THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON THE PERFORMANCE OF A SELECTED BANK IN THE CAPE TOWN METROPOLE

by

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DECLARATION

I **YANDISWA GXWEM**, declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed_____ Date_____

ABSTRACT

Information and Communication Technology (ICT) integration into banking operations has significantly transformed the industry, influencing both daily activities and strategic management. Banks have launched ICT-based banking products and services, such as automated teller machines (ATMs), internet banking, mobile banking solutions, point-of-sale terminals, computerised financial accounting and reporting, and human resources solutions, and many others, all of which are essential for enhancing the performance of banks. This exercise is however marred by several challenges. The current study sought to explore the role of ICT in improving the performance of banking operations at a selected commercial bank in the Cape Town Metropole. This involved identifying the benefits and challenges that are associated with ICT use on both the client and bank employee sides. Questionnaires and interviews were used to collect data from involving 170 clients and 30 bank employees, respectively. According to the research findings, clients were familiar with digital banking and acknowledged the role of ICT in improving their banking operations. The most utilised banking mode was online banking with some clients still stuck to the traditional way of physically visiting the bank. A number of challenges were raised by the clients which among them include the issue of bank charges which. With regard to satisfaction with the products offered by the chosen bank, a substantial 50% expressed strong disagreement, indicating a high level of discontent with the products offered by the bank. With regard to bank employees, they strongly agreeing that outdated systems pose a significant challenge for the selected bank together with cybersecurity. The study recommends practical actions and measures that involve the consideration of client needs particularly improving the transparency of bank charges and security to enhance the competitive edge in the evolving digital banking landscape.

Keywords: ATM; bank charges; bank employee; client; cybersecurity; internet banking; mobile banking.

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DEDICATION

This research is dedicated to my family, whose unwavering love and support have been my source of strength and inspiration. Their belief in my abilities and encouragement have propelled me forward, enabling me to overcome challenges and reach my academic goals.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
ABSA	Amalgamated Banks of South Africa
AI	artificial intelligence
ATM:	automated teller machine
BI	business intelligence
CPUT	Cape Peninsula University of Technology
ICT	Information and Communication Technology
IoT	Internet of Things
IT	Information Technology
LPWAN	Low-Power Wide-Area Network
ML	Machine Learning
NGO	Non-Governmental Organization
NRF	National Research Foundation
ROI	Return On Investment
SA	South Africa
SARB	South African Reserve Bank
SPSS:	Statistical Package for the Social Sciences

CHAPTER ONE

RESEARCH INTRODUCTION AND BACKGROUND

1.1 Introduction

Information Communication Technology (ICT) has become pervasive and sophisticated over the past couple of decades, actively supporting all business operations, and vastly enhancing both the operational efficiency and corporate strategy of enterprises of all sizes (Sapkota, Paudel, Subedi, Bhattarai & Shrestha, 2018). Many prospects for corporate digitalisation and the creation of new digital business models have emerged because of the development and increased acceptance of the web and online technologies (Louw & Nieuwenhuizen, 2020). As a result of the Fourth Industrial Revolution (4IR), businesses across the globe, including banks, were undergoing significant reinvention and reconfiguration (Louw & Nieuwenhuizen, 2020). Banks play a vital role in determining and influencing the economic development of any nation (Willy, Okelue & Obinne, 2013). Due to its primary objective of financial intermediation, the banking industry stimulates growth in both advanced and developing nations (Binuyo & Aregbeshola, 2014). Banks need to continue operating efficiently and effectively because they are the top providers of financial services in their respective countries (Binuyo & Aregbeshola, 2014).

With the rapid growth rate of technology innovation, selecting the right strategies to use is crucial in achieving extensive user involvement, adoption, and overall effectiveness (Yunis, El-Kassar & Tarhini, 2017). For years, there has been widespread agreement on the importance of ICTs in fostering economic development and boosting commercial activity (Deen-Swarray, Moyo & Stork, 2013). Data storage, transfer, processing, and dissemination technologies are referred to as ICT (Singh, 2010; Akande & Van Belle, 2017). With these technologies, people separated by location can communicate with one another. Computers, the internet, radios, television sets, landlines, mobile phones, and other devices are examples of these technologies (Ashrafi & Murtaza, 2008; Singh, 2010). ICT use in South Africa has experienced a significant rise in recent years (Partridge, Makumbirofa, Moyo, Omar & Ahmed, 2024). ICTs have become a focal point in many

developing economies as a means of decreasing poverty, fostering enterprises, and increasing global competitiveness (Deen-Swarray et al., 2013). Banks initially had concerns about how to apply ICT principles, methodologies, guidelines, and implementation strategies to banking services, which were necessary for domestic and international competitiveness (Adebola, 2018). Over the past two decades, rapid ICT developments had a significant effect on the banking sector and the overall financial industry (Mashamba & Gani, 2023). ICT has become a tool that facilitates the internal operations, corporate goals, and client services of banks (Abualloush, Bataineh & Aladwan, 2017).

Based on prior empirical research, it is clear that ICT has a favourable influence on the income of banks, because of all the advantages it offers to both consumers and providers (Binuyo & Aregbeshola, 2014). The decrease in operational costs is the main advantage of using ICT to enhance the operations and activities of commercial banks. Particularly, expenses related to labour, advertising, and physical branch maintenance could be greatly decreased (Hernando & Nieto, 2007). Banks have launched an astounding deployment of ICT-based banking products and services, such as automated teller machines (ATMs), internet banking, mobile banking solutions, point-of-sale terminals, computerised financial accounting and reporting, and human resources solutions, and many others, all of which are essential for enhancing the performance of banks (Ovia, 2005; Ali, 2018). Academics are interested in the connection between ICT and organisational performance (Adebola, 2018; Dewah & Sibanda, 2022). The current study sought to explore the role of ICT in improving the performance of banking operations at a selected commercial bank in the Cape Town Metropole.

1.2 Problem statement

Over the decades, the use of ICT tools to manage daily activities and advance corporate strategy has increased steadily throughout the banking industry (Mashamba & Gani, 2023). Banking organisations continue to confront various problems, including globalisation, competitiveness, uncertain market dynamics, and rivalry from both banking and non-banking institutions, all of which are looking for more inventive methods to add

value to their services (Ndea, 2016). Banks continue to face challenges and problems when it comes to producing innovative e-banking solutions. The challenges banks face in delivering services using ICT include a low level of client literacy, expensive data security, scammers and hackers, and a lack of ICT professionals (Hananu, Abdul-Hanan & Abdul-Rasheed, 2015).

Other acknowledged problems that could affect the adoption of ICT by bank could essentially be categorised as behavioural and psychological. These include client knowledge, security, computer accessibility, resistance to change, the expense of adoption, and a demand for tailored services (Muhammad, Gatawa & Kebbi, 2013). While users are assumed to have a basic understanding of ICT and connection to the web, this has an influence on how likely they are to use this service. Gan, Cohen, Yong and Choong (2006) further note that a continuing hurdle to an increase in ICT adoption is the lack of consumer confidence in the platforms or online operations. There is thus ongoing discussion in academia about whether banks could profit significantly from ICT. This is due to the notion that ICT and performance are connected. As a result, further research is needed to add to the continuing discussion about the nature of the link between ICT and bank performance. To achieve sustainable competitive advantage and identify challenges faced by local banks, the current research planned to examine the influence of ICT on banking operations.

1.3 Rationale and significance of the study

ICTs have a considerable influence on a wide range of industries. The development of these collaborative and productive technologies for more effective commercial operations in the early twentieth century has far-reaching implications. The current study sought to enable the banking community to understand the variables and influences of ICT problems, as well as how these affect the success and operations of banks. Furthermore, the study sought to assist banks in realigning themselves to adapt to the challenges of international banking, which could enable banks to unravel how to remain competitive in both domestic and international financial markets. It further sought to enable banks to develop potential policy recommendations for their organisations.

Understanding the practical implications of ICT adoption by banks could enable management to put in place measures to guarantee that ICT infrastructure is always in excellent condition and maintained to provide quality client service, delivery, and satisfaction, as well as operational efficiency. The study also sought to assist banks to make future projections about the strategies to be used for increasing depositor money, decreasing banking hall queues, and the management policies of the bank. Banks could apply the results of this study to help improve service quality through strategies and models that could aid in the adoption of ICT in South Africa. Finally, this research endeavour aimed to add to academic knowledge and to act as a source of reference for researchers who may do similar research in the future.

1.4 Aim and objectives

The following subsection shows the main aim and objectives of the current study.

1.1.1 Aim

The current research aimed to explore the role of ICT in improving the performance of banking operations at a selected commercial bank in the Cape Town Metropole.

1.1.2 Objectives

Specific objectives of the current study were:

- to investigate how ICT has changed the way banks operate in Cape Town;
- to identify the benefits and challenges of using ICT in banking operations;
- to assess the influence of ICT on the efficiency and effectiveness of banking operations;
- to explore the potential for ICT to improve client service in banking

1.5 Research questions

The current study attempted to answer the following research questions:

- What effect has ICT had on the way banks operate in Cape Town?
- What are the benefits and challenges of using ICT in banking operations?

- To what extent has ICT influenced the efficiency and effectiveness of banking operations?
- To what extent has ICT improved client service in banking?

1.5.1 Outline of the thesis

Chapter One: This chapter provided the background of this study as well as a summary of the problem under investigation. Research objectives, questions and the significance of the study were presented.

Chapter Two: This chapter reports on the literature review. By studying existing literature, the chapter reflects the extensive body of work already published. The relationship between ICT and banking performance as well as the South African (SA) banking sector, the influence of ICT on financial markets, and the advantages of using ICT to improve banking services are explained.

Chapter Three: In this chapter, the research methodology and justification for using it are explained. The chapter covers the design of the survey instrument, the data gathering process, the data analysis process, and the ethical process.

Chapter Four: The data analysis and findings are discussed in this chapter. The data collected from the surveys are covered in depth in this chapter, along with a detailed analysis of the results.

Chapter Five: In this chapter, the conclusions are presented. The chapter further provides the recommendations.

1.6 Chapter summary

In this chapter, the background of the study and problem statement were unpacked. Presented. The chapter acknowledged the problems that banks and their clients face in the adoption of ICT services which include client knowledge, security, computer accessibility, resistance to change, the expense of adoption, and a demand for tailored

services. As presented in this chapter, the research aims to explore the role of ICT in improving the performance of banking operations at a selected commercial bank in the Cape Town Metropole. Five objectives were presented to support this aim with corresponding research questions. Understanding the practical implications of ICT adoption by banks could enable management to put in place measures to guarantee that ICT infrastructure is always in excellent condition and maintained to provide quality client service, delivery, and satisfaction, as well as operational efficiency. The study is important as it will assist the selected bank to make future projections about the strategies to be used to address the challenges revealed in this study for better banking experiences. The next chapter presents the literature review.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The previous chapter provided the overview of the role of ICT in the banking sector particularly emphasising on the opportunities, overall performance, efficiencies and customer experiences. This chapter reviews literature on the adoption of ICT by banks, including the benefits, customer experiences, future trends and prospects. Literature reviews are an important part of a research as they provide baseline information on what has been studied in a selected research field (Paré & Kitsiou, 2017). The chapter presents the conceptual framework first and further discusses the topic under investigation by exploring how banks in South Africa are performing in the digital era under the theoretical literature review. The chapter ends with a summary.

2.2 Conceptual framework

The conceptual framework presented in Figure 2.1 illustrates the role of ICT in shaping the performance of banks in Cape Town. It demonstrates how various ICT factors, such as the integration of new technologies and the implementation of tools like core banking systems and customer relationship management systems, influence banking operations. These technological advancements lead to improvements in operational efficiency, reducing transaction times and manual interventions, which in turn enhances the effectiveness of banking services. The efficiency of banking operations is also impacted by ICT through better decision-making and resource allocation, made possible by AI and data analytics applications.

In addition to operational benefits, the framework in Figure 2.1 highlights how ICT enhances client service delivery to increase customer satisfaction. The adoption of ICT also brings about significant benefits for the bank, including cost reductions, improved customer retention, and increased transaction volumes due to easier access to services. However, the framework also acknowledges the challenges associated with ICT, such as

security concerns, resistance to change, and the need for continuous staff training.

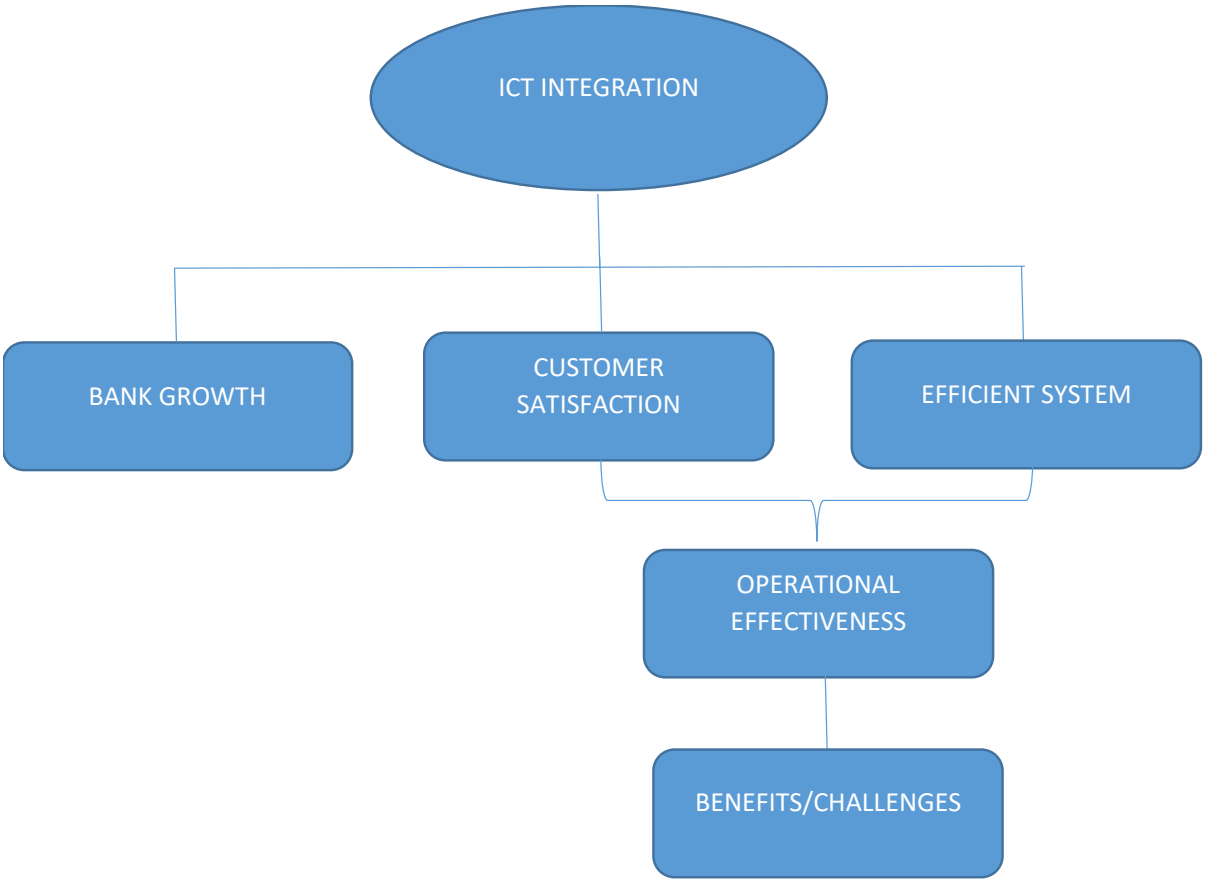

Figure 2.1: Conceptual framework for this study.

2.3 Information and communication technology in banking

In the contemporary era, ICT is revolutionising the delivery of banking services, strategic operations and client interactions (Adebola, 2018). Integrating ICT facilitates data processing, seamless communication and transmission within the banking sector (Rao, 2009). The application of ICT empowers banks to engage with stakeholders effectively, conduct market research, and augment information accessibility (Inmyxai & Takahashi, 2010). Notably, ICT stands as a pivotal enabler in enhancing managerial decisions, teamwork dynamics, and client-centric services within the banking domain (Luka & Frank, 2012).

According to Chatterjee (2020), ICT has resulted in a total paradigm shift regarding

performance and client service delivery in the banking industry. Banks have invested heavily in ICT to catch up with global development, improve client service, and reduce transaction costs (Dastres & Soori, 2021). Cutting-edge information technology, supported by advanced control systems, is essential to ensure optimal operational performance (Riza, 2019). ICT helps banks to improve client service by using ATMs, online banking, phone banking, and 24/7 services. It also allows banks to provide a wide range of products and services (Fuseini, Ibrahim, Adam & Vo, 2024).

The use of IT has substantially improved the operating efficiency of banks, reducing manual labour and errors, and enhancing productivity in routine operations (Hossain, 2021). Automation plays a vital role in account management, transaction processing, and document verification (Hossain, 2021). ICT has also transformed consumer interactions and experiences in the banking industry, providing clients with 24-hour access to their accounts and enabling transactions, bill payments, and cash transfers at their convenience (Wiredu, Labaran, Nketiah & Osibo, 2020). Furthermore, by analysing client data, IT has encouraged the creation of personalised services, allowing banks to provide bespoke solutions (Malaquias, De Oliveira Malaquias & Hwang, 2017). As a result, there has been significant investment in ICT infrastructure and in individuals with the appropriate skills to operate ICT-based gadgets (Das & Chatterjee, 2023).

According to research by Rahmayati (2021), the use of ICT concepts, techniques, policies, and implementation strategies in banking services is critical for competitiveness. ICT directly influences managerial decisions, planning, and the provision of banking products and services (Naimi-Sadigh, Asgari & Rabiei, 2022). Banks need to modernise their payment and delivery systems, applying ICT to their operations to thrive in the new millennium. The banking business has undergone considerable transformations, struggling for survival, global relevance, maintaining market share, and long-term development (Mushtaq, Gull & Usman, 2022).

The integration of ICT in banking is not merely an enhancement but a necessity for modern operations (Kamal, Sivarajah, Bigdeli, Missi & Koliousis, 2020). It revolutionises

service delivery, operational efficiency, and client interaction. According Chygryn, Bilan and Kwilinski (2020), banks must therefore continue to adapt and evolve to address potential crises in the sector. ICT plays a fundamental role and the ongoing innovation and strategic implementation are essential to maintain relevance and competitiveness in the global market (Chygryn et al., 2020).

2.4 The South African banking industry

The banking sector in SA stands has sophisticated infrastructure with a resilient financial ecosystem according to the SARB (2017). The dynamic nature of SA's banking sector are propelled by ICT advancements as well as the evolving needs of clients which underscores the pivotal role assumed by banks in steering economic growth (Binuyo & Aregbeshola, 2014). As banks continue to evolve with technology, it shows their ability to adapt to technological advancements also portraying a proactive approach to addressing the shifting paradigms of financial services, emphasising how the banking sector is committed to innovation, client-centric approaches, and sustainable economic development (Krasonikolakis, Tsarbopoulos & Eng, 2020; Omarova, 2020; Ozili, 2021).

2.5 ICT and bank performance

Integrating ICT into banking operations has created a paradigm shift in the banking sector thereby altering operational mechanisms, economic landscapes and client service (Abubakar Aliyu & Tasmin, 2012). With the current digital drive across all the economic sectors, banks are compelled to indispensably rely on ICT to drive the financial systems and services (Olanrewaju, 2016; Sapkota et al., 2018). The ICT-driven spectrum of banking solutions, including ATM, mobile banking and internet banking has reshaped the traditional banking paradigm (Muhammad et al., 2013; Olanrewaju, 2016). Alongside its advantages, ICT adoption however also presents challenges related to system glitches, communication breakdowns, and heightened client expectations (Sapkota et al., 2018).

ICT has become a pivotal component in many aspects of human activity. ICT assists banks in improving the efficiency and efficacy of client services, as well as in enhancing business processes, managerial decision-making, and collaborations among

workgroups; thus, strengthening the competitive positions of banks in dynamically changing and rising economies (Del Gaudio, Porzio, Sampagnaro & Verdoliva, 2021). Through the years, banks have invested heavily in the adoption of ICT solutions for both front- and back-office automation. Despite the integration of ICT into banking services and operations, the anticipated and forecasted performance of banks has not fully materialised, considering the extent of ICT development (John & Kiwango, 2021). The progression of ICT should ideally correspond to a level of performance that mirrors the advancements in the banking sector. This mismatch underscores the necessity for a more coherent and comprehensive alignment between technology integration and the anticipated outcomes within the banking industry (Meiling, Yahya, Waqas, Shaohua, Ali & Hania, 2021).

The integration of ICT into banking has fundamentally transformed the industry, enhancing efficiency, client service, and operational processes (Zuo, Strauss & Zuo, 2021). The gap between technological advancements and actual performance however highlights the need for strategic alignment and comprehensive integration (Machkour & Abriane, 2020). Banks need to ensure that their ICT investments translate into tangible improvements in performance and client satisfaction.

2.6 Benefits and challenges of implementing ICT in banking operations

The integration of ICT into banking operations holds significant benefits, such as amplifying client accessibility, cross-selling opportunities, and cost-effectiveness (Binuyo & Aregbeshola, 2014). ICT empowers consumers to engage with their accounts remotely, fostering convenience and enhancing service quality (Hananu et al., 2015). Challenges however persist, including the management of client expectations, cost-reduction imperatives, and heightened competition, all necessitating a strategic alignment of technology to meet the objectives of banks (Sapkota et al., 2018).

2.7 Benefits

Integrating ICT in the banking sector provides a range of benefits that includes improved operational procedures as well as enhanced client experiences. This section presents

these range of benefits in the banking industry, emphasising the role of ICT in fostering innovation, enhancing operational efficiency and bolstering resilience.

2.7.1 Enhanced operational efficiency

According to Kevin, Benard and Ronald (2013), ICT integration into banking operations signifies a profound transformation that extends beyond automation to sophisticated risk management. This integration expedites the transactional processes, enhances operational efficiency, and ensures the compliance with the banking sector's regulatory standards. Integration of ICT not only facilitates the smooth flow of banking operations, but also reduces errors thereby contributing to a banking framework which is reliable (Rahmani & Zohuri, 2023). As banks are strategically align with regulatory compliances, it demonstrates their commitment to operate under the banking laws (Uford, 2018). Banks are therefore taking steps in integration the evolving ICT to drive innovation, efficiency and resilience (Racela & Thoumrungroje, 2020).

2.7.2 Elevated client service

The integration of AI-driven platforms enables banks to offer personalised recommendations and respond to customer queries on time, which are the main ingredients for satisfying a customer and consequently earning loyalty in the long run (Uford, 2018). The use of ICT in this way goes beyond the typical banking relationship to a higher level of involvement with the customer. Through the use of AI-driven platforms, banks can easily know what their customers like, understand their behaviour, and consequently offer tailor-made solutions that meet their specific needs and expectations without relying on manual paper work.

This does not only improve the general customer experience but also fosters loyalty and long-term relationships between customers and the bank. Basically, the prudent infusion of ICT is a landmark stride in reengineering banking services with a focus on client-centricity and strengthening the competitive positions of banks in the modern financial landscape (Boute, Gijsbrecht & Van Mieghem, 2022). The application of ICT in enhancing customer service through customized and instant solutions underscores the

revolutionizing effect of technology in forging sustainable customer relationships (Usman, Khan & Omri, 2024). In this regard, banks should place topmost priority on client-centred information and communications technology applications for optimal satisfaction and loyalty in a highly competitive financial environment.

2.7.3 Holistic cost reduction

ICT optimises resource utilisation, improves energy efficiency, and minimises carbon footprints, aligning these with sustainable practices (Sikder, Ahmed & Islam, 2023). The integration of ICT in banking for holistic cost reduction not only enhances financial performance but also aligns with sustainability goals. This dual benefit underscores the strategic importance of ICT in achieving both economic and environmental objectives.

2.7.4 Extended market penetration

The influence of digital banking on market penetration transcends geographical boundaries and fosters financial inclusion and societal progress by extending services to remote areas, and contributing significantly to economic upliftment (Racela & Thoumrungroje, 2020). The ability of digital banking to extend market penetration and foster financial inclusion is a testament to the transformative potential of ICT (Chu, Ye, Li, Strauss & Zhao, 2023). Banks should therefore implement digital solutions to reach underserved regions; thus, contributing to broader economic development and societal progress.

2.7.5 Insight-driven innovation

ICT and advanced data analytics offer banks a deep understanding of consumer behaviour, enabling the creation of tailor-made financial products and services that align with evolving market demands (Garg, Gupta, Chauhan, Sivarajah, Gupta & Modgil, 2021). Through ICT and data analytics, insight-driven innovation is crucial so as to develop tailored financial solutions that meet market demands.

2.8 Challenges

While integrating ICT in the banking sector provides a wide range of benefits, it also poses

a set of challenges for financial institutions to overcome. This section delves into the major challenges and barriers that banks confront while adopting and using ICT in their operations. By tackling these difficulties properly, banks may use the promises made by technology better in order to generate development and innovation while minimising risks and ensuring security (Gomber, Koch & Siering, 2017).

2.8.1 Security concerns in digital transactions

The landscape of digital transactions presents evolving threats, demanding rigorous security protocols, encryption technologies, and multifaceted authentication measures to fortify digital strongholds (Revathi, 2019). South African (SA) banks must adopt a proactive approach to cybersecurity, implementing advanced technologies, such as AI, for threat detection and response. Continuous training and awareness programmes for employees and clients are essential to create a security-conscious culture (Tolossa, 2023). Additionally, regulatory bodies should enforce stringent security standards to ensure uniform protection across the industry.

2.8.2 Digital divide and financial inequality

Digital banking creates disparities in access, demanding initiatives focused on promoting digital literacy, and providing tailored support systems to address the digital divide (Sutikno, Nursaman & Muliyat, 2022). To bridge the digital divide the rural and urban areas, SA banks should collaborate with government agencies and nongovernmental organisations (NGOs) to enhance digital literacy programmes and provide affordable internet access (Partridge et al., 2024). Developing simplified and user-friendly digital platforms could also help include more people in the digital economy, particularly in rural and underserved areas.

2.8.3 Infrastructure and connectivity challenges

Implementing ICT in regions with inadequate technological infrastructure poses challenges, hampering financial inclusion. Innovative solutions, such as partnerships with local providers, are imperative for extending services to these areas (Larsson & Viitaoja, 2017).

Literature reviewed aligned with understanding the role of ICT in banking operations; exploring its influence on the SA banking industry; and assessing the benefits and challenges associated with implementation of ICT in the banking sector of SA. The integration of ICT into banking is evident in: enhanced operational efficiency; elevated client service; holistic cost reduction; extended market penetration; and insight-driven innovation.

The problems, like security issues, the digital divide referred to above, and infrastructure constraints emphasize the need for deliberate strategies to realise successful ICT deployment in the South African banking environment. In this case, mobile units or making use of mobile vans that have banking facilities can be taken as stop-gap measures to get to those societies that do not have the proper infrastructure in place. At the same time, efforts geared towards empowering community-based networks or community technology centres would go a long way in enhancing localised solutions, which in turn will enhance digital literacy and connectivity within those under-served areas (Magoro et al., 2023). Banks therefore need to accept innovative technologies, adopt an approach that forges partnerships, and embrace community-driven initiatives to overcome infrastructure and connectivity challenges. By doing so, they can extend their services to marginalised regions, to foster financial inclusion and empowering communities with access to essential banking services (Vishnuvardhan, Manjula & Lakshman Naik, 2020). This can be achieved by investing in infrastructure solutions, such as satellite internet and low-power wide-area networks (LPWAN) so as to reach to remote areas (Serrano, Isaris & Schaffers, 2017; Barroso & Laborda, 2022). Collaborating with tech start-ups could lead to innovative solutions that are cost-effective and scalable. Tech start-ups in banking are new, innovative companies that use technology to improve or create new financial services and products (Serrano, Isaris & Schaffers, 2017). These companies focus on modernising traditional banking methods or introducing completely new solutions to meet client needs more effectively. Community engagement and local partnerships are crucial to ensure the sustainability and acceptance of these initiatives (Barroso & Laborda, 2022).

2.8.4 Compliance with evolving regulations

Adapting to the ever-evolving regulatory landscape presents an intricate and perpetual challenge for banking institutions (Jahan, 2024). The regulatory environment, especially concerning data protection and financial regulations, undergoes frequent revisions and updates, necessitating constant vigilance and rapid adaptation by banks (Dimri, 2023). Ensuring compliance with these regulatory frameworks requires a comprehensive strategy that addresses different facets of the operations of a bank (Dimri, 2023). This includes navigating legal complexities, implementing advanced technological solutions, and allocating significant human resources. Meeting these standards involves not just initial investments but also ongoing efforts to keep pace with evolving compliance requirements (Sutikno et al., 2022).

The complexity of regulatory compliance extends beyond the mere understanding and implementation of regulations (Martinez, 2020). It entails management of culture in the institution so as to ensure that the staff is constantly educated on the standards expected of them in this regard (Judge-Lord et al., 2020). The compliance that is required for managing the supply chain also requires other resource commitments than monetary commitments (Martinez, 2020). It includes devoting considerable resources of time, manpower, and supporting technologies to examine, deploy, and monitor compliance procedures. This requires a persistent and appropriate investment of human capital and precious skills to faithfully decipher and put into practice ever-changing regulations (Nejjari & Aamoum, 2023).

Though necessary for keeping the law within sight, they also create new operational problems for business (Evans, 2020). The introduction of new systems or tweaking of current processes to fit new laws always interferes with business continuity; this means that the transition process has to be carefully planned to avoid much disruption to organisational operations (Yeung & Bygrave, 2022). The ever changing nature of rules in regulations means that ICT becomes a costly affair for banks, in the sense that often it costs a lot of technological investment and labour spending. These regulatory changes taking place at a very fast pace force bank institutions to dedicate sizeable amounts and

efforts in IT and qualified stuff to ensure compliance with current laws (Rivai, 2021). Such reasonable investment is quite important for launching efficient compliance measures, risk, and potential Penalties control strategies (Rivai, 2021). Managing these concerns involve prevention, education and efficient management of resources in the complex world of shifting jurisdiction in the finance sector (Nejjari & Aamoum, 2023).

South African banks have to pay specific attention to compliance management initiatives capable of providing the necessary flexibility in battling changes in regulation. Some of these barriers could be alleviated through the use of regulatory technology solutions in an organisation's compliance regime. Moreover, evaluating the legal environment compliance by training and communicating regularly with the management team on the changes in the law will assist in preventing risks and potential operational hitches (Dimri, 2023).

2.8.5 Cost of implementing ICT

The implementation of ICT systems requires initial capital investments in technology hardware, software, and training of employees for the use of the systems as well as security enhancement installations (Al-Sibai, Alrubaie & Elmedany, 2021). Even as these investments may have a long-term payback, the initial costs of implementing such can be very expensive for most banks particularly those that are smaller banks. To these cost, while maintaining the effectiveness and security of the put in place systems, is a major factor that needs to be considered (Luka & Frank, 2012).

Meeting all of these challenges requires a multi-faceted approach that considers the role of technology, the need for policy changes, raising awareness among clients, and the need for equality of opportunities when it comes to access to digital media. As a result, the presented challenges facilitate the ability of banks to leverage the ICT potential but manage potential risks at the same time (Franchina et al., 2021). Nevertheless, given the high costs related to ICT implementation, SA banks should consider the gradual approach in this regard focusing on the most effective intervention areas first, although more discussion on this, see Evans, 2020. Minimising the upfront expenses may include;

government grants, taking collaborations with other private sectors, involving cloud-based solutions (Franchina et al., 2021). Emphasising scalable and modular ICT systems will allow banks to expand and upgrade their technology infrastructure cost-effectively over time (Malodia, Dhir, Mishra & Bhatti, 2021).

2.8.6 ICT adoption strategies in banking

Strategies for implementing ICT in banking operations are crucial in ensuring successful integration and covering the full spectrum of benefits while mitigating potential challenges. Several approaches define effective ICT adoption in the banking sector (see Kyeremeh, Prempeh & Afful Forson, 2019):

(a) Holistic strategic planning

Holistic strategic planning implies that a comprehensive strategic plan aligns ICT initiatives with organisational goals and future aspirations (Tarifi, 2021). Such comprehensive strategic plan involves aligning ICT initiatives with organisational goals and future aspirations (Tarifi, 2021). This plan goes beyond mere technology implementation to include the complexities of data governance, cybersecurity, and regulatory compliance. It should incorporate a phased approach to adopting technology, detailed investment plans with clear projections of return on investment (ROI), strategies for managing risks and addressing potential setbacks, and a thorough talent development program to ensure employees have the necessary skills (Ghobaeia, Zanda & Motadel, 2022).

(b) Amplifying client centricity

The strategic approach encompasses detailed client analytics to understand preferences comprehensively, user journey mapping to enhance intuitive experiences, and the implementation of feedback mechanisms for continuous improvement (He, Hung & Liu, 2023). Accessibility is prioritised through user-friendly interfaces designed to cater for diverse demographics, ensuring usability across different devices and platforms (Anoke, 2022). Personalisation extends beyond services to include engaging interactions, which aim to create a seamless and memorable client experience (Dlamini, Mazenda, Masiya

& Nhede, 2020).

(c) Innovation and agile adoption

Bolstering innovation as a core organisational value involves creating an ecosystem that nurtures ideation and experimentation (Purg, Cacciatore & Gerbec, 2023). This includes: dedicated research and development teams exploring novel technologies and market trends; conducting pilot projects to test new ideas; and fostering collaborations, both within and outside the industry, to anticipate and adapt swiftly to evolving technological landscapes (Sibanda, 2021). An agile framework facilitates the rapid implementation of innovative solutions, ensuring the organisation stays adaptable and resilient amidst change (Kruger & Steyn, 2024).

(d) Fortifying security ecosystems

Enhancing cybersecurity requires a multi-layered approach (Uzougbo, Ikegwu & Adewusi, 2024). This involves not only robust encryption protocols and threat detection systems but also continuous audits and proactive vulnerability assessments to fortify defences against evolving cyber threats (Nwobodo, Nwaimo & Adegbola, 2024). Employee training and awareness programmes become integral, instilling a culture of security consciousness across all levels of the organisation (Tolossa, 2023).

South African banks should adopt a balanced approach to ICT adoption, combining strategic investments with innovative partnerships (Braun, 2023). Emphasising client-centric solutions and continuous innovation will ensure that technology serves both the operational needs of the bank and the evolving expectations of its clients (Komulainen & Saraniemi, 2019). Security and compliance should be integral to every ICT initiative to build and maintain trust in the digital banking ecosystem (Tolossa, 2023).

2.9 Future trends and prospects

The trajectory of ICT in the banking sector promises continued evolution, bringing forth trends that will redefine the industry (Hacklin, Marxt & Fahrni, 2019).

2.9.1 AI and machine learning

The integration of artificial intelligence (AI) and machine learning (ML) is set to redefine banking operations by revolutionising various facets of the industry (Kamuangu, 2024). These cutting-edge technologies promise to transform client interactions, risk assessment methodologies, fraud detection mechanisms, and the delivery of personalised financial advisory services (Rahmani & Zohuri, 2023). This transformation is poised to enhance operational efficiency and to elevate overall client satisfaction levels within the banking sector significantly (Jáuregui-Velarde, Andrade-Arenas, Molina-Velarde & Yactayo-Arias, 2024). AI and ML algorithms have the potential to redefine client interactions within the banking landscape (Jáuregui-Velardeet al., 2024). Through processing large amounts of client data these technologies can enable more suitable and natural interaction between human and machine (Farayola, 2024). This may comprise the customised products suggestions, the enhanced client service by using the bots, and the automated communication in consequent of the activity of every client (Jáuregui-Velardeet al., 2024).

AI and ML are innovative in the aspects of risk assessment and fraud detection since they identify complex patterns and exceptions in real time to improve risk assessment models (Kamuangu, 2024). These technologies help to quickly recognize possibly fraudulent activities on the side of the bank, as well as contribute to the increased security of the clients, if necessary (Rahmani & Zohuri, 2023). Machine advice could bring highly personalized recommendations and advice based on analyses of customers' financial records and their determined objectives (Jáuregui-Velarde et al., 2024). Such systems could give possible ideas for probable investment returns, the optimal method of savings and other financial related tactics to help clients make better decisions based on the clients' circumstances (Farayola, 2024). The use of AI and ML in banking is a shift in the new paradigm for banking with an aim to enhance operations, reduce risks, and provide fast and efficient services to the clients (Jáuregui-Velarde et al., 2024).

The SA incorporation of AI and ML in the banking section will enhance the level of experience and performance to a higher level (Mamela, Sukdeo & Mukwakungu, 2020).

Banks should however ensure ethical AI use and transparent decision-making processes to maintain trust (Polireddi, 2024). Continuous investment in AI capabilities and fostering a culture of innovation will be crucial for staying competitive in the evolving financial landscape (Polireddi, 2024).

2.9.2 Blockchain technology

The widespread adoption of blockchain technology beyond its origins in cryptocurrencies is poised to catalyse a fundamental transformation in traditional banking operations (Javaid, Haleem, Singh, Suman & Khan, 2022). Blockchain technology, expanding beyond its origins in cryptocurrencies, is poised to catalyse a fundamental transformation in traditional banking operations (Akram, Malik, Singh, Anita & Tanwar, 2020). It is an up-to-date and independent solution for organisational and secure operations that is depicted to transform banking, smart contracts, and identity verification procedures (Choi, Chung, Seyha & Young, 2020). In its essence, blockchain is a decentralised electronic dispositive that records transactions in a network of computers. The blocks in this distributed ledger are connected through cryptographic means to minimise fraud or other unauthorised changes and to improve the record's credibility, making financial transactions more secure (Teisserenc & Sepasgozar, 2021).

According to Akram et al. (2020), probably one of the most promising areas in banking where blockchain could be applied is in the sphere of the transactional process. Regular banking operations entail a number of intermediaries, which causes more and more time, extra charges, and large amount of complications (Mathivathanan, Mathiyazhagan, Rana, Khorana & Dwivedi, 2021). It automates and provides secure transactions without the need for third parties; thus, making transactions between individuals direct, fast and efficient (Jena, 2022).

2.9.3 Internet of Things in banking

Technological advancement such as Internet of Things (IoT) is set to transform the banking sector's environment into a world of constant interconnected and smart devices to enhance the banking transactions, firm's personalisation, and predictive analytics from

large amounts of accumulated data (Saban, 2023). IoT refers to a physical environment that has network connectivity and consists of objects fitted with sensors, software, and connectivity to communicate and perform a task without human interaction (Syed, 2022). This not only extends the environment of interconnection to a range of smart devices, wearables, automobiles, and several more in banking sector creating a connected environment for the clients in terms of bank's devices and optimising the utilisation of data collected and used effectively (Khanboubi, Boulmakoul & Tabaa, 2019).

From the above details, it can be deduced that client experiences are one of the major impacts of IoT in banking (Al-Thobhani, 2022). Through IoT-connected gadget, clients can perform transactions, obtain products and services from banks, and do other financial-related affairs easily, according to the report by Jusas (2017). For instance, wearable technology like smartwatches or the internet of things integrated smart payment cards can enable contactless payment services or real-time account status to clients making it easier and more convenient for a firm to access their financial accounts (Syed, 2022). Due to advancements in technology, banking organisations desire IoT devices to gather real-time data of various natures (Vyas, 2023). For instance, whereas they track clients' expenditure via connected payment cards or measure their activities in physical branches through sensor sign systems, banks may use this flow of information for strong analytic predictions (He et al. 2023). These analytics can be useful in knowing the clients' needs and wants, forecasting their possible financial requirements, and addressing the clients in a more specific manner; all of which can contribute to greater client involvement and satisfaction. Data collected by Internet of Things can help the banks to anticipate possible issues or risks in banking system (Dineshreddy & Gangadharan, 2016). For instance, IoT sensors can identify some issues about the operations of ATMs, the security of physical branches and even possibly prevent fraud by analysing the real-time data (Arora & Kaur, 2020). This way not only fortifies security procedures but also emphasises on regular advancements and prepares for unsavory circumstances that could reach calamitous proportions prior to being handled (El Karam, Marghoubi, Khanboubi & Allaki 2022).

The implementation of IoT in the context of banking implies the following challenges: Data security and privacy since customers' financial information is at risk. Encryption, securing data transfer, and restricting the access requirement are essential to reduce possible risks of cyber-attacks on the growing interconnectivity of smart devices (Allioui & Mourdi, 2023). In this way, as IoT develops and becomes integrated into the banking industry, its ability to form a constantly linked system, provide customised services, use the predictive analysis, and improve the efficiency of functioning in the financial sphere proves IoT's capacity to revolutionise the financial industry (Arora and Kaur, 2020).

The incorporation of IoT to SA banking sector could bring a positive change with regards to the client reception and organizational effectiveness (Jonnalagadda, 2023). It is imperative to also agree with the respondent that it is vital to eliminate data security risks and privacy in this process. The IoT must be deployed safely and sustainably as a strategic move in banks' digital-transformation strategies; several IoT projects may not be necessary for their safety, deterministically (Fotso, 2020).

2.9.4 Enhanced digital payments

Mobile wallets have become a widely adopted method for managing financial transactions, allowing users to keep their payment details secure on their smartphones (Killian & Kabanda, 2017). These wallets not only facilitate payments and money transfers but also provide access to loyalty programs and rewards, all within a single app (Mungai, 2019). The blend of convenience and sophisticated security features, such as tokenization and biometric verification, ensures a reliable and safe payment process (Alkhowaiter, 2020). Biometric verification, which relies on unique physical characteristics like fingerprints or facial recognition, further enhances security by significantly lowering the risk of fraud (Umar, 2022). Additionally, this method of authentication is more user-friendly compared to traditional password systems (Bakar, Hassan & Hassan, 2021). The advancement of these digital payment systems not only improves the transaction experience but also addresses the growing demand for secure, convenient payment solutions (Mungai, 2019). As technology progresses, these innovations are likely to become more prevalent, reshaping how people and businesses handle financial

transactions. South African banks should focus on developing and adopting cutting-edge digital payment systems to cater to the increasing need for both convenience and security.

2.9.5 Ethical use of data

Banks are compelled by strict rules and increased attention to client data privacy to embrace open and ethical conduct in handling sensitive information (Solove & Schwartz, 2023). It is not only the government that is emphasising about the ethical use of data but also it is an important foundation for building trust with customers (Benthall & Viljoen, 2021). Today banks are aware of ethical implications involved in collection, retention and utilisation of customer's data since they are dealing with a lot of data Liu (2020). Regulatory authorities have pushed for stricter regulations that necessitate explicit consent when collecting data and set high standards for its protection (Gefenas Lekstutiene, Lukaseviciene, Hartlev, Mourby & Cathaoir, 2022). Banks must comply with these regulations because they want clients to see how much the bank values them Georgiadis & Poels (2022).

Building trust is now largely dependent on transparency in data practices (Andrew & Baker, 2021). Banks are presently more transparent with regards to their data usage policies, outlining the precise methods of gathering client information and managing it (Hofman, 2020). Additionally, clients can exercise substantial authority over their data, including preferences and consent settings. Also, ethical data practices entail the use of client information for intended purposes and the protection against unauthorized access or misuse (Georgiadis & Poels, 2022). To strengthen data security, banks are implementing robust cybersecurity measures, encryption technologies, and ongoing monitoring (Shneiderman, 2020). This focus is not only on ethical data practices, but also on the need to maintain client privacy (Hacker, Cordes & Rochon 2024). By implementing transparent data-handling practices, banks can improve their reputation and standing in an increasingly data informed world, as well as building trust and loyalty among their customers. In 2024. SA banks prioritise ethical data practices above regulatory compliance (van Heerden, 2022). Transparency and data protection are essential in

establishing trust with clients in an increasingly data-driven world (Van Loo, 2022). To stay ahead of regulatory developments and potential risks, banks must update their data privacy policies and invest in cutting-edge security technologies.

2.10 Chapter summary

This chapter presented the literature review on the integration of ICT in the banking sector. The incorporation of ICT in banking signifies a significant shift in operations, customer satisfaction, and economic conditions. The chapter analysed the multifaceted impact of ICT adoption, while also acknowledging the obstacles faced by banks in this digital shift. ICT is a key factor in improving operational efficiency, providing better client service and expanding market reach. ICT integration improves internal processes, personalises the experiences of clients, and allows for market expansion beyond borders. Despite the benefits of digital transformation, there are still obstacles to be overcome, such as security concerns, digital divides, and infrastructure limitations. By combining banking operations with ICT tools, it promises to increase efficiency, improve decision-making and enhance competition in an increasingly dynamic market. The emergence of new technologies such as AI, blockchain, IoT, and digital payment systems are signalling an era of innovation in the banking industry, with a focus on improved operational efficiency, secure transactions, undivided benefits, or connectedness. The importance of ethical considerations in data handling and privacy has led to bank practices being shaped towards transparency, data protection, and client confidence. Banks are compelled to prioritise the protection of client data due to strict regulations and ethical guidelines. The chapter also presented a wide range of challenges that banks face in implementing technology. The next chapter presents the research methodology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter discussed the significance of ICT in banking, with a particular emphasis on its impact on operational efficiency, customer service quality, and overall performance. The assessment also placed the SA banking industry in a global context, emphasizing the advantages and challenges of ICT integration. The current chapter builds upon this foundation and attempts to clarify the research methodology used in this study. The research paradigm, design of the research, and methodology used are introduced at the beginning of chapter four. Following that, the data collection tools utilized are analysed, and then the study population and sampling process are discussed. The chapter also covers the principles of research reliability, validity, objectivity, credibility, and ethical considerations.

3.2 Research paradigm

A research paradigm is a collection of shared beliefs and agreements among specialists in a field about how problems should be understood and solved (Kaushik & Walsh, 2019). It is generally a way of viewing the world (Khaldi, 2017). Research paradigms are characterised by their ontology, epistemology, and methodology (Ebohon, Ajayi & Ganiyu, 2021:64). Research paradigms are crucial for research because they offer beliefs and dictate what should be investigated, how it should be studied, and how the findings of the study should be understood by academics in a certain field (Kaushik & Walsh, 2019). The researcher's philosophical orientation is defined by the paradigm; thus, it has significant consequences for every decision made in the research process, including selection of methodology and methods (Kivunja & Kuyini, 2017:26). It is important to understand research paradigms because these paradigms provide direction to scientific research and discoveries through their assumptions and principles. Positivism, realism, critical theory, and interpretivism are the four main paradigms available (Yong, Husin & Kamarudin, 2023:5858).

The current study adopted a post-positivist research paradigm, which was chosen due to its recognition of the limitations of positivism and its acknowledgement of the socially and culturally constructed nature of reality, as explained by Kivunja and Kuyini (2017). Post-positivists contend that absolute objectivity is unattainable, and emphasise the role of researchers in shaping knowledge claims about human behaviour. Unlike positivism, which views social processes as natural occurrences, post-positivism advocates for a nuanced understanding of objectivity within real-world contexts (Kivunja & Kuyini, 2017). Maksimović and Evtimov (2023:214–215) elaborate on the post-positivist perspective, emphasising the recognition of measurable objective facts in social reality. They suggest that researchers can appropriately measure and test these facts using statistical methods to analyse causal connections. Hasan (2016) concurs with the premise of the post-positivist paradigm, namely that objective reality is worthy of study and measurable. Furthermore, Kumatongo and Muzata (2021:18) highlight the growing influence of the post-positivist paradigm on social science research methodologies. They note a particular emphasis on quantitative methods, such as surveys and experiments, which are considered effective tools for gathering data about objective reality. These references substantiate the assertions regarding the theoretical underpinnings of the post-positivist paradigm and its influence on research methodologies (Kivunja & Kuyini, 2017).

3.3 Research design

Sadock (2021:14) describes a research design as “the arrangement of conditions for collection and analysis of data in a manner that aims to mix the relevance to the research purpose with economy in procedure”. As a result, the main objective of the research design is to assist in making it easier for the researcher to control the data collection process and interpretation effortlessly (Kumar, 2018). Polit and Beck (2017:743) indicate that a research design is a general approach to answering a research question, including guidelines to strengthen the integrity of the study. According to Asenahabi (2019:78), the researcher adopts this step-by-step process before the data collection and analysis process starts in order to achieve the research objective. The essence of research design is to convert a research problem into data that can be analysed to provide meaningful answers to research questions (Creswell & Creswell, 2018). The kind of analysis that

must be performed to achieve the desired results is always determined by the research design (Kumar, 2018). The design specifies the data needed, the procedures to be followed to gather and analyse the data, and the way the data will be used to address the research questions (Creswell & Creswell, 2018).

The descriptive design was appropriate as the focus was on exploring how ICT could affect banking operations. In a descriptive research design, information from respondents is obtained by the researcher (Sainsbury's, Lewis & Thornhill, 2019). In addition, the researcher employed descriptive and inferential statistical methods to analyse the data and arrive at conclusions. This enabled the researcher to scrutinize facts, gain a thorough understanding of the research problem, and identify the behaviour of people in nature. Siedlecki (2020:9) states that a descriptive research design is one which seeks to gather data systematically to describe the phenomenon, circumstance or population being studied. The authors assert that a descriptive research design involves delineating the distribution of one or more variables, without considering any causal or other hypotheses. The focus of descriptive research is on detecting patterns in data without deriving cause-and-effect relationships among variables, as stated by Ansari et al. (2022). When descriptive research is used in a study that seeks to identify people's characteristics, frequencies and patterns of behaviour (Ansari et al., 2022). It is important to note that the researcher can use various variables but only need one for descriptive research. This type of research can gather data using both qualitative and quantitative research methods (Mehrad, Hossein & Zangeneh, 2019:2).

3.4 Research approach

Creswell and Creswell (2018) defines research methodology as the process through which researchers create the research problem and objective and, thereafter, present the results from the data gathered during the research period. According to Kapoor (2022:27), research methodology as an in-depth investigation of the research methodologies employed to ensure that the conclusions attained are accurate, dependable, and defensible. There are three research approaches, from which the current study employed the mixed-methods approach.

Broadly speaking, there are three primary research approaches: qualitative, quantitative, and mixed methods (Creswell & Creswell, 2018). Qualitative research focuses on understanding phenomena from a subjective perspective, often employing techniques, such as interviews, observations, and content analysis to explore complex social phenomena in depth. Quantitative research prioritises numerical data and statistical analysis to measure and quantify the relationships between variables, with the aim of achieving generalisability and reproducibility (Dawadi, Shrestha & Giri 2021:27). Creswell (2014:21) defines mixed-methods research as involving the integration of qualitative and quantitative data in a single research study. Questioning with no answers is the focus of qualitative research, whereas quantitative research involves closed-ended questions. Using multiple perspectives and connecting various research issues is more feasible with the mixed-methods approach than with a single methodology (Creswell & Creswell, 2018). By using the mixed-methods approach, the researcher employs a sequential or simultaneous collection of qualitative and quantitative data (Taherdoost, 2021). Depending on the nature of the inquiry and their philosophical approach, the researcher may combine two types of data (Kaushik & Walsh, 2019).

In the current study, the mixed-methods approach allowed the researcher to gain a good understanding of relationships or contradictions between qualitative and quantitative data, and the respondents were provided with opportunities to share their experiences across the research process. Furthermore, this approach provided in-depth answers to the research questions, expanded and strengthened the conclusion of the study, and contributed to the available literature on the topic.

3.5 Data collection

Data collection is one of the key phases in a research study because it allows the researcher to seek answers to the research questions. Taherdoost (2021:10–11) explains that data collection is the process of collecting data to acquire knowledge and understanding of the research topic. As a primary stage in research, data collection could increase the quality of results achieved by reducing the possibility of errors occurring during the research process. Consequently, in addition to having an effective research

approach, sufficient time should be invested in data collection to obtain accurate results. Limited or incorrect information may hinder the accuracy of the results and conclusions drawn (Kabir, 2016).

3.5.1 Survey research

According to Singh (2006:41), a Likert-type scale is a collection of statements or items presented for a real or hypothetical occurrence under investigation. Respondents are, for instance, asked to indicate their levels of agreement on a scale from ‘strongly disagree’ to ‘strongly agree’ with the provided statements or items. All the statements in combination show a particular aspect of their attitudes towards the topic at hand, and are thus interlinked. Joshi, Kale, Chandel and Pal (2015:398) explain that the Likert-type scale is aligned with the objectives of the research. The purpose of research is sometimes to gain knowledge about respondents’ opinions or perceptions about a single latent variable or phenomenon of interest. This latent variable is represented by several manifested items in a Likert-type questionnaire. Sekaran and Bougie (2013:220) agree that the Likert-type scale is designed to examine how strongly respondents agree or disagree with the statements on a five-point scale. The responses over several items tapping a particular concept or variable can then be analysed item by item. It is also possible to calculate the total or summated score for each respondent by summing across items.

In the current study, a questionnaires was designed to gather data in the selected research site from clients. The questionnaires had three main sections. The first section of the **client questionnaire** gathered demographic information from respondents. The second section entailed consideration of a collection of items designed to elicit client feedback on the influence of ICT on service quality. The third section related to consideration of clients’ perspectives on challenges the bank had experienced with its ICT adoption. The questionnaires was designed using Google Forms. To determine whether the questions were relevant, appropriate and feasible, a pilot survey was conducted with a sample of 20 respondents as clients. Following preliminary fieldwork, the questionnaires were revised based on the feedback received from the respondents.

3.5.2 Interviews

Semi-structured interviews were conducted for the collection of qualitative data. Ruslin, Mashuri, Rasak, Alhabsyi and Syam (2022) explains that a semi-structured interview is a qualitative research method that connects a pre-determined set of open questions with the opportunity for the interviewer to learn additional information regarding certain subjects or responses. A semi-structured interview is used to gain knowledge on how interventions function, and they might be improved (Kumar, 2018). It does not limit respondents to a set of pre-determined responses (Kumar, 2018). DeJonckheere and Vaughn (2019) support the statement by Ruslin et al. (2022) that semi-structured interviews are normally used in qualitative research, and consist of a conversation between the researcher and his or her respondent, directed by a flexible interview protocol, and enhanced by follow-up questions, probes, and comments.

Interviews were conducted with the employees at the selected bank in Cape Town because they possessed in-depth and accurate knowledge of the overall performance and activities of ICT at the bank. This approach enabled the researcher to gather open-ended information, and to explore respondents' thoughts, feelings, and beliefs on the topic. The main purpose for utilising semi-structured interviews was to collect information on the personal experiences, attitudes, perceptions, and beliefs of the respondents related to the topic under investigation. Furthermore, data collected via the semi-structured interviews support the triangulation of the results of the survey questionnaire.

3.6 Research population

A population is defined by Polit and Beck (2017:249) as the complete combination of cases in which the researcher is interested. In qualitative studies, a population is not chosen for generalisability, but rather to establish the kinds of individuals that are suitable to take part in the study (Taherdoost (2021). Sekaran and Bougie (2013:240) refer to a population as the entire group of people, events or things of interest that the researcher wishes to investigate. Gratton and Jones (2014:21) state that a population comprises all persons who share the qualities that the researcher considers important. In the current study, the research population consisted of the clients and employees of a selected bank

in Cape Town.

3.7 Sampling procedures

For Polit and Beck (2017:743), sampling refers to the procedure of selecting a subset of the population to represent the whole population. Albers (2017:2) agrees that sampling is the process of picking a subset of a population to participate in a study. As cited by Martínez-Mesa, González-Chica, Bastos, Bonamigo and Duquia (2014:610), sampling can be defined as the process of selecting a group of people for research in such a manner that they represent the big group from which they were selected. A sample is therefore a subset of the population, and it comprises some members selected from it. By studying the sample, the researcher should be able to draw conclusions that are generalised to the population of interest (Sekaran & Bougie, 2013:240).

The current study employed purposive sampling, which is a non-probability sampling method in which respondents are included based on their knowledge and experience of the phenomenon under investigation (Creswell & Creswell, 2018). Purposive sampling is defined by Oppong (2013:203) as a sampling method in which the researcher selects a respondent based on the individual's knowledge or experience of the subject being addressed in the research. In this study, purposive sampling was regarded as suitable because the researcher depended on respondents' knowledgeable information and experience. Polit and Beck (2017:741) agree that respondents are selected based on the researcher's judgement of which of them would be most informative. Sampling is confined to the kind of individuals who can provide the desired information, either because they are the only ones who have the necessary information or because they conform to some criteria set by the researcher (Sekaran & Bougie, 2013:252). In this study, two sample groups were purposively sampled: bank employees of a selected bank in Cape Town; and individuals residing in Cape Town who use the selected bank.

Sadock (2021) indicates that a sample size is the part of the population selected to represent the whole population to achieve research objectives. A total of 200 respondents, comprising 30 bank employees and 170 clients were included in the study

to represent the entire population. This aligned with Alvi's (2016:3) explanation that a sample size of at least 30 respondents should be used for a study to be considered reliable.

3.8 Reliability, validity, objectivity and credibility

In mixed-methods research, the issues concerning reliability and validity are different from those of researchers who utilise qualitative and quantitative methods independently (Dellinger & Leech, 2007:316). Creswell and Creswell (2018) emphasise that in mixed-methods research, validity and reliability assessments need to align with the theoretical framework of the study. According to Pandey and Pandey (2015:21), **reliability** refers to consistency throughout a series of measurements. For example, if a respondent gives a response to a particular item, they are expected to give the same response to that item even if they are asked repeatedly. The researcher should therefore construct the items in the questionnaire in such a manner that they provide consistency and reliability. Nunan (1999:14) highlights that the consistency, dependability, and replicability of the results obtained from the research conducted are all aspects of reliability. In the current study, the questionnaires were used as instruments to measure accurately what was planned to be measured to attain the research objectives. The researcher therefore measured the data collected for the research in a trustworthy manner.

Validity refers to the accuracy and credibility of the findings of the research. Steward (2023) agrees that, in research, the extent to which a study accurately reflects or evaluates the concept that the researcher is seeking to measure or comprehend is referred to as validity. It is about making sure the study investigates what it claims to investigate (Steward, 2023). In the current study, the Likert-type questionnaire was valid because it measured what it was expected to measure. Furthermore, to ensure that the study was valid, the objectives of the research were assessed to validate whether the research questions and data collection tools resulted from the subject of the literature (see Polit & Beck 2017:558). Furthermore, Golafshani (2003:599) argues that validity also refers to the quality of the research, in other words, how genuine the outcome of the research is. This is the point where researchers should question whether the research is

legitimate or whether the outcome is accurate.

According to Babbie and Mouton (2001:273), **objectivity** can be viewed as either that the researcher should be neutral during descriptions and interpretations, or that the researcher should develop trust to get near the respondents to generate valid and truthful descriptions. The results relating to the method used for collecting data and analysing the answers are referred to as objectivity. The research design should allow the use of appropriately objective measurement tools, such that each judge or observer who assesses a performance should provide an exact report (Babbie & Mouton, 2001). In other words, the objectivity of the procedure may be judged by the degree of agreement between the final scores assigned to different individuals by more than one independent observer. This ensures the objectivity of the collected data, which shall be capable of analysis and interpretation (Pandey & Pandey, 2015:20).

Moreover, Creswell (2014) explains that the researcher is required to ensure that the findings of the research are sufficiently credible and plausible. **Credibility** is regarded as the most essential factor or criterion in determining trustworthiness (Stahl & King, 2020). This is because credibility fundamentally requires the researcher to link the research findings with reality to demonstrate the authenticity of the findings. The current findings were credible because the research was conducted using standardised methods. In addition, the necessary steps were taken to present the results and findings credibly (Polit & Beck 2017:559). To ensure further the credibility of the data collected, the researcher made use of member checking (see Stahl & King, 2020) to allow the respondents to examine and review their answers to double-check the accuracy.

3.9 Data analysis

Schoonenboom and Johnson (2017:108) explain that mixed-methods research involves gathering and analysing both qualitative and quantitative data with the aim of understanding a phenomenon better and answering the research questions. According to Kabir (2016:2), data analysis refers to arranging and organising the data collected to discover what their significance is, and to generalise about them. In the current study, quantitative data collected via the survey questionnaire were entered into Microsoft Excel

and imported into the Statistical Package for the Social Sciences (SPSS, Version 27) for data analysis. SPSS is a software used by researchers across disciplines to carry out quantitative data analysis on large amounts of data (Habes, Ali & Pasha, 2021:34). SPSS enables the researcher to describe data, examine relationships, and determine connections amongst the variables. Descriptive statistics were used to present the data in frequency tables, charts and graphs based on each questionnaire construct.

For the qualitative data analysis, the narrative technique to analyse data acquired through interviews was used. By using a narrative technique, stories were compared in search of meaning in terms of the research questions. In qualitative research methodology, narrative analysis is a technique that involves analysing and interpreting people's stories or narratives to gain an understanding of the meanings, experiences, and perceptions that underpin them (Sandberg, 2022). Narrative analysis can be used in a variety of communication methods, including written texts, oral interviews, and visual media (Gavidia & Adu, 2022:2).

3.10 Ethical considerations

Welman, Huysamen, Kruger and Mitchell (2005:181) explain that in research, as in any other field of human activity, ethical behaviour is crucial. Certain concerns about ethics, such as plagiarism and honesty in presenting results, emerge in all research. Additional issues arise when human beings are involved, in both the biological and social sciences. In research, ethical considerations refer to guidelines and principles, which researchers should obey when conducting research. Ethical considerations in research are important because the integrity, reliability, and validity of the research findings depend on compliance with ethical principles (Welman et al., 2005).

The ethical considerations of the current study entailed first obtaining permission to conduct the research at the selected bank in Cape Town. Second, before the research started officially, approval from the CPUT Ethics Committee was obtained. Third, the researcher provided the respondents with an informed consent form to complete, which assured them that their identity would remain anonymous, and that the information used

in the study would be confidential. Fourth, the researcher explained that participation was voluntary, and that the respondents could withdraw from the study at any stage. Lastly, respondents were assured that the data collected would be used solely for academic purposes only and would be made accessible to them if requested.

3.11 Chapter summary

This chapter provided comprehensive information about the importance of the research methodology employed in the current study. The research paradigm, research design, and research methodology that were applied were discussed. The data collection tools that were utilised were clarified, as well as the population of the study, together with the sampling procedure. In addition, reliability, validity, objectivity, credibility, the data analysis applied in the study, and ethical considerations were also explained in detail. The next chapter will present and discuss the collected data.

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

In the preceding chapters, an in-depth discussion was presented to explain the role of ICT in the banking sector, particularly within the context of a selected commercial bank in Cape Town. This chapter now shifts the focus to the crucial aspect of data analysis, which aimed to extract valuable insights from the collected data. The primary objective of this chapter is to show comprehensively how ICT correlates with the performance of banking operations within the chosen commercial bank in Cape Town. To achieve this goal, methodologies, tools, and techniques have been meticulously selected and employed to examine and interpret the amassed data thoroughly. This chapter presents the data from the clients first and then data from bank employees.

4.2 Findings: Client questionnaire

In Section 4. 2 the analysis of the data obtained from the client survey is presented. The objective is to showcase and elucidate the observations made from the answers the banks customers submitted. The section also aims to provide a thorough grasp of the viewpoints and experiences of clients with respect to the impact of ICT on different facets of banking services and operations within the chosen commercial bank in Cape Town.

4.2.1 Demographic information

The demographic data gathered from the client questionnaire is the main topic of this section. The demographics of the respondents including age gender educational background and any other relevant data—are summarised. Understanding the demographic composition of the respondents provided valuable context for interpreting their perspectives on the influence of ICT on banking services and operations.

Figure 4.1 illustrates the gender distribution among respondents based on the customer questionnaire, and specifically the question **Please state your gender**. Understanding

the gender distribution among respondents is pivotal in comprehending the diverse perspectives and experiences shared regarding the influence of information and communication technology (ICT) on banking services within the selected commercial bank in Cape Town.

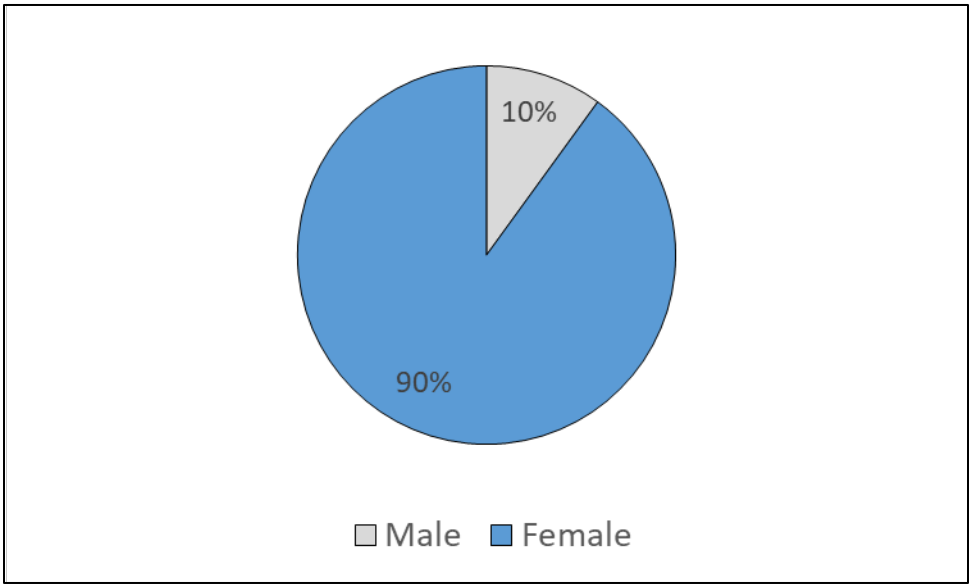

Figure 4.1: Gender distribution

There was a significant gender imbalance among the respondents with women accounting for 90% of the sample and men for 10%. A possible imbalance in representation was brought to light by the respondents gender distributions significant skew. From an analytical standpoint this disparity could have impacted the surveys comprehensiveness and diversity of viewpoints. It is essential to acknowledge that a predominantly female representation could indicate a high propensity of female clients engaging with or being more inclined to respond to such surveys within the context of the selected commercial bank in Cape Town, as also described by Muli and Njeru (2018) and the World Bank (2021). This gender skewness might limit the holistic understanding of the influence of ICT on banking services, as gender disparities might not fully encapsulate the experiences and viewpoints of male clients, potentially influencing the overall analysis and conclusions drawn from the survey data.

Figure 4.2 below illustrates the distribution of respondents across distinct age groups, as extracted from the data collected via the client questionnaire, and specifically the question, **Please specify your age group**. This visual representation reflects valuable insights into the age demographics of respondents engaged in evaluating the influence of ICT on banking services within the chosen commercial bank in Cape Town.

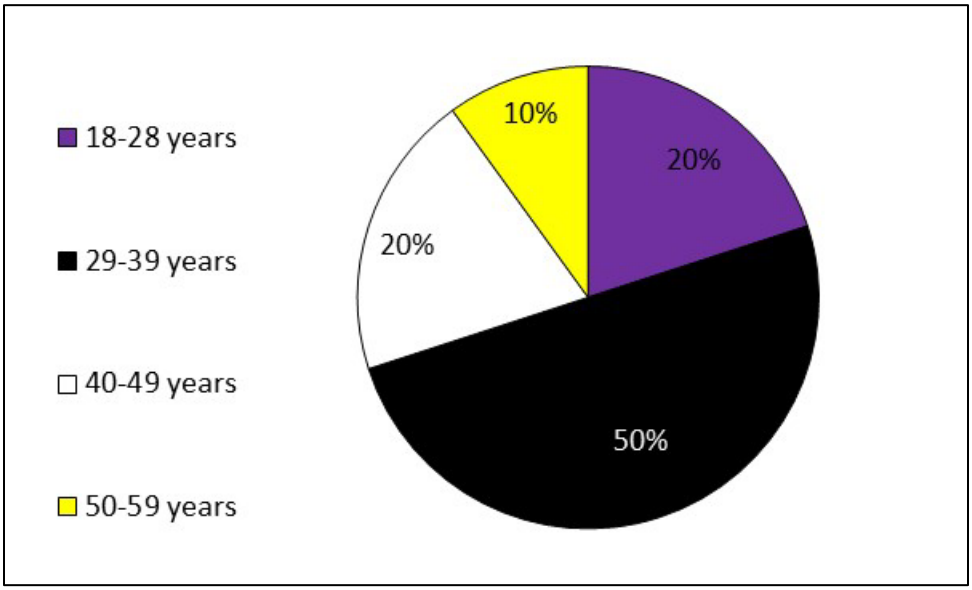

Figure 4.2: Age group

The data showed a notable distribution among age groups: 50% were aged 29–39, while 20% each fell in the 18–28 and 40–49 brackets, and 10% were between 50 and 59. The dominant representation of those aged 29–39 years, comprising half the respondents, indicated their potential influence on perceptions of ICT in banking services. The roughly equal split between the groups 18–28 and 40–49 years offered diverse insights across generations. The smallest representation, at 10% for the group 50–59 years, still contributed valuable perspectives on mature respondents and ICT-based banking.

Figure 4.3 below provides a breakdown of respondents based on their self-identified ethnicity, as gathered from the data acquired through the client questionnaire, and specifically the question, **Please specify your ethnicity**. The figure shows the ethnic diversity among respondents involved in assessing the influence of ICT on banking

services within the selected commercial bank in Cape Town.

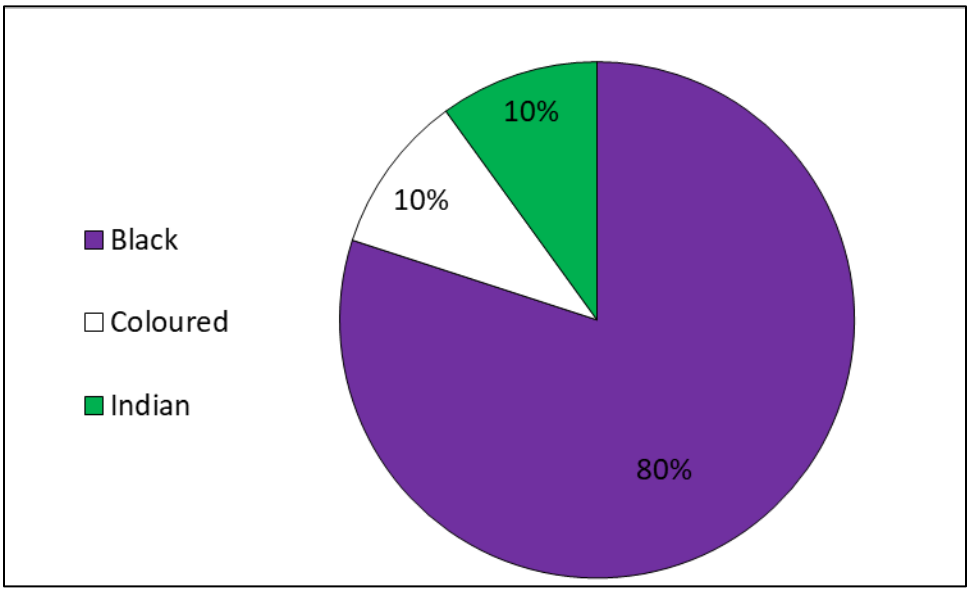

Figure 4.3: Respondents' ethnicity

The above pie chart illustrates a significant ethnic distribution: 80% identified as black, with 10% each for coloured and Indian groups. The substantial representation of the black community, comprising 80% of respondents, suggests the predominant influence of this group on perspectives toward ICT-based banking. While only a small percentage, the 10% from each of the coloured and Indian groups contributed diverse insights into their preferences regarding banking technologies. The sample also lacked representation of other races, such as white individuals, which creates a potential bias, since this does not fully reflect the diversity of the South African population. Despite differing proportions, the viewpoints of each ethnic group offered valuable perspectives for understanding perceptions of ICT in banking services.

Figure 4.4 below displays the residential areas reported by respondents, giving an overview of their diverse geographic locations within the Cape Town Metropole based on data obtained from the questionnaire and specifically the question in **Which area do you reside in**?

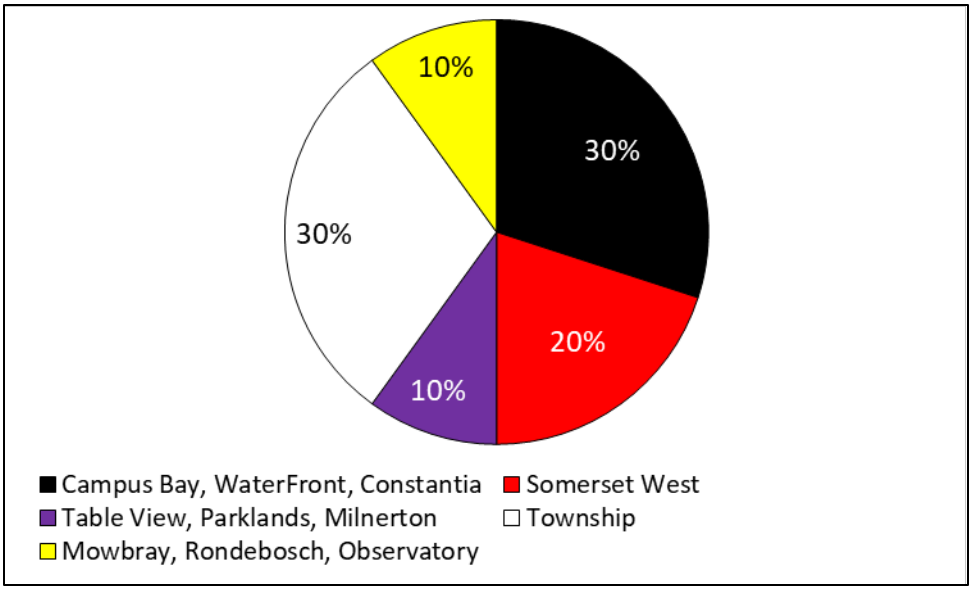

Figure 4.4: Residential distribution of respondents in the Cape Town Metropole

Figure 4.4 illustrates a diverse residential distribution among respondents within the Cape Town Metropole. The data showed varying areas, with 30% residing in townships; 30% in affluent areas, such as Camps Bay, the Waterfront, Constantia; 20% in Somerset West; 10% in Table View, Parklands and Milnerton; and 10% in Mowbray, Rondebosch and Observatory. This diverse representation across townships, suburban, and urban areas indicates a range of socio-economic backgrounds and living environments. Understanding these residential patterns offered valuable insight into how geographical locations might have influenced respondents' perceptions of and interactions with ICT-based banking services, providing a multifaceted view of preferences and technological adaptability across the diverse Cape Town landscape.

Figure 4.5 below depicts the distribution of respondents based on their respective levels of study or educational attainment based on data obtained from the questionnaire, and specifically the question **What is your highest level of education?**

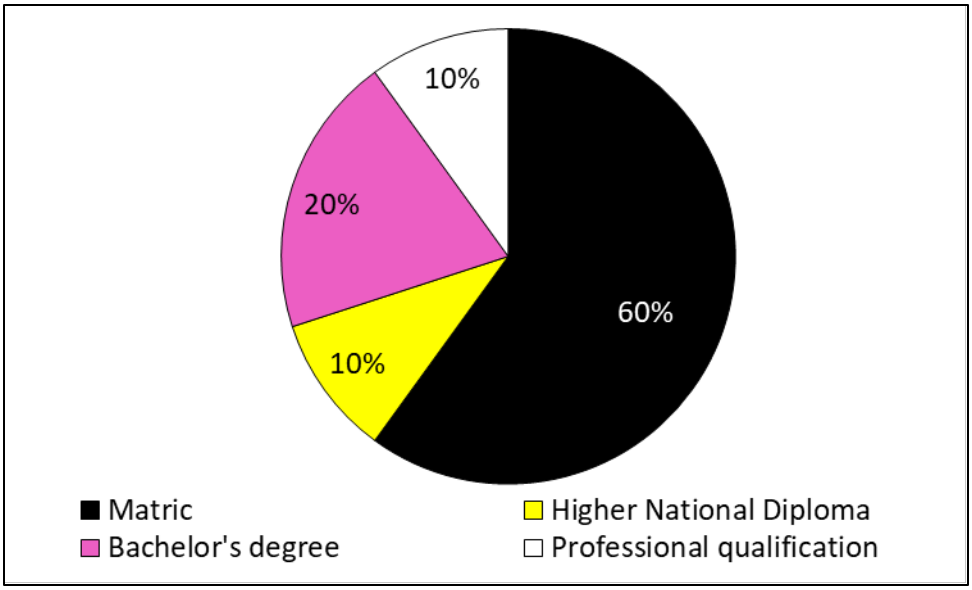

Figure 4.5: Level of educational attainment

This data depicted in Figure 4.5 shows a diverse educational background among respondents in the Cape Town Metropole. The majority (60%) possessed a matric (Grade 12) qualification, while, 20% held a bachelor's degree, another 10% had a Higher National Diploma, and the remaining 10% possessed a professional qualification. This diverse educational profile reflects a range of academic achievements among the respondents, potentially affecting their perspectives of and interactions with ICT-based banking services. Knowing these demographics connected to education may help explain why people from different educational backgrounds may be more or less accustomed to and able to adjust to technological advancements in the banking industry.

Figure 4.6 below portrays the distribution of respondents based on their respective occupations within the Cape Town Metropole, based on data obtained from the questionnaire, and specifically the question **What is your occupation?**

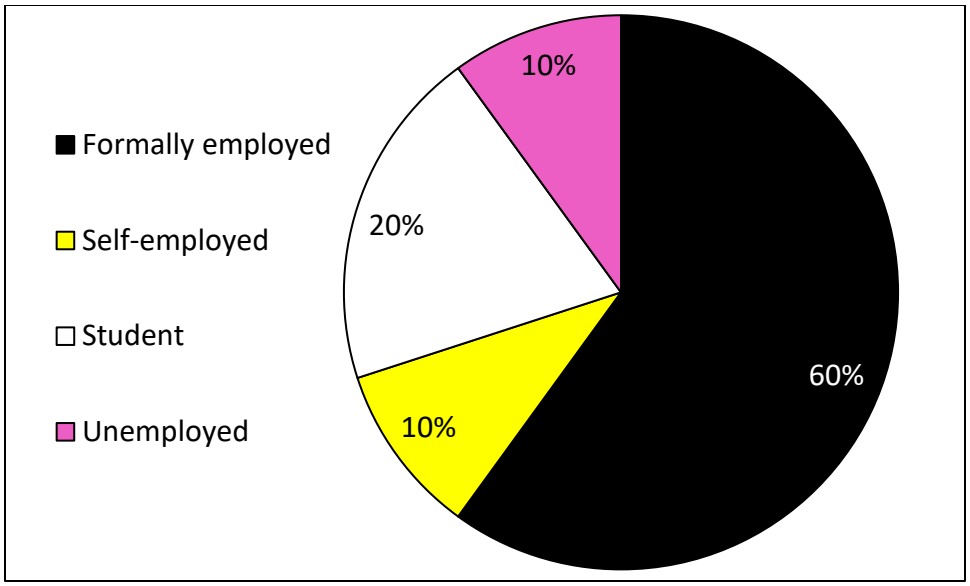

Figure 4.6: Occupational distribution

Figure 4.6 above depicted a varied occupational distribution among respondents within the Cape Town Metropole. The pie chart shows that 60% were formally employed at the time, earning wages or a salary, 20% were students, 10% were self-employed, and an additional 10% were unemployed at the time and seeking employment opportunities. This diversity in occupational status gives insight into the range of perspectives and experiences that individuals from different professional backgrounds might bring to their interactions with ICT-based banking services. Understanding these occupational demographics could aid in comprehending the different needs and preferences concerning banking technology across various occupational groups.

Figure 4.7 below depicts the factors influencing the selection of a particular banking institution by the various respondents within the Cape Town Metropole based on data obtained from the questionnaire, and specifically the question, **Which of the following determines the selection of your bank?**

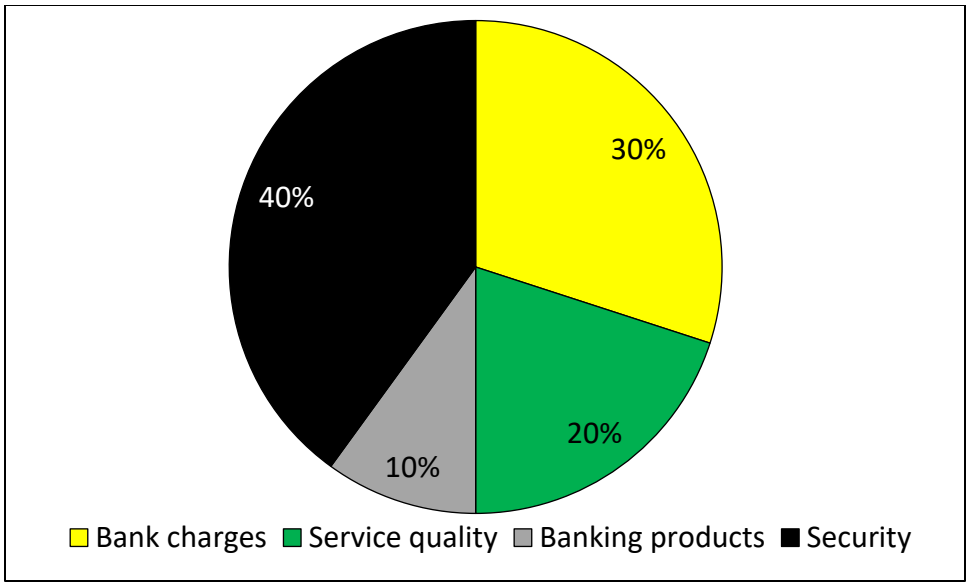

Figure 4.7: Determinants of banking institution selection

The data depicted in Figure 4.7 above indicated that various factors influenced the respondents' choice of the selected banking institution in the Cape Town Metropole. The analysis showed that 40% of the respondents made their decision based on bank charges, while 20% placed importance on service quality. Additionally, 30% considered security a crucial determinant, while 10% of respondents chose their bank based on available banking products. This distribution highlights the importance of financial factors – such as bank charges and security, in addition to service quality – in the decision-making processes of respondents when choosing a banking institution.

4.2.2 Respondents' knowledge and understanding of technology

In this section of the questionnaire, the researcher aimed to assess the respondents' grasp of and familiarity with technology to gauge their level of expertise and understanding. Figure 4.8 below illustrates the proficiency in technology skills among respondents, offering insight into the technological competencies, based on data obtained from the questionnaire, and specifically the question, **How do you rate your technology skills?**

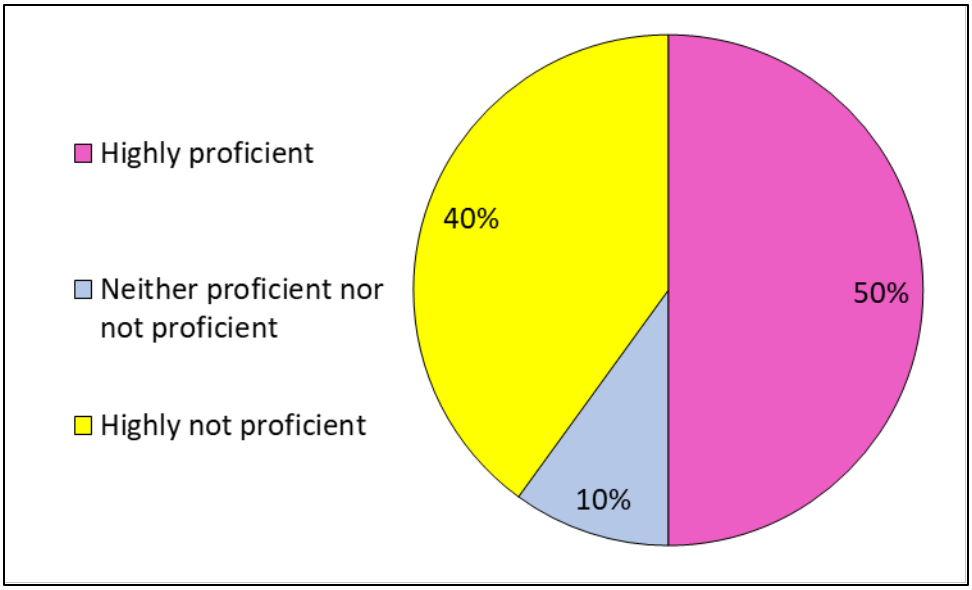

Figure 4.8: Respondents' proficiency in technology skills

The data showed various perspectives on technology skills among respondents. A significant portion (50%) strongly agreed that they were proficient in the use of technology. A notable 40% strongly disagreed. The remaining 10% said they were neither proficient nor not proficient. This disparity in opinions suggests a wide spectrum of technological expertise within the surveyed group.

Figure 4.9 depicts the respondents' level of comfort and experience in using computers. This visual representation provides insight into the respondents' familiarity with and proficiency in utilising computer technology, which is crucial in understanding the interactions and perceptions of clients regarding ICT in the context of banking services within the selected commercial bank in Cape Town. Figure 4.9 below reflects the data obtained from the questionnaire, and specifically the question, **I am familiar with computer usage?**

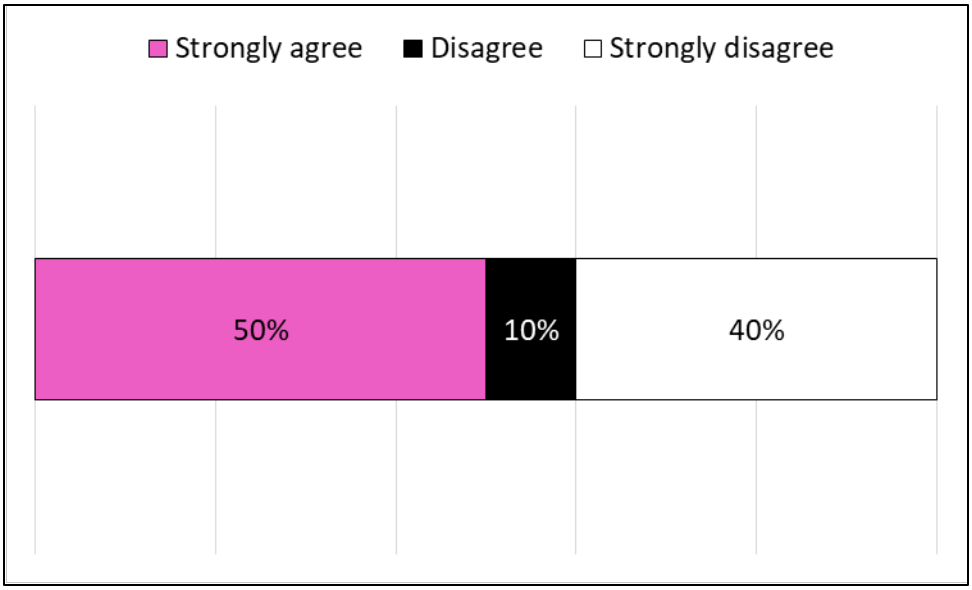

Figure 4.9: Respondents' familiarity with computer usage

Figure 4.9 above showed a significant difference in perceptions regarding familiarity with computer usage among respondents. While 50% strongly agreed that they were computer-literate and had confidence in their computer skills, a considerable 40% strongly disagreed. This suggests that a sizable segment within the surveyed group lacked confidence in terms of their computer usage abilities. The remaining 10% neither agreed nor disagreed. This wide spectrum of viewpoints suggests varying levels of comfort and proficiency in computer usage among the surveyed respondents, which could have influenced their interactions and engagement with ICT-driven banking services.

Figure 4.10 below depicts respondents' familiarity with digital banking services, based on the data obtained from the questionnaire, and specifically the question, **I am aware of digital banking.**

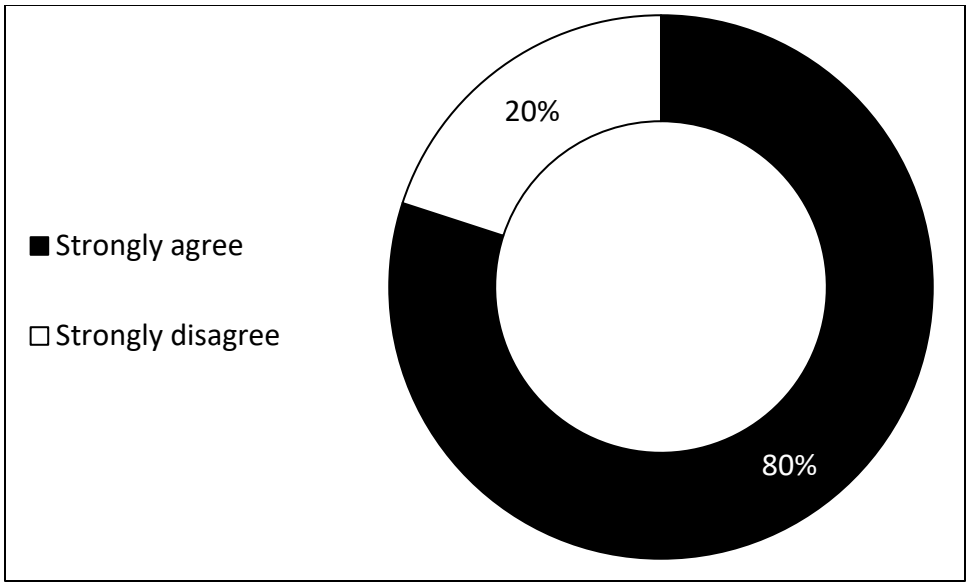

Figure 4.10: Respondents' awareness of digital banking

The difference between respondents who strongly agreed (80%) and those who strongly disagreed (20%) regarding their awareness of digital banking services raised intriguing points for analysis. The 80% who strongly agreed were probably individuals who felt confident or knowledgeable about digital banking. Their confidence could have stemmed from regular usage, comprehensive understanding, or positive experiences with various digital banking services. This group most likely believed that they were knowledgeable about technology and had experience using digital platforms for banking. That being said its possible that the 20% of respondents who strongly disagreed were less comfortable or confident using digital banking services. Contextualising the findings requires an understanding of the reasons behind the 20% of respondents who strongly disagree that digital awareness is essential. More investigation using qualitative techniques like open-ended questions or interviews may yield more profound understanding. Such information might be in the form of first-hand stories particular difficulties encountered or expectations for online banking services. In-depth knowledge of the problems or obstacles preventing this particular subset of respondents from adopting and becoming aware of digital banking may be gained from analysing their answers.

Figure 4.11 below depicts the respondents' self-assessment of their technology skills,

aiming to offer insight into their perceived proficiency in various domains of technology. This visual representation serves as an important indicator of the respondents' confidence levels and degree of expertise in handling diverse technological aspects relevant to banking services.

Figure 4.11 below depicts the data obtained from the questionnaire, and specifically the question, **How do you rate your technology skills?**

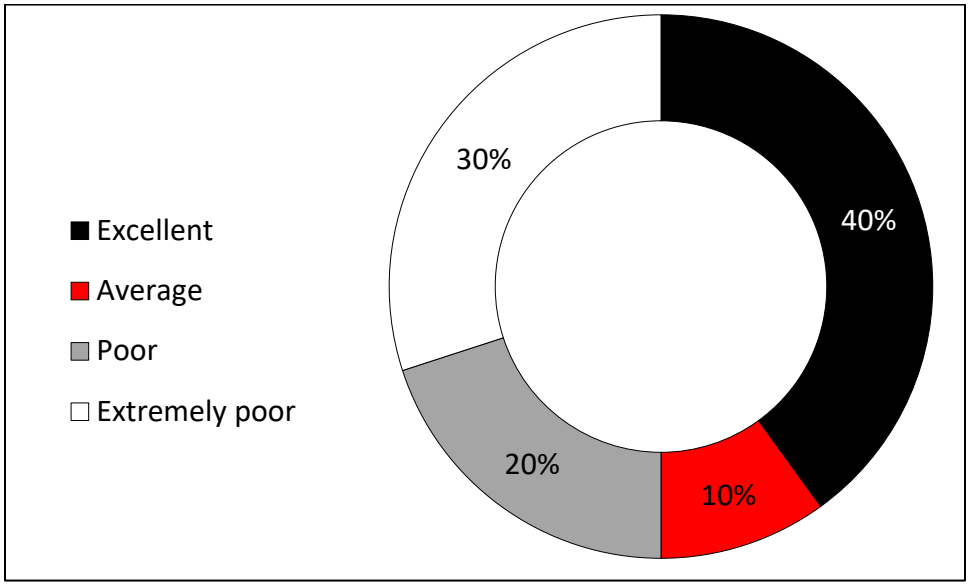

Figure 4.11: Respondents' technology skills

Figure 4.11 which presents the self-reported technology skills of the respondents demonstrates a wide range of proficiency levels. Remarkably 40% of respondents said they had excellent skills demonstrating a group that is confident in their abilities with regard to a variety of technological tools related to banking services. Nonetheless a startling 30% of respondents claimed they had never used technology indicating possible obstacles or restricted access to online platforms in the context of banking. Furthermore 20% said they were not very good with technology indicating that they had trouble or felt uneasy using the technological features of banking services. At least 10% said they were average at their skills which indicates a middle comfort level. To ensure more inclusive and efficient use of technology in the chosen bank hurdles and gaps in technological

literacy must be addressed as this comprehensive self-evaluation demonstrated. It also reflected a range of experiences and perspectives.

4.2.3 Understanding of digital banking and bank charges

This section examines the respondents awareness and understanding of two crucial topics: bank fees and digital banking. The purpose of the report is to examine respondents level of familiarity and understanding with digital banking services as well as their knowledge of the financial ramifications of bank fees. Gaining an understanding of the respondents perspectives and insights regarding these crucial components is essential to understanding how they interact with technological innovations in the banking industry and what factors they take into account when making financial decisions at the chosen commercial bank in Cape Town.

Figure 4.12 below illustrates the preferences among respondents regarding their favoured mode of banking, highlighting the various channels or methods they prefer when conducting their banking activities. This visual representation reflects the primary choices respondents opt for when engaging with banking services within the context of the selected commercial bank in Cape Town. Figure 4.12 depicts the data obtained from the questionnaire, and specifically the question, **Which mode of banking do you prefer?**

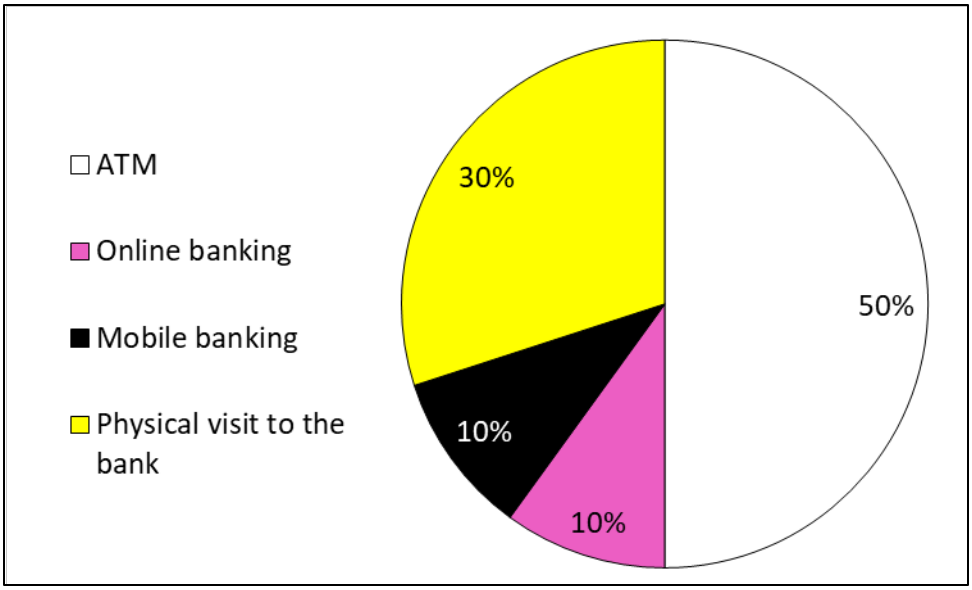

Figure 4.12: Respondents' preferred mode of banking

From Figure 4.12, it is clear that 50% of the respondents preferred ATMs. This sizable segment favoured the convenience and accessibility offered by automated teller machines (ATMs) for their banking activities. Their preference might stem from the ease of withdrawing cash, conducting basic transactions, and accessing banking services at their convenience without needing to visit a physical bank branch. Another 30% opted for physical visits to the bank. This group preferred in-person interactions and transactions at bank branches. Their decision may have been influenced by their desire for in-person interactions when handling banking matters their need for individualised assistance or their need for assistance with complicated transactions. Ten percent more people favoured mobile banking. This small group preferred to use mobile applications (apps) for their banking needs. Their preference suggests that they are at ease using smartphones or other mobile devices for banking making use of the convenience and accessibility provided by mobile banking apps. Online banking was chosen by an additional 10%. This group preferred to use web-based platforms for their banking activities much like users of mobile banking. Their inclination may be due to a preference for larger screens or particular features that are offered by online banking portals instead of mobile apps. The aforementioned preferences highlight the variety of decisions respondents make when using the banking services offered by the bank that is the subject of this study in Cape

Town Metropole. For the chosen commercial bank in Cape Town to effectively customise its offerings and offer a wide-ranging banking experience across multiple channels that satisfies the diverse needs and preferences of its clientele it is imperative that they comprehend these preferences.

4.2.3.1 Frequency of using banking modes

The researcher provides an analysis of how frequently respondents used different banking services over a given month in this subsection. In order to shed light on respondents usage patterns and preferences regarding various banking channels within the framework of the chosen commercial bank in Cape Town the purpose of the assessment was to determine how frequently and regularly respondents engaged in various modes of banking. Comprehending the frequency of usage is essential for comprehending the degree to which participants depend on and integrate various banking modes into their routine financial operations.

The frequency of respondents ATM usage for banking activities over a month is shown in Figure 4.13 below. Within the framework of the chosen commercial bank in Cape Town this graphic depiction provides insight into the frequency and recurrence of ATM usage among respondents highlighting the patterns of dependence on this particular lending option. The figure depicts the data obtained from the questionnaire, and specifically the question, **How frequently do you use the following banking services per month?**

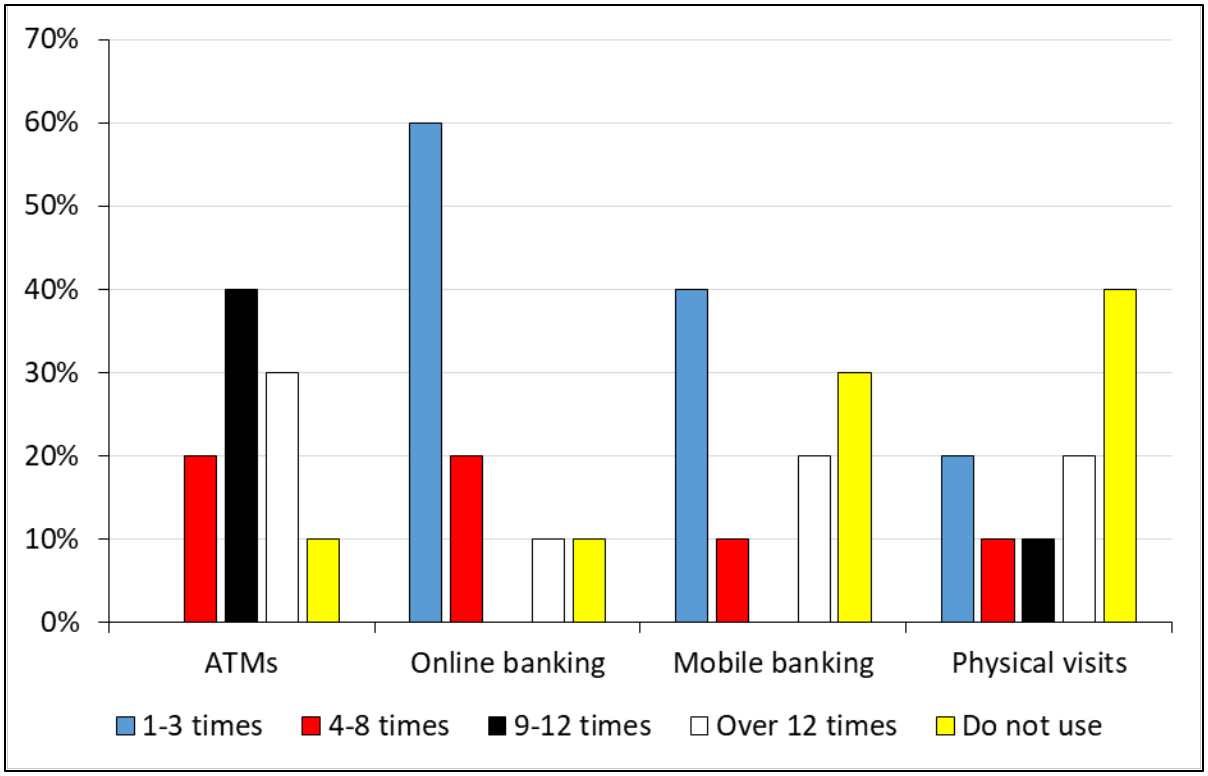

Figure 4.13: Frequency of using ATMs

The frequency of ATM usage by respondents over a month-long period was broken down in detail in the above Figure 4.13. The information showed a variety of trends among the participants with respect to their dependence on this particular banking method. An impressive 40% of participants utilised ATMs nine to twelve times per month suggesting a strong inclination towards the accessibility and convenience these devices provide for standard financial transactions. Twenty percent more people used ATMs four to eight times indicating a regular but somewhat less frequent reliance on this mode. It was surprising to learn that 30% of respondents relied heavily on ATMs using them more than 12 times a month. This suggests that they either had limited access to alternative banking channels or a strong reliance on cash-based transactions. However 10% of respondents said they never used an ATM indicating that they either relied on other banking methods or had trouble using them. In order to effectively customize services and ensure that they satisfy the various needs and preferences of their clients across a variety of banking channels the bank must have a thorough understanding of these usage patterns.

The frequency with which respondents used online banking services each month was also displayed in Figure 4.13. This graphic representation provides information about the frequency and occurrence of online banking use among participants highlighting the patterns of dependence on this particular banking method within the framework of the chosen commercial bank in Cape Town. Regarding respondents reliance on digital platforms within the framework of the chosen commercial bank in Cape Town the data revealed a variety of usage patterns. Sixty percent of respondents said they used internet banking one to three times a month. An additional 20% of respondents indicated a higher frequency of use logging on to online banking four to eight times a month suggesting a more consistent integration of digital platforms for financial activities. Unexpectedly 10% of respondents heavily relied on online banking using it more than 12 times a month demonstrating a clear preference for the accessibility and convenience that digital platforms provide. Nevertheless 10% of respondents said they never used online banking which suggests they relied on other banking methods or might have had trouble accessing or using online banking services. In order to properly customise digital services and make sure they satisfy the unique needs and preferences of each of their clients across various digital banking channels the bank must have a thorough understanding of these usage patterns.

The frequency of respondents usage of mobile banking services over a month was also displayed in Figure 4.13. Inside the framework of the chosen commercial bank in Cape Town this visual representation sheds light on the respondents patterns of reliance on this particular banking mode by revealing how frequently and regularly they use mobile banking. The respondents varied usage patterns were revealed by the data which also highlighted how dependent they were on the particular digital platform offered by the chosen commercial bank in Cape Town. Notably 40% of users used mobile banking sporadically 1-3 times a month suggesting a moderate but steady integration into their daily financial routines. Nevertheless 30% of respondents did not use mobile banking which may indicate a reliance on other banking methods or possible obstacles to utilizing or accessing mobile banking platforms. Furthermore twenty percent frequently used mobile banking more than twelve times a month demonstrating a clear preference for the

accessibility and convenience that these services provide. Ten percent of respondents used mobile banking in a moderately frequent manner utilising it four to eight times a month. In order for the bank to effectively customise its digital services and meet the varied needs and preferences of its customers across various digital banking channels it is imperative that it comprehend these usage patterns.

The frequency of visits to physical bank branches by respondents over a month was displayed in Figure 4.13. Within the framework of the chosen commercial bank in Cape Town this visual representation provides insight into the frequency and regularity of respondents visits to physical bank branches highlighting their patterns of reliance on traditional banking modes. Given the specifics of the chosen commercial bank in Cape Town the data revealed a range of usage patterns among respondents providing insight into their reliance on conventional in-person banking methods. Forty percent of respondents did not visit physical bank branches possibly due to their limited need for in-person transactions or their reliance on alternative banking channels. To their surprise twenty percent of respondents visited bank branches more than twelve times a month showing a strong preference for in-person banking when it came to financial transactions. Furthermore twenty percent of the participants visited the bank 1-3 times a month indicating a moderate but regular integration of in-person visits into their financial routines. Ten percent of small segments interacted with physical bank branches either moderately (four to eight times) or frequently (9 to 12 times) indicating different levels of dependence on conventional banking methods. To effectively customise its services and meet the needs and preferences of its customers across various banking channels including traditional in-person banking the bank must have a thorough understanding of these varied usage patterns.

4.2.3.2 Respondents' understanding of bank charges

The respondents knowledge and understanding of bank charges are detailed in this subsection. With regard to the financial ramifications of bank charges in the context of the chosen commercial bank in Cape Town the researcher sought to evaluate respondents level of comprehension and familiarity. Evaluating respondents' understanding of bank

charges was crucial in order to gauge their awareness of the cost structures and potential fees related to various banking services. This understanding is integral to shaping informed financial decisions and effectively managing their banking interactions.

Figure 4.14 below depicts respondents' awareness of the fees charged by the bank for various transactions. This visual representation reflects the extent to which respondents are knowledgeable about the specific charges for different banking services levied within the context of the selected commercial bank in Cape Town. Figure 4.14 depicts the data obtained from the questionnaire, and specifically the question, **Please indicate your level of understanding of bank charges.**

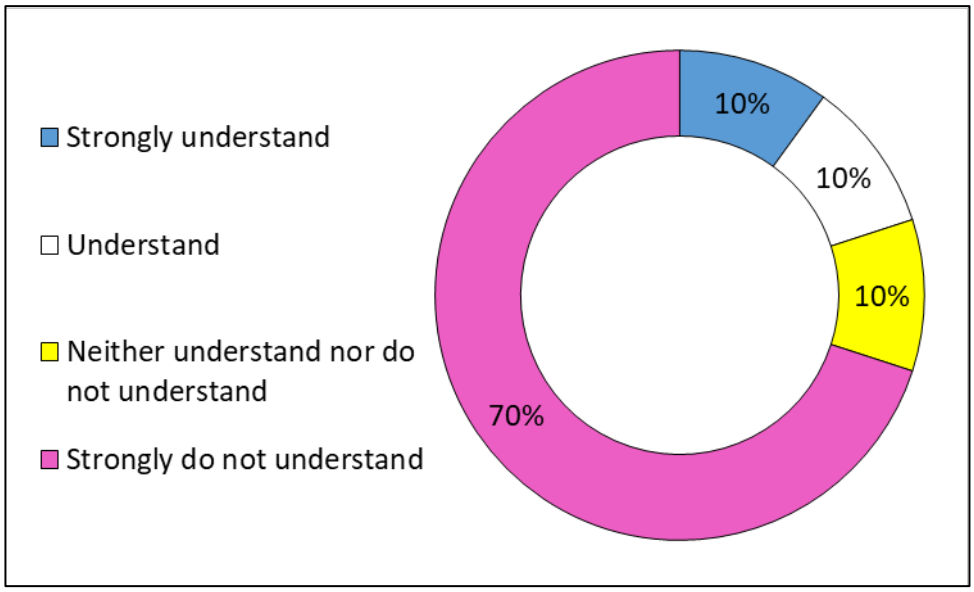

Figure 4.14: Respondents' awareness of the fees charged by banks

Figure 4.14 above illustrated the varying degrees of awareness among respondents regarding bank transaction charges. A substantial majority (70%) strongly did not understand the specific fees imposed by the bank for transactions, indicating a widespread lack of knowledge in this respect. Additionally, 10% neither agreed nor disagreed, indicating uncertainty or a lack of detailed understanding regarding these financial implications. On the other hand, a small combined segment of 20% (10% understood and 10% strongly understood) acknowledged their awareness of these

charges, suggesting limited awareness among these subsets. This data highlighted the crucial need for improved communication and transparency on the side of the bank to enhance clients' understanding of transaction fees, fostering improved financial literacy and informed decision-making among their clients.

Figure 4.15 below illustrates respondents' perceptions regarding the fairness of bank charges. This visual representation depicts the opinions and attitudes of respondents toward the fairness and reasonableness of the fees imposed by the selected commercial bank in Cape Town. The figure depicts the data obtained from the questionnaire, and specifically the question, **Please indicate your level of agreement to the bank charges charged by your bank.**

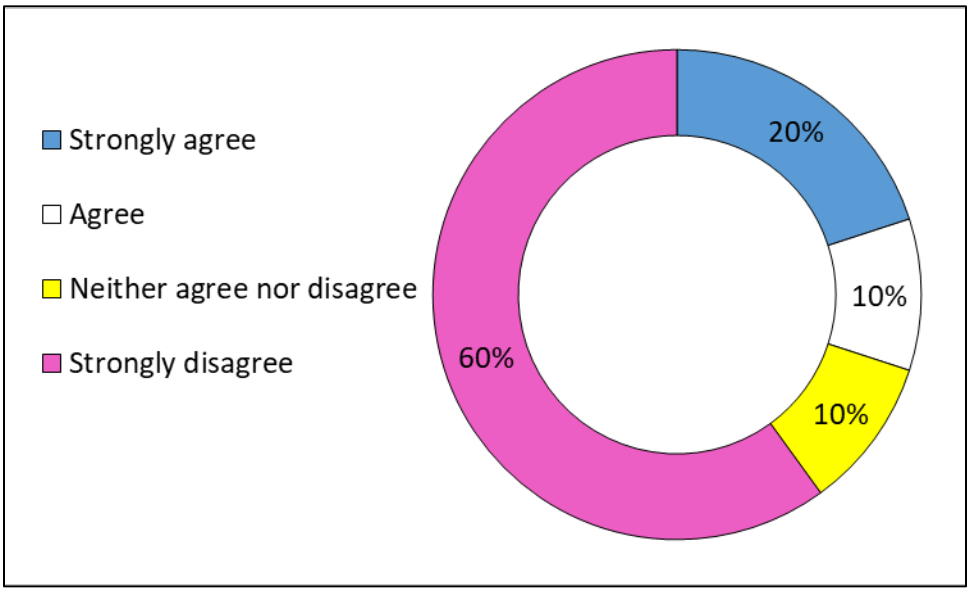

Figure 4.15: Respondents' perceptions on fairness of bank charges

Figure 4.15 above portrayed respondents' perceptions regarding the fairness of bank charges. A significant 60% expressed strong disagreement, indicating widespread dissatisfaction or a belief that the fees imposed for banking services are not reasonable. On the other hand, a small but notable segment of 20% strongly agreed, showing a firm conviction in the fairness of these charges and presenting a contrasting viewpoint. An additional 10% agreed that the bank charges were fair, suggesting a moderate level of

satisfaction with the existing fee structure at the time. Simultaneously, 10% neither agreed nor disagreed, reflecting uncertainty or a lack of a firm opinion on the equity of these charges. This data underscored the prevailing sentiment of dissatisfaction among a majority regarding the fairness of bank charges, signalling the importance of the selected bank to look into its bank charges and to revise and potentially adjust fee structures to align closely with client perceptions, fostering satisfaction and trust among clients.

Figure 4.16 below depicts the extent to which bank charges influence respondents' choice of banks. With this visual representation, the researcher aims to demonstrate the significance and influence of fees imposed by banks on the decision-making process of respondents within the context of the selected commercial bank in Cape Town. The figure depicts the data obtained from the questionnaire, and specifically the question, **Please indicate your level of agreement to whether bank charges determine the choice of the selected bank.**

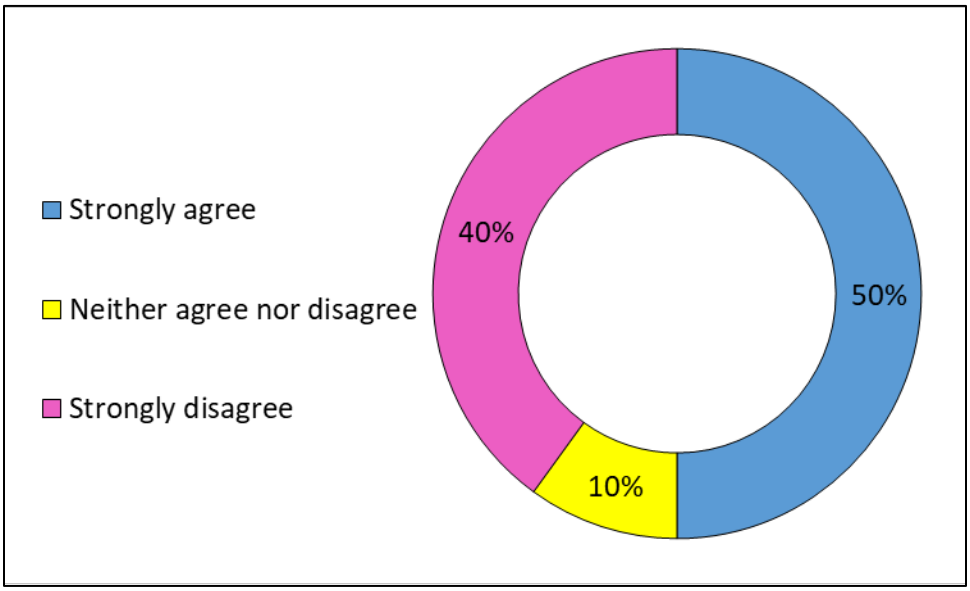

Figure 4.16: Bank charges determining choice of bank

Figure 4.16 above depicted diverse perspectives among respondents regarding the influence of bank charges on their choice of banks. A substantial 50% strongly agreed that fees significantly influence their decision-making process, indicating the importance

of competitive charges in selecting a banking institution. Another significant 40% strongly disagreed, suggesting that fees might not have influenced their choice that much, emphasising other criteria, such as service quality or convenience. Additionally, 10% neither agreed nor disagreed, implying uncertainty or a lack of a firm opinion regarding the influence of fees on their selection of a bank. The different opinions underscore the complexity of factors influencing clients' decisions, highlighting the need for banks to consider a comprehensive range of elements, not solely fees, to cater effectively for diverse client preferences and needs in attracting and retaining clients.

Figure 4.17 below illustrates the extent to which respondents received explanations from bank consultants regarding how digital banking operates and how bank charges are structured. It aims to elucidate the level of clarity and information provided by bank consultants to clients regarding these crucial aspects within the context of the selected commercial bank in Cape Town.

Figure 4.17 depicts the data obtained from the questionnaire, and specifically the question, **Please indicate your level of agreement to whether bank consultants explained to you how digital banking works and the bank charges are structured.**

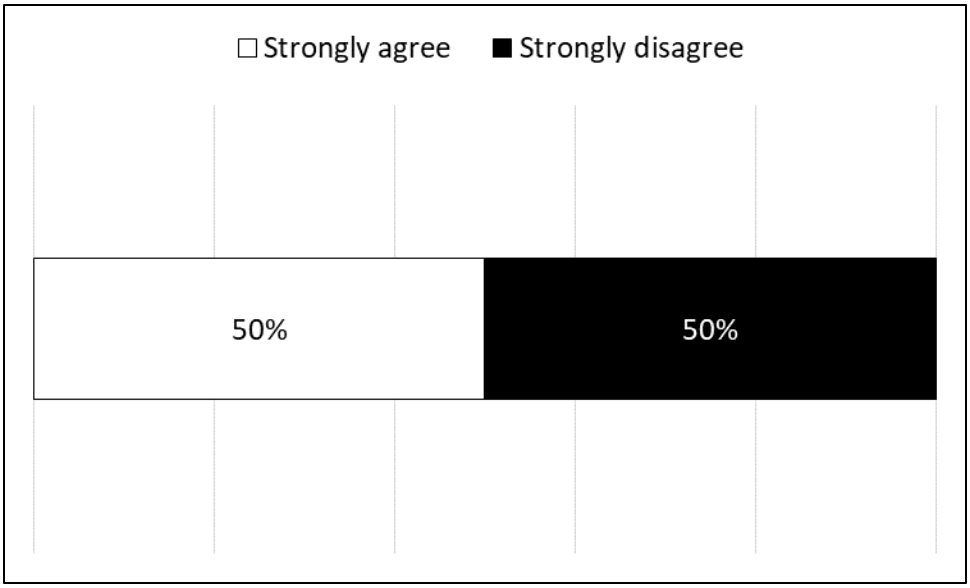

Figure 4.17: Understanding of digital banking and bank charges

Figure 4.17 revealed a pronounced split among respondents. Half of them strongly agreed that bank consultants provided effective explanations of digital banking operations and bank charges, indicating high satisfaction and comprehension. The other half strongly disagreed, suggesting dissatisfaction with the explanations or a lack of clarity in terms of the information provided. This even distribution highlights possible inconsistencies in the communication strategies of the bank, and points to the need for consistent and comprehensive explanations to inform clients about digital banking functionalities and associated fees.

Figure 4.18 below illustrates respondents' perceptions regarding their preference for digital banking rather than traditional, physical visits to the bank. Using the figure below, the researcher aimed to reflect the prevailing attitudes and beliefs among respondents regarding the overarching influence and prevalence of digital banking compared to the traditional practice of physically visiting a branch of the selected commercial bank in Cape Town. Figure 4.18 depicts the data obtained from the questionnaire, and specifically the question, **Please indicate your level of agreement to whether digital banking is taking over traditional banking (physical visit to the bank).**

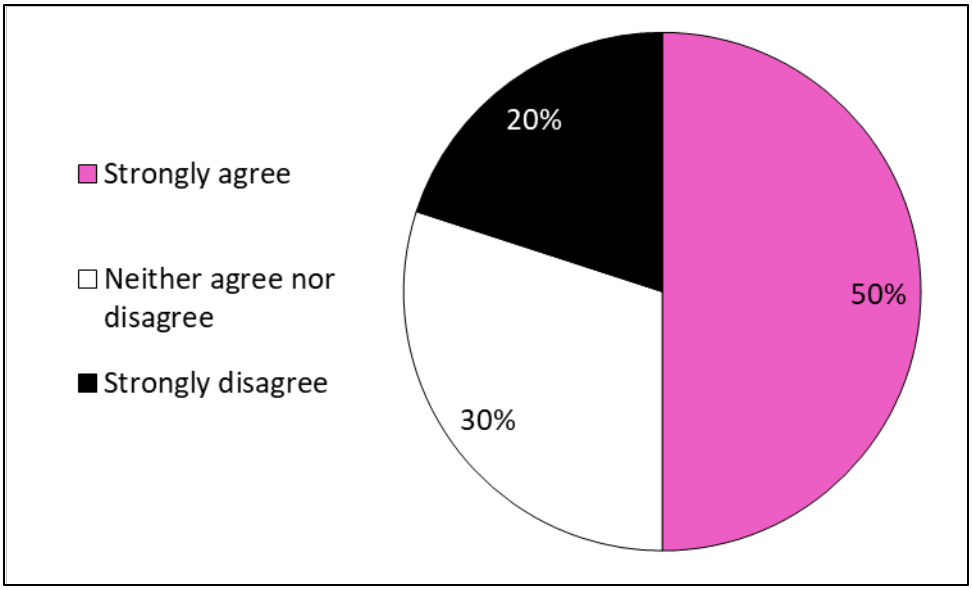

Figure 4.18: Perceptions on preference for digital banking

Figure 4.18 above depicts diverse viewpoints among respondents regarding their preference for digital banking instead of traditional physical visits to banks. A significant 50% firmly believed that digital banking is overtaking traditional in-person visits to banks, reflecting a prevailing sentiment that digital means are increasingly dominant. On the other hand, 20% strongly disagreed, asserting that digital banking had not yet surpassed traditional practices. In between these perspectives, 30% neither agreed nor disagreed, indicating a lack of a strong opinion or uncertainty about this change. This diversity underscores the different perceptions and attitudes toward the evolving landscape of banking practices. Such differing viewpoints emphasise the importance for banks to accommodate these perspectives while providing comprehensive banking services that cater for both digital and traditional preferences.

4.2.4 Client satisfaction

This section focuses on evaluating client satisfaction at the selected commercial bank in Cape Town. The aim is to provide an assessment and analysis of the level of satisfaction as well as the experiences and perceptions of clients regarding the services, products, and overall banking experience offered by the bank. Understanding client satisfaction is crucial in gauging the effectiveness of services provided, identifying areas for

improvement, and enhancing overall client experience and loyalty within the banking sector. Figure 4.19 below depicts respondents' levels of satisfaction on different parameters analysed for the chosen bank with specifically the question, **Please rate your level of satisfaction with the following banking services for the selected bank.**

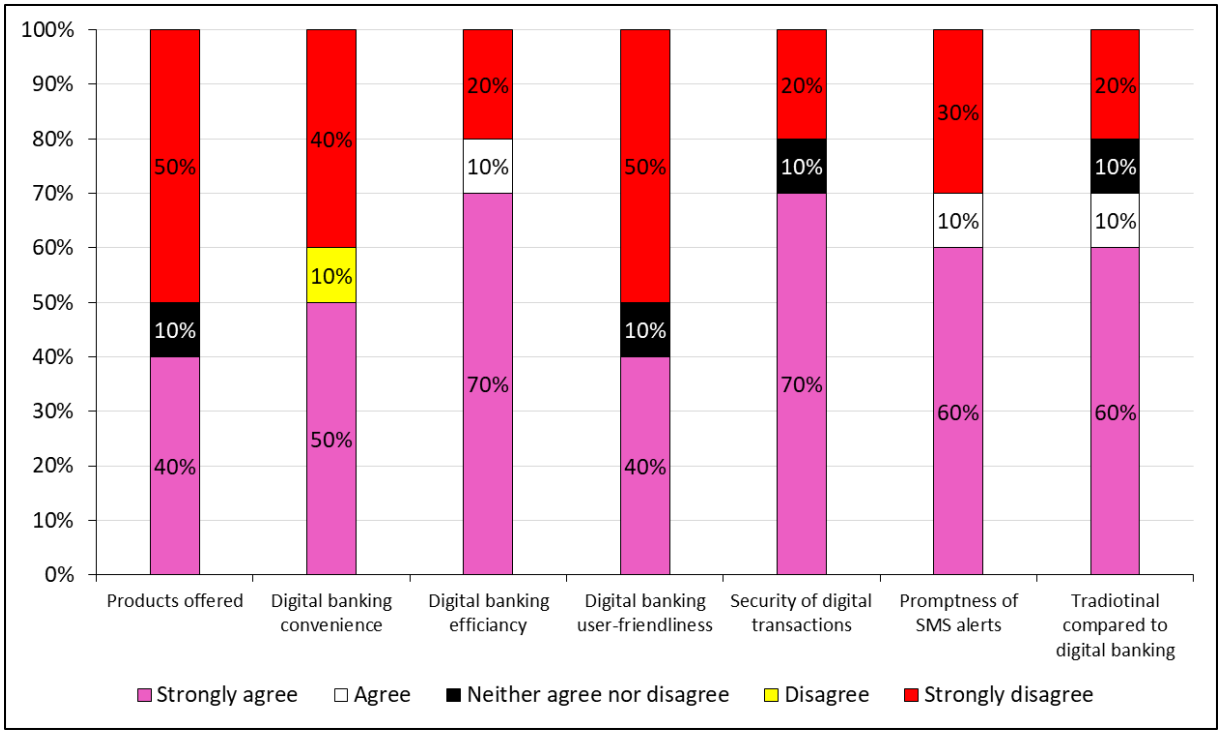

Figure 4.19: Analysis of satisfaction using various banking metrics

With regard to satisfaction with the products offered by the chosen bank, a substantial 50% expressed strong disagreement, indicating a high level of discontent with the products offered by the bank (see Figure 4.19). On the other hand, an almost equally significant 40% was content with the products offered by the bank. Meanwhile, 10% neither agreed nor disagreed, reflecting uncertainty or the lack of a firm opinion on their satisfaction with the products offered by the bank. This wide-ranging spectrum of opinions emphasises the difference in respondents' experiences and levels of contentment with the products offered by the bank. The high percentage of dissatisfaction potentially implies unmet expectations or preferences. Addressing the concerns raised by dissatisfied clients could significantly enhance overall satisfaction, ensuring the alignment of product offerings with client expectations and preferences, thereby fostering greater

client loyalty and satisfaction.

With regard to respondents' levels of satisfaction with the convenience offered by digital banking services, 50% strongly agreed, showing high satisfaction with the ease and accessibility of digital banking functionalities (see Figure 4.19). A combined 50% (10% disagreed and 40% strongly disagreed) however expressed dissatisfaction. This dissatisfaction underscores challenges or reservations respondents faced regarding the convenience, user-friendliness or accessibility of digital banking services. Addressing these concerns could significantly enhance the usability and accessibility of digital banking features, thereby improving overall client satisfaction and user experience.

With regard to respondents' level of satisfaction with the efficiency of digital banking services, a significant majority (70%) strongly agreed, demonstrating a high level of satisfaction with the effectiveness and speed of digital banking functionalities (see Figure 4.19). Although, 10% agreed, 20% strongly disagreed, highlighting dissatisfaction with the efficiency of these services. This last group strongly felt that, at the time, digital banking functionalities lacked effectiveness, speed, or overall efficiency. While the majority expressed contentment, the dissatisfied group emphasised potential challenges or reservations regarding the efficiency of digital banking services. Addressing these concerns could significantly enhance the speed, effectiveness, and overall efficiency of these features, further improving client satisfaction with and usability of digital banking facilities.

With regard to respondents' level of satisfaction with the ease of using digital banking services, 40% strongly agreed, indicating satisfaction with the ease and user-friendliness of digital banking functionalities (see Figure 4.19). On the other hand, 50% strongly disagreed, expressing significant dissatisfaction with the user-friendliness of these services. This latter group found the digital banking features not intuitive or user-friendly, suggesting complexities or challenges in navigation. The discrepancy between these perspectives underscores the need to address the user-friendliness and simplicity of digital banking functionalities. Such improvements could elevate overall client satisfaction

with the product and its usability within digital banking experiences.

In terms of their level of satisfaction with the security of digital transactions, a significant majority (70%) strongly agreed, indicating high confidence and satisfaction with the safety and reliability of the security measures implemented in digital transactions (Figure 4.19). On the other hand, 20% strongly disagreed, expressing dissatisfaction with and mistrust in these security protocols. This latter group held reservations about the effectiveness or reliability of the security measures, raising concerns about the safety of digital transactions. Additionally, 10% neither agreed nor disagreed, indicating uncertainty regarding the security of digital transactions. These contrasting viewpoints highlight the importance of addressing concerns and enhancing security measures to ensure trust and confidence in digital transactions, ultimately fostering client satisfaction with and trust in the banking services provided.

Referring to respondents' levels of satisfaction with the promptness of SMS alerts in terms of bank transactions, 60% strongly agreed, indicating high satisfaction with the timeliness and efficiency of receiving these notifications (see Figure 4.19). Additionally, 10% agreed, but not as emphatically as the larger segment. On the other hand, 30% of the respondents strongly disagreed, expressing dissatisfaction with the promptness of these alerts, suggesting potential delays or inefficiencies in delivery of the messages. This variance in opinions underscores the need to address potential issues in the delivery of SMS alerts, ensuring promptness and efficiency for all users. Improving this aspect could significantly enhance overall client satisfaction with and convenience of banking transactions.

Lastly, with regard to respondents' levels of satisfaction with the convenience of traditional banking over digital banking, 60% strongly agreed expressing a high level of satisfaction with the convenience of traditional banking versus digital banking (Figure 4.19). Their strong agreement indicates a preference for the ease, accessibility, or overall convenience of traditional banking services. 20% strongly disagreed showing dissatisfaction with the convenience of traditional banking compared to digital banking. They strongly felt that digital banking might offer more convenience or ease of use than

traditional methods. A small percentage of 10% agreed indicating some level of satisfaction with the convenience of traditional banking compared to digital banking. Lastly, 10% neither agreed nor disagreed, showing uncertainty or the lack of a firm opinion on the convenience of traditional banking compared to digital banking. The data revealed varying perspectives among respondents regarding the convenience of traditional banking in contrast to digital banking. While the majority (60%) expressed a preference for traditional methods, a small group (10%) found digital banking more convenient. Addressing the concerns raised by dissatisfied respondents and understanding their preferences could aid in refining both traditional and digital banking services to align these better with client expectations, and to enhance overall satisfaction.

4.2.5 Importance rating for elements of satisfaction

In this section, it is reported how respondents rated the essentiality of various elements in achieving satisfaction with banking services. Their opinions regarding the significance of these elements shed light on the critical factors influencing overall satisfaction in their banking experiences. These opinions are summarised in Table 4.1 below and discussed in the sections below.

Table 4.1: Essentiality of factors in achieving satisfaction with the selected bank

To what extent do you agree that the following factors are essential for achieving satisfaction with the bank?	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Access 24/7	30%	0%	30%	0%	40%
Paying bills online	40%	0%	10%	0%	50%
Viewing transaction online	60%	0%	10%	0%	30%
Transferring money between accounts	60%	0%	0%	0%	40%
Banking charges	50%	0%	0%	0%	50%
Customer service	60%	0%	10%	0%	30%
Speed and efficiency	80%	0%	0%	0%	20%
Security	70%	0%	0%	0%	30%
Privacy	50%	0%	0%	0%	50%

Regarding the importance of 24/7 access to banking services, a significant segment (40%) strongly disagreed, indicating that uninterrupted accessibility might not be a crucial factor influencing their satisfaction with banking services (see Table 4.1). On the other hand, 20% strongly agreed, emphasising the importance of 24/7 access, highlighting its significant role in their satisfaction with banking services. Additionally, 30% neither agreed nor disagreed, expressing uncertainty about the significance of uninterrupted access to banking services in achieving satisfaction. These viewpoints underscore the need to address differing client priorities and preferences, potentially adapting service offerings to meet diverse expectations, and enhance overall satisfaction.

Regarding the respondents' opinions on the importance of paying bills online, a significant portion (50%) strongly disagreed, suggesting that online payment of bills might not significantly influence their satisfaction with banking services (Table 4.1). In contrast, 40% strongly agreed, emphasising the importance of this feature and its substantial influence on clients' satisfaction. Additionally, 10% neither agreed nor disagreed, reflecting uncertainty about the significance of online bill payment in relation to their satisfaction

with banking services. These viewpoints emphasise the need for nuanced service offerings that cater for client preferences, potentially optimising online payment features to align these with varying expectations, and to enhance overall satisfaction.

Regarding the respondents' opinions on the importance of viewing transactions online, the majority of participants (60%) strongly agreed that online viewing of transactions significantly contributed to their satisfaction with banking services (see Table 4.1). In contrast, 30% strongly disagreed, suggesting that online viewing of transactions might not affect their overall satisfaction notably. Additionally, 10% neither agreed nor disagreed, which clearly shows uncertainty about the significance of online viewing of transactions. These contrasting viewpoints underscore the need to understand and address the varying needs and preferences of clients to refine online banking services further, potentially enhancing overall satisfaction among all user groups.

In terms of their opinions on satisfaction with banking services, specifically in terms of the importance of transferring money between accounts, 60% strongly agreed (see Table 4.1). They probably valued the convenience and flexibility offered by seamless fund transfers. Of the respondents, 40% strongly disagreed suggesting that this feature might not affect their overall satisfaction significantly. These contrasting viewpoints highlight divergent opinions among respondents regarding the importance of the ability to transfer funds between accounts. While the majority valued this feature for their satisfaction, a significant portion did not consider it essential. Addressing these divergent views could assist in refining banking services to meet client expectations adequately, and to enhance overall satisfaction.

With regard to the respondents' opinions of their satisfaction with banking services, specifically the significance of bank charges, 50% strongly agreed (see Table 4.1) indicating that these costs significantly affect their satisfaction with banking services. They probably considered fees and costs associated with banking services crucial in shaping their overall satisfaction. An equal number of respondents (50%) strongly opposed the notion that bank charges were crucial in terms of their satisfaction with banking services.

This split in opinions highlights the conflicting perspectives among respondents regarding the significance of bank charges. Addressing these diverse viewpoints and understanding the underlying concerns could assist in refining fee structures or communication around charges to align these better with client expectations, and potentially enhance overall satisfaction.

Considering respondents' opinions on their satisfaction with banking services, specifically the importance of client service, the majority of respondents (60%) strongly agreed that the quality of client service significantly contributed to their satisfaction with banking services (see Table 4.1). In contrast, 30% strongly disagreed, indicating that they did not consider client service as crucial for their overall satisfaction. Additionally, 10% neither agreed nor disagreed, expressing uncertainty about the influence of client service on their satisfaction with banking services. Addressing the concerns and preferences of dissatisfied respondents could aid in refining client service approaches to meet diverse client expectations adequately, and to enhance overall satisfaction levels.

With regard to the respondents' perspectives on their satisfaction with banking services, and specifically the importance of speed and efficiency of service, a substantial majority (80%) strongly agreed that prompt and efficient service significantly contributed to their satisfaction with banking services (see Table 4.1). In contrast, 20% strongly disagreed, indicating that they did not perceive speed and efficiency as crucial for their overall satisfaction. Addressing the concerns and preferences of dissatisfied respondents could aid in refining service delivery to meet diverse client expectations, and potentially enhance overall satisfaction levels.

In terms of perspectives on the importance of security and their satisfaction with banking services, a substantial majority (70%) strongly agreed (see Table 4.1) that robust security measures significantly contributed to their satisfaction with banking services. In contrast, 30% strongly disagreed, suggesting that they did not view security of banking services as important for their overall satisfaction, potentially prioritising other facets of their banking experience. Addressing the concerns and preferences of dissatisfied respondents could

assist in refining security strategies to meet diverse client expectations, and potentially enhance overall satisfaction levels.

Regarding respondents' perspectives on their satisfaction with banking services, specifically the importance of privacy experienced in terms of service at the bank, 50% strongly agreed, indicating that confidentiality and privacy significantly affected their satisfaction with banking services. An equal number (50%) strongly disagreed that privacy was crucial for their satisfaction with banking services. This could suggest that privacy measures might not influence their overall satisfaction significantly, and that they potentially prioritised other aspects of their banking experience over privacy concerns. This split in opinions highlights a divided perspective among respondents regarding the importance of privacy. Addressing the concerns and priorities of respondents who feel dissatisfied with the privacy measures implemented by the bank could assist in refining privacy protocols to align these with client expectations, and potentially enhance overall satisfaction.

Lastly, the researcher collected data on respondents' contemplation of switching to another bank based on their experiences with the selected commercial bank in Cape Town. Results for this are presented in Figure 4.20 below, which depicts the data obtained from the questionnaire, and specifically the question, **Are you thinking of switching to another bank?**

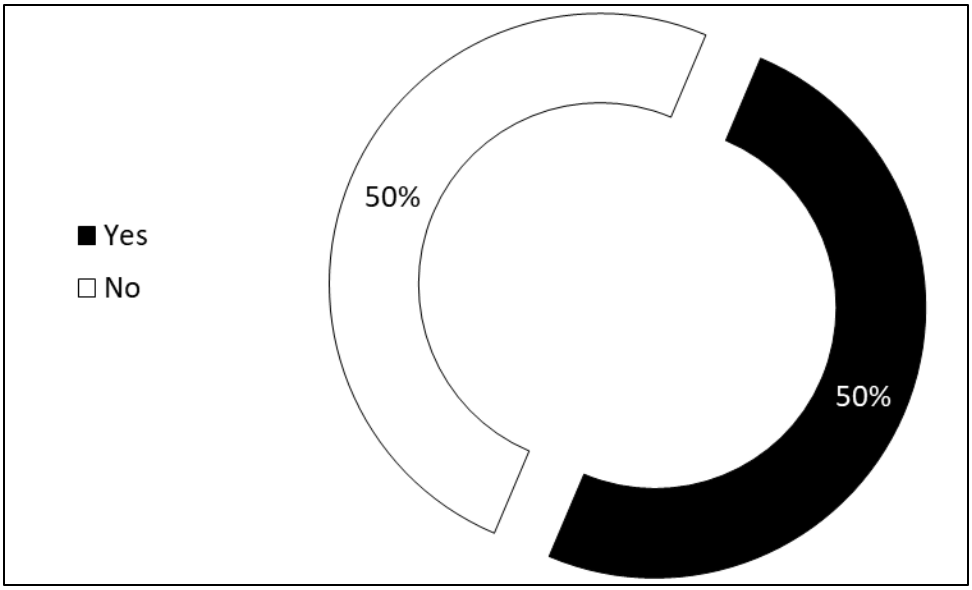

Figure 4.20: Possibility of switching to another bank

In Figure 4.20 above, the responses indicate a split among respondents, as 50% agreed and disagreed. This equal split in responses reflects a significant number of respondents who were dissatisfied with various aspects of their banking experience at the time. The reasons for those who disagreed need to be addressed so that the bank does not lose clients. Addressing these concerns could be critical in retaining clients and improving overall satisfaction levels. Enhancing services, streamlining technology, and adopting a more client-centric approach might help alleviate these issues, and potentially prevent client attrition.

4.3 Analysis of findings from bank employees

This section reports on the analysis of the employee questionnaire, offering valuable insight into the perspectives and experiences of the bank employees of the selected commercial bank in Cape Town. The researcher aims to present and interpret the findings obtained from the responses provided by the bank employees under study. The primary objective was to understand the viewpoints of bank employees regarding the influence of ICT on various aspects of banking services and operations within their professional domain. By exploring the opinions and experiences of bank employees, the researcher aims to contribute to a comprehensive understanding of how ICT influences the internal

workings and practices of the bank under study.

4.3.1 Personal information of the respondents

In this subsection, the focus is on the personal information of the respondents as derived from the bank employee questionnaire. The researcher aims to present an overview of the demographic characteristics of bank employees participating in the survey. Understanding the demographic composition provided context for interpreting the perspectives and opinions of the bank employees regarding the integration and influence of ICT on their professional roles in the selected commercial bank in Cape Town. A summary of demographic details is presented in Table 4.2 below.

Table 4.2: Demographic details of bank employees

Variable	Category	Percentage (%)
Gender	Male	60
	Female	40
Age group (years)	18–28	10
	29–39	70
	40–49	20
	50–59	0
	≥ 60	0
Race	Black	70
	White	20
	Coloured	10
	Indian	0
	Other	0

The data in Table 4.2 show that 60% were males and 40% as female. This distribution suggests a notable gender imbalance within the surveyed bank employees. Analytically, such a significantly skew gender representation might have affected the comprehensiveness of perspectives shared and the banking services within the selected commercial bank in Cape Town. It is possible that this imbalance could have influenced the overall analysis and conclusions drawn from the survey data. It is essential to consider

how this gender disparity might have affected the interpretation of bank employee experiences and viewpoints related to ICT in banking operations.

With regard to age groups, 70% fell within the 29–39 year bracket, 20% in the 40–49 bracket, and 10% in the 18–28 bracket (Table 4.2). The dominant representation was by the group 29–39 years. This majority might imply a strong familiarity or engagement with technology, potentially influencing the adoption and perception of ICT-based solutions. While the group 40–49 years old constituted a small portion (20%), their representation still offered diverse insights across different age cohorts. The presence of the group 18–28 years old, although the smallest group, could bring in fresh perspectives and possibly different approaches to technology adoption within the banking sector.

Referring to the race of bank employees, 70% identified as black, 20% as white, and 10% as coloured (see Table 4.2). This data highlight a predominant representation of the black community among the bank employee respondents. Such a distribution underscores the significance of diverse perspectives and experiences within the workforce regarding the influence of ICT on banking services. Understanding these diverse viewpoints could offer valuable insight into how different ethnic backgrounds perceive and interact with ICT-driven solutions within the banking sector.

4.3.2 Challenges and strategies in achieving competitive advantage

In this subsection, the focus is on the challenges faced by commercial banks in their pursuit of competitive advantage, along with the strategies employed to overcome these challenges. The aim was to consider the insights provided by bank employees regarding the hurdles encountered by banks in the competitive landscape, and the strategies implemented to gain an edge in the market. Understanding these challenges and strategies provides valuable insight into the dynamics of the banking sector and the efforts made to remain competitive amid evolving technological landscapes.

In Figure 4.21 below, the perceptions of the bank employee respondents regarding the contribution of digital banking to the success of SA banks are represented. This visual

representation offers insight into the opinions of bank employees regarding the influence of digital banking on the overall success and performance of banks within South Africa. Figure 4.21 depicts the data obtained from the questionnaire, and specifically the question, **What is the level of contribution of digital banking technology to the success of banks in South Africa?**

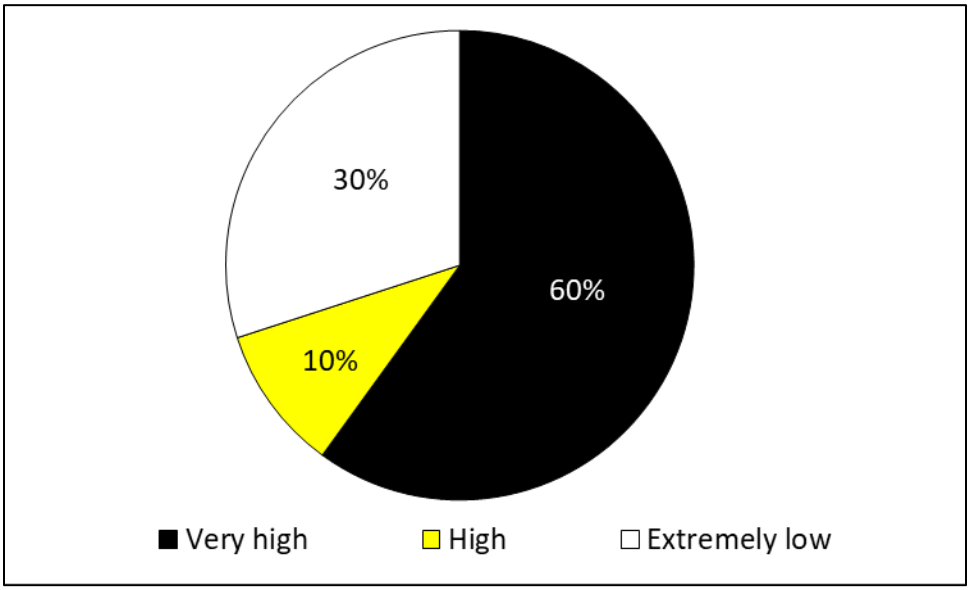

Figure 4.21: Perception on the contribution of digital banking to the success of SA banks

The data depicted in Figure 4.21 above reflect varying perceptions among bank employee respondents regarding the contribution of digital banking to the success of SA banks. Of the respondents, 40% perceived digital banking as making a moderate contribution, which might indicate a balanced viewpoint, acknowledging the role of digital banking without overstating its influence. Another 30% indicated an extremely low contribution, which might suggest scepticism or a belief that digital banking does not bolster the success of banks significantly, possibly due to challenges or limitations perceived in the implementation of digital banking. Yet another 30% acknowledged that a high contribution probably implied digital banking as a significant driving force behind the success of SA banks, recognising its substantial influence on enhancing operations, client experiences, or market positioning. This diversity in perspectives suggests differing evaluations of the influence of digital banking on the success of SA banks, indicating a need for

comprehensive strategies that acknowledge varying perceptions while capitalising on the benefits digital banking offers.

4.3.3 Challenges faced by the bank with reference to ICT

In this subsection, the focus is on delineating the challenges encountered by commercial banks concerning ICT. The researcher aimed to elucidate the hurdles and impediments faced by these banks in implementing and using ICT effectively to drive their operations and services. Understanding these challenges provided valuable insight into the complexities and barriers within the technological landscape of the banking sector.

In Figure 4.22 below, the data relate to the incidence or perception of fraud within the context of commercial banks. This visual representation depicts the prevalence of or concerns about fraudulent activities affecting the banking sector based on data obtained from the questionnaire, and specifically the question, **How much do you agree that fraud influences the success of banks in South Africa?**

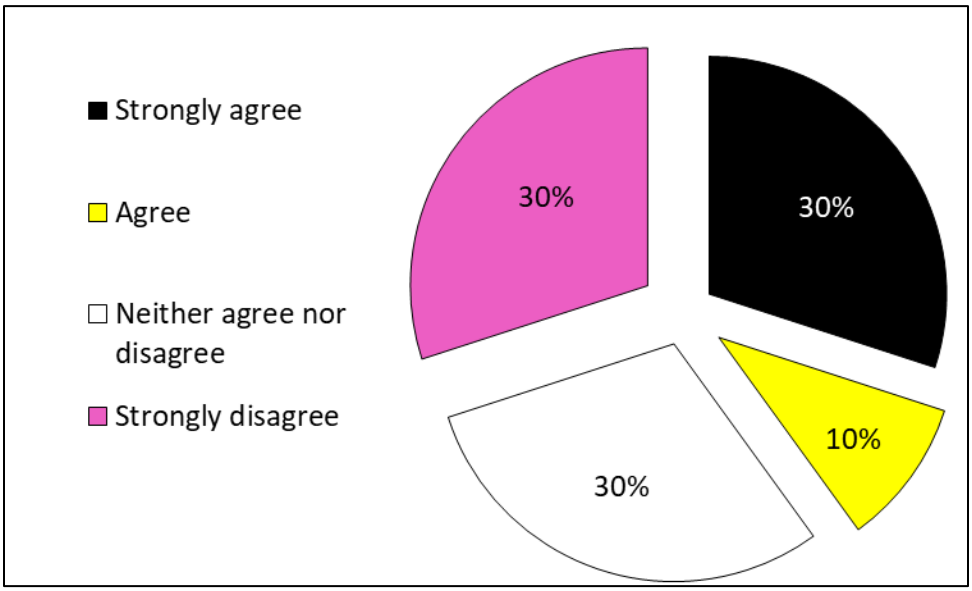

Figure 4.22: Incidence or perception of fraud within the context of commercial banks

According to the research findings, 40% strongly disagreeing suggests a substantial segment that did not perceive fraud (i.e. in the form of money laundering) as a prevalent

issue. This group might have believed that, at the time, the measures implemented by the bank effectively mitigated fraudulent activities or that fraud incidents were relatively rare. Of the respondents, 30% strongly agreed, which indicates a significant portion highly acknowledging the existence or severity of fraudulent activities. This group probably perceived fraud as a critical concern requiring immediate attention and robust preventive measures. Another 10% agreeing and 20% neither agreeing nor disagreeing represent small segments who acknowledged the presence of fraud to some extent, albeit without strong convictions. They might have recognised some level of fraudulent activities but might not have had a definitive stance on the prevalence or severity of it. This diverse range of opinions emphasises the varying perceptions of bank employees regarding the prevalence or influence of fraud within commercial banks. These opinions underscore the importance of robust fraud prevention measures while acknowledging differing levels of awareness or experiences related to fraudulent activities within the banking sector.

In Figure 4.23 below, the data depict bank employees' perceptions or experiences regarding the occurrence or concerns related to money laundering within the selected commercial bank. This visual representation illustrates the prevalence or awareness of money laundering activities and its impact within the banking sector based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that money laundering affects the success of banks in South Africa?**

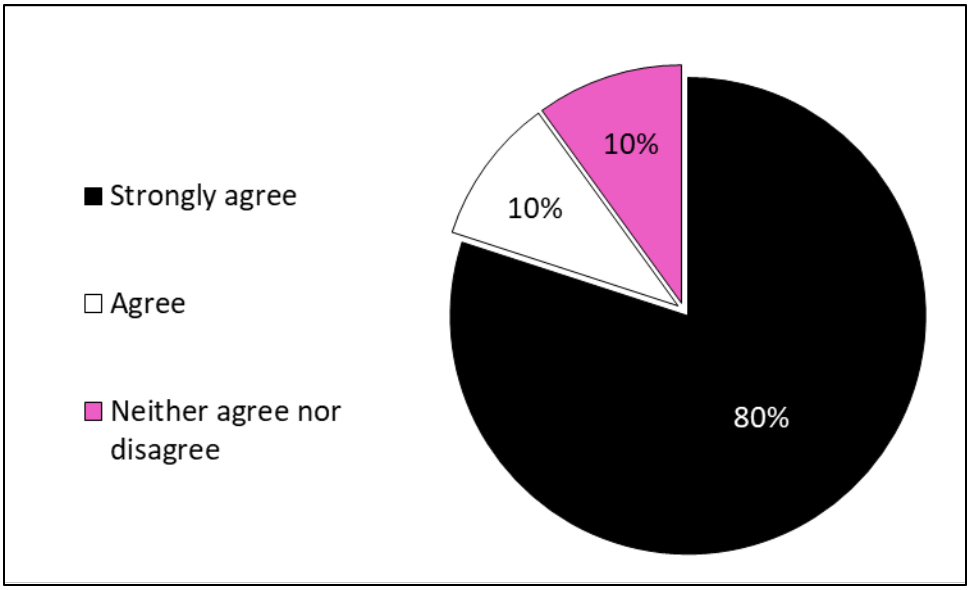

Figure 4.23: Awareness of money laundering in the banking sector

The data depicted in Figure 4.23 above portray a strong consensus among bank employee respondents regarding money laundering within commercial banks. According to the findings, 80% strongly agreeing indicates a substantial majority that highly acknowledged the existence or severity of money laundering activities. This suggests a prevalent concern within the banking sector, highlighting the critical importance of implementing stringent measures to combat money laundering. The 10% of employees agreeing represents a small segment that acknowledged the presence of money laundering activities without strong convictions. At the time, they might have perceived some level of money laundering but might not have held a firm stance on its prevalence or severity. Another 10% who neither agreed nor disagreed suggested a minor proportion that refrained from taking a definitive stance. This group might have lacked clear awareness of fraud or might not have felt confident in evaluating the extent of fraud and/or money laundering activities within the banking environment. This strong consensus among the majority, emphasising the significance of money laundering concerns, underscores the necessity for robust anti-money laundering measures and heightened vigilance within commercial banks to address and prevent such activities effectively.

In Figure 4.24 below, the data pertain to bank employees' perceptions or observations

concerning increased competition within the banking sector. This visual representation illustrates the influence or significance of heightened competition among banks as perceived or experienced by the bank employee respondents based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that there is increased competition of banks in South Africa?**

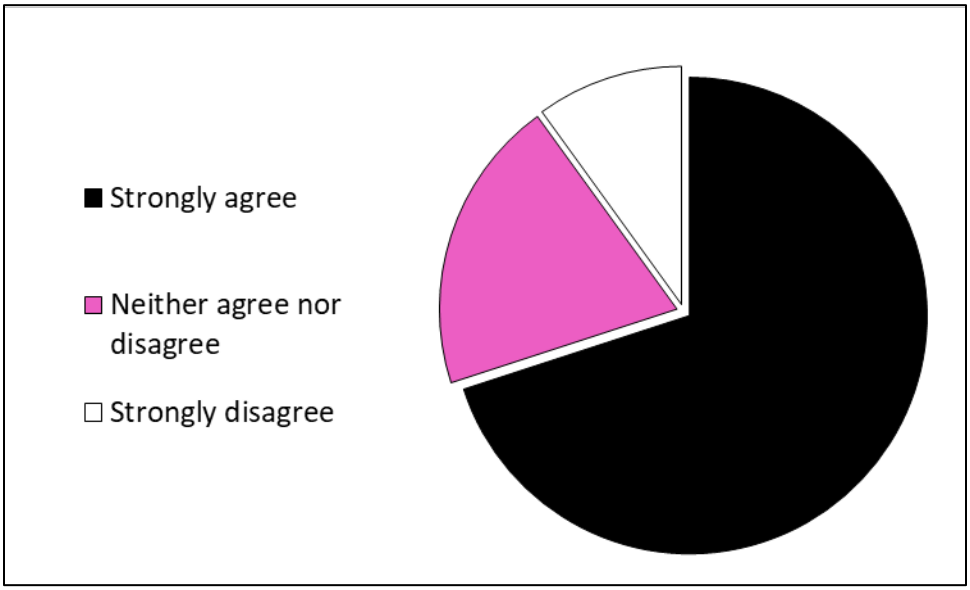

Figure 4.24: Increased competition between banks

The data depicted in Figure 4.24 above show acknowledgment among bank employee respondents regarding heightened competition within the banking sector. The 70% strongly agreeing on the intensified competition indicates a widespread awareness and acknowledgment of the competitive landscape within the industry. On the other hand, the 20% who neither agreed nor disagreed suggests a segment that might have lacked a definitive perspective or confidence in assessing the extent of competitiveness. Another 10% agreeing signifies an acknowledgment of competition without holding strong convictions. This collective perception emphasises the competitive nature of the banking industry, underscoring the need for adaptive strategies to navigate and excel in this competitive landscape.

Figure 4.25 below presents insight into the perception of bank employees concerning

changing business models within the selected bank based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that the selected bank needs to change its business model?**

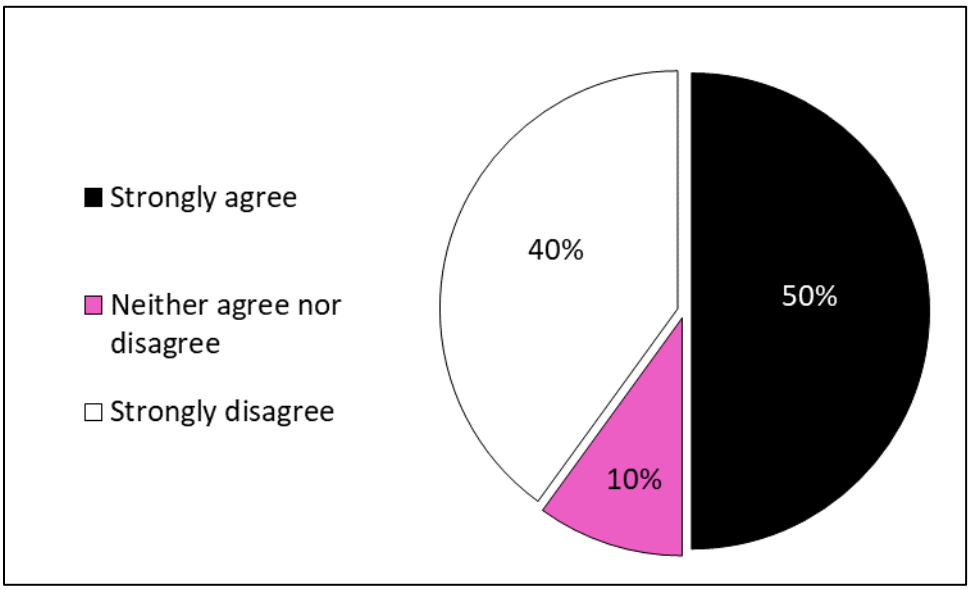

Figure 4.25: Changing business models

Figure 4.25 shows contrasting viewpoints among bank employees concerning the challenges associated with changing business models in the banking sector, specifically in the context of ICT integration. Half of the respondents strongly agreed that adapting business models to evolving technology poses a significant challenge. This acknowledgment concerns the complexities involved in aligning strategies with rapid technological advancements. On the other hand, 40% strongly disagreed, suggesting a contrasting perspective or perhaps an existing level of adaptability within the business models of the bank under study at the time. A small group (10%) neither agreed nor disagreed, possibly lacking a definitive opinion or confidence in assessing the influence of ICT on business model evolution.

These diverse viewpoints underscore the complexity and varying perceptions within the industry regarding the integration of technology into banking business models; hence, highlighting the need for nuanced strategies to navigate this evolving landscape

effectively.

Figure 4.26 below presents the perceptions of bank employees regarding rising expectations to adopt digital technologies as a challenge faced by commercial banks concerning ICT. The figure depicts the data obtained from the questionnaire, and specifically the question, **How much do you agree that there are rising expectations to adopt digital technologies?**

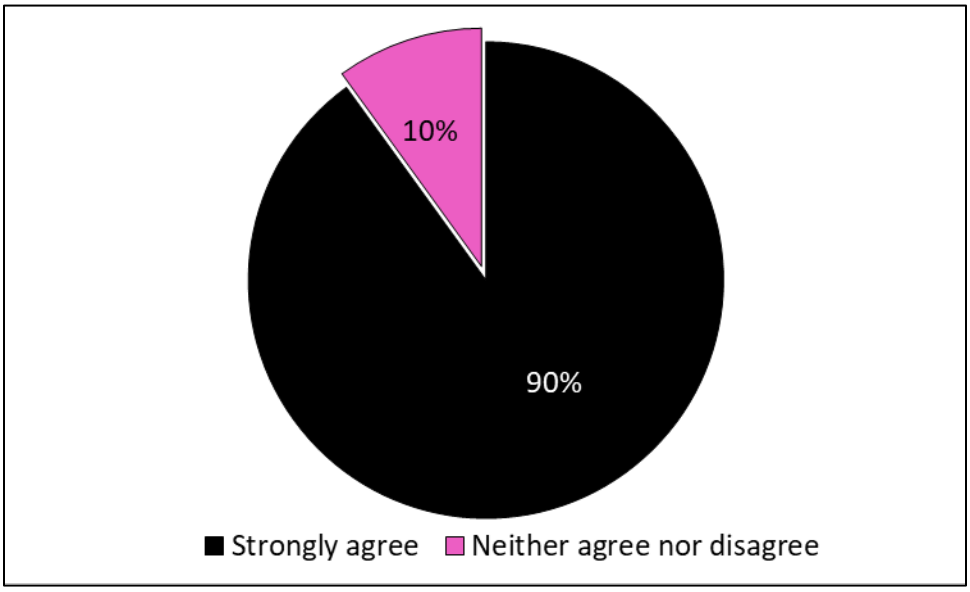

Figure 4.26: Rising expectations to use digital technologies

Figure 4.26 above portrayed the resounding consensus among bank employees, with 90% strongly agreeing that rising expectations pose a considerable challenge for commercial banks with regard to ICT. This overwhelming agreement underscores the substantial influence of technological advancements in elevating demands and expectations placed on the banking sector. The 10% who neither agreed nor disagreed might represent a group with varying perspectives or uncertainty about the extent of this challenge. Nevertheless, the dominant agreement emphasises the urgency for banks to adapt to and meet these heightened expectations driven by technological advancements to remain competitive and responsive in the evolving landscape. Figure 4.27 illustrates the perceptions of bank employees about security breaches being a challenge faced by

commercial banks based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that security breaches affects the success of banks in South Africa?**

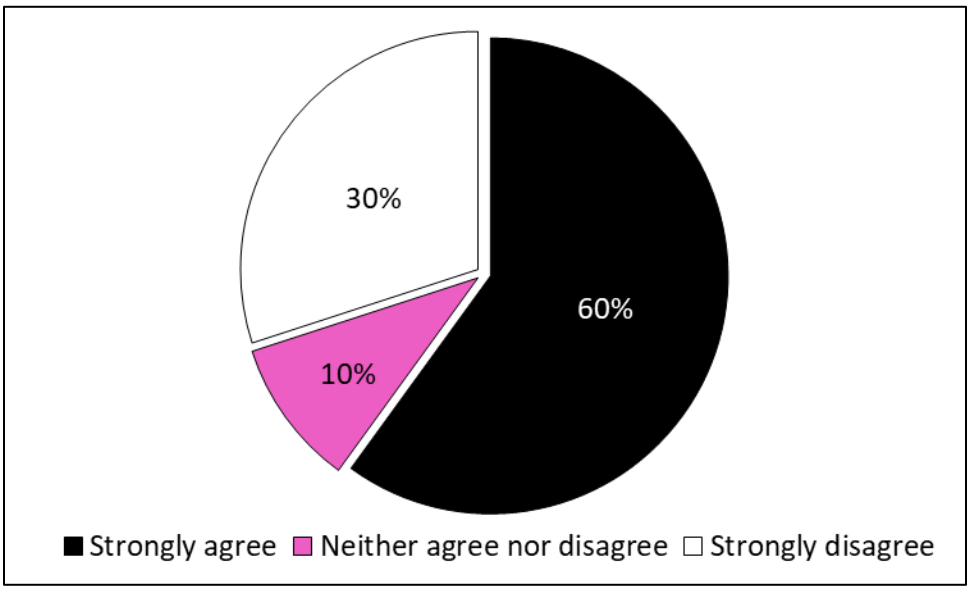

Figure 4.27: Security breaches

In Figure 4.27 above, a significant majority of bank employees (60%) strongly agreed that, at the time, security breaches represented a substantial challenge for commercial banks in terms of ICT. This emphasises the critical concern and awareness surrounding security vulnerabilities within banking systems driven by ICT. Meanwhile, 30% of the respondents strongly disagreed, indicating a notable segment that might have perceived security breaches differently or they might have believed that these breaches were not significant as challenges in terms of ICT in commercial banking. Additionally, 10% neither agreed nor disagreed, implying a small portion that might have had mixed opinions or they might have lacked a firm stance regarding this challenge. The substantial agreement highlights the crucial need for robust security measures, and emphasises the gravity of addressing security vulnerabilities within ICT systems in banking to ensure data protection, client trust, and overall system integrity. These divergent views might stem from varying perceptions or experiences regarding the actual influence or severity of security breaches within their specific banking environment.

Figure 4.28 below pertains to the perceptions of bank employees regarding the challenge posed by outdated mobile experiences within commercial banks based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that outdated mobile experiences affects the success of banks in South Africa?**

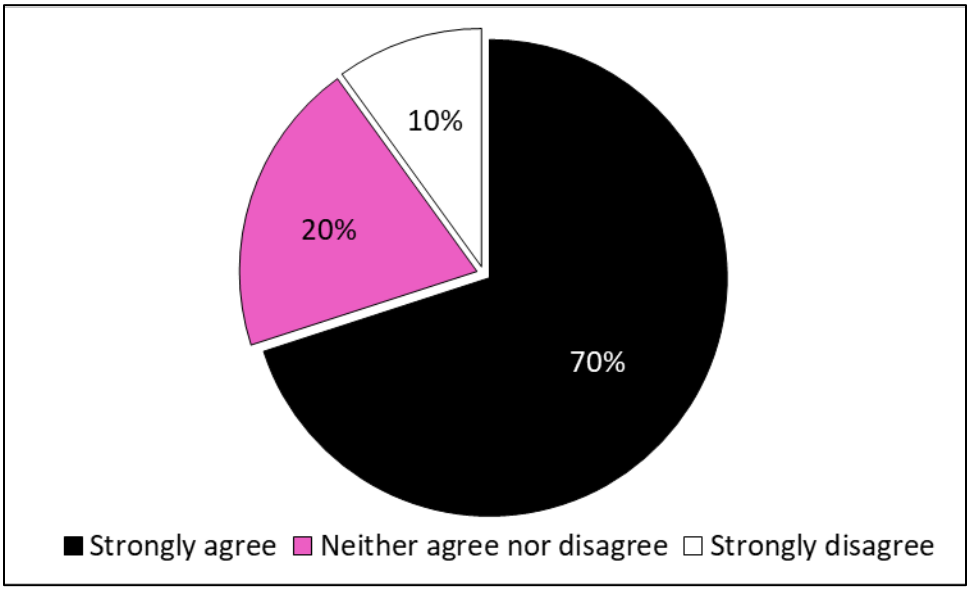

Figure 4.28: Outdated mobile experience

The data depicted in Figure 4.28 illustrate a strong consensus among bank employees, with 70% strongly agreeing that outdated mobile experiences pose a significant challenge for commercial banks. This overwhelming agreement underscores the urgency for banks to update and enhance their mobile platforms to meet modern user expectations and technological advancements. The 20% who neither agreed nor disagreed may reflect a segment with uncertain perceptions or insufficient information to form a decisive opinion on this challenge. Meanwhile, 10% strongly disagreeing might have had contrasting viewpoints, potentially suggesting that, at the time, they did not consider outdated mobile experiences a major hurdle in the context of banking operations driven by technology. Overall, the substantial agreement highlights the critical need for banks to invest in upgrading their mobile platforms, ensuring they remain user-friendly, secure, and aligned with contemporary technological standards to meet evolving client needs and

expectations.

Figure 4.29 below depicts the perceptions of bank employees regarding cultural shifts as a challenge encountered by commercial banks in relation to ICT based on the data obtained from the questionnaire, and specifically the question, **How much do you agree that cultural shifts affect the success of banks in South Africa?**

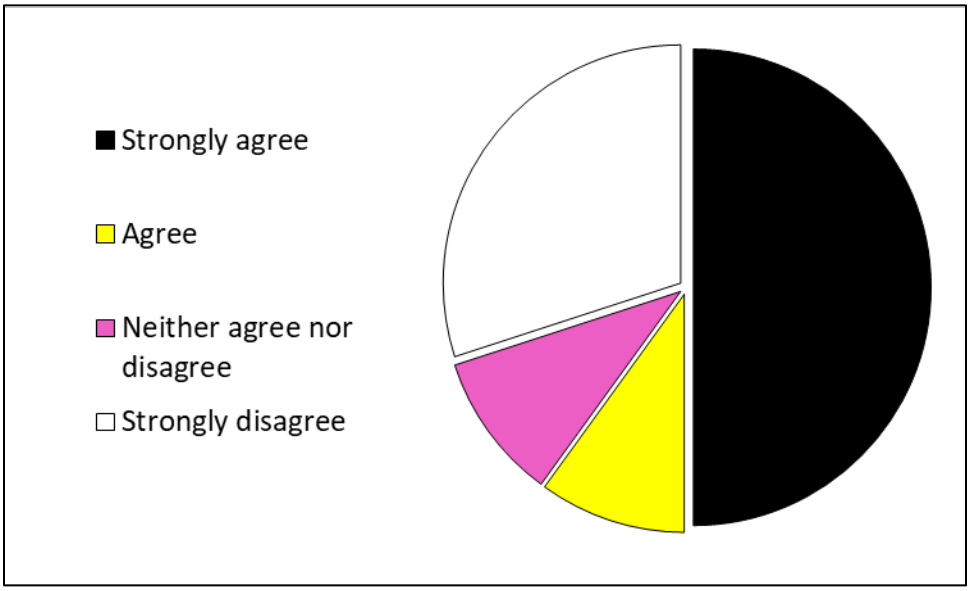

Figure 4.29: Cultural shift

The distribution depicted in Figure 4.29 suggests varying perspectives among bank employees regarding the influence of cultural shifts as a challenge within commercial banks, with reference to ICT. The 50% strongly agreeing probably recognised the profound influence of cultural shifts in shaping the adoption and adaptation of ICT strategies. Meanwhile, the 30% strongly disagreeing might indicate a segment that did not perceive cultural shifts a significant barrier, potentially suggesting a different interpretation or priority in addressing ICT-related challenges. The diverse viewpoints emphasise the complexity in addressing cultural shifts and the implications of it for integrating ICT into the banking sector.

Figure 4.30 below reflects the perceptions of bank employees concerning antiquated

applications as a challenge faced by commercial banks regarding ICT. The figure depicts the data obtained from the questionnaire, and specifically the question, **How much do you agree that antiquated applications affect the success of banks in South Africa?**

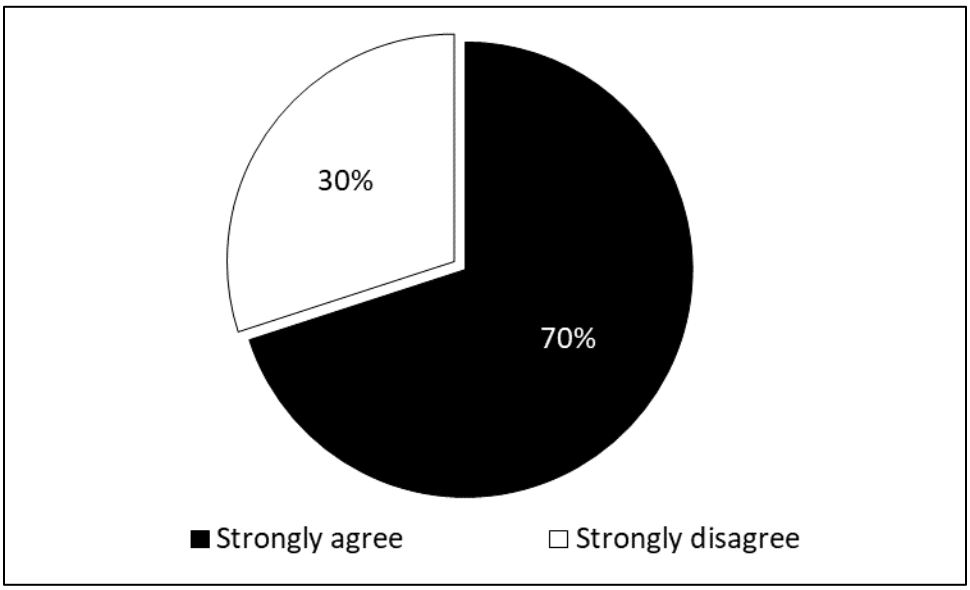

Figure 4.30: Antiquated applications

Figure 4.30 above depicted a strong consensus among bank employees regarding antiquated applications being a significant challenge for commercial banks in terms of ICT. The 70% strongly agreeing emphasises the widespread acknowledgment of outdated systems posing hurdles in employing modern technology effectively. Meanwhile, the 30% strongly disagreeing might represent a small group of employees who perceived existing applications differently, potentially suggesting a divergent experience or perspective on the efficacy of systems used at the time. Overall, the prevailing agreement highlights the urgency to address and modernise these outdated applications to enhance ICT integration within banking operations.

4.4 Discussion of findings

The comprehensive examination of both client perspectives and bank employees' insights within the SA banking sector regarding digital banking and ICT revealed several critical aspects that demand attention. Clients demonstrated a commendable awareness of

digital banking services, with ATMs and physical bank visits being the preferred modes. Inconsistencies in the frequency of using various digital channels suggested that adoption rates were not uniform underscoring the need for more unified and consistent digital banking experiences. Past studies have indicated that while digital banking services are increasingly recognised, traditional banking methods such as in-person visits and ATMs continue to dominate, particularly in regions with varying levels of technological penetration (Ardiani et al., 2022). Similarly, research by Chaimankong et al. (2021) suggests that despite the growing awareness of online banking, customer preferences remain rooted in physical interactions due to concerns over security and the perceived complexity of digital platforms.

The extensive ignorance of clients about bank charges which resulted in feelings of unfairness and discontent was a troubling discovery. This problem emphasises the need for more openness in fee schedules and client education programs. This issue of clients' misunderstanding of bank charges is not unique to South Africa only, as studies from various regions have highlighted similar concerns. However, a study conducted in the UK by Assaf et al. (2021) found that many consumers were aware of the fees associated with basic banking services. The differences between South Africa and the UK coulbe be due to the socioeconomic status between the two countries. Additionally, Chen et al. (2022) showed that increased transparency in fee in the USA disclosures and improved financial literacy programs can significantly reduce consumer dissatisfaction and foster trust in banking institutions. This indicates the critical role of proactive client education and transparent communication in mitigating negative perceptions and promoting consumer welfare.

Furthermore the discontentment of customers regarding the ease of use effectiveness and clarity of online banking services indicates significant issues for financial institutions. It highlights how important it is for organisations to review their technological plans and service offerings in order to better meet changing customer demands. As the expectations of clients evolve, banks are increasingly compelled to leverage technology to improve efficiency, enhance service delivery, and offer personalised experiences (Wu, 2024). The

integration of digital platforms, such as AI and mobile banking has enabled banks to meet the growing demand for convenience, security, and accessibility (Dafri & Al-Qaruty, 2023). Furthermore, research has shown that banks adopting innovative technologies can not only improve customer satisfaction but also gain a competitive advantage in a rapidly changing financial landscape (Vergallo & Mainetti, 2022).

Conversely varied viewpoints on the difficulties faced by banks were offered by insights gleaned from bank employee profiles. These difficulties included everything from cybersecurity risks and antiquated systems to complicated compliance issues and the challenge of teaching clients about new technologies. The strategies that the banks employed appeared to be focused on improving client education strengthening cybersecurity measures and modernising systems. Important overarching themes surfaced like how crucial cybersecurity is for customers and bank staff alike. It was determined that two crucial areas needing attention were transparency and education about bank fees and emerging technology. One bottleneck that has been identified is the need for immediate strategic investments in modernization addressing outdated systems.

Issues of cybersecurity in the banking sector are not only unique to South Africa, but have become a global concern as banks increasingly rely on digital platforms. Cyberattacks, data breaches, and fraud have escalated as banks digitise their services to meet the growing demand for online banking and mobile payments (Gulyás & Kiss, 2023). According to the SABRIC Annual Crime Statistics Report (2021), social engineering remains the primary method for cyber-attacks targeting users of digital payment channels in South Africa. While digital banking fraud dropped by 18% in 2021, following a 30% increase in 2020, the total gross losses from fraud rose by 45%. Card-not-present fraud was responsible for 76% of credit card fraud losses and 55% of debit card fraud losses in the country. Additionally, the 2021 INTERPOL African cyber-threat report noted that South Africa had 230 million threat detections and experienced the highest number of ransomware attempts from January 2020 to February 2021. In many countries around the world, the significant increase in fraud, particularly in digital payments and phishing schemes have been recorded (Beju & Făt, 2023). These trends underscore the increasing

vulnerability of financial systems worldwide, prompting stronger cybersecurity measures and regulatory responses to combat digital fraud.

To mitigate these risks, banks must invest in advanced cybersecurity technologies, comply with stricter regulations, and promote awareness and training among staff and customers. Implications for cybersecurity measures bank charge transparency and infrastructure upgrades are all strongly suggested by these findings. To close the gap between customer expectations and banking services prioritising client education programs and enhancing user experiences will be essential. Programs for the training and development of bank employees must keep up with technology developments in order to guarantee flawless integration and excellent customer service. The results emphasise that in order for South African banks to stay competitive and improve customer satisfaction in the rapidly evolving world of digital banking they must immediately address cybersecurity transparency infrastructure modernization and client education.

4.5 Chapter summary

This chapter presented research findings reporting data collected from the clients and bank employees. Important conclusions that called for strategic attention were revealed by means of in-depth research that included client perspectives and bank employee insights. The need for consistent experiences was indicated by the clients strong awareness of digital banking despite their varied adoption rates across channels. Improved transparency was necessary because client dissatisfaction and perception of unfairness were caused by their inability to understand bank charges. The necessity for quick service improvements was brought to light by client dissatisfaction with the ease of use and transparency of digital banking services. Concerns about everything from cybersecurity threats to obsolete systems were brought to light by bank employees perspectives which called for proactive actions and well-thought-out solutions. Strategic recommendations based on the research findings are presented in the following chapter. With regard to South African banking these suggestions seek to improve prospects and tackle problems. Suggestions include improving cybersecurity making bank fees more transparent facilitating digital services and modernising operations. The chapter also

addresses how these could affect South Africa's digital banking industry going forward. The next chapter provides the conclusion and recommendations.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The digital landscape of the SA banking industry is a complex and dynamic context and is continuously changing through the interplay between employee perceptions, customer attitudes and technological advancements. The research purpose for this study as outlined in chapter 1 was to investigate how both customers and bank employees' perceptions influence the digital banking landscape. This chapter provides an overview of the research as well as some useful insights that were obtained from an extensive analysis. After the analysis of client behaviour and employee insights, a detailed picture emerged that revealed not only key issues and trends, but also underlying problems and strategic possibilities. A deeper look at customer behaviour indicated that respondents were using or were aware of a wide array of digital options in banking. However, results highlighted an alarming problem with customers' awareness of bank fees, which called for an urgent improvement in transparency and education about consumer rights. The previous chapter provided an overview of research on the SA banking digital landscape environment and presented findings on how staff insights, client behaviours and technology have helped to create this complex environment.

5.2 Summary of findings

The investigation into digital banking in South Africa has produced extensive findings that were congruent with the objectives set for the study. Most of all, the challenges and opportunities within the domain have been exposed. The theoretical rationale provided by literature coupled with empirical results from this study culminated in a broad understanding of digital banking as it is in South Africa today. The need for stringent protocols and encryption technologies to combat growing security threats was made clear by literature (refer to Section 2.7.1). Similar sentiments revealed the discrepancies surrounding access to digital technologies and highlighted literacy as an avenue for

reducing this separation (refer to Section 2.7.2). Furthermore, the issues surrounding infrastructure and regulations were discussed (refer to Section 2.7.3), followed by the significant investments required when aiming to implement ICT (refer to Section 2.7.5).

Building upon these foundations, empirical results revealed high client familiarity with ICT services with discrepancies in the rates for the adoption of technology across channels. Moreover, a striking gap in consumer understanding of bank charges was identified, necessitating transparency enhancements and educational initiatives. Staff insights echoed the literature, identifying outdated systems and cybersecurity vulnerabilities as key challenges (see Section 4.18). Strategic interventions should focus on system upgrades, cybersecurity measures, and consumer education initiatives. Through synthesising theoretical insights and empirical findings, the current chapter offers a nuanced perspective on the challenges and opportunities shaping the SA digital banking sector, guiding future research and strategic initiatives within the industry.

5.2.1 Objective 1: Investigation of the influence of ICT on banking operations

The reviewed literature emphasised the fact that security threats are evolving, thus, there is a heightened demand for proper protocols and encryption technologies to ensure the security of digital transactions. Also, it drew attention to the inequalities in the availability of the internet solution and the importance of acquiring computer literacy to alleviating the digital divide. In addition, the main challenges in the case are the provision of infrastructure and the need to comply with regulations, as well as the high costs of implementing ICT solutions. In the study, it was mentioned that customers have a good understanding of digital services. However, there are considerable differences in the way customers use various channels. This indicates the importance of more consistent experiences. Therefore, it is necessary to investigate the changes brought by ICT in the banking sector in Cape Town.

5.2.2 Objective 2: Identification of ICT-related benefits and challenges

The literature reviewed discusses various benefits and challenges linked to the adoption of ICT. Among the benefits, enhanced operational efficiency is noted, as ICT streamlines

processes, reduces manual work, and boosts productivity. Additionally, ICT facilitates elevated client service through better customer interactions, quicker response times, and personalized offerings. Another advantage is cost reduction, achieved by automating and optimizing processes. ICT also supports extended market penetration, allowing businesses to reach a broader audience through online platforms. Furthermore, insight-driven innovation is promoted by the use of data analytics and ICT tools, which provide valuable insights for improved decision-making.

5.2.3 Objective 3: Assessment of the influence of ICT on operational efficiency and effectiveness

The reviewed literature suggested that ICT integration enhances operational efficiency through streamlining processes, improving decision-making, and offering personalised services. Challenges, such as security concerns and infrastructure limitations, may however hinder efficiency gains. Clients expressing concerns about the convenience and transparency of digital banking services underscored the pressing need for service enhancements. This aligns with the objective of assessing the influence of ICT on the efficiency and effectiveness of banking operations, emphasising the need for strategic investments and modernisation efforts.

5.2.4 Objective 4: Exploring the potential of ICT to enhance client service

The literature that was reviewed highlighted that ICT has the potential to enhance client service by providing personalised experiences, improving accessibility, and enabling efficient communication channels. Challenges, such as cybersecurity threats and discrepancies in fee structures, may however affect client satisfaction. Insights from banking employees provided diverse perspectives, emphasising the paramount importance of cybersecurity and the need for greater transparency in bank charges. This aligns with the objective of exploring the potential of ICT to enhance client service, emphasising the need for robust cybersecurity measures and transparent fee structures.

5.2.5 Objective 5: Recommendations for ICT utilisation in banking operations

The reviewed literature emphasised the importance of strategic investments in ICT

infrastructure, cybersecurity measures, and client education initiatives to maximise the benefits of adopting ICT in banking operations. The implications drawn from these findings underscore the urgency to prioritise cybersecurity measures, enhance transparency regarding bank charges, invest in infrastructure upgrades, and prioritise client education initiatives. This aligns with the objective of recommending ways by which banks could implement ICT strategically to improve their operations.

5.3 General conclusion

The exploration into the digital landscape of the SA banking sector gained profound insights from both clients and staff, highlighting critical areas warranting attention and strategic intervention. Clients exhibited familiarity with digital services; yet, discrepancies in usage across channels signalled a need for cohesive experiences. A striking revelation was clients' widespread lack of understanding of bank charges, necessitating transparent fee structures and enhanced education initiatives.

Clients' dissatisfaction with the convenience and transparency of digital banking underscored an immediate need for service improvements aligned with evolving client expectations. Staff perspectives highlighted challenges in terms of outdated systems, cybersecurity threats, and client education complexities, necessitating proactive measures and strategic solutions. Key themes of cybersecurity, transparency, education, and modernisation of infrastructure emerged, demanding urgent attention and necessitating prioritising cybersecurity measures, improving transparency in terms of charges, investing in infrastructure upgrades, and bolstering client education initiatives. Alignment of staff training with technological advancements is crucial for seamless integration and superior service. In conclusion, SA banks have to address cybersecurity, transparency, infrastructure, and client education to enhance competitiveness and client satisfaction in the dynamic digital banking sphere.

The multifaceted nature of the digital landscape of the SA banking sector was unravelled through comprehensive research, exposing various layers of complexity and opportunity. While clients showed familiarity with digital services, deeper exploration revealed

nuanced differences in their adoption rates of technology across different channels. These differences emphasised the critical necessity for banking institutions to provide consistent and cohesive digital experiences to meet diverse client needs effectively.

A notable revelation was the prevailing lack of understanding among clients concerning bank charges, resulting in dissatisfaction with bank services and perceptions of unfairness. This finding underscores the urgent need for banks to prioritise transparent communication regarding fee structures, and to initiate robust client education programmes aimed at enhancing financial literacy and comprehension.

Moreover, the dissatisfaction expressed by clients regarding the convenience and transparency of digital banking services presents an immediate call to action for banking institutions. It signifies an urgent need for service enhancements aligned with the rapidly evolving expectations of clients. These insights based on the client perspectives lay a foundation for strategic improvements in service quality and user experience.

On the other hand, insights derived from the perspectives of banking staff unveiled a spectrum of challenges spanning from outdated systems to cybersecurity threats and complexities in educating clients about new technologies. The identification of these challenges emphasises the necessity for proactive measures and strategic solutions by banks. Themes revolving around cybersecurity, transparency, education, and modernisation of infrastructure emerged as focal points requiring immediate attention and strategic intervention.

The conclusion of this study underscores a pressing need for SA banks to prioritise critical aspects, such as cybersecurity measures, transparent communication on charges, infrastructure upgrades, and robust client education initiatives. Alignment of staff training programmes with technological advancements is crucial to ensure seamless integration of security measures and superior service delivery. The profound insights derived from both client and staff perspectives in the SA banking sector form the groundwork for strategic initiatives aimed at enhancing competitiveness and elevating client satisfaction

in the dynamic realm of digital banking. The practical recommendations presented in this research report serve as guiding principles for banks to navigate and to thrive in this ever-evolving digital landscape.

5.4 Achievements

The study gained a detailed comprehension of the SA digital banking industry. Discrepancies in usage trends limited understanding of bank fees and worry about ease and clarity have formed a basis for strategic advice. The main focuses on cybersecurity, improving transparency, updating infrastructure and boosting client education has become key points in line with the goals. The results didn't just shows the obstacles but also laid out a plan for South African banks to strengthen their advantage in competitiveness, enhance customer happiness and successfully manage the changing digital banking field. As a result, findings could acts as a guiding tool for banks to moving towards strength, creativity and lasting progress in an always-changing digital setting.

5.5 Chapter summary

The current findings not only underscore the pressing need for SA banks to address critical aspects, such as cybersecurity measures, transparent communication on charges, infrastructure upgrades, and robust client education initiatives, but also align these imperatives with the overarching objectives. The practical recommendations presented serve as guiding principles, ensuring that the strategic initiatives aimed at enhancing competitiveness and elevating client satisfaction are directly in line with the multifaceted goals of the exploration into the digital landscape of the SA banking sector. These insights collectively provide a roadmap for sustainable growth in the ever-evolving digital banking sphere. The culmination of this research within the SA banking sector unveiled a rich tapestry of insights based on the perspectives of both clients of and employees in the banking industry. These insights form a comprehensive portrait of the current state of the sectors, and shed light on nuanced aspects that demand immediate attention and strategic intervention for sustainable growth and continued relevance.

Clients showed familiarity with various digital banking services; yet, disparities in their

adoption rates across different channels indicated a need for standardised and cohesive experiences. A lack of understanding regarding bank charges however surfaced as a pressing concern, emphasising the necessity for transparent fee structures and robust educational initiatives to alleviate client dissatisfaction with and perceptions of unfairness. Moreover, dissatisfaction with the convenience and transparency of digital banking services emerged as a clarion call for immediate service enhancements that align closely with the rapidly evolving expectations of consumers. Staff perspectives reflected challenges spanning from outdated systems to the threat of cybersecurity breaches, urging proactive measures and strategic solutions to fortify the sector.

From these diverse insights, several key themes emerged, underscoring the critical imperatives demanding urgent attention. Cybersecurity emerged as a paramount concern, alongside the call for enhanced transparency, educational initiatives, and modernisation of infrastructure. These areas serve as pivotal focal points for SA banks to fortify their positions, ensuring competitiveness, and elevating client satisfaction in the dynamic realm of digital banking. In conclusion, the collective findings outline a clear strategy for the future, advocating for a strategic emphasis on fortifying cybersecurity, transparent practices, modernisation of infrastructure, and intensified client education initiatives. By prioritising these areas, the banking sector can not only evolve but could also thrive in the face of rapid digital transformation, ensuring resilience and sustained relevance in the ever-evolving landscape of financial services.

5.6 Recommendations

Recommendations drawn from the study are presented and discussed below:

Fortifying cybersecurity is particularly relevant to the benefits and challenges of ICT in banking. As ICT becomes more embedded in banking operations, cybersecurity becomes a significant concern. Robust cybersecurity measures address the challenge of safeguarding sensitive customer data in a digital environment, and they also create benefits by building customer trust, reducing the risk of fraud, and ensuring the security of digital transactions. This, in turn, impacts the efficiency and effectiveness of banking

operations, as effective cybersecurity prevents costly data breaches and downtime, which ensures that operations run smoothly and consistently. From a client service perspective, investments in cybersecurity improve the overall experience by allowing customers to use online banking services with confidence, knowing their data is protected.

Enhanced transparency is another recommendation that speaks to the challenges and benefits of using ICT in banking. A common challenge faced in this study was that of customer dissatisfaction due to unclear bank charges structures. Transparent bank charges coupled with educational initiatives, can alleviate this issue. By clearly communicating and offering customers a better understanding of bank charges, banks in South Africa can improve client trust and satisfaction. This transparency is essential for fostering long-term relationships, as customers will feel more informed and in control of their financial interactions.

The service enhancement through digital banking is directly linked to how ICT has changed the way banks operate. Digital banking has transformed how services are offered by making them more accessible, convenient, and user-friendly. As clients increasingly expect seamless and quick banking experiences, it is critical for banks to keep up with evolving digital tools. This change improves operational efficiency by automating many traditional processes, reducing human error, and providing customers with more self-service options. Clients also benefit directly from these advancements, enjoying quicker, more reliable services, and greater convenience.

Modernising infrastructure is crucial for ensuring that banks can fully leverage new technologies. Outdated systems can hinder the integration of modern security measures and limit the delivery of optimal service. Strategic investments in upgrading systems ensure that banks can stay competitive by streamlining operations and preventing technological bottlenecks. From a client service standpoint, modernised infrastructure results in faster, more reliable service, improving the overall customer experience.

Collaborative industry efforts are essential for addressing sector-wide challenges. Collaboration between banks, technology providers, and regulators can foster shared solutions to common issues, such as security, compliance, and customer service. In the context of your research objectives, this collective approach can lead to a more cohesive strategy for leveraging ICT to improve banking operations, enhance client services, and keep up with rapidly evolving technologies.

Each of these recommendations ties into the broader research results by emphasising how ICT influences banking operations, the benefits and challenges associated with it, and the potential for improving both the efficiency of banking services and the client experience. These strategies point towards a future where banks can adapt to technological changes, overcome challenges, and ensure that their services meet the expectations of their customers in Cape Town and beyond. Implementing these recommendations can fortify the SA banking sector's foundations, elevate client satisfaction, and ensure sustained competitiveness in an era defined by rapid digital transformation. These proactive steps will not only address immediate challenges but also position the sector for enduring success and resilience in the face of future disruptions.

5.7 Limitations

It is no doubt that this study had a substantial sample size of n = 200, representing various stakeholders within the SA banking sector. There is however, a possibility that this study did not capture diverse views as the focus was only in Cape Town. The reliance on data reported from both bank employees and clients can potentially create bias which affects the objectivity and reliability of the findings. Furthermore, temporal constraints and external environmental factors could affect the relevance of the current research over time. The rapid ICT evolution or unforeseen economic shifts after this study might alter the landscape of digital banking in ways unaccounted for during the research period. The utilisation of the mixed-methods approach might pose a challenge in aligning and synthesising diverse datasets. Additionally, ethical considerations, such as maintaining confidentiality and consent, as well as resource constraints, including time limitations and access to specific data, might have influenced the scope and depth of the research.

5.8 Suggestions for future research

As digital banking is ever-evolving, this study stands as a beacon that illuminates critical facets within the SA banking sector. The diverse perspectives from clients and staff shed light on both achievements and areas in dire need of attention. As we navigate this dynamic landscape, it is imperative to acknowledge the strides made and to embrace the challenges that pave the way for growth.

The findings present a canvas rich with opportunities, urging the banking sector to prioritise client-centricity, transparency, and technological innovations. Embracing these aspects could catalyse an era of enhanced service quality, improved client experiences, and bolstered security measures. Collaboration between stakeholders from banking institutions to policymakers is essential in charting a course toward an inclusive, efficient, and secure digital banking future.

While these findings mark the culmination of a rigorous exploration, they simultaneously serve as stepping stones for future endeavours. The findings beckon researchers and industry players to delve deeper, to address the identified limitations, and to venture into still uncharted territories. Concluding this chapter is not just an end but also a prelude to continued progress and innovation within the vibrant SA digital banking landscape.

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APPENDICES

Appendix 1: Questionnaire for clients

FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
Department of Management Accounting
District Six Campus
Yandiswa Gxwem
Telephone: +27763105086

Dear Respondent

QUESTIONNAIRE FOR CUSTOMERS

Thank you for agreeing to participate in this very important study. This study aims to evaluate the contribution of information communication technology (ICT) on banking operations in the Cape Town Metropole.

NB: This questionnaire is solely for academic purposes and will be treated with confidentiality and your anonymity guaranteed. You are also at liberty to contact the researcher at any time.

Please feel free to contact the researcher in case of any queries:
Researcher: Yandiswa Gxwem: Telephone number: +27763105086: Email: yandiswa.gxwem@gmail.com

Instructions for completing the questionnaire

1. Please read the statements on the questionnaires to answer them correctly.
2. Please answer the questionnaire as objectively and honestly as possible.
3. Please answer the questionnaire based on your experience as much as possible.
4. Please mark the option which reflects your answer the most accurately by marking an (X) in the space provided.

5. Please answer all the sections of the questionnaire as this will provide more information to the researcher so that an accurate analysis and interpretation of the data can be made.

The information gathered is for research purposes only and your identity will not be revealed. Your participation in this survey is voluntary; you are free to withdraw from it at any time.

SECTION A: Demographic information

1. Please state your gender.

○ Female ○ Male

2. Please specify your age group.

○ 18-28 years
○ 29-39 years
○ 40-49 years
○ 50-59 years
○ 60 years and above

3. Please specify your ethnicity

○ Black
○ White
○ Coloured
○ Indian
○ Other (specify)……

4. Which area do you reside in?

○ Camps Bay/Waterfront/Constantia
○ Somerset West/
○ Table View/Parklands/ Milnerton
○ Claremont/Retreat/
○ Township
○ Mowbray/Rondebosch/Observatory
○ Mitchells Plain/Mandalay
○ Wynberg

5. What is your level of education?

○ Matric
○ Honours degree
○ Higher Certificate
○ Master's degree/ PhD
○ Diploma
○ Professional Qualification

○ Bachelor's degree ○ Other (please specify) ……

6. What is your occupation?

○ Employed for wages/salary
○ Self-employed
○ Out of work and looking for work
○ Out of work but not currently looking for work
○ Other (please specify) ……
○ Student
○ Military
○ Retired
○ Unable to work

7. What bank are you banking with?

○ ABSA
○ FNB
○ CAPITEC
○ STANDARD BANK
○ NEDBANK
○ Other

8. Which of the following determines which bank you use?

○ Bank charges
○ Service quality
○ Banking products
○ Both service quality and banking products
○ Location of the bank
○ Security

SECTION B: The following questions are focusing on your knowledge and understanding of technology.

1. Please indicate with an **x**.

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
I have good technology skills					
I am familiar with computer usage					
I am aware of digital banking					

2. How do you rate your technology skills? (Please indicate with an **x**)

Excellent	Good	Average	Bad	Never used technology

SECTION C: This section focuses on your knowledge and understanding of digital banking and bank charges.

1. Which mode of banking do you prefer? (Please indicate with an **x**)

ATM	Online banking	Mobile banking	Physical visit to the bank

2. How frequently do you use the following banking services per month?

	1 to 3 times	**4 to 8 times**	**9 to 12 times**	**Over 12 times**	**NIL**
ATM					
Online banking					
Mobile banking					
Physical visit to the bank					

3. Please indicate your understanding of bank charges. (Please indicate with an **x**)

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
I know how much the bank charges you for transactions.					
I think bank charges are fair.					
Bank charges determine which bank I use.					
Bank consultants explained to you how digital banking works and the bank charges are structured					
I think digital banking is taking over traditional banking (physical visit to the bank).					

SECTION D: Customer satisfaction

1. Please rate how you perceive digital banking to be in order to determine the level of satisfaction.

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
I am satisfied with the products offered by my bank.					
Digital banking is convenient					
Digital banking is efficient					
Digital banking is easy to use					
Digital transactions are secure					
Bank transaction SMS alerts are prompt					
Banking Apps are easy and safe to use					
Traditional banking is more convenient than digital banking					

2. Please rate how essential the following elements are in achieving satisfaction. (Please indicate with an **x**)

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
Access 24/7	0%	0%	0%	0%	0%
Paying bills online	0%	0%	0%	0%	0%
View transaction online	0%	0%	0%	0%	0%
Transfer money between accounts	0%	0%	0%	0%	0%
Banking charges	0%	0%	0%	0%	0%
Customer service	0%	0%	0%	0%	0%
Speed and efficiency	0%	0%	0%	0%	0%
Security	0%	0%	0%	0%	0%
Privacy	0%	0%	0%	0%	0%

3. Are you thinking of switching to another bank?

If **yes**, go to question 4.

○ Yes ○ No

4. What is the reason(s). Please select all that apply. (Please indicate with an **x**)

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
Bank charges					
Service					
Poor quality of online, mobile banking and ATM services					
Impersonal approach					
Poor accessibility of branches					

SECTION E: This section looks at the security associated with digital banking.

1. Are you aware of the risks involved when using digital banking? (Please indicate with an **x**)

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
I am aware of the risks involved when using digital banking.					
I trust the banks that operate online.					
I trust the security of online banking, mobile banking and electronic banking (ATM).					
I think protection and privacy of banking transactions are important.					
I think 24 hours banking services are convenient and secure.					

2. The contribution of digital banking technology to the success of banks in South Africa in your opinion is:
   a) Very high
   b) High
   c) Low
   d) NIL

3. What suggestions can you give to the development of technology to the South African banking sector?

4. Do you know strategies your bank is using to address some of the challenges associated with Information and Communication Technology development for competitive advantage?

○ Yes ○ No

5. Can you suggest any additional strategy to use in addressing Information and Communication Technology for competitive advantage?

Customer signature_____

THANK YOU FOR YOUR PARTICIPATION!

Appendix 2: Interview guide for bank employees

FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
Department of Management Accounting
District six campus
Yandiswa Gxwem
Telephone: +27763105086

Dear Respondent

Thank you for agreeing to participate in this very important study. This study aims to evaluate the contribution of information communication technology (ICT) on banking operations in the Cape Town Metropole.

NB: This questionnaire is solely for academic purposes and will be treated with confidentiality and your anonymity guaranteed. You are also at liberty to contact the researcher at any time.

Please feel free to contact the researcher in case of any queries:
Researcher: Yandiswa Gxwem: Telephone number: +27763105086: Email: yandiswa.gxwem@gmail.com

Instructions for completing the questionnaire

6. Please read the statements on the questionnaires to answer them correctly.
7. Please answer the questionnaire as objectively and honestly as possible.
8. Please answer the questionnaire based on your experience as much as possible.
9. Please mark the option which reflects your answer the most accurately by marking an (X) in the space provided.
10. Please answer all the sections of the questionnaire as this will provide more information to the researcher so that an accurate analysis and interpretation of the data can be made.

The information gathered is for research purpose only and your identity will not be

reviewed. Your participation in this survey is voluntary; you are free to withdraw from it at any time.

SECTION A: Personal information of the respondent

1. Please state your gender?

○ Female ○ Male

2. Please specify your age?

○ 29-39 years
○ 40-49 years
○ 50-59 years
○ 61 years and above

3. Please specify your ethnicity

○ Black
○ White
○ Coloured
○ Indian
○ Other (specify)……

4. What bank are you working for?

○ ABSA ○ STANDARD BANK
○ FNB ○ NEDBANK
○ CAPITEC

SECTION B: This section looks at the challenges and strategies associated with commercial banks in achieving competitive advantage.

1. The contribution of digital banking technology to the success of banks in South Africa in your opinion is:

a) High
b) Moderate
c) Moderate
d) NIL

2. What are the challenges faced by the commercial banks with reference to ICT? (Please indicate with an **x**)

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Fraud					
Money Laundering					
Increasing Competition					
Regulatory Compliance					
Changing business models					
Rising Expectations					
Customer Retention					
Security Breaches					
Outdated Mobile Experience					
Continuous Innovation					
Cultural Shift					
Antiquated applications					

3. What are the other challenges that commercial banks face with refence to ICT. Please list all other challenges faced by commercial banks with reference to ICT?

a.

b.

c.

d.

4. What are the strategies that your bank is using to address some of the challenges with reference to Information and Communication Technology development for competitive advantage?

a.
b.
c.
d.

5. What suggestions can you give to the development of technology to the South African banking sector?

a.

b.

Bank Employee signature_____

THANK YOU FOR YOUR PARTICIPATION!

Appendix 3: Ethics approval letter

Cape Peninsula University of Technology

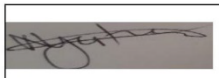
P.O. Box 1906 | Bellville 7535
Symphony Road Bellville 7535
South Africa

Office of the Chairperson Research Ethics Committee	**FACULTY: BUSINESS AND MANAGEMENT SCIENCES**

The Faculty's Research Ethics Committee (FREC) on **22 August 2023**, ethics **Approval** was granted to **Gxwem Yandiswa 214271463** for a research activity for a **Master of Management Accounting** at Cape Peninsula University of Technology.

Title of dissertation/thesis / project:	**The role of information and communication technologies on the performance of a selected bank in the Cape Town metropole** Lead Supervisor (s): Dr I.L. Johnson

Decision: APPROVED

	**18.09.2023**
Signed: Chairperson: Research Ethics Committee	**Date**

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the CPUT Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study requires that the researcher stops the study and immediately informs the chairperson of the relevant Faculty Ethics Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, notably compliance with the Bill of Rights as provided for in the Constitution of the Republic of South Africa, 1996 (the Constitution) and where applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003 and/or other legislations that is relevant.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after two (2) years for Masters and Doctorate research project from the date of issue of the Ethics Certificate. Submission of a completed research ethics progress report (REC 6) will constitute an application for renewal of Ethics Research Committee approval.

clearance Certificate No | 2023_FBMSREC_ST15

Appendix 4: Permission letter from the selected bank

Department of Management Accounting

Faculty of Business & Management Sciences

Dear Sir/Madam

ACCEPTANCE TO PARTICIPATE IN AN ACADEMIC STUDY

A master's degree student by the name of Yandiswa Gxwem in the department of Management Accounting at the Cape Peninsula University of Technology reached out to us regarding collecting data for her research project titled "The Effect of information and communication technologies on Banking Operations in the Cape Town metropole". This letter gives consent to the student to collect data from our staff. However, this consent in no way commits any individual to participate in the research, and it is expected that the student will receive explicit consent from participants. The Bank reserves the right to withdraw this permission at any point in the future.

In addition, the bank's name may not be used in any publication without the direct approval of the management

Your Sincerely

bank stamp and manager name hidden

Appendix 5: Thesis editing declaration

Jackie Viljoen
Language Editor and Translator
16 Bergzicht Gardens
Fijnbos Close
STRAND 7140

Accredited member of the South African Translators' Institute
No APSTrans No. 1000017
Member of the Professional Editors' Group (PEG) No. VIL003
Member of Safrea No. SAF03316

082 783 0263
Postal address: 16 Bergzicht Gardens, Fijnbos Close, STRAND 7140 South Africa

DECLARATION

I hereby certify that the thesis by **YANDISWA GXWEM** was properly language edited but without viewing the final version.

The track changes function was used and the author was responsible for accepting the editor's changes and for finalising the reference list.

Title of thesis:
The role of information and communication technologies on the performance of a selected bank in the Cape Town Metropole

The editor did not write or rewrite any part of the thesis on behalf of the client, including passages that may have been plagiarised. The academic content is the sole responsibility of the client as author of the work. The editor could not and did not test definitively for plagiarism, nor is there any explicit or implicit guarantee that the content that was edited contained no material used without consent. The editor accepts no responsibility for any failure on examination of the thesis by the university.

JACKIE VILJOEN
Strand
South Africa
26 July 2024