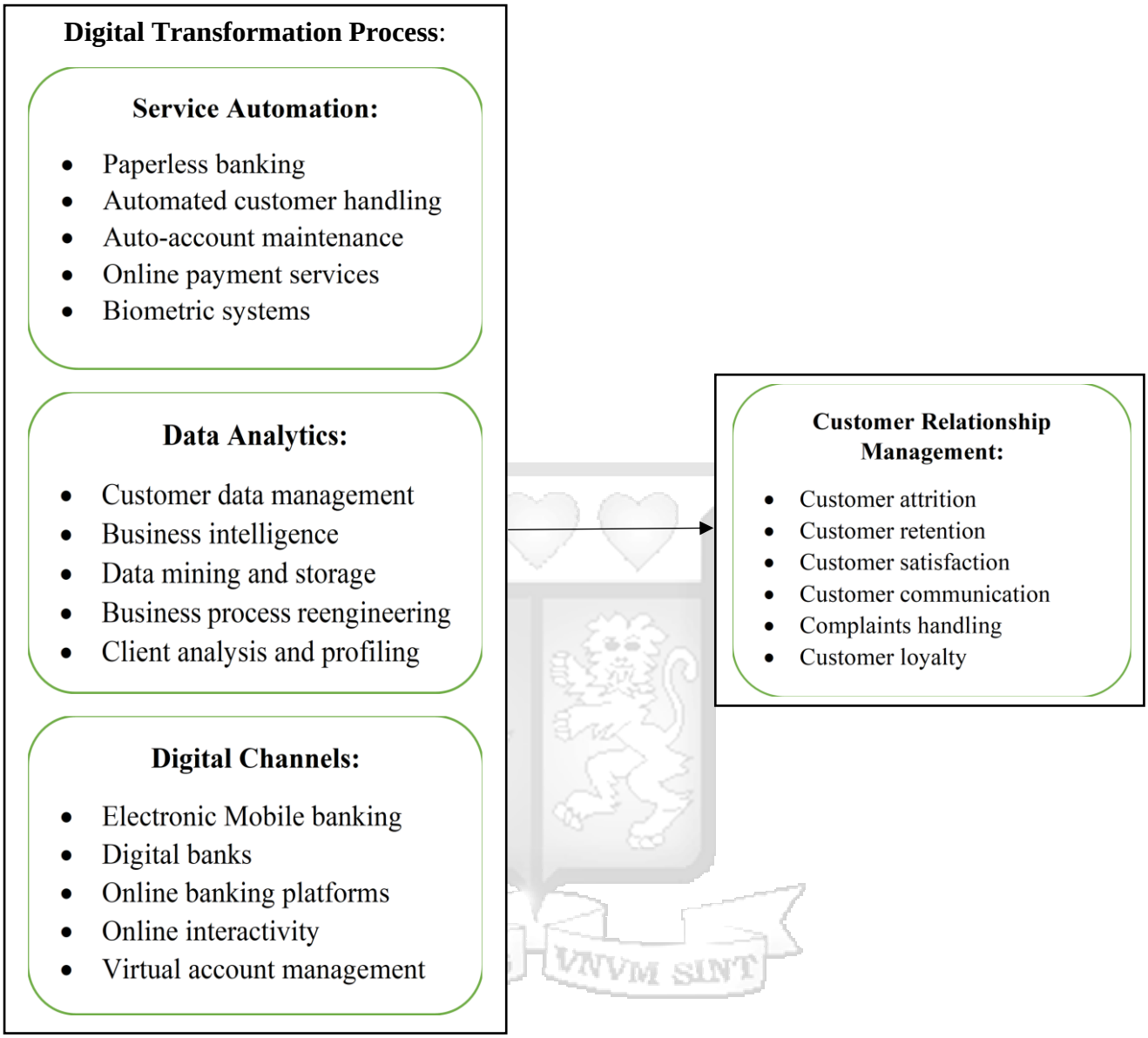

Figure 2.1 Conceptual Framework
Source: Researcher (2020)

The above conceptual framework hypothesizes the interaction between the digital transformation process and customer relationship management. The study assessed the digital transformation process through service automation, data analytics, and digital channels within commercial banks in Kenya. Customer relationship management was assessed using qualitative metrics. The conceptual framework is operationalized as shown below;

Table 2.2 Operationalization of Study Variables

Type	Variable	Constructs	Data Collection Tool	Data Analysis	Sources
Dependent Variable	Service automation	• Paperless banking • Automated customer handling • Auto-account maintenance • Online payment services • Biometric systems	5-point Likert questionnaire	Descriptive analysis Inferential analysis	Abdullai and Nyaoga (2017)
Dependent Variable	Data analytics	• Customer data management • Business intelligence • Data mining and storage • Business process reengineering • Client analysis and profiling	5-point Likert questionnaire	Descriptive analysis Inferential analysis	Ndambo (2016)
Dependent Variable	Digital channels	• Electronic Mobile banking • Digital banks • Online banking platforms • Online interactivity • Virtual account management	5-point Likert questionnaire	Descriptive analysis Inferential analysis	Mang'unyi, Khabala, and Govender (2017)
Independent Variable	Customer relationship management	• Customer attrition • Customer retention • Customer satisfaction • Customer communication • Complaints handling • Customer loyalty	5-point Likert questionnaire	Descriptive analysis Inferential analysis	Khanna and Gupta (2015)

Source: Researcher (2020)

2.6 Chapter Summary

The second chapter reviewed the relevant literature that supported this study. The Resource Based-View theory informed how the study can utilize various digital transformational processes to attain better CRM. The Identify, Differentiate, Interact and Customise Theory underpinned how commercial banks processes are geared towards meeting customer needs through utilization of various digital processes. The review of empirical literature enabled the study to identify various gaps that were solved by conducting the study. The chapter further presented the conceptualization of the research variable and the operationalization of the variables.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology to be used to examine the research problem. The chapter in detail presents the research design, target population, sampling techniques and size, data collection instruments, data collection procedures, data analysis, and presentation as well as the ethical considerations that were adopted in the research.

3.2 Research Philosophy

Research philosophy is the paradigm upon which a study is situated concerning the overarching underpinning of how knowledge is acquired and developed (Babin & Zikmund, 2012). The study adopted the epistemological paradigm. Epistemological assumptions describe the notion of how knowledge can be created, enhanced, and transferred (Cooper & Schindler, 2012). There are four epistemological positions, namely realism, interpretivism, positivism, and axiology (Kerlinger & Lee, 2000). The positivist philosophical orientation guided the study. This is a theoretical orientation that emphasizes the verifiability of knowledge and truth (Creswell, 2007). This orientation recognizes that which can be evidenced or verified using the senses. It is argued that knowledge that is not verifiable through senses should be verifiable using proxy indices in the form of behavior (Sekaran & Bougie, 2009).

3.3 Research Design

A research design is very important as it guides a researcher with a template to follow until the research project is completed (Cooper & Schindler, 2012). The research design refers to the overall conception of the study, including a description of all concepts, variables, and categories, the relational propositions, and methods of data collection and analysis. The choice of the research design depends on how much is already known about the research problem (Kumar, 2019). The study adopted a cross-sectional descriptive research design. The research design was adopted in the study since it allows for the description of the relationships between the dependent and independent variables. Further, descriptive cross-section survey research, according to Oso and Onen (2009), enables the study to obtain information that describes existing phenomena by asking individuals about their implementations, attitude, behavior, or values. The cross sectional design was appropriate for the study since it allowed for examination of a population at a specific period in time.

3.4 Population and Sampling

3.4.1 Target Population

Population refers to a complete number of objects or entities that can be included in a particular study (Zikmund, Babin, Carr & Griffin 2012). The target population of the study was drawn from the 41 commercial banks operating in Kenya. The unit of observation of the research was drawn from the Chief Technology Officers, the Human Resource Managers, and the Operations Manager. The staff members were selected for this study since they are deemed to have adequate information necessary for the solving of the research problem.

Table 3.1 Target Population

Job Category	No of Banks	Population
Chief Technology Officers	41	41
Human Resource Managers	41	41
Operations Manager.	41	41
Total Population	**41**	**123**

Source: Researcher (2020)

3.4.2 Sampling Design and Sample Size

The sampling frame refers to the collection from which the units of observation can be picked for the study. It includes all the eligible units that can be picked for analysis (Babin & Zikmund, 2012). The sampling techniques can either be probability or non-probability (Saunders, Lewis, & Thornhill, 2014). The probability sampling technique offers each object in the population an equal known chance to be chosen. In the non-probability sampling technique, the objects have no preset likelihood of being chosen (Cooper & Schindler, 2012). The study adopted the probability sampling technique.

In sampling, some elements are selected from the actual population as a representation but should be large enough to detect a significant effect (Kerlinger & Lee, 2000). A sample is a proportion of the subjects of the study used to represent the whole population (Cooper & Schindler, 2012). The sample size refers to the representatives of the population that is picked for inquiry on behalf of the other units in the population (Bryman & Bell, 2007). It should contain the attributes of the population and should be a good representation of the population for generalizable results (Choy, 2014). The sample size should also meet the criteria of level of precision, the confidence level, and the extent of predictability of the elements being quantified in the population. The sample size for the study was calculated using the Yamane Formula as indicated below;

n =sample size,

N = population size

e =level of precision.

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

$$94 = \frac{123}{1 + 123\ (0.05)^2}$$

The sample respondents for the study were 94 respondents, including Chief Technology Officers, the Human Resource Managers, and the Operations Managers drawn from the 41 commercial banks. The study utilized judgemental sampling in the selection of the personnel within the commercial banks who met the requirements for the study based on the positions they held within the commercial banks. Since, the participants selected met the study requirements based on the researcher's knowledge ensures that the information collected is accurate and there is minimal error in selection of the study participants.

3.5 Data Collection

Data collection refers to the specific method that research employs to obtain the data that is needed to answer the research questions for the study (Lawal, 2013). A researcher ought to decide on what data to collect, where to collect it, how to collect it, and whom to assist in collecting the data (Choy, 2014). The study relied on primary research data that was collected using structured research questionnaires. The questionnaires adopted a 5-Point Likert Scale in the development of the questions. The study questionnaire was formulated to capture all the research variables and their constructs as operationalized in the study. The questionnaire had two main sections. The first section of the study obtained information on the background data of the respondents, while the second section contained structured statements about the dependent and independent variables of this study.

Data collection procedure refers to the systematic approach of gathering facts about a phenomenon using specific methodologies and precise instruments to meet the goals of the study (Choy, 2014). The research adopted a drop and pick method in the data collection. This was supplemented by Google forms in the data collection process. This helped to enhance the

efficiency in the data collection, and it enabled the respondents to fill in the questionnaires at a convenient time.

3.6 Research Quality

Questionnaires were subjected to pilot testing to ascertain that they are reliable before issuing to intended respondents (Sekaran & Bougie, 2016). Pilot testing is a survey that is carried out before the actual fieldwork to test the appropriateness of the instrument. It works by trying the instrument out first on a few people before going ahead with a full-blown research study or experiment (Hazzi & Maldaon, 2014). The general practice for pilot studies is to administer the instrument to a small group of representatives who have a similar characteristic with a larger group to be engaged in the actual study (Sidola, Kumar, & Kumar, 2012). The study conducted pilot tests, with 10% (n= 9) of the sample population. This allowed for both reliability and validity tests of the research instruments to be conducted.

3.6.1 Reliability Tests

The study conducted a reliability test to ascertain whether the items that propose to measure the same general construct produce similar scores (Josias, 2005). A reliability test is used to measure the internal consistency of the research instrument. This assesses the degree to which the findings of the research instrument can be replicated in repeat studies (Fraenkel, Wallen, & Hyun, 2012). Thus, to determine the reliability as based on internal consistency, the Cronbach alpha (α) formula was applied in the study, and the results obtained were presented graphically. The following scale was adopted in the interpretation of the results: >0.9 – Excellent, >0.8 – Good, >0.7 – Acceptable, >0.6 – Questionable, >0.5 – Poor and <0.5 – Unacceptable. The questionnaire was adopted if it achieves a Cronbach alpha of more than 0.7. The study conducted a pilot test among 9-commercial bank managers, and the findings are shown in Table 3.2 below.

Table 3.2 Reliability Statistics

Variable	N	Cronbach's Alpha	N of Items
Service automation	9	.930	5
Data analytics	9	.961	6
Digital channels	9	.943	5
Customer relationship management	9	.743	6

Source: Research Data (2020)

The pilot results indicate a Cronbach alpha of 0.930, which denotes that the variable role of service automation was excellent. The findings show Cronbach's alpha of 0.961, which denotes that the variable data analytics was excellent. The results indicate a Cronbach alpha of 0.943, which denotes that the variable digital channels were excellent. The pilot results indicate a Cronbach alpha of 0.743, which denotes that the dependent variable customer relationship management was acceptable. A coefficient greater than 0.7 was deemed acceptable hence the research instrument was adopted for the research.

3.6.2 Validity Tests

Validity is the degree to which an instrument measures what it claims to measure (Golafshani, 2013). The validity of instruments depends on the ability and willingness of the respondents to avail of the information required (Sekaran & Bougie, 2009). The validity tests were carried out to assess the length, appropriateness, and structure of the questions that were used, and the necessary modifications were made before the questionnaire is administered to the respondents. Content validity examines whether the items in the questionnaire signify the construct, which is being measured in addition to the scoring, formatting, and wording of the instrument (Sekaran, 2003). The study subjected the questionnaire to an expert review with the research supervisor to ensure the completeness of the research instrument. The recommendations offered by the supervisor were utilized in enhancing the quality of the research questionnaire.

3.7 Data Analysis and Presentation

Data analysis is the process of converting raw data into information that can be used to arrive at conclusions (Arani, Mukuru, Waiganjo, & Musyoka, 2015). The collected research data was sorted, edited, and coded into SPSS 25 for subsequent data analysis. The research utilized a quantitative approach in the data analysis using both descriptive and inferential analysis techniques. The study relied on mean and standard deviation in the descriptive analysis, while correlation analysis, regression analysis, and regression model coefficients were utilized in the inferential analysis. The regression model that was adopted in the study is shown below;

$$\mathbf{Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Where: Y = Dependent Variable (customer relationship management)

Independent variables being;

X1 is service automation

X2 is data analytics

X3 is digital channels

α = the constant

β1- 3 = the regression coefficient or change included in Y by each X

3.7.1 Diagnostic Tests

The study adopted normality tests and multicollinearity tests before conducting the inferential analysis. The results of the tests adopted in the research are presented in chapter four of the study.

3.7.1.1 Normality Tests

The normality test for independent variables was conducted on the data since it is not possible to obtain accurate and reliable conclusions about reality when the assumption that the population from which the sample is extracted is distributed normally (Ghasemi & Zahediasl, 2012). The Kolmogorov-Smirnov test of normality was utilized to assess the null hypothesis that the data was normally distributed at a 95% confidence level.

3.7.1.2 Multicollinearity Tests

Multicollinearity is a problem that occurs when there is a great extent of the correlation between independent variables in a study (Bryman & Bell, 2007). The consequence of the occurrence of severe multicollinearity is that the R square was very high (Kumar, 2019). Multicollinearity can be tested using the variance inflation factor. The study utilized Variance Inflation Factor coefficients to determine if the independent variables are severely correlated with each other (Saunders, Lewis, & Thornhill, 2014). If the VIF value is above 10, then this indicates that the research constructs suffer from multicollinearity problems.

3.8 Ethical Considerations

The study ensured that ethical guidelines are adhered to within the research process. The study ensured that research approval is sought from the Strathmore University Ethical Review Committee. Further, the study applied for a research permit from the National Commission for Science Technology and Innovation (NACOSTI). The study also ensured that confidentiality is maintained within the research process by ensuring the anonymity of the respondents is maintained. The study further sought the consent of the participants to be involved in the research and ensured that their participation in the research was voluntary. Further, the collected research data was securely stored to ensure there is no unauthorized access. This fostered the anonymity of the respondents.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter is integral to the study in presenting the research findings obtained from the analysis of collected data. The chapter contains both descriptive analysis and inferential analysis based on the variables of the study. The presentation of the research results utilizes tables, bar graphs, and charts.

4.2 Background Information

This section contains information on the response rate achieved in the study as well as the demographic information of the study participants.

4.2.1 Response Rate

The research sought to collect research data from 94 participants drawn from commercial banks in Kenya. As a result of the Covid-19 restrictions, the research employed the drop and pick method in data collection. This was complemented by the use of Google forms where possible. The study was able to obtain a 90% response rate (n=85). The study was not able to obtain a response from 10% (n=9) of the sample participants.

Table 4.1 Response Rate

	Frequency	Percent
Responded	85	90.0
Did not Respond	9	10.0
Total	94	100.0

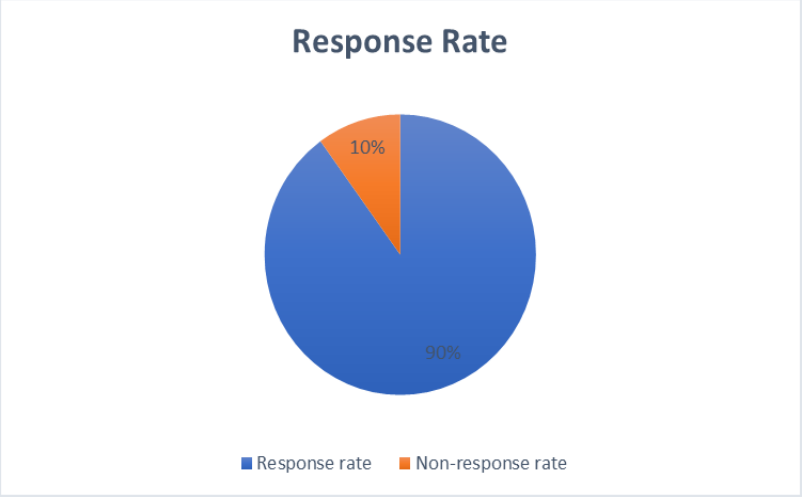

Figure 4.1 Response Rate
Source: Research Data (2020)

4.2.2 Age of Participants

The study reviewed the age of the respondents who took part in the research, and the findings are shown below.

Table 4.2 Age of Respondent

		Frequency	Percent
	25-35 years	49	58%
	36-45 years	26	31%
	46-55 years	10	11%
	Total	85	100.0

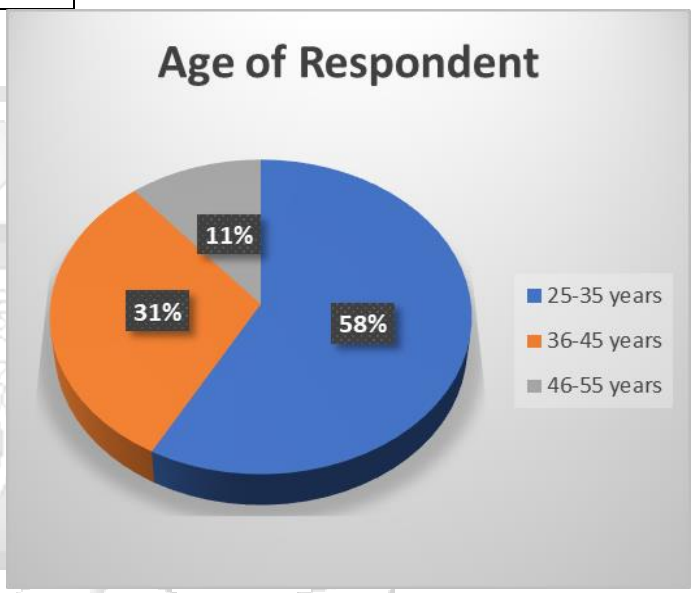

Figure 4.2 Age of Respondent
Source: Research Data (2020)

The findings indicate that majority of the participants were aged between 25-35 years (n=49, 58%), and 31% (n=26) were aged 36-45 years. The results demonstrate that commercial banks have invested in a youthful employee pool who are particularly influential in guiding digital transformation processes.

4.2.3 Gender of Participants

The study reviewed the gender distribution among the participants, and the results show commercial banks staff are more skewed to male employees as indicated by most of the participants (58%) being male employees while 42% of the participants were female employees.

Table 4.3 Gender of Participants

		Frequency	Percent
	Male	49	58%
	Female	36	42%
	Total	85	100.0

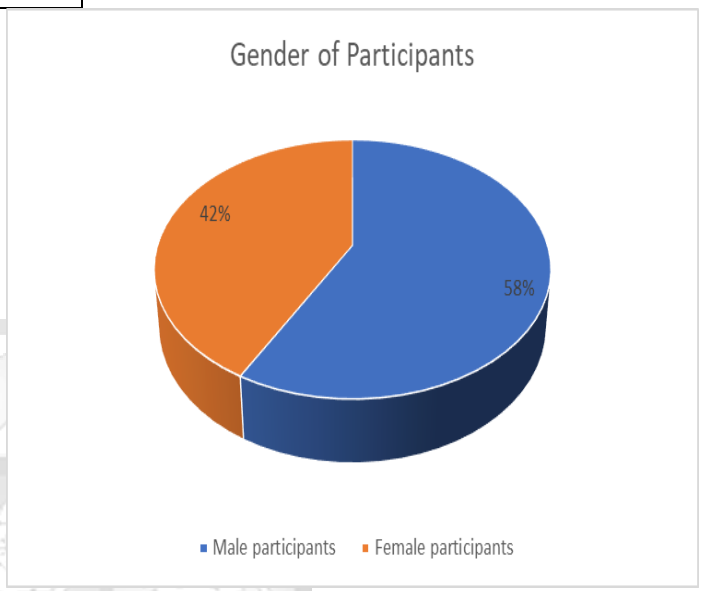

Figure 4.3 Gender of Participants
Source: Research Data (2020)

4.2.4 Education Level of Participants

The study results indicated that the majority of the participants, 89% had attained a graduate-level degree, while 11% had attained a postgraduate degree. This shows that the employee pool within commercial banks has attained formal education training, which is integral to the execution of responsibilities.

Table 4.4 Education Level of Participants

		Frequency	Percent
	Graduate	75	89%
	36-45 years	10	11%
	Total	85	100.0

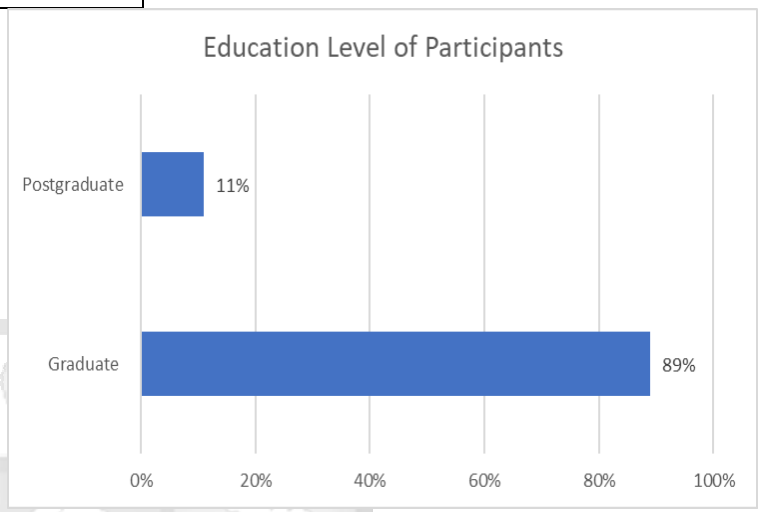

Figure 4.4 Education Level of Participants
Source: Research Data (2020)

4.2.5 Position in Organization

The study queried the participants in the position they hold within the organization, and the study results are shown below.

Table 4.5 Participants Position in Organization

	Frequency	Percent
Chief Technology Officer	6	7.1
Operations Manager	49	57.6
Human Resource Manager	30	35.3
Total	85	100.0

Source: Research Data (2020)

The findings show that the majority of respondents were operations managers (58%, n= 49), 35% were human resource managers, while 7% were technology officers. This shows that participants who responded to the research have the requisite knowledge of the phenomena under investigation in this study.

4.2.6 Length of Experience

The research sought to determine the length of time that the respondents have been working within the banking institution, and results are presented below.

Table 4.6 Length of Experience

	Frequency	Percent
Less than two years	1	1.2
2-4 years	28	32.9
Over five years	56	65.9
Total	85	100.0

Source: Research Data (2020)

The results show that majority of participants, 66% (n=56) have worked in the banking industry for more than five years. In contrast, only 33% have been working for at least 2-4 years. This suggests that participants have adequate work experience to enable them to offer reasonable responses to the items of the research instrument.

4.2.7 Utilization of Digital Transformation Processes

The study sought to examine how long the commercial banks have been deploying digital transformation processes, and the findings are presented below.

Table 4.7 Use of Digital Transformation Processes

	Frequency	Percent
Less than two years	7	8.2
2-4 years	38	44.7
Over five years	40	47.1
Total	85	100.0

Source: Research Data (2020)

The results show that most of the commercial banks have been deploying digital transformation processes for more than five years (47%, n=40), 45% of the banks have been using the various processes for 2-4 years while only 8% of the banks have used digital transformation processes for less than two years. The findings show that digital transformation processes have been part of the Kenyan banking industry for a considerable length of time owing to the usage among the majority of commercial banks for more than 2 years.

4.2.8 Extent of Usage of Various Processes

The study results showed that all commercial banks had adopted service automation, 94% of the banks were utilizing social networks, 97% were leveraging on data analytics while only 93% of the commercial banks were utilizing business process engineering.

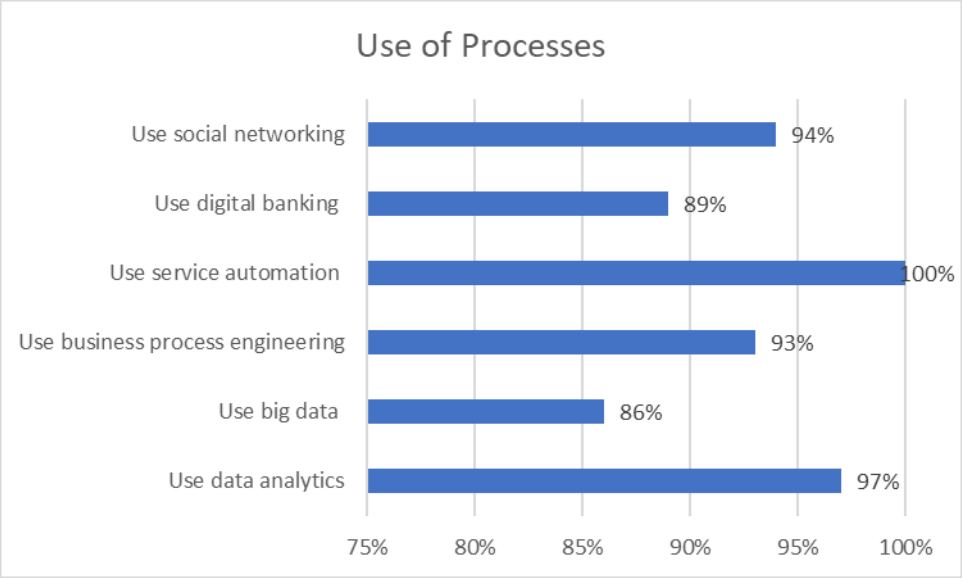

Figure 4.5 Use of Various Digital Processes
Source: Research Data (2020)

4.3 Descriptive Statistics

The study employed means and standard deviation in the presentation of the participant's responses on the various statements across the study variables. The findings are presented in line with the objectives of this study.

4.3.1 Customer Relationship Management

The dependent variable of the research was the level of customer relationship management within commercial banks. The study presented the participants with several statements, and the responses obtained are shown below. The study employed means and standard deviation in the presentation of the participant's responses on the various statements across the study variables.

Table 4.8 Customer Relationship Management Results

	N	Sum	Mean	Std. Deviation
The commercial bank improved its customer retention processes	85	339.00	3.9882	.86594
The commercial bank has attained greater satisfaction in its service provision	85	327.00	3.8471	.89317
There is a better customer communication process within the commercial bank	85	308.00	3.6235	1.10169
There are greater customer handling practices within a commercial bank	85	319.00	3.7529	1.03402
There is improved customer loyalty within the commercial bank	85	306.00	3.6000	1.10410
The commercial bank has been able to reduce the level of customer loss	85	298.00	3.5059	1.17132
Overall	**85**		**3.7196**	**1.02837**

Source: Research Data (2020)

The findings above indicate average agreement among participants that customer relationship management has been affected within the bank. The study indicates agreement among participants that the bank has improved its customer retention processes (Mean = 3.9882, Dev= .86594). The results show agreement that the commercial bank has attained greater satisfaction in its service provision (mean = 3.8741). The results also demonstrate agreement among respondents that the commercial bank has been able to reduce the level of customer loss as noted by a mean of 3.5059 with high dispersion in responses as indicated by the deviation of 1.17132. The respondents are also in agreement that there is improved customer loyalty within the commercial bank as denoted by mean 3.6000.

4.3.2 Service Automation in Commercial Banks

The first research variable focussed on the level of service automation within commercial banks. The participants were presented with five varying statements on various service automation aspects, and the analysis of the responses is shown below using means and standard deviation.

Table 4.9 Service Automation Results

	N	Sum	Mean	Std. Deviation
The bank has increased its adoption of paperless banking processes	85	327.00	3.8471	.85225
There is increased automation of customer handling practices within commercial banks	85	322.00	3.7882	.84648
There is an improvement in the automation of account maintenance within the bank	85	311.00	3.6588	1.10790
The bank has increased its integration of online payment services	85	306.00	3.6000	1.13599
There is the increased implementation of biometric systems within commercial banks	85	299.00	3.5176	1.22097
Overall	**85**		**3.68234**	**1.032718**

Source: Research Data (2020)

The results showed general agreement among participants that commercial banks have attained service automation. The participants were specifically in agreement that the bank has increased its adoption of paperless banking processes (mean = 3.8471). The responses obtained also show agreement that there is increased automation of customer handling practices within commercial banks as indicated by mean of 3.7882. The findings further show agreement that commercial banks have increased the implementation of biometric systems as denoted by mean of 3.5176 and a deviation of 1.22097.

4.3.2 Data Analytics in Commercial Banks

The second independent variable reviewed the utilization of data analytics within commercial banks. The participants were presented with six varying statements on data analytics, and the analysis of the responses is shown below using means and standard deviation.

Table 4.10 Data Analytics Results

	N	Sum	Mean	Std. Deviation
There is increased utilization of data analytics in customer data management in commercial banks	85	328.00	3.8588	.90176
The commercial bank has leveraged on business intelligence processes in product and service provision	85	314.00	3.6941	.90005
The commercial bank has improved its data mining processes	85	302.00	3.5529	1.10740

The commercial bank has acquired the necessary infrastructure to enhance its data storage	85	315.00	3.7059	1.06708
There is increased utilization of business process engineering processes in commercial banks	85	306.00	3.6000	1.03740
The commercial banks are heavily relying on data analytics to support client profiling	85	295.00	3.4706	1.03035
Overall	**85**		**3.68234**	**1.032718**

Source: Research Data (2020)

The above results demonstrated varying levels of agreement and disagreement among responses on the data analytics statements. The findings indicate agreement among participants (mean = 3.8588) that commercial banks have increased utilization of data analytics in customer data management. The study results also showed agreement that commercial bank has acquired the necessary infrastructure to enhance their data storage as indicated by mean of 3.7059 with a variation of 1.06708. The study findings showed agreement that the bank has improved its data mining processes as denoted by the mean 3.5529. The participants indicated disagreement that commercial banks are heavily relying on data analytics to support client profiling as indicated by mean of 3.4706 and high variation in responses (dev= 1.03035).

4.3.3 Digital Channel in Commercial Banks

The third study variable was the utilization of digital channels within commercial banks. The participants were presented with five varying statements, and the analysis of the responses is shown below using means and standard deviation.

Table 4.11 Digital Channel Result

	N	Sum	Mean	Std. Deviation
The commercial bank has deployed digitalized bank services provision	85	310.00	3.6471	.93485
There is increased utilization of mobile banking within the commercial bank	85	290.00	3.4118	1.08336
There is the increased deployment of interactive online banking platforms by the commercial bank	85	324.00	3.8118	.96971
The commercial bank is leveraging on online interactivity to drive service provision and engagement	85	319.00	3.7529	.88514
There is the increased deployment of virtual account management systems by the commercial bank	85	328.00	3.8588	.97776
Overall	**85**		**3.69648**	**0.97016**

Source: Research Data (2020)

The findings above demonstrate that commercial banks have deployed digital channels in their service provision to varying lengths. The review of the results indicated agreement among participants that there is an increased deployment of virtual account management systems by the commercial bank as indicated by mean of 3.8588. The study findings further note agreement among participants that there is the increased deployment of interactive online banking platforms by the commercial bank, as shown by a mean of 3.8118 and deviation of .96971. The findings of the research noted agreement among participants that the bank has deployed digitalized bank services provision as indicated by mean of 3.6471. The results pointed out to disagreement among participants that there is increased utilization of mobile banking within the commercial bank, as shown by mean of 3.4118.

4.4 Inferential Statistics

The research adopted two main tests as part of the inferential analysis. The study adopted Pearson correlation to establish the association between research variables and regression analysis was utilized to determine magnitude of effect between the independent and dependent variables.

4.4.1 Correlation Analysis

4.4.1.1 Effect of Service Automation on Customer Relationship Management

The first objective of the research sought to establish the effect of service automation on customer relationship management. The study utilized the Pearson correlation, and the findings are shown below.

Table 4.12 Correlation for Service Automation and Customer Relationship Management

		Customer Relationship Management
Service Automation	Pearson Correlation	.390**
	Sig. (2-tailed)	.000
	N	85
Customer Relationship Management	Pearson Correlation	1
	Sig. (2-tailed)	
	N	85

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

Source: Research Data (2020)

The results above indicate there is a moderate positive and significant effect of service automation on the customer relationship management within commercial banks (P= .390, Sig

= .000<.05). The findings are consistent with Sivaraks, Krairit, and Tang (2011), who revealed that improving the automation of customer-centric services has resulted in a better customer-bank relationship. Abdullai and Nyaoga (2017) pointed out that automation of services in Kenyan banks has resulted in improved service offerings, customer access, and convenience in service provision.

4.4.1.2 Effect of Data Analytics on Customer Relationship Management

The second study objective focussed on establishing the effect of data analytics on customer relationship management. The findings are shown below.

Table 4.13 Correlation for Data Analytics and Customer Relationship Management

		Customer Relationship Management
Data Analytics	Pearson Correlation	.386**
	Sig. (2-tailed)	.000
	N	85
Customer Relationship Management	Pearson Correlation	1
	Sig. (2-tailed)	
	N	85

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

Source: Research Data (2020)

The findings showed that there is a moderate positive and significant effect of service automation on customer relationship management within commercial banks (P= .386, Sig = .000<.05). Similarly, Orenga-Roglá and Chalmeta (2016) suggested that the adoption of big data analytics has resulted in better customer service management and offering customer-suited services. Mang'unyi, Khabala, and Govender (2017) found out that utilizing various modern technologies have significantly influenced the bank-customer relationships.

4.1.1.3 Effect of Digital Channel on Customer Relationship Management

The third objective of the research focussed on establishing the effect of data analytics on customer relationship management. The findings are shown below.

Table 4.14 Correlation for Digital Channel on Customer Relationship Management

		Customer Relationship Management
Digital Channels	Pearson Correlation	.484**
	Sig. (2-tailed)	.000
	N	85
Customer Relationship Management	Pearson Correlation	1
	Sig. (2-tailed)	
	N	85

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

Source: Research Data (2020)

The findings of the study indicate that there is a strong and positive association between digital channels and customer relationship management (P= .484, Sig = .000<.05). Ephrem (2016) found out that utilizing electronic banking technologies and reliance on ICT has significantly fostered customer satisfaction. Margaret and Njuguna (2018) also revealed that online interactions and digital banking have positively enhanced customer relationships in Kenyan banks.

4.4.2 Regression Analysis

The study adopted simple linear regression analysis to determine the strength of relationship between each independent variable on CRM and a multiple linear regression to determine the combined magnitude of effect of digital transformation processes on the customer relationship management of commercial banks.

4.4.2.1 Effect of Data Analytics on the Customer Relationship Management

The results of the regression analysis between data analytics on the customer relationship management in commercial banks are presented in Table 4.15.

Table 4.15 Regression between Data Analytics and Customer Relationship Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.386[a]	.149	.139	3.46082

a. Predictors: (Constant), Data Analytics

The findings indicate an $R^2 = .149$, which implies atleast 14.9% of the changes in customer relationship management in commercial banks are determined by the utilization of data analytics.

Table 4.16 ANOVA for Data Analytics and Customer Relationship Management

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	174.312	1	174.312	14.554	.000[b]
	Residual	994.111	83	11.977		
	Total	1168.424	84			

a. Dependent Variable: Customer Relationship Management

b. Predictors: (Constant), Data Analytics

The results indicate a f-statistic = 14.554> F- (critical f; 1.162), p-value = .000<.05. This indicates there is a statistically significant relationship between data analytics and customer relationship management in commercial banks.

Table 4.17 Regression Coefficients for Data Analytics and Customer Relationship Management

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	15.397	1.852		8.312	.000
	Data Analytics	.316	.083	.386	3.815	.000

a. Dependent Variable: Customer Relationship Management

$$\mathbf{Y = 15.397 + .316X_1 + 1.852}$$

The constant $\boldsymbol{\alpha = 15.397}$ is statistically significant since the Sig = .000<.05. The results show that data analytics (.316), which is statistically significant (Sig = .000<.05), which implies that a unit change in data analytics can lead to .316 change in the level of customer relationship management.

4.4.2.2 Effect of Service Automation on the Customer Relationship Management

The results of the regression analysis between service automation on the customer relationship management in commercial banks are presented in Table 4.18.

Table 4.18 Regression between Service Automation and Customer Relationship Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.390[a]	.152	.142	3.45436

a. Predictors: (Constant), Service Automation

The regression results $R^2 = .152$, shows that service automation within commercial banks can predict 15.2% of the variations customer relationship management.

Table 4.19 ANOVA for Service Automation and Customer Relationship Management

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	178.018	1	178.018	14.919	.000[b]
	Residual	990.405	83	11.933		
	Total	1168.424	84			

a. Dependent Variable: Customer Relationship Management

b. Predictors: (Constant), Service Automation

The ANOVA findings yielded a f-statistic = 14.919> F- (critical f; 1.162), p-value = .000<.05. This indicates there is a statistically significant relationship between service automation and customer relationship management in commercial banks.

Table 4.20 Regression Coefficients for Service Automation and Customer Relationship Management

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.800	1.729		9.141	.000
	Service Automation	.354	.092	.390	3.862	.000

a. Dependent Variable: Customer Relationship Management

$$\mathbf{Y = 15.800 + .354X_2 + 1.729}$$

The constant $\boldsymbol{\alpha = 15.8}$ is statistically significant since the Sig = .000<.05. The results show that a coefficient of service automation was statistically significant (B= .354; Sig = .000<.05), which implies that a unit change in service automation can lead to .354 change in the level of customer relationship management.

4.4.2.3 Effect of Digital Channels on the Customer Relationship Management

The study further sought to determine the strength of the relationship between digital channels and customer relationship management and the results are as shown below.

Table 4.21 Regression between Digital Channel and Customer Relationship Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.484[a]	.234	.225	3.28330

a. Predictors: (Constant), Digital Channels

The findings indicate an $R^2 = .234$, which implies atleast 23.4% of the changes in customer relationship management in commercial banks are determined by the utilization of digital channels.

Table 4.22 ANOVA for Digital Channel and Customer Relationship Management

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	273.677	1	273.677	25.387	.000[b]
	Residual	894.747	83	10.780		
	Total	1168.424	84			

a. Dependent Variable: Customer Relationship Management

b. Predictors: (Constant), Digital Channels

The ANOVA tests indicates a f-statistic = 25.387> F- (critical f; 1.162), p-value = .000<.05. This indicates there is a statistically significant relationship between digital channels and customer relationship management in commercial banks.

Table 4.23 Regression Coefficients for Digital Channel and Customer Relationship Management

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	12.099	2.059		5.875	.000
	Digital Channels	.553	.110	.484	5.039	.000

a. Dependent Variable: Customer Relationship Management

$$\mathbf{Y = 12.099 + .553X_3 + 2.059}$$

The constant **α = 12.099** is statistically significant since the Sig = .000<.05. The results show that a coefficient of digital channels was statistically significant (B= .553; Sig = .000<.05), which implies that a unit change in digital channel can lead to .553 change in the level of customer relationship management.

4.4.3 Overall Regression Summary

The main objective of the research was to determine the effect of digital transformation processes on the customer relationship management of commercial banks. The study adopted a linear regression analysis.

Table 4.24 Regression for Digital Transformation Processes and Customer Relationship Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.539[a]	.291	.264	3.19907	1.519

a. Predictors: (Constant), Digital Channels, Service Automation, Data Analytics

b. Dependent Variable: Customer Relationship Management

The regression analysis sought to determine the magnitude of the effect of the proxies of the digital transformation process on customer relationship management. The regression results above indicate an $R^2 = .291$, which implies there is a positive effect of the digital transformation process on customer relationship management. The coefficients indicate that holding other factors constant, 29.1% of the changes in customer relationship management can be determined by digital channels, service automation, and data analytics in commercial banks.

Table 4.25 ANOVA Analysis for Digital Transformation Processes and Customer Relationship Management

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	339.464	3	113.155	11.057	.000[b]
	Residual	828.960	81	10.234		
	Total	1168.424	84			

a. Dependent Variable: Customer Relationship Management

b. Predictors: (Constant), Digital Channels, Service Automation, Data Analytics

The ANOVA test was conducted to determine the statistical significance of the regression model. The results indicate a f-statistic = 11.057> F- (critical f; 1.162), p-value = .000<.05. This indicates that the model was statistically significant and fit in predicting the relationship between the study variables. Hence there is a statistically positive and significant relationship between digital transformation processes and the customer relationship management of commercial banks.

Table 4.26 Regression Coefficients for Digital Transformation Processes and Customer Relationship Management

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.682	2.227		4.348	.000
	Service Automation	.217	.099	.239	2.187	.032
	Data Analytics	.031	.105	.037	.292	.771
	Digital Channels	.432	.134	.378	3.226	.002

a. Dependent Variable: Customer Relationship Management

From the above the resulting regression model is;

$$\mathbf{Y = 9.682} + .217\mathbf{X_1} + .031\mathbf{X_2} + .432\mathbf{X_3} + \mathbf{2.227}$$

The constant **α = 9.682** is statistically significant since the Sig = .000<.05. The results show that service automation has a coefficient (.217), which is statistically significant (Sig = .032<.05), which implies that a unit change in service automation can result in a .217 change in the level of customer relationship management. The findings show that the coefficient of data analytics (.031) is not statistically significant (Sig = .771>.05), which shows that service automation does not influence customer relationship management. The study results indicate that the digital channels coefficient (.423) is significant (Sig = .002<.05), which implies that a unit change in the usage of digital channels will result in a .423 change in the level of customer relationship management.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary, discussions, and conclusions drawn from the study. The chapter further presents the recommendations in line with study results as well as the limitations faced during the study. The chapter finally outlines areas for further research.

5.2 Summary

The commercial bank industry in Kenya has been greatly affected by the intense competition from various players in the financial sector. This lack of competitiveness in commercial banks has been attributed to, among other factors, the dwindling customer satisfaction as a result of poor customer relationship management being employed by commercial banks. Several studies have sought to identify the drivers of customer relationship management in commercial banks. However, the available empirical evidence has not conclusively identified how digital transformation processes influence CRM in banks.

One of the chief emerging technological developments integrated within most commercial banks is digital transformation processes. The impact of these processes on customer relationship management has not been extensively investigated. Thus, this study sought to establish the influence of digital transformation processes on customer relationship management. The study specifically analyzed the effect of service automation, data analytics, and digital channels on customer relationship management. The study was grounded on the Resource-Based View, which advocates for a firm to rely on its unique imitable resources to foster a competitive edge. The study's dependent variable was grounded on the identity, differentiate interact, and customize theory, which fundamentally advocates for identification of how differentiation and customization of customer's needs will help to improve customer relationship management.

The research employed a positivism research philosophy that justified the selection of quantitative research design. The unit of observation was managers in charge of the operations department, human resource, and technology department across the 41 commercial banks in Kenya. The research utilized structured research questionnaires in the collection of research data with quantitative techniques adopted in the analysis. The study was able to obtain a 90% response rate from the sample participants. The participant's demographic profile indicated that most of the respondents had attained a graduate-level degree and had worked within the commercial banking institutions for more than two years.

The research findings indicate that most of the firms have been utilizing digital transformation processes for more than two years, with service automation being adopted across the board. The study also showed that most firms were utilizing data analytics, social networking, and business process engineering in their operations. The research revealed there is a positive and significant relationship between digital transformation processes and customer relationship management. Individually, the study indicated that service automation and digital channels had a significant influence on customer relationship management, while data analytics does not have a statistically significant influence on customer relationship management in Kenyan commercial banks.

5.3 Discussion

This section discusses the various results obtained from the research. The section contained the discussion of both descriptive and inferential results in line with the reviewed empirical literature in chapter two.

5.3.1 Service Automation and Customer Relationship Management

The study results implied that most commercial banks in the country had adopted paperless banking processes. The findings demonstrated that, to a large extent, commercial banks have been increasing automation of customer handling practices. These findings agree with Khanna and Gupta (2015) in a study in Indian banks that revealed that the provision of the financial products through automated delivery channels and innovative ways has significantly improved customer satisfaction and management. Similarly, in Thailand, Sivaraks, Krairit, and Tang (2011) pointed out that automated service provision within commercial banks has resulted in improved relationship quality between the bank and its customers.

The participants further indicate that commercial banks have improved the automation of account maintenance and integration of online payment services. Abdullai and Nyaoga's (2017) study acknowledged that automation of services had fostered customer access, provision of services, and improved bank performance. Mohamud (2016) also noted that the automation of commercial bank services had enhanced customer experience and satisfaction levels in Kenya. The study found out that participants agreed that the implementation of biometric systems has increased in commercial banks. The results are in agreement with Adewale, Ibidunni, Badejo, Odu, and Adoghe (2014), who posited that customers in Nigerian commercial banks have advocated for the introduction of automated and biometric systems which enhance the efficiency in their service provision.

5.3.2 Data Analytics and Customer Relationship Management

The research demonstrates that Kenyan commercials banks have increased the utilization of data analytics in customer data management. These results are supported by Qingsong, Hong, and Xiao (2018), who showed that enhancing the use of in-depth data analytics can result in better decision making, which can foster customer relationship management. The study also found out that banks have acquired adequate infrastructure to foster data storage. The results showed participant's agreement that commercial banks are leveraging on business intelligence processes in the provision of their services and products. Orenga-Roglá and Chalmeta (2016) have shown that utilization fo data analytics has helped drive customer knowledge, management of customer preferences, and effective customer relationship management. In support of the above sentiments, Krishna and Ravi (2016) found out that utilization of data mining and data analytics is a significant predictor for better customer relationship management.

The respondents also showed agreement that business process engineering had been improved within commercial banks. Nderi (2014), in a study in Kenya, notes that business analytics and reengineering processes have considerably enhanced the performance of commercial banks through better customer profiling. The respondents also indicated that banks had fostered their data mining processes. Mang'unyi, Khabala, and Govender (2017) particularly noted that utilization of client data through digital tools had improved the bank's capacity to manage its customers. Ndambo (2016) also revealed that Kenyan banks have been investing heavily in the storage of data and deployment of data analytics to strengthen customer insights and decision making. The results indicate disagreement among participants that commercial banks rely on data analytics to support client profiling.

5.3.3 Digital Channel and Customer Relationship Management

The third study variable reviewed the extent of the utilization of digital channels in commercial banks. Ephrem (2016) acknowledged that the utilization of electronic banking and digitalization practices has significantly improved customer satisfaction. Findings indicate that commercial banks have deployed digitalized services provision and interactive online banking platforms. In a Kenyan study, Margaret and Njuguna (2018) showed that the utilization of digital banking has significantly improved customer relationships and user-friendliness in service provision. Simon and Thomas (2016) revealed that reliance on the internet banking is critical to fostering customer satisfaction in Kenyan banks.

The study results showed that commercial banks are relying on online activities to drive service provision and engagement with customers. The findings indicated agreement among respondents that banks have improved the deployment of virtual account management systems. Githuku and Kinyuru (2018) posited that an increase in the adoption of digital banking in Kenya has shown that there is an improvement in the customer relationship, service provision, and flexibility in transaction accessibility. Asfour and Haddad (2014) suggested that improving the utilization of mobile banking has resulted in better customer satisfaction in Jordanian commercial banks. However, the research showed disagreement among participants that banks have increased mobile banking. This can be attributed to the high penetration of mobile money, which has seen most banks moving into more digital-intensive platforms such as digital banks, internet banking, and digital banking applications.

5.4 Conclusion

The study concludes that digital transformation processes have a positive and significant relationship with customer relationship management. The research concludes that service automation has a positive and significant influence on customer relationship management. The study reveals that improving automation of services, enhancing online payments and biometric systems as well as automated customer handling can result in better customer relationship management.

The research further concludes there is a positive and significant relationship between digital channels and customer relationship management. The study concludes that developing digital banking services, enhancing virtual account management and adoption of mobile banking can positively influence CRM proxies such as customer retention, satisfaction, loyalty, and customer handling practices in the banks.

The study further concludes that data analytics does not have a significant influence on the customer relationship management of commercial banks in Kenya. The study revealed that reliance on data analytics, business processes engineering and reliance on big data has not significantly improved the level of CRM within commercial banks in Kenya.

5.5 Recommendation

5.5.1 Academia and Scholarly

The study findings recommend that future studies on digital processes in commercial banks in Kenya can be based on this research in designing the appropriate research design and tools to adopt. The study further revealed that Resource-Based View can be adequately be utilized to inform how increased investments in emerging digital processes can be leveraged as a unique

firm resource to yield better results in CRM activities. The study further recommends that the findings of the study can be relied on as future reference material in examining how service automation, data analytics and digital channels can impact CRM in commercial banks.

5.5.2 Policy Recommendation

The findings of this study are expected to be beneficial to several policymakers in the banking industry. The Central Bank of Kenya can leverage on the findings of this study to identify how the various measures put in place to guide service automation and development of digital banking practices can be streamlined to improve customer relationship management. The Kenya Banking Association has been aggressively pushing the banking industry to restructure its operations to push back against the competition from telecommunication and other financial institutions. These results are critical to the KBA initiatives as the identify the key practices that the association can advance to their members for incorporation in their operations to enhance customer satisfaction and retention. Furthermore, the study results can support the individual banks in identifying the areas they are failing at in improving their CRM initiatives.

5.5.3 Practice Recommendations

Concerning the level of service automation, the study recommends that commercial banks should improve the utilization of biometric systems, which will protect customers from the surge in cybercrime fraud activities within the banking industry. Further, the commercial banks should automate their accounts management and online payment processes as this will foster access to their services, improve customer satisfaction, and reduce customer loss. The research further recommends that commercial banks should improve their utilization of available data analytics tools to foster customer relationship management. This can be achieved through the development and precise utilization of customer data to align their relationship management strategies. The study can further utilize business process engineering processes to identify weaknesses in CRM processes and reinvent their operations in a manner that supports effective CRM.

In recognition of the role digital channels are playing in the banking industry, this study recommends that commercial banks should improve their innovative capacity and interoperability. This can be attained through fostering mobile development, which can reduce the pressures from telecommunication firms. The study further recommends that commercial banks should improve investment in digital-only branches, which can significantly improve efficiency in service provision, which is integral to satisfaction levels. Further commercial banks should leverage the growth in internet penetration to develop social/digital media units,

which can significantly improve customer relationship management through online customer engagement.

5.6 Limitations of the Study

The research data collection process was hampered initially by the scale-down of operations in most commercial bank branches, which prolonged the collection of research data. Further, the study responses were obtained from personnel within commercial banks and did not consider the views of customers on how the identified strategies influenced their customer experience, which may limit the extent of usage of the study results. The study was further limited to an examination of three digital transformation processes, which implies that further research work should consider the processes not included in this study.

5.7 Areas for Further Research

The study was focussed on customer relationship management within commercial banks in Nairobi County. To improve on the available empirical evidence, further study should be conducted to examine the effect of various digital processes on customer experience in Kenyan commercial banks. This will help check if the results can corroborate with the current study. Further research work can be undertaken to examine the extent of utilization of big data and other emerging processes such as machine learning and how they impact customer relationships in commercial banks. The study was limited only to CRM, hence further research can examine how digital transformation processes influence the performance of commercial banks in Kenya. The study was only conducted in the commercial banking industry and a similar study can be conducted to investigate customer relationship management in other financial sector industries in Kenya.

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APPENDICES

Appendix I: Introduction Letter

To the Branch Manager

…… Commercial Bank of Kenya

Nairobi, Kenya

Ref: **Request to Collect Research Data from Members of your Staff**

My name is Eunice Kinyanjui a student at Strathmore University currently undertaking a Masters of Business Administration Course. As part of my studies I'm required to undertake a study within my area of expertise. To this end I'm currently undertaking a study on the 'Influence of digital transformation processes on the customer relationship marketing within commercial banks in Kenya'.

To this end I am requesting for your assistance in the data collection process. The information being sought in the attached questionnaire will only be utilized for academic purposes and the confidentiality of the responses was maintained.

I am grateful for the assistance that was accorded by your office.

Regards,

Eunice Kinyanjui

Appendix II: Questionnaire

PART A: BACKGROUND INFORMATION

1) Age Bracket

   25-35 years [ ]

   36 – 45 years [ ]

   46 – 55 years [ ]

   56 years and above [ ]

2) Gender

   Male [ ]

   Female [ ]

3) Education Level

   O- Level [ ]

   Diploma [ ]

   Graduate [ ]

   Postgraduate [ ]

4) Your position in the organization

   Chief Technology Officer [ ]

   Operations Manager [ ]

   Human Resource Manager [ ]

5) Number of years working in the banking industry?

   Less than 2 years [ ] 2-4 years [ ] Over 5 years [ ]

PART B: DIGITAL TRANSFORMATION PROCESSES

6. What of the following digital transformation processes do you have in place withing your commercial bank?

Data analytics [ ]

Big data [ ]

Business process engineering [ ]

Service automation [ ]

Digital banking [ ]

Social networking [ ]

7. For how long have you been utilizing the above digital transformation processes within your commercial bank?

Less than 2 years [ ] 2-4 years [ ] Over 5 years [ ]

Kindly answer the following questions based on your agreement with the following statements in regard to the commercial bank. The scale level ranges from 1 – 5

5= strongly agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither Agree nor Disagree

No	Service automation of commercial banks	5	4	3	2	1
8.	The bank has increased its adoption of paperless banking processes					
9.	There is increased automation of customer handling practices within commercial banks					
10.	There is an improvement in the automation of account maintenance within the bank					
11.	The bank has increased its integration of online payment services					
12.	There is increased implementation of biometric systems within commercial banks					

Kindly answer the following questions based on your agreement with the following statements in regard to the commercial bank. The scale level ranges from 1 – 5

5= strongly agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither Agree nor Disagree

No	Data analytics of commercial banks	5	4	3	2	1
13.	There is increased utilization of data analytics in customer data management in commercial banks					
14.	The commercial bank has leveraged on business intelligence processes in product and service provision					
15.	The commercial bank has improved its data mining processes					
16.	The commercial bank has acquired necessary infrastructure to enhance their data storage					
17.	There is increased utilization of business process engineering processes in commercial banks					
18.	The commercial banks are heavily relying on data analytics to support client profiling					

Kindly answer the following questions based on your agreement with the following statements in regard to the commercial bank. The scale level ranges from 1 – 5

5= strongly agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither Agree nor Disagree

No	Digital channels of commercial banks	5	4	3	2	1
19.	The commercial bank has deployed digitalized bank services provision					
20.	There is increased utilization of mobile banking within the commercial bank					
21.	There is increased deployment of interactive online banking platforms by the commercial bank					
22.	The commercial bank is leveraging on online interactivity to drive service provision and engagement					
23.	There is increased deployment of virtual account management systems by the commercial bank					

PART C: CUSTOMER RELATIONSHIP MANAGEMENT OF COMMERCIAL BANKS

Kindly answer the following questions based on your agreement with the following statements in regard to the commercial bank. The scale level ranges from 1 – 5

5= strongly agree 4= Agree 3= Disagree 2= Strongly Disagree 1= Neither Agree nor Disagree

No	Customer relationship management of commercial banks	5	4	3	2	1
24.	The commercial bank improved its customer retention processes					
25.	The commercial bank has attained greater satisfaction in its service provision					
26.	There is better customer communication process within the commercial bank					
27.	There are greater customer handling practices within commercial bank					
28.	There is improved customer loyalty within the commercial bank					
29.	The commercial bank has been able to reduce the level customer loss					

Appendix III: Ethical Review Approval

Strathmore UNIVERSITY

17th March 2020

Ms Kinyanjui, Eunice
eunice.kinyanjui@strathmore.edu

Dear Ms Kinyanjui,

RE: Influence of Digital Transformation Processes On Customer Relationship Management Within Commercial Banks in Kenya

This is to inform you that the SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0681/20.** The approval period is **17th March, 2020 to 16th March, 2021.**

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 SU-IERC.
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 SU-IERC within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC 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 SU-IERC.

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

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
17 MAR 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Cc: Prof Fred Were,
Chairperson; SU-IERC

Appendix IV: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **306314**

Date of Issue: **23/March/2020**

RESEARCH LICENSE

This is to Certify that Miss.. Eunice Kinyajui of Strathmore University, has been licensed to conduct research in Nairobi on the topic: INFLUENCE OF DIGITAL TRANSFORMATION PROCESSES ON CUSTOMER RELATIONSHIP MANAGEMENT WITHIN COMMERCIAL BANKS IN KENYA for the period ending : 23/March/2021.

License No: **NACOSTI/P/20/4421**

306314

Applicant Identification Number

Director General
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.

Appendix V: List of Commercial Banks

1. ABSA Bank Kenya Plc
2. African Banking Corporation Limited
3. Bank of Africa Kenya Limited
4. Bank of Baroda (K) Limited
5. Bank of India
6. Charterhouse Bank Limited
7. Chase Bank (K) Limited
8. Citibank N.A Kenya
9. Consolidated Bank of Kenya Limited
10. Co-operative Bank of Kenya Limited
11. Credit Bank Limited
12. Development Bank of Kenya Limited
13. Diamond Trust Bank Kenya Limited
14. DIB Bank Kenya Limited
15. Ecobank Kenya Limited
16. Equity Bank Kenya Limited
17. Family Bank Limited
18. First Community Bank Limited
19. Guaranty Trust Bank (K) Ltd
20. Guardian Bank Limited
21. Gulf African Bank Limited
22. Habib Bank A.G Zurich
23. I & M Bank Limited
24. Imperial Bank Limited
25. Jamii Bora Bank Limited
26. KCB Bank Kenya Limited
27. Mayfair Bank Limited
28. Middle East Bank (K) Limited
29. M-Oriental Bank Limited
30. National Bank of Kenya Limited
31. NCBA Bank Kenya PLC
32. Paramount Bank Limited
33. Prime Bank Limited

34. SBM Bank Kenya Limited
35. Sidian Bank Limited
36. Spire Bank Ltd
37. Stanbic Bank Kenya Limited
38. Standard Chartered Bank Kenya Limited
39. Trans-national Bank Limited
40. UBA Kenya Bank Limited
41. Victoria Commercial Bank Limited

Source: Central Bank of Kenya (2020)