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The impact of emerging technologies to improve IT service delivery in a South African bank

by

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A research report submitted in partial fulfilment of

the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

in the

Faculty of Commerce, Law and Management

University of Witwatersrand

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February 2025

DECLARATION

I, Mosima Naphtaline Phasha, declare that this research article is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Signature: _____ **Date: 05 June 2025**

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DEDICATION

This thesis is dedicated to my husband Nakedi Phasha and my children Tlhalefo and Mahlatse Phasha, whose unwavering love, support, and encouragement have been a constant source of strength and inspiration throughout this journey.

ABSTRACT

The financial services sector is advancing rapidly in terms of innovation and technology. The study sought to explore the impact of emerging technologies on improving information technology service delivery in a South African bank.

A quantitative study was undertaken through the distribution of an online survey research instrument. The targeted population for the study is the employees of one South African bank. Data were analysed using structural equation modelling.

The study found top management support impacted the behavioural intention of using emerging technologies, and the behavioural intention to use emerging technologies had a positive impact on information technology service delivery. System quality, information quality, and regulatory support had no positive impact.

The study was limited to one South African bank, meaning that the findings may not be generalisable to all banks operating within Africa. This suggests that researchers, banks and policymakers must be more creative in integrating and utilising new technology to improve operational efficiency and service delivery.

Keywords: Behavioural intention, emerging technologies, information technology, operational efficiency, service delivery

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LIST OF ACRONYMS

4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
API	Application Programming Interface
AVE	Average Variance Extracted
CR	Composite Reliability
DLT	Distributed Ledger Technology
HR	Human Resources
HTMT	Heterotrait-Monotrait Ratio
ICT	Information Communication Technology
IoT	Internet of Things
IS	Information System/s
IT	Information Technology
PLS-SEM	Partial Least Squares Structural Equation Modeling
SEM	Structural Equation Modelling
TOE	Technology Organisation Environment
URL	Uniform Resource Locator

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Statement of purpose

This research reviews the impact of emerging technologies on improving information technology (IT) service delivery in South Africa. The variables analysed in this study are system and information quality, top management and regulatory support and the behavioural intention of using emerging technologies to improve service delivery, using the DeLone and McLean 2003 Information Systems (IS) Success Model.

1.2 Background of the study

The financial services sector is undergoing a transformative period driven by rapid advancements in new technology. These innovations including cloud computing, blockchain, big data analytics, and artificial intelligence (AI) completely changed the landscape of IT service delivery. Banks in South Africa are starting to realise how these technologies will boost productivity, improve client satisfaction, and give them a competitive edge (Thusi & Maduku, 2020). Notwithstanding, the assimilation and execution of these technologies present distinct obstacles and prospects particular to the socio-economic and regulatory milieu of the area.

The impact of legacy systems on emerging technologies is an obstacle to innovation. Although it can also refer to a continuous improvement of already existing technologies, the term emerging technologies refers to new developments. Its definition might change slightly depending on the industry, including media, business, science, banks or education .Usually utilized for technologies that are undergoing development or should be available within the next five to ten years and for technologies that could have major economic or societal impacts (Matsepe & Van der Lingen, 2022).

The integration of the core banking system is raising an additional challenge. The bank is exposed to cyberattacks and service disruptions due to inadequate disaster recovery plans and incident procedures, as well as ineffective tools for monitoring the IT environment, which increase the time it takes to detect vulnerabilities and respond to security incidents (Biswas et al, 2020). Limited internet infrastructure hinders digital financial inclusion and service accessibility for customers, especially those living in rural areas. Modernising outdated physical infrastructure is necessary to provide seamless connectivity to digital channels and meet changing customer needs, as it also disrupts services at the branches (Matsepe & Van der Lingen, 2022).

The study should be conducted because emerging technologies may provide increased standardisation of the IT infrastructure. At present the bank is still reliant on traditional technology. This is creating bottlenecks and service inefficiencies. The study closes the gap in improving IT service delivery by increasing scalability and flexibility to adapt to changing demands. This may result in a reduction of costs associated with maintaining physical servers and infrastructure.

1.3 Problem statement

The financial services sector's utilisation of outdated infrastructure and systems is contributing to inconsistent and inadequate delivery of services as well as frequent interruptions and unsatisfactory services to customers and users.Legacy systems face challenges in scalability during high transaction volumes, increasing vulnerability to fraud and data breaches due to outdated infrastructure and insufficient support. The financial services sector's outdated infrastructure is causing inconsistent service delivery, frequent interruptions, and increased vulnerability to fraud and data breaches (Thusi & Maduku, 2020).

The lack of improving technologies results in customers not receiving good service delivery. Sbîrneciu and Florea (2023) state that legacy systems do not easily adapt to new regulations or standards hence there is a need for emerging technologies in the environment to provide stable and dependable services with the best systems that are in good condition and provide good services to the customers. The financial services sector's outdated infrastructure and legacy systems hinder efficient service delivery, erode customer trust, and hinder competitiveness in the rapidly evolving digital world.

The impact of emerging technologies on the IT service delivery is to strategically leverage emerging technologies. There are not sufficient studies conducted in South Africa on those variables influencing the banking sector's IT service delivery (Sbîrneciu & Florea, 2023). Researchers, banks and policymakers may create more successful plans to integrate and utilise new technology to improve operational efficiency and service delivery. The financial services sector, by strategically leveraging emerging technologies, has the potential to improve its infrastructure, enhance efficiency, and provide a more secure and customer-centric experience (Verma, 2022).

1.4 Research purpose

This study aims to explore the impact of emerging technologies on IT service delivery in the financial service sector because there are not sufficient studies conducted in South Africa on those variables impacting the sector's IT service delivery. Existing literature displays a gap in terms of locally relevant research on the sector's knowledge to leverage emerging technologies to improve its infrastructure (Bagó, 2023). Most of the findings of research conducted previously may not be fully applicable to the South African bank situation as they were conducted in foreign countries that have unique conditions. There is a need to understand the impact of leveraging the new technologies in the financial sector in South Africa.

1.5 Research objectives

The study evaluates the impact of emerging technologies on IT service delivery in a South African bank and the following objectives were developed:

1) To establish the impact of emerging technologies in a South African bank;
2) To explore the challenges of implementing emerging technologies in a South African bank;
3) To recognise the extent and success of implementing emerging technologies in a South African bank;
4) To validate the factors that will evaluate the impact of emerging technologies in a South African bank; and
5) To assess the impact of these technologies on service efficiency, speed, and accuracy in IT service delivery.

1.6 Research questions

The main research question of the study is what variables can be used to evaluate the impact of emerging technologies on IT service delivery in a South African bank? The following research questions, aligned with the objectives, will assist in clarifying the research topic.

1) What is the impact of system quality on the usage of emerging technologies within a South African bank?
2) What is the impact of information quality on the usage of emerging technologies within a South African bank?
3) How does top management support impact the usage of emerging technologies within a South African bank?

4) What is the impact of regulatory support on the usage of emerging technologies within a South African bank?
5) What is the impact of behavioural intention to use emerging technologies on IT service delivery within a South African bank?

1.7 Rationale of the study

Studies were conducted mostly in countries with conditions and environments that are different to South Africa's local conditions (Sbîrneciu & Florea, 2023). As a result, there is a need for a local study to address local challenges and present a reference point and literature for future research in this area.

The study contributes to the body of knowledge on the impact of emerging technologies on IT service delivery in a South African bank. While the study was conducted mainly within a bank in South Africa, its findings may be of assistance to other banks, in particular, research aiming to explore the impact of leveraging the new merging technologies to improve service delivery in banks. Emerging technologies have the potential to greatly improve service delivery in several areas such as decision-making, cost reduction, security, efficiency, accessibility, customer experience, innovation and scalability. Banking institutions can boost growth, competitive edge and increase consumer happiness by utilising these technologies successfully.

This research identifies outdated and unstable environments disrupting service delivery and willingness to explore emerging technologies and services from traditional IT platforms. It is also helpful to the bank in deciding to leverage the new technology to provide a satisfactory service delivery. It is also useful to banks operating in a similar environment when faced with a situation where their IT infrastructure must be modernised to use the new emerging technologies.

1.8 Assumptions

The study draws the assumption that emerging technologies will have a measurable and significant impact on the delivery of IT services, impacting factors like customer satisfaction, cost efficiency, and reliability. Financial institutions are increasingly investing in and utilizing emerging technologies

1.9 Delimitations

The study's geographic scope will be limited to financial sector in South Africa.The study will depend on the decision-making of top management within the financial sector, on specific types of technologies required to improve IT service delivery.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This section reviews the literature and related research models, discussing the concepts, the importance of emerging technologies in improving IT service delivery and the related framework. The conceptual framework underpinning this research is presented.

2.2 Overview of technology in banking sectors

A significant paradigm shift in how banks operate and provide banking services has been enabled by technology. Every banking transaction no longer needs a visit to a bank. (Thusi & Maduku, 2020). Nowadays, customers are not required to visit a bank for anything because they can carry out most transactions from the convenience of their own dwellings. Technology has evolved into a business driver as well as an enabler. (Israr & Nazir., 2022)The development of internet , mobile phones, and other communication technology has provided banking a new perspective. IT is being utilized to increase the number of clients, automate processes, improve process efficiency, and offer customers efficiency and convenience (Taherdoost, 2023).

Customers are now granted more power when they engage directly with technology, like through Internet banking, because technology has greatly influenced the growth of service delivery possibilities Bagó (2023). Bagó (2023) examines how established banking practices have changed because of new technologies, including AI, blockchain, robotics, and cloud computing. The author does this by thoroughly examining and analysing the data and how these technologies have altered consumers' daily experiences.

Allen et al. (2021) report that the current wave of financial innovation is being fuelled by technological advancements like distributed ledger technology (DLT), AI, big data, and Internet/phone technology, application programming interfaces (APIs). The way banks produce and provide financial services to clients is impacted by these new technologies, which also attract new Fintech

Current financial organisations could be impacted, especially traditional banks. Furthermore, the process could result in the creation of new sources of systemic risk, raising concerns about regulations and policies (Beck et al., 2022).

Taherdoost (2023) states that one of the main characteristics of technology is its rapid evolution. Thriving in the technology industry requires individuals to rapidly adjust to the

field's continuous changes. The rapid advancement of IT requires an understanding and implementation of appropriate technologies that allow companies to remain competitive in the market due to the accurate and rapid efficiency offered by technologies like big data analytics, blockchain, cloud computing, AI, virtual and augmented reality, 5G networks, and more.

2.3 Emerging technologies

Although it can also refer to a continuous improvement of already existing technologies, the term emerging technologies refers to new developments. Its definition might change slightly, depending on the industry, including media, business, science, banks or education (Matsepe & Van der Lingen, 2022). Refers to technologies that are currently in the development phase or anticipated to become available in the upcoming five to ten years. It is commonly applied to technologies that could have major economic or social impacts (Matsepe & Van der Lingen, 2022).

Over the past few decades, new IT has emerged, which has impacted how organisations conduct their daily operations. IT management has emerged as one of the most important organisational concerns as numerous organisations look for strategies to compete more successfully in today's ever-expanding marketplaces.

IT service delivery is defined as how well a service satisfies the demands and expectations of its customers. Service delivery defines the difference between customer expectations and perceived service. IT service delivery has been identified as having the potential to provide strategic benefits, such as increased customer retention, while also improving operational efficiency and profitability. In developing countries, banks acted swiftly to invest in technology to minimise costs, attract new consumers, and meet the convenience and technological innovation expectations of their current clients.

Every year, new technological trends emerge, for systems to thrive and develop in an environment of competition. Current technology is being developed by a variety of technologies, including cloud computing, the Internet of Things (IoT), blockchain, big data analytics, AI, virtual and augmented reality, 5G networks in IS in various manners (Taherdoost, 2023).

The emerging technologies include utilising analytics tools to extract relevant data for improved decision-making and customer support, as well as data centres for scalable storage. Using scalable cloud computing and storage resources instead of traditional on-premises data centres makes data administration simpler and more cost-effective. Emerging technologies also include Machine Learning to instantly assess client behaviour and transactional data to identify and stop fraudulent activities. This can enhance security and drastically lower monetary losses.

According to Matsepe and Van der Lingen (2022), the Fourth Industrial Revolution (4IR) grants businesses the ability to take advantage of a range of cutting-edge technology to improve productivity, save expenses, and obtain a competitive edge. The three characteristics of emerging technologies are radical innovation, fast expansion, consistency, significant effect. (Rotolo et al., 2015).

Barreto et al. (2017) report that one of the primary aspects of technology is its rapid evolution, acknowledged in the ever-changing field of competition. Organisations that desire to stay active in the technology industry must rapidly adapt to the industry's continual changes.

The explosive growth of IT requires the identification and implementation of appropriate technologies. Cloud computing, the IoT, blockchain, big data analytics, AI, virtual and augmented reality, 5G networks, and other technologies are examples of these. By delivering accurate and real-time efficiency, these technologies may assist the bank to stay competitive in the banking industry. The reason these trends are so crucial is that keeping up with the most recent developments in IT and systems is what keeps the IT service delivery improved and meets the needs of the customers (Husin et al., 2020). Due to the world's growing digitisation and all industries becoming more technologically advanced, IT companies including the bank, need to remain up to date with the rapidly advancing technologies and growing complexity of business operations.

Morris et al. (2023) define IT service delivery as the joint application of specialised competencies, knowledge and skills in the business and the IT domains by users and their IT unit. Service delivery is defined as how well a service satisfies the demands and expectations of its customers. Due to increased competition and the rise of digital-native generations, banks must innovate and provide customised services to satisfy the ever-changing demands of customers. Banking is undergoing a significant transformation in the digital age because of technological advances and shifting customer preferences. Due to the increased competition and rise of digital-native generations, banks are obliged to innovate and provide customised

services to satisfy the ever-changing demands of the customers. Bearing in mind the significance of service quality as a means of competitive advantage and organisational sustainability, banks pursue multidimensional approaches to improvement in service quality to attract and retain customers (Kandampully, 1997).

Most banks still use antiquated systems that are difficult to integrate with modern ones. There is a dearth of research on the successful integration of emerging technologies with the current infrastructure of banks. To guarantee smooth operations more research is required on approaches and best practices for integrating new technology with traditional banking systems.

2.4 IT service delivery in banking sectors

Service delivery is defined as how well a service satisfies the demands and expectations of its customers, measured as the difference between customer expectations and perceived service. Morris et al. (2023) elaborates that if expectations exceed performance, then perceived quality is lower than satisfactory, which results in customer discontent. Service delivery has been identified as having the potential to provide strategic benefits, such as increased customer retention, while also improving operational efficiency and profitability. In developing countries, banks acted swiftly to invest in technology to minimise costs, attract new consumers, and meet the convenience and technological innovation expectations of their clients.

According to Singh (2022), quality aspires to meet the client's needs both now and in the future. Because perceived service delivery represents a general, overall appraisal of service—a global value judgment on the superiority of the total service—it is regarded as akin to attitude (Morris et al., 2023). International banks have generally deployed service delivery technologies to supplement the services previously supplied by bank employees. Implementation is driven by the need to deal with the challenge posed by technologically advanced competitors as well as the desire to reduce the cost of delivering services, which is mostly accomplished through staff.

Beck et al. (2022) report that the emergence of new technology is changing how banks develop and offer financial services. These developments are significant for traditional banks because they contribute to additional sources of systemic risk, which could provide development to legal and regulatory challenges in the jurisdictions where they operate.

2.5 Research gap analysis

A literature gap exists regarding the impact of emerging technologies on IT service delivery in South African banks. Previous studies were not applicable in a South African context (Singh

& Pathak, 2020). The current study bridges this knowledge gap by developing a model that evaluates the impact of emerging technologies on IT service delivery in a South African bank (Biswas et al., 2020). It is implied that banks will benefit from the theory that will be built on this study by improving their infrastructure and IT service delivery when understanding the impact of emerging technologies on IT service delivery (Kumar et al., 2020). The contribution towards addressing this gap is to leverage on the behavioural intention to use emerging technologies model which include system quality, information quality, top management, regulatory support. The TOE framework identifies three contextual dimensions: technological, organizational, and environmental, which influence the adoption rate of innovations within an organization.

2.6 Theories to inform the study

The DeLone and McLean IS Success Model is used to assess the impact of emerging technologies on IT Service Delivery in a South African bank. This model, developed by DeLone and McLean (2003), assesses the effectiveness of IS and generates positive returns for individual users or user groups. The model comprises two main components: the quality part, which deals with system, information, and service quality, and the use part, which deals with system utilisation (Oliveira & Martins, 2011).

The model introduces six variables which include system quality, information quality, service quality, user satisfaction system use and net benefit (DeLone & McLean, 2003). The DeLone and McLean IS Success Model Systems propounds that quality evaluates technical success, information quality measures semantic success and use, and that user happiness, individual impacts, and organisational impacts assess effectiveness success. The DeLone and McLean IS Success Model is used to assess the impact of emerging technologies on IT service delivery in a South African bank.

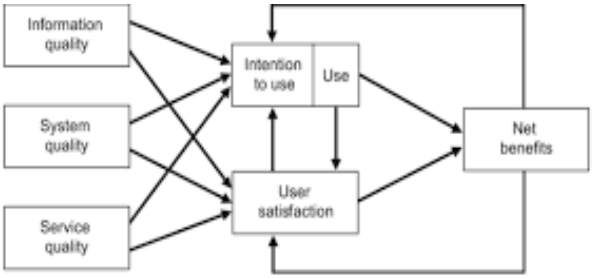


Figure 1: Information System Success Model

Source: DeLone and McLean (2003)

For this study, only the system quality and information quality aspects were adopte2.6.2 Technology Organisation Environment

The Technology Organisation Environment (TOE) framework, outlined by Oliveira and Martins (2011), may be used to fully understand the variables that impact a firm's willingness to adopt technological innovations. The organisational context, the technological context, and the firm's environmental context constitute the three constructs which collectively make up the TOE framework. Jere and Ngidi (2020) report that the TOE theoretical framework has been utilised as a perspective by many researchers to examine the adoption of technology.

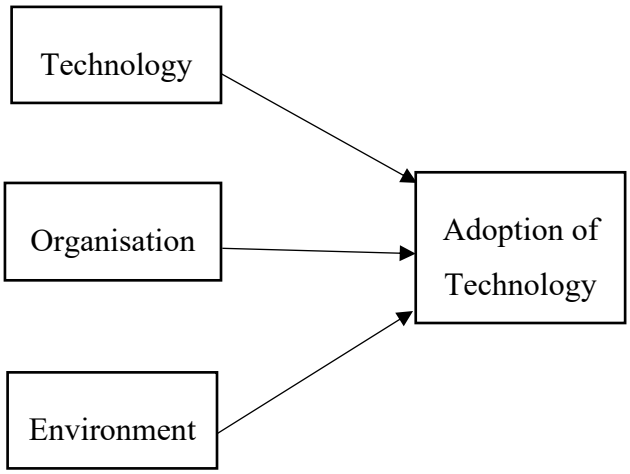


Figure 2: TOE framework

Source: Oliviera and Martins (2011)

All constructs of the TOE framework are used in this study. The theory is relevant to the study because as an organisation, using technology resources only is inadequate. Technology

competency is more than just having the tools and it is primarily essential to have creative, capable staff members who can keep the business one step ahead of its competitors.

The use of both the DeLone and McLean IS Success Model (2003) and Technology Organisation Environment (TOE) framework (2011) enables more understanding of the impact of emerging technologies to enhance IT service delivery in a South African bank. The variables in these theories are relevant and could be adopted to unravel the impact of emerging technologies on IT service delivery.

2.7 Conceptual model

The conceptual model comprises variables of system quality, information quality, regulatory support, top management support and the behavioural intention of using emerging technologies (see Figure 3). These are the variables that will affect the usage of emerging technologies. Regulatory support will affect the usage of emerging technologies. Top management will also affect the usage of emerging technologies. The behavioural intention will have an impact on improving service delivery.

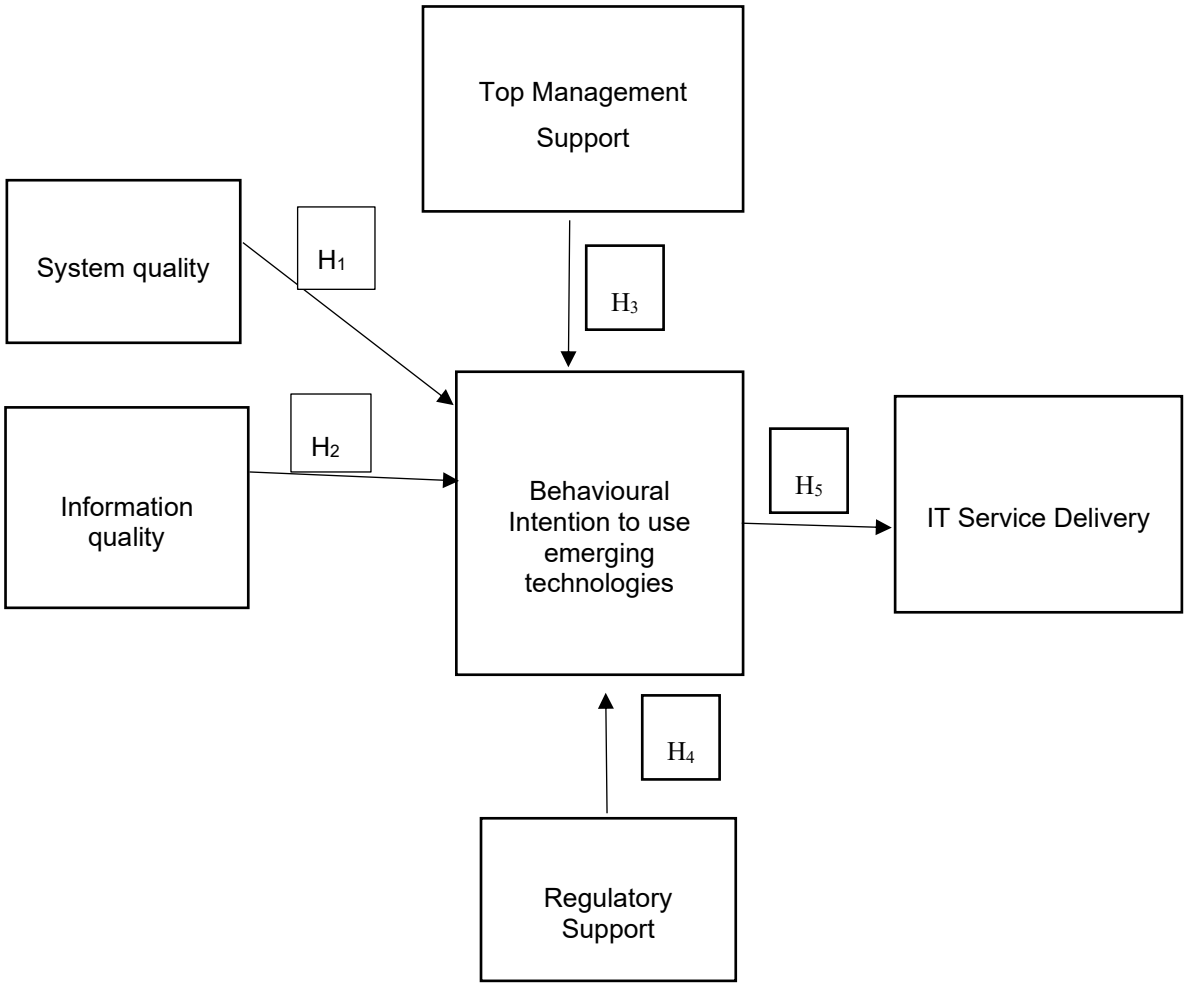


Figure 3: Conceptualised model

2.8 Hypothesis development

2.8.1 System quality impacts the behavioural intention of using merging technologies

The level of support received by bank employees from the IT helpdesk is known as system quality. According to Asa et al. (2021), the characteristics of system quality include responsiveness, flexibility, stability, system faults, and ease of use. Furthermore, Taherdoost (2023) confirms that system quality has a significant impact on the use of technology. Customer satisfaction and service convenience are directly correlated in numerous studies.

System quality refers to the high quality of technical support given to system users, leading to increased system utilisation and satisfaction (DeLone & McLean, 2004). According to Morris et al., 2023), system quality provides all accessible direct and indirect assistance with IT service deliveries that must be provided to improve the client experience. Raviadaran et al. (2019) report that emerging technologies have the potential to improve system quality and acquire wider adoption. Adopting chatbots with AI capabilities, for instance, can improve availability and client satisfaction by offering 24/7 support to customers.

Therefore, the following hypothesis is proposed to test if the employees will agree that the impact of emerging technologies is influenced by service quality:

H_1: System quality influences the behavioural intention to use emerging technologies.

2.8.2 Information quality impacts the behavioural intention of using emerging technologies

Information quality is an extremely important aspect of IS impact and success. Çelik and Ayaz (2022) suggest that information quality should ascertain who uses the information, and what tasks are being accomplished. Matsepe and Van der Lingen (2022) indicate that high-quality information is essential to the adoption of emerging technologies. Research indicates that accurate and transparent information on the characteristics, benefits and possible drawbacks of a developing technology could impact how individuals and organisations make choices.

The following hypothesis is proposed to test if bank employees will agree that information quality impacts the behavioural intention of using emerging technologies:

H_2: Information quality impacts the behavioural intention of using emerging technologies.

2.8.3 Top management impacts the behavioural intention of using emerging technologies

According to Jere and Ngidi (2020), several organisations prioritise IT experience, top-level management backing, and scale when adopting emerging technologies. These factors include exposure identified as experience and exposure of technology to top management. Srivastava et al. (2022) believe that the probability of emerging technologies being adopted increases with the level of support and attitude from top management for these technologies. Studies that compare the uptake and effects of new technology in banks within various cultural and economic contexts are scarce.

Only top management support and financial readiness among the environmental variables suggest a significant association with the behavioural intention for adopting AI, even though technological (relative advantage and complexity) and environmental (market dynamics, regulatory support, and competitive pressure) factors are significant predictors of behavioural intention.

According to the literature, variables such as relative advantages, complexity, cost, security concerns, top management support, and competitive pressure all have an important effect on behavioural intention (Tseng et al., 2020).

Organisations must adapt their strategies to emerging technologies implementation with top management support being a key factor and the understanding that policy-making skills are crucial.

The primary goal of top management support is to empower personnel along with those participating in the entire process, as well as to support them in their roles. As a result, the leadership position is divided among several stakeholders who are aided and encouraged in their essentially cooperative effort to integrate certain innovative components of innovation into the business.

The following hypothesis has been proposed to test if bank employees will agree that the use of emerging technologies will be impacted by top management support.

H_3: Top management support impacts the behavioural intention of using emerging technologies.

2.8.4 Regulatory support impacts behavioural intention of using emerging technologies

Regulations governing the banking industry sector must be recognised and followed when implementing new technologies. Government regulations support and laws are crucial for new developments within organisations, as noted by Meyer and Rowan (1977).

Ransbotham et al. (2020) report that a lack of government regulations that encourage organisations to use emerging technologies frequently is the root cause of technology implementation failures. Furthermore, support from government regulations is one of the main factors preventing emerging technologies from being used (Ransbotham et al., 2020).

The following hypothesis is proposed to test if bank employees agree with this notion.

H_4: Regulatory support has an impact on behavioural intention to use emerging technologies.

2.8.5 Behavioural intention of using emerging technologies impacts IT service delivery

Jere and Ngidi (2020) indicate that in the contemporary setting of digital transformation, organisations improve their awareness of developing emerging technologies to shape their service deliveries. Kumar et al. (2020) say the adoption of emerging technologies has a major effect on service delivery because it promotes satisfaction with services, increases effectiveness, broadens service offerings, and promotes sustainability.

Chen et al. (2009) report that in the current economy, where customer preferences are changing quickly and where multiple customer segments with varying tastes, values, and new technologies are emerging, businesses and banks aim to provide services and products cost-effectively, give customers more value, and enhance service delivery methods to boost profitability and cut costs. The following hypothesis is developed to examine if bank workers agree with this

H_5: Behavioural intention to use emerging technologies has an impact on IT service delivery.

2.9 Conclusion

Emerging technologies and the behavioural intention to use them have been covered by numerous researchers in a broad variety of journals. Technology has transformed the banking industry in today's world, and this has impacted the traditional and legacy systems being used. This requires that the banking sector must consider technological innovation to enhance service delivery.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology employed to investigate the research questions and achieve the objectives of the study. The sampling strategy, data collection procedures, measurement instruments, and the methods used for data analysis are presented. What was done to ensure validity, reliability, and the overall rigour of the study is reviewed. The chapter delves into the methodological limitations and ethical considerations for the study.

3.2 Research design

The study used a quantitative research design because it is structured, systematic, and follows a formal approach to describing variables, testing correlations, and examining cause-and-effect relationships (Treleaven et al., 20231). This method generates numerical data and is guided by positivist or post-positivist paradigms, relying on key assumptions such as objectivity, deduction, and the belief in an independent reality. Post-positivism acknowledges that research is influenced by context, theory, and the researcher's perspective, particularly in banking, where organizational culture, customer behavior, and regulatory factors impact technology outcomes.Quantitative research tests hypotheses using an unbiased and impartial scientific method (Bloomfield & Fisher, 2019).

A quantitative research approach was chosen to provide a systematic, objective, and data-driven analysis of the phenomena under study. Quantitative methods allow for the collection and analysis of numerical data, enabling the researcher to identify patterns, test hypotheses, and establish relationships between constructs.

3.3 Data collection methods

The study utilised a quantitative, descriptive analysis strategy, collecting numerical data through an online questionnaire, to analyse the impact of emerging technologies to improve service delivery in the South African bank, using statistics to explain the phenomenon. The questionnaires were loaded on Qualtrics and the survey link was distributed to the respondents. Respondents completed the survey, which was automatically recorded and stored on the platform.

3.4 Population

The population of this study included Information Communication Technology (ICT) experts, Administrators, Procurement, Human Resources (HR), Finance, and the branch tellers in the South African bank.

3.5 Sampling and sample

This study targeted a sample of 100 participants. A purposive sampling method was used to select individuals with relevant knowledge and experience in the adoption of emerging technologies within the bank. Purposive sampling is a non-probability sampling technique that allows researchers to intentionally select participants based on specific criteria, ensuring that the sample aligns with the study's objectives (Etikan et al., 2016). This approach was chosen to gather insights from employees from the IT Department directly involved in technology implementation and usage, ensuring the data collected was relevant and meaningful.

3.6 Research instrument

The primary research instrument used in this study was a structured questionnaire designed to gather data on employees' perceptions, attitudes, and experiences related to technological adoption in a bank in South Africa. The questionnaire consisted of six sections, each focusing on a specific dimension of the research objectives.

The research instrument was derived from existing questionnaires and consisted of seven sections: A for demographic information Delone and McLean (2003) and Çelik and Ayaz (2022), B for system quality DeLone and McLean (2003) and Çelik and Ayaz (2022), C for information quality from existing questionnaires of DeLone and McLean (2003) and Çelik and Ayaz (2022, D for regulatory support adapted from Tseng et al. (2020), Pan et al. (2022) and Gupta et al. (2022), E for top management support from Lai (2018), Tseng et al. (2020), Henao-Ramírez & Lopez-Zapata (2022), and Gupta et al. (2022), F for behavioral intention to use emerging technologies from Tseng et al. (2020), and G for IT service delivery was adapted from Kang and Bradley (2002) and Chen et al. (2009).

A 5-point Likert-type scale was utilised to measure the constructs. The questionnaire was developed on the Qualtrics platform on the University of the Witwatersrand's account and a link was distributed electronically to the respondents.

3.7 Procedure for data collection

The questionnaire was distributed electronically via email and WhatsApp to targeted employees within the IT Department. A unique URL was provided in the email, directing participants to an online platform where they could complete the questionnaire at their convenience. The use of an online survey tool ensured efficient data collection, minimised errors, and allowed for real-time monitoring of responses.

To encourage participation, the email included a brief introduction to the study, its purpose, and assurances of confidentiality and anonymity. Reminder emails were sent to non-respondents after one week and again after two weeks to improve the response rate.

Data were collected anonymously (the personal information of the respondents was not collected and is unknown to this study). The survey on average took 15 minutes to complete. Data collection was conducted from 28 September 2024 to 16 December 2024.

3.8 Data analysis and interpretation

Data was analysed using R Statistical Computing Software (R Core Team, 2023). The data collected from the questionnaires were analysed using both descriptive and inferential statistics methods. The analysis was conducted to address the research objectives and test the hypotheses. The following subsections outline the specific methods employed in the data analysis process.

3.8.1 Reliability and validity testing

Before conducting the main analysis, the reliability and validity of the constructs were assessed to ensure the robustness of the measurement model. Reliability was measured using Cronbach's Alpha, a widely used metric to evaluate the internal consistency of the constructs. A Cronbach's Alpha value of 0.70 or higher was considered acceptable, indicating that the items within each construct were consistent and reliable.

Validity was tested using Factor Analysis, specifically Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA was used to identify the underlying structure of the constructs and to ensure that the items loaded appropriately onto their respective factors. CFA

was then employed to confirm the factor structure and assess the convergent and discriminant validity of the constructs. These steps ensured that the measurement model was both reliable and valid for further analysis.

3.8.2 Descriptive analysis

Descriptive statistics were used to summarise the demographic data collected in Section F of the questionnaire. The data were presented as frequencies, percentages, tables, and graphs to provide a clear overview of the respondents' characteristics, such as age, gender, educational background, job tenure, and other relevant demographic variables. This analysis helped to contextualise the sample and provided insights into the distribution of respondents across different demographic categories.

3.8.3 Inferential statistics

Inferential statistics were employed to test the research hypotheses and examine the relationships between the four constructs and the behavioural intentions to adopt the emerging technologies. Structural Equation Modelling (SEM) was used as the primary analytical technique due to its ability to simultaneously analyse multiple relationships between constructs and account for measurement error. SEM is particularly suited for testing complex models involving constructs, as in this study.

The analysis was conducted using the SEMinR package in the R Statistical Computing Software, which provides a user-friendly framework for specifying, estimating, and validating structural equation models. The SEMinR package facilitated the evaluation of both the measurement model (reliability and validity) and the structural model (hypotheses testing).

The significance of the relationships between constructs was tested at a p-value of 0.05, indicating a 95% confidence level. Path coefficients were examined to determine the strength and direction of the relationships, and model fit indices (e.g. Chi-square, RMSEA, CFI, TLI) were used to assess the overall fit of the structural model to the data.

3.8.4 Heterotrait-Monotrait Ratio

The Heterotrait-Monotrait Ratio (HTMT) was used to assess the discriminant validity of the constructs in the measurement model. Discriminant validity is important because it ensures that each construct measures something unique and is not too closely related to others, which helps maintain the credibility of the research findings (Henseler et al., 2015). The HTMT method is particularly useful for evaluating discriminant validity in Partial Least Squares Structural

Equation Modeling (PLS-SEM) and is considered more reliable than older methods such as the Fornell-Larcker criterion (Henseler et al., 2016; Voorhees et al., 2016).

The HTMT ratio compares the average correlations of indicators across constructs (heterotrait-heteromethod correlations) to the average correlations of indicators within the same construct (monotrait-heteromethod correlations). A lower HTMT value indicates better discriminant validity. In this study, the HTMT threshold was set at 0.85, as recommended by Henseler et al. (2015). Values below this threshold suggest that the constructs are empirically distinct, while values above 0.85 may indicate a lack of discriminant validity, requiring further investigation.

The HTMT results were interpreted as follows:

1. If the HTMT value between two constructs was below 0.85, it confirmed that the constructs were sufficiently distinct and met the discriminant validity criterion.
2. If the HTMT value exceeded 0.85, it suggested potential overlap between the constructs, prompting a review of the measurement model, such as refining the items or redefining the constructs.

In this study, the HTMT analysis was conducted using the SEMinR package in the R Statistical Computing Software, which provides built-in functions for calculating and interpreting HTMT values. The results of the HTMT analysis were reported alongside other validity metrics (e.g. Cronbach's Alpha, Factor Analysis) to provide a comprehensive assessment of the measurement model's validity.

By incorporating HTMT into the analysis, this study ensured that the constructs were not only reliable but also empirically distinct, thereby strengthening the credibility of the findings and the validity of the conclusions drawn from the structural model.

3.9 Ethical considerations

Ethical considerations were a central priority throughout the design, implementation, and reporting of this research study. The following measures were taken to ensure that the study adhered to established ethical principles and guidelines:

Prior to participating in the study, all respondents were informed about the purpose of the study and procedures. Participants were informed that their participation was entirely voluntary and that they could withdraw from the study at any time without any consequences. A signed

consent was obtained electronically before respondents could proceed to complete the questionnaire.

To protect the privacy of participants, all data collected were treated confidentially. Personal identifiers such as names, email addresses, and other sensitive information were not collected. Data were stored securely on password-protected systems, and only the research team had access to the raw data. Additionally, results were reported in aggregate form to ensure that individual responses could not be traced back to any participant.

The study was designed to minimise any potential risks or discomfort to participants. The questionnaire did not include sensitive or intrusive questions, and participants were assured that their responses would not impact their employment status or relationships within the organisation.

The research protocol, including the questionnaire and data collection procedure, was reviewed and approved by the Human Research Ethics Committee (Non-Medical) of the University of the Witwatersrand. This ensured that the study complied with ethical standards and regulations governing research involving human subjects. Appendix A is the ethical approval certificate granted by the WITS Human Research Ethics Committee

The research was conducted with transparency and integrity. All data were analysed and reported honestly, without manipulation or misrepresentation. Any potential conflicts of interest were disclosed, and steps were taken to ensure that the findings were unbiased and objective.

3.10 Methodological limitation of the study

Due to the small proportion of the sample size in comparison to the population, the sample might not be representative of the population, and therefore the results might not represent the view of the population.

3.11 Conclusion

This study was conducted with a strong emphasis on methodological rigour, ethical integrity, and analytical precision. The research instrument, a structured questionnaire distributed electronically, was designed to capture employees' perceptions and experiences across six key dimensions, utilising a 5-point Likert scale for consistency and ease of response. Robust statistical techniques, including reliability testing (Cronbach's Alpha), validity assessment

(Factor Analysis, AVE, CR, and HTMT), and advanced analytical methods (Structural Equation Modelling using SEMinR in R), were employed to ensure the accuracy and validity of the findings. Descriptive statistics provided a clear overview of the demographic profile of respondents, while inferential statistics tested the hypothesised relationships between constructs. Throughout the research process, ethical considerations were prioritised, including informed consent, confidentiality, minimisation of harm, and transparency, ensuring that the rights and well-being of participants were protected. By adhering to these principles and practices, this study not only contributes valuable insights to the field but also upholds the highest standards of academic and ethical research.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents both descriptive and inferential statistics results of the study. Descriptive statistics are used to summarise the key characteristics of the sample, such as demographic variables and overall trends in responses. These provide an overview of the data by highlighting central tendencies, variations, and distributions. Inferential statistics are used to test hypotheses and examine the relationships among the selected constructs.

4.2 Response rate for surveys

There was a response rate of 51% (see Table 1 below), of the 51 questionnaires received, only 35 questionnaires were complete. Sixteen questionnaires had the demographic data only filled in and the questions on the constructs were not answered.

Table 1: Data management

Target respondents	100
Number of questionnaires sent	100
Received responses	51
Response Rate	51%
Incomplete questionnaires	16
Number of complete questionnaires	35
Percent of complete questionnaires analysed	70%

4.3 Demographic and descriptive analysis

The results of the analysis of the demographics are presented in the following sections.

4.3.1 Gender

About 54% of respondents were male and 45.7 % of the respondents were female.

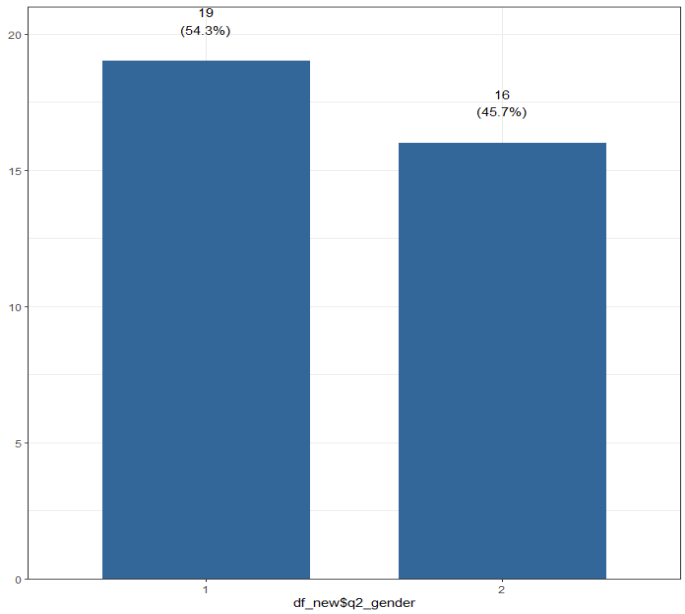


Figure 4: Respondents by gender

4.3.2 Age group

About 88% of the respondents were between 18 and 54 years of age as shown in Figure 5 below. About 9% of the respondents were 55 years and older.

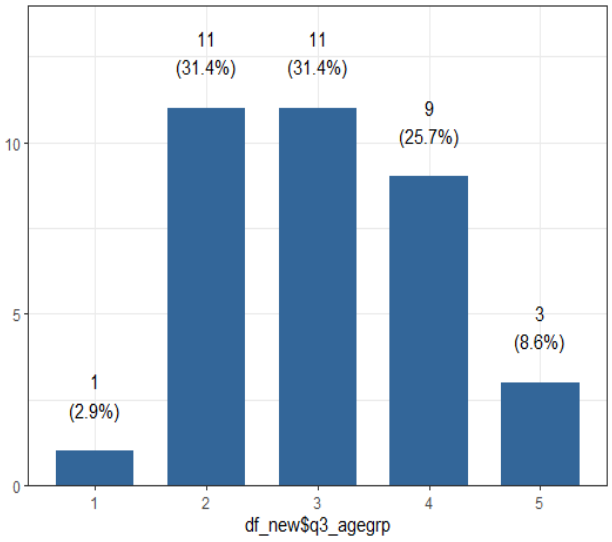


Figure 5: Respondents by age

4.3.3 Education

About 63% of the respondents were fairly educated to understand the topic being discussed as they had a bachelor's degree, followed by those who held a diploma qualification. An educated workforce is more likely to understand the technical aspects of new technologies and are generally more open to change and innovation, which can result in a more positive attitude toward technological adoption.

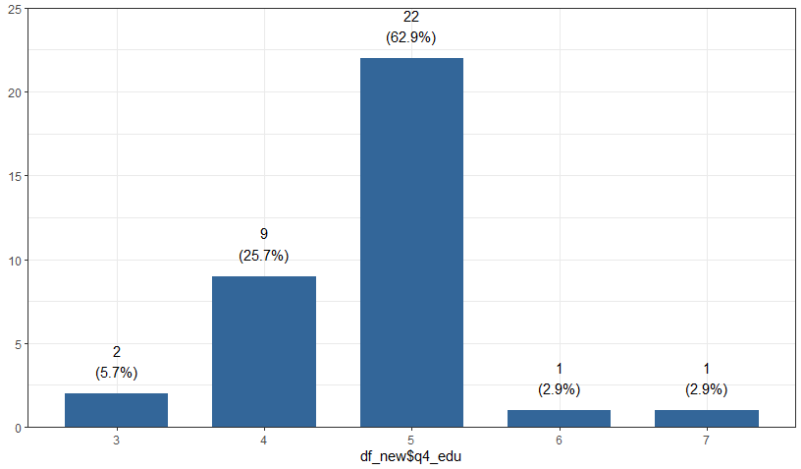


Figure 6: Education status of respondents

4.3.4 Work experience

About 66% of the respondents had at least 10 years of work experience, making them fairly knowledgeable about the technological issues in the bank. Experienced employees often have a deeper understanding of the industry, organisational processes, and the specific challenges associated with technological adoption.

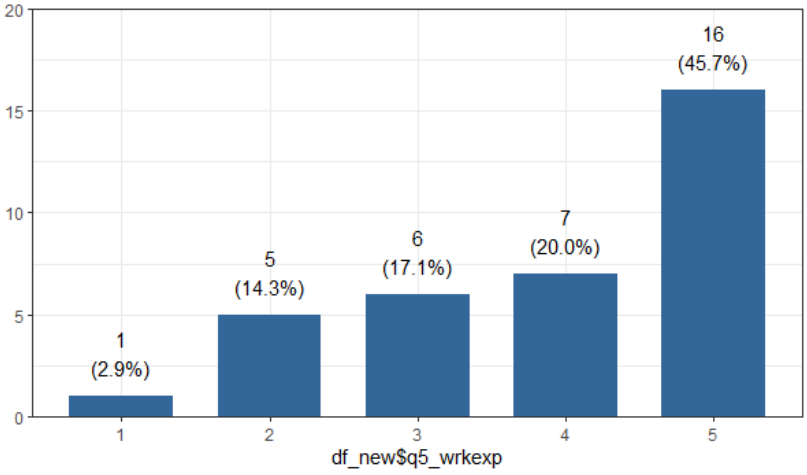


Figure 7: Respondents by work experience

4.3.5 Computer skills

About 26% of respondents had average computer skills and 74% had high computer skills. A tech-skilled workforce is more likely to adopt and leverage emerging technologies.

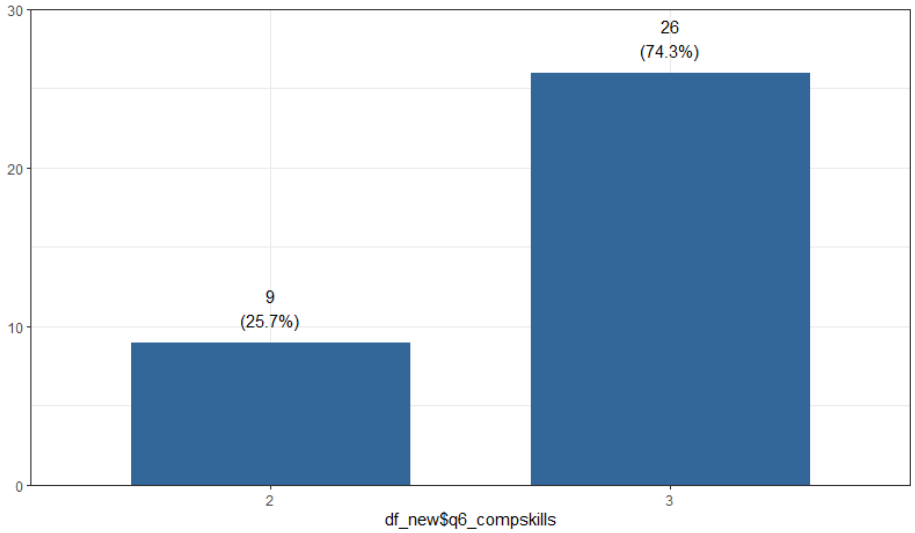


Figure 8: Respondents by computer skills

4.4 Structural Equation Modelling (SEM)

The SEM was used to analyse the complex relationships between observed and latent variables. The SEMinR package in R was used to develop a structural model of the data collected and the graphical visualisation of the relationships is presented in Figure 9 below. Relationships among the five constructs of system and information quality, top management and regulatory support, behavioural intention to use emerging technologies and IT service delivery were analysed. The Top Management Support had a statistically significant relationship ($p < 0.0001$) with behavioural intentions to adopt modern technologies. Other constructs did not have statistically significant relationships ($p > 0.05$) with behavioural intentions to adopt modern technologies (see Figure 9 below).



Figure 9: Structural equation model produced using SEMinR package

Key to the terms used in Figure 9:

SysQual = *System Quality,* ***InfoQual*** = *Information Quality,* ***TmanSup*** = *Top Management Support,* ***RegSup*** = *Regulatory Support,* ***BehInt*** = *Behavioural Intention to use emerging technologies and* ***ITServDel*** = *IT Service Delivery*

4.5 Reliability and validity

The analysis assessed the reliability and validity of five constructs, namely the system quality, information quality, top management support, regulatory support, behavioural intention to use emerging technologies and IT service delivery.

Each construct was evaluated using factor loadings, composite reliability (CR), average variance extracted (AVE), and Cronbach's Alpha. Detailed information on each of the six constructs is presented in Table 2 below.

Table 2: Overview of indicator reliability, internal consistency, convergent validity, and discriminant validity

Construct	Indicator	Factor loading	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha
System Quality	Sysq1	0.656	0.928	0.697	0.936
	Sysq2	0.658			
	Sysq3	0.754			
	Sysq4	0.659			
	Sysq5	0.702			
	Sysq6	0.774			
	Sysq7	0.677			
Information Quality	Infoq1	0.779	0.937	0.724	0.960
	Infoq2	0.720			
	Infoq3	0.676			
	Infoq4	0.730			
	Infoq5	0.596			
	Infoq6	0.727			
	Infoq7	0.841			
Top Management Support	Tms1	0.726	0.954	0.785	0.958
	Tms2	0.876			
	Tms3	0.808			
	Tms4	0.805			
	Tms5	0.697			
	Tms6	0.774			
	Tms7	0.811			

Construct	Indicator	Factor loading	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha
Regulatory Support	Regs1	0.482	0.833	0.543	0.863
	Regs2	0.520			
	Regs3	0.412			
	Regs4	0.445			
	Regs5	0.733			
	Regs6	0.665			
Behavioural Intention to use emerging technologies	Behi1	0.841	0.811	0.559	0.921
	Behi2	0.844			
	Behi3	0.815			
	Behi4	0.161			
	Behi5	0.134			
IT Service Delivery	isd1	0.834	0.972	0.835	0.975
	isd2	0.807			
	isd3	0.796			
	isd4	0.834			
	isd5	0.787			
	isd6	0.756			
	isd7	0.939			

The factor loadings had values ranging from 0.412 (weak relationship) to 0.52 (moderate relationship) to 0.939 (strong relationship). The weak relationships were found under the regulatory support construct while the rest had moderate to strong relationships.

Table 2 shows higher overall Cronbach's alpha (α) values for the five constructs, ranging from 0.69 to 0.92. The entire questionnaire had an overall Cronbach's alpha value of 0.90 which was greater than the referral value of 0.7 and as a result, the questionnaire was deemed to be valid and reliable.

However, two items (*Behi4 and Behi5*) under the behavioural intention to use emerging technologies, had loadings of less than 0.40 (see Table 2 above) and were excluded from the analysis and the analysis was repeated. The results showed an improvement in all the factor loadings as shown in Table 3 below.

Table 3: Overview of indicator reliability, internal consistency, convergent validity, and discriminant validity

Construct	Indicator	Factor Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha
System Quality	sysq1	0.818	0.928	0.697	0.938
	sysq2	0.803			
	sysq3	0.866			
	sysq4	0.818			
	sysq5	0.837			
	sysq6	0.879			
	sysq7	0.879			
Information Quality	Infoq1	0.881	0.937	0.724	0.959
	Infoq2	0.846			
	Infoq3	0.827			
	Infoq4	0.858			
	Infoq5	0.770			
	Infoq6	0.848			
	Infoq7	0.919			
Top Management Support	Tms1	0.854	0.954	0.785	0.958
	Tms2	0.936			
	Tms3	0.899			
	Tms4	0.898			
	Tms 5	0.834			
	Tms 6	0.880			
	Tms7	0.900			
Regulatory Support	Regs1	0.684	0.833	0.543	0.873
	Regs2	0.710			
	Regs3	0.650			
	Regs4	0.671			
	Regs5	0.800			
	Regs6	0.820			
Behaviour Intention	Behi1	0.932	0.908	0.844	0.908
	Behi2	0.907			
	Behi3	0.917			

Construct	Indicator	Factor Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha
IT Service Delivery	Isd1	0.914	0.972	0.835	0.975
	Isd2	0.899			
	Isd3	0.892			
	Isd4	0.914			
	Isd5	0.886			
	Isd6	0.870			
	Isd7	0.969			
	Isd8	0.961			

4.6 Discriminant validity

The HTMT ratio was calculated to assess discriminant validity between constructs. Using a threshold of 0.85, all HTMT, all constructs were found to be below this threshold (see Table 4), supporting discriminant validity between the constructs. This indicates that each construct is sufficiently distinct from the others in the model.

Table 4: Heterotrait-Monotrait (HTMT) Ratio

	SysQual	RegSup	InfoQual	TmanSup	BehInt	ITServDel
SysQual	-					
RegSup	0.591	-				
InfoQual	0.799	0.765	-			
TmanSup	0.642	0.499	0.560	-		
BehInt	0.415	0.479	0.443	0.727	-	
ITServDel	0.776	0.608	0.777	0.762	0.700	-

Note: All HTMT values should ideally be below 0.9.

The Heterotrait-Monotrait (HTMT) ratio table assessed discriminant validity among six constructs: System and Information Quality, Regulatory and Top Management Support, Behavioural Intention of using emerging technologies and IT Service Delivery. Discriminant validity examines whether constructs are distinct from each other, and an HTMT value below 0.85 is generally recommended to confirm this.

Table 5: Hypothesis testing results

Hypothesis	Path	Path Coefficient (β)	T-Value	95% CI	p-value	Hypothesis Supported?
H_1	System quality → Behavioural intention to use emerging technologies	-0.217	-0.778	-0.733, 0.353	p > 0.05	No
H_2	Information quality → Behavioural intention to use emerging technologies	0.048	0.162	-0.541, 0.677	P > 0.05	No
H_3	**Top management support → Behavioural intention to use emerging technologies**	**0.738**	**4.362**	**0.291, 0.968**	**p < 0.001**	**Yes**
H_4	Regulatory support → Behavioural intention to use emerging technologies	0.202	0.968	-0.209, 0.646	p > 0.05	No
H_5	**Behavioural intention to use emerging technologies → IT Service Delivery**	**0.700**	**10.578**	**0.567, 0.834**	**p < 0.001**	**Yes**

4.6.1 H_1: System quality impacts the behavioural intention of using emerging technologies

The relationship between system quality and behavioural intention to use emerging technologies had a path coefficient (β) of -0.217 and a t-value of -0.778. The negative (β) value means that there is an inverse relationship between the two variables. This means that as system quality increases, behavioural intention to use emerging technologies tends to decrease, and vice versa. The 95% confidence interval ranged from -0.733 to 0.353, which included zero. Since the interval included zero, this hypothesis was not supported, indicating that System quality has no impact on behavioural Intention to use emerging technologies.

4.6.2 H_2: Information quality impacts the behavioural intention of using emerging technologies

The relationship between information quality and behavioural intention to use emerging technologies had a path coefficient (β) of 0.202 and a t-value of 0.162. The positive (β) value indicates a direct relationship between the two variables. This means that as information quality increases, behavioural intention to use emerging technologies also tends to increase. A path coefficient of 0.202 is considered a small to moderate effect size, and the p-value was less than 0.05, indicating that the coefficient might have been due to random chance. The 95% confidence interval ranged from -0.541 to 0.677, including a zero. This did not support the hypothesis, suggesting that information quality had no impact on behavioural intention to use emerging technologies.

4.6.3 H_3: Top management support impacts the behavioural intention of using emerging technologies within a South African bank

The effect of top management support on behavioural intention to use emerging technologies had a positive path coefficient (β) of 0.738 and a t-value of 4.362. The positive (β) value indicates a positive and direct relationship that points to the importance of top management support in driving the adoption of emerging technologies. This means that as top management support increases, the behavioural intention of using emerging technologies also tends to increase. Top management plays a critical role in shaping organisational norms and attitudes toward innovation and change. The confidence interval ranged from 0.291 to 0.968, excluding zero. This hypothesis was therefore supported, indicating that top management support influences the behavioural intention to use emerging technologies.

4.6.4 H_4: Regulatory support impacts the behavioural intention of using emerging technologies within a South African bank.

The relationship between regulatory support and behavioural intention to use emerging technologies had a path coefficient (β) of 0.048. and a t-value of 0.968. A path coefficient of 0.048 between regulatory support and behavioural intention to use emerging technologies in a structural equation model (SEM) indicates a very weak relationship, but the effect is minimal. Regulatory support had little influence on users' intention to adopt the emerging technologies. The 95% confidence interval for this path ranged from -0.209 to 0.646, also including zero. This lack of significance meant that H_4 was not supported, indicating no effect of regulatory support on behavioural intention to use emerging technologies.

4.6.5 H5: The behavioural intention of using emerging technologies impacts IT service delivery.

The impact of behavioural intention to use emerging technologies on IT service delivery had a positive path coefficient (β) of 0.700 and a t-value of 10.578. A path coefficient of 0.700 between IT Service Delivery and behavioural intention to use emerging technologies in a structural equation model (SEM) indicates a very strong and meaningful relationship. This means that as behavioural intention to use emerging technologies improves, IT Service Delivery also tends to increase. The value of 0.700 indicates a very strong effect size. The confidence interval ranged from 0.567 to 0.834, excluding zero. This hypothesis was therefore supported, indicating that Top Management Support had a significant influence on Behavioural Intention to use emerging technologies in this study.

4.7 Conclusion

Out of the five hypotheses, hypotheses **H_3** and **H_5** were supported, showing an impact of top management support on the behavioural intention to use emerging technologies and behavioural intention to use emerging technologies on IT Service Delivery. None of the other hypothesised relationships, **H_1, H_2** and **H_4**, were supported, as their confidence intervals included zero, indicating a lack of statistical significance These findings suggest that while top Management support may enhance behavioural intention to use emerging technologies, other relationships, such as system quality, information quality and regulatory support, did not have an impact in this study.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 Introduction

This section answers the research questions. Adopting innovative technologies has become crucial to improving efficiency, customer experience, and competitiveness as the banking sector deals with increasing customer requirements for seamless digital services. The discussion focuses on how emerging technologies like blockchain, big data analytics, cloud computing, and AI are changing the way the banking industry provides IT services.

5.2 What is the impact of system quality on the usage of emerging technologies within a South African bank?

The hypothesis said that system quality had no impact on behavioural intention to use emerging technologies. Pérez (2021) states that increased implementation of modern technologies, such as blockchain, AI, and cloud computing is encouraged by high system quality that is reliable, secure, and user-friendly systems. Xu et al. (2013) report that system quality impacts object-based satisfaction attitudes, which in turn affect behavioural beliefs of perceived usefulness and ease of use, ultimately influencing behavioural attitudes.

Researchers of IS have highlighted the importance of service quality because of the increasing advancements in technology (Cenfetelli et al., 2008). DeLone and McLean (2003) indicate that the updated IS success model emphasises the necessity of integrating system quality within any evaluation of IS performance. In my view system quality is vital for the successful implementation of emerging technologies, influencing performance, reliability, and security in the banking platform.

5.3 What is the impact of information quality on the usage of emerging technologies within a South African bank?

Information quality has no impact on the behavioural intention to use emerging technologies. Zhou (2011) argues that information quality ensures better decision-making when using emerging technology. Zhao et al. (2019) mention that information quality is the degree to which a system provides the user with significant and useful information promptly. Enjoyment and positive behavioural intentions may result from higher-quality information An and Ahn (2007). I recommend banks prioritise information quality data to effectively integrate emerging technologies like AI, blockchain, and cloud computing, ensuring regulatory compliance and customer satisfaction.

5.4 How does top management support impact the use of emerging technologies within a South African bank?

The hypothesis states that top management support impacts the behavioural intention of using emerging technologies. Liang et al. (2009) agree that there is strong evidence that successful IS deployment, intention to use emerging technologies and successful innovation are the results of top management support. Mantrala et al. (2008) state that the most important component for the success of IT projects is top management support. Top management support is crucial for the successful implementation and usage of new technologies, shaping IT frameworks and fostering a learning climate (Akkermans & van Helden, 2002). My view is that management involvement is crucial for successful technology transformation efforts, as it can provide direction and prevent failed implementation.

5.5 How does regulatory support impact the use of emerging technologies within a South African bank?

The results show that there is no impact of regulatory support on the behavioural intention to use emerging technologies. Awotunde et al. (2021) argue that regulatory support impacts the use of emerging technologies in South African banks. Regulatory support depends on its nature and degree and may encourage innovation or hinder implementation. Pérez (2021) reports that the banking industry faces regulatory challenges, legacy systems, disruptive technologies, new competitors, and a restive customer base, requiring sustainable growth strategies to balance long-term goals with short-term performance pressures. In my own view, banks often hesitate to experiment with new technologies without regulatory backing due to uncertainty about compliance risks.

5.6 What is the impact of behavioural intention to use emerging technologies on IT service delivery in a South African bank?

Behavioural intention to use emerging technologies has an impact on IT service delivery. According to the findings of Dwivedi and Weerakkody (2007), positive behavioural intentions encourage user acceptance. Jariyapan et al. (2022) found that resistance on the part of employees and customers to implement new technologies leads to underutilisation and inadequate offerings. Employees who have good intentions of using emerging technologies will be more involved and will improve accuracy and response time in a bank.

Employees who have good intentions of using emerging technologies will be more involved and will improve accuracy and response time in a bank. In my view, IT specialists and

employees who embrace new technology can utilise optimal use of the system's capabilities, which improves service delivery. Top management can take calculated risks by adopting emerging technologies in the financial sectors, understanding influential adoption determinants and clearly understanding their need and business benefits.

5.7 Conclusion

The data collected answered all the research questions. Top management support and behavioural intention to use emerging technologies have an impact on IT service delivery. The study also found that system quality, information quality, and regulatory support had no impact on behavioural intention to use emerging technologies.

CHAPTER 6: SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Summary of findings

System quality has no impact on behavioural intention to use emerging technologies. Information quality has no impact on the behavioural intention to use emerging technologies. Regulatory support does not have an impact on the behavioural intention to use emerging technologies. Top management support does have an impact on the behavioural intention to use emerging technologies. Top management support is strongly linked to successful IS deployment, the intention to use emerging technologies and successful innovation. The behavioural intention of using emerging technologies impacts IT service delivery.

6.2 Conclusions

The research assists in providing information on how to improve the delivery of IT services through greater scalability and adaptability to changing demands in the financial sector. The financial sector will improve infrastructure, improve productivity, and deliver a more secure and customer-focused experience by effectively employing emerging technologies and delivering satisfactory IT service. The study intended to enhance IT service delivery by increasing scalability, flexibility, and cost-effectiveness, potentially improving infrastructure, efficiency, and the customer-centric experience for banks.

6.3 Recommendations

The study emphasises that technology will change the spectrum of IT service delivery to banks. It also emphasises that to enhance its service delivery, the bank needs to evolve along with technological advancements. Therefore, banks must embrace technological developments and consider critically how to enhance their infrastructure. Emerging technologies change the way we operate. To adapt to changing advanced technologies, there is a need for top management support and a need for the behavioural intention to use the technologies. Prioritising systems and information quality are also focal points. Banks can utilise emerging technologies to enhance IT service delivery, thereby enhancing efficiency, security, customer experience, and innovation. Top management significantly influences technology adoption, suggesting the inclusion of leadership diversity as a new construct.

6.4 Limitations

However, the study has limitations among which is that its findings may not be universally relevant to all the banks operating within Africa since its scope was limited to a South African bank. Notwithstanding this limitation, the findings of the study will provide useful insights for future, related studies.

6.5 Future research

An opportunity exists for research to investigate the resistance to using emerging technologies.

The potential for regulatory frameworks to adapt to address ethical concerns and compliance for emerging technologies decision-making.

A future study could investigate how emerging technologies are enabling banks to comply with South Africa's financial regulations.

The implementation of system quality and information accuracy presents the challenges and benefits to give a broader perspective of this current study.

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APPENDICES

APPENDIX A: WITS ETHICAL CLEARANCE

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA2777439/425
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	The impact of emerging technologies to improve IT service delivery in a South African bank
Investigator / Researcher	Mrs Mosima Phasha
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonyr and confidentiality.
Issue Date of Certificate	07/02/2025
Expiry date	Date of submission of the project / research report
Chairperson	Dr Ayanda Magida ☎ +27 11 717 3953 ✉ ayanda.magida@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Eth Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research an guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

06 February 2025
Date:

APPENDIX B: INFORMED CONSENT TO PARTICIPATE

Researcher:

Mosima Naphtaline Phasha

Wits Business School (WBS)

Cell: 081 747 4407

Dear Participant

My name is Mosima Naphtaline Phasha, on email 2777439@students.wits.ac.za and at telephone 081 747 4407. I am an MBA student at the University of Witwatersrand, Johannesburg. My supervisor is Dr Tonderai Sibanda. The study title is "The impact of emerging technologies to improve the IT service delivery in a South African bank". The aim of this study is to evaluate the impact of emerging technologies on IT service delivery in a South African bank.

Emerging technologies, currently in their early stages of development, have the potential to gain social relevance within the next 10 to 15 years.Technologies combines social, leverage, ascendancy, ambivalence and artificial elements, requiring collaboration between functional units and IT counterparts to create competitive advantages. Emerging technologies adoption in the banking industry is crucial for competitive advantage and defending against disruptions, facilitated by available resources, human, infrastructure, financial, and documentation.

IT service delivery involves specialized competences and skills applied by users and IT units to meet customer demands and expectations, ensuring a satisfactory service. Banks are adapting to the digital age, embracing technological advancements and evolving customer preferences, to innovate and provide customized services to meet customer demands. Banks are focusing on improving service quality to attract and retain customers in the face of increased competition and digital-native generations.

I invite you to participate in a survey for my MBA Applied Research Project. Your participation in this research will take a few minutes of your time.

This data collected will be stored on a password-protected computer. Only I as the researcher will have access to the data. This survey is confidential and anonymous. When I share the results of the research study, I will not include your name or anything else that could identify you.

APPENDIX C: RESEARCH INSTRUMENT

Section A: Biographic details

Please choose the most appropriate answer for the following items:

1. Gender

- Male
- Female

2. What is your age group?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old

3. Education

- Matric
- National certificate
- Higher national certificate
- Diploma
- Bachelor's degree
- Master's degree
- Doctoral degree

4. Working Experience

- 1-2 years
- 3-4 years
- 5-10 years
- 10-15 years
- 16-20 years

5. Computer Skills

- Low
- Average
- High

Please indicate the extent to which you agree with the following statements:

Section B

System Quality: DeLone & McLean (2003); Çelik & Ayaz (2022)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
SQ1	The IT system of the bank where I work is reliable.					
SQ2	The IT system of the bank where I work is easy to use					
SQ3	The IT system of the bank where I work performs efficiently.					
SQ4	The IT system's security features of the bank where I work are adequate.					
SQ5	The IT system of the bank where I work integrates well with existing technologies.					
SQ6	The IT system is of the bank where I work is scalable.					
SQ7	The IT system's user interface design of the bank where I work is user-friendly.					

Section C

Information Quality: DeLone & McLean (2003); Çelik & Ayaz (2022); Israr & Nazir (2022)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
IQ1	The information provided by the IT system of the bank where I work is accurate.					
IQ2	The information provided by the IT system of the bank where I work is relevant.					
IQ3	The information provided by the IT system of the bank where I work is complete.					
IQ4	The information provided by the IT system of the bank where I work is timely.					
IQ5	The information provided by the IT system of the bank where I work is accessible.					
IQ6	The information provided by the IT system of the bank where I work is understandable.					
IQ7	The information provided by the IT system of the bank where I work is consistent					

Section D

Regulatory Support: Tseng et al. (2020); Pan et al. (2022); Gupta et al. (2022)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
RS1	The laws and regulations that exist are sufficient to protect the use of emerging technologies in the bank where I work.					
RS2	There is legal support for the use of emerging technologies in the bank where I work.					

RS3	Emerging technologies use in the bank I work for will receive financial support from the relevant authorities.					
RS4	The use of emerging technologies in the banking sector aligns well with South African regulatory requirements.					
RS5	The regulatory guidelines for the use of emerging technologies in the banking sector are clear and well defined for the banking sector.					
RS6	The South African government provides adequate support and guidance for the use of emerging technologies in the banking sector.					

Section E

Top Management Support: Lai (2018); Tseng et al. (2020); Henao-Ramírez & Lopez-Zapata (2022); Gupta et al. (2022)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
TMS1	My organisation's top management encourages the adoption of emerging technologies in the bank where I work.					
TMS2	Top management in the bank where I work has a clear vision for emerging technologies.					
TMS3	Top managers in the bank where I work support by providing labour resources, finances, and material for the adoption of emerging technologies.					
TMS4	My organisation’s top management is likely to consider the implementation of emerging technologies as strategically important.					

TMS5	My organisation's top management is willing to take risks involved in adopting emerging technologies to improve the processes in the bank where I work.					
TMS6	The bank where I work top management inspires employees to apply emerging technologies in daily work					
TMS7	The bank where I work top management encourages innovation in the bank.					

Section F

Behavioural Intention: Tseng et al. (2020)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
BI1	I predict the bank which I work for will adopt emerging technologies in the future.					
BI2	I anticipate I will use emerging technologies in the future during my course of work at the bank at which I work.					
BI3	The bank which I work for intends to transform through the usage of emerging technologies.					
BI4	I am driven to learn how to use emerging technologies to assist me in my work.					
BI5	I believe I will benefit if I use emerging technologies at the bank which I work for.					

Section G

IT Service delivery: Kang & Bradley (2002); Chen et al. (2009)

Item	Questionnaire	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
ISD1	The bank I work for has processes in place which allow IT staff to receive from user's requests within a reasonable time frame.					
ISD2	The bank I work for users provide bank's IT service requests right the first time.					
ISD3	The bank which employs me, IT staff inform the users exactly when the users' requests can be completed.					
ISD4	The bank which I work for IT staff provides regular updates on the requests they would be working on.					
ISD5	The bank which I work for IT staff provide prompt IT services without delay.					
ISD6	The bank which I work for emphasises offering new IT service channels for customers to order new services.					
ISD7	The bank which I work for offer new IT service channels to adjust customer complaints.					
ISD8	The bank which I work for offer innovative approaches to deliver new IT services.					

ISD9	The bank which I work for emphasises offering new IT service channels to provide after-sales service					
ISD10	The bank which I would for emphasises conformance of new IT service channels with existing service channels.					
ISD11	The bank which I work for emphasises offering existing customer service and consultation via new IT service channels.					
ISD12	The bank which I work for emphasises offering new IT service channels to deliver existing services.					
ISD13	The bank which I work for emphasises offering new IT service platforms to easily introduce new services for customers.					
ISD14	The bank which I work for emphasises offering new IT service platforms to easily develop and implement new services					
ISD15	The bank which I work for emphasises offering new IT service platforms to enhance service delivery capability of the company.					

APPENDIX D: EDITOR'S LETTER

Napier
7270
Western Cape

22 February 2025

WITS Business School
University of the Witwatersrand
JOHANNESBURG

LANGUAGE & TECHNICAL EDITING

Cheryl M. Thomson

THE IMPACT OF EMERGING TECHNOLOGIES TO IMPROVE IT SERVICE DELIVERY IN A SOUTH AFRICAN BANK

This is to confirm that I, Cheryl Thomson, executed the language and technical editing of the above-titled research report of **MOSIMA NAPHTALINE PHASHA, student number 2777439**, at **WITS BUSINESS SCHOOL**, in preparation for submission of this research report for assessment.

Yours faithfully



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