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Research report title

Digital Adoption and Customer Retention in the South African Retail Banking Sector

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Abstract

This study examines the moderating role of digital service quality in the relationship between digital adoption and retention within South Africa's retail banking sector. Grounded in an adapted Unified Theory of Acceptance and Use of Technology (UTAUT) framework, the research investigates how digital trust mediates relationships between service quality and retention behaviours across diverse digital literacy segments. A quantitative, cross-sectional design was employed and structured questionnaires were administered to 166 banking customers using MS Forms and social media platforms, across three major Metropolitan areas in South Africa. Data was analysed using covariance-based structural equation modelling (CB-SEM). Findings reveal moderate digital adoption (M=3.27) characterised by superficial engagement, below-neutral service quality perceptions (M=2.52), and critically low retention intentions (M=1.95) despite reasonable competence trust. Unexpectedly, digital trust negatively correlated with retention intentions ($r=–0.322$, $p<0.01$), challenging conventional loyalty theories. The study demonstrates that technical excellence alone proves insufficient for retention without addressing integrity trust deficits, privacy concerns, and emotional engagement mechanisms in the emerging market context.

Keywords: Digital Banking Adoption, UTAUT Framework, Digital Trust, Customer Retention, Service Quality, South Africa.

Plagiarism declaration

I declare that this research project is my own work. It is submitted partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Introduction

The acceleration of digital services is a common phenomenon across businesses that is triggered by transformational business strategies and business models required to achieve the stated growth aspirations (Taghizadeh et al., 2019). As projects are implemented to transform services to digital, the success depends on the intentions and the users' behaviours to consume such services digitally for value creation to the customer and service provider (Dal Bó, et al., 2018). This study explores several factors that could influence user behaviour intentions, focusing specifically on technology innovations in the form of a mobile banking applications, and its use among a sample of consumers in South Africa. Building on and exploring the existing research opportunities in this topic, this research includes an analysis of service innovation as a moderating effect that could significantly and positively impact customer behaviour intentions.

1.2 Background to the research problem

The retail banking landscape has undergone profound transformation driven by digital innovation, creating both opportunities and challenges for customer retention strategies. In South Africa's unique socioeconomic environment, this digital evolution presents particular complexities that merit scholarly investigation. The banking industry globally faces intense competition with customer retention emerging as a critical challenge (Mbama & Ezepue, 2022). Advancements in digital technologies have fundamentally altered traditional banking models, with mobile and internet banking becoming dominant channels for service delivery (Wewege et al., 2020). For South African retail banks specifically, digital transformation represents both a strategic necessity and a complex undertaking within an environment characterised by significant disparities in digital literacy and access (Pazarbasioglu et al., 2020).

Recent industry analyses reveal that South African banks have invested substantially in digital infrastructure yet continue to face challenges in effectively leveraging these technologies to enhance customer loyalty and reduce churn rates (Schäfer et al., 2023). The COVID-19 pandemic accelerated digital adoption across the banking sector, necessitating rapid shifts from physical to digital service models and fundamentally changing consumer expectations regarding banking services (Bueno et al., 2024). According to Thusi and Maduku (2020), while South African banks have embraced digital transformation, the relationship between digital service quality and customer retention remains complex and inadequately understood. The

digital banking ecosystem in South Africa presents a complex environment where mobile applications, online banking platforms, chatbots, interactive voice response (IVR) systems, and artificial intelligence (AI) technologies operate alongside traditional banking services. However, research indicates that substantial segments of the population remain underserved, with many consumers still depending on cash transactions rather than digital financial services (Kariuki et al., 2024). This digital divide is exacerbated by factors including security concerns, technological failures, limited digital literacy, and distrust in authentication methods (Huang, 2024).

The human-technology interface presents additional challenges for customer retention. Recent research by Villar & Khan (2021) found that banking customers often prefer human interactions over automated systems, particularly for complex transactions or problem resolution. This preference persists despite advances in conversational AI and digital interfaces. As digital adoption continues to reshape the South African banking sector, understanding its impact on customer retention becomes increasingly critical for competitive advantage and sustainable growth (Ewim et al., 2021). This study therefore aims to investigate how digital adoption has influenced customer retention within the context of the South African retail banking sector, with particular attention to the balance between technological advancement and customer experience.

1.3 Research problem

The South African retail banking sector faces a critical theoretical and practical paradox in digital transformation that threatens long-term sustainability and competitive advantage. While digital banking adoption has accelerated significantly, with digitally active clients approaching 21 million by 2024 (PwC South Africa, 2025), banks continue to experience suboptimal customer retention rates despite substantial digital infrastructure investments. This study reveals a complex theoretical gap in understanding how digital trust formation operates differently across varying levels of digital literacy within emerging economy contexts.

Current literature demonstrates that traditional trust-building mechanisms in banking relationships become disrupted when customers transition from human-centered to digital-centered service interactions (Villar & Khan, 2021; Cele, 2023). In South Africa's unique socioeconomic context, where digital literacy varies significantly across demographic segments, this disruption is amplified by customers' differential capacity to assess digital service quality and security (Nesindande et al., 2025). The theoretical challenge lies in understanding how digital literacy acts as a moderating variable in the relationship between digital adoption and trust-mediated customer loyalty. The research problem is theoretically

significant because it addresses the underexplored intersection of digital trust theory, customer retention frameworks and digital literacy in emerging markets. Existing digital banking literature primarily focuses on developed economies with homogeneous digital literacy levels, creating a substantial knowledge gap regarding how varying digital capabilities influence trust formation and subsequent loyalty behaviors (Cheng, Zhang et al., 2022). This gap is particularly critical given that data analytics has improved customer retention by 20% in successful digital implementations, yet many South African banks struggle to achieve similar results (PwC South Africa, 2025).

Practically, this research addresses the urgent need for South African banks to optimize their digital strategies in response to evolving customer expectations. This study will contribute to digital banking literature by developing a moderated mediation model that explains how digital literacy influences trust-based customer retention in emerging market contexts. The research will extend existing digital trust theories by incorporating digital literacy as a critical boundary condition that affects trust formation mechanisms, in technology-mediated financial services. Thus, this study aims to contribute to the growing body of knowledge on digital transformation in emerging markets by offering a nuanced analysis of how digital adoption affects customer retention in the South African retail banking sector.

1.4 Purpose of the study

The purpose of this study is to:

- Investigate the impact of digital adoption on customer retention within the South African retail banking sector.

1.5 Research questions

Primary research question

- How does digital service quality moderate the relationship between digital adoption and customer loyalty in the South African retail banking sector?

Secondary research questions

- How does digital trust mediate the relationship between perceived digital service quality and customer retention behaviors across different digital literacy segments?

- What are the differential effects of digital literacy levels on trust-mediated customer retention outcomes, among diverse demographic groups in the South African retail banking sector ?
- How can South African retail banks design digital service delivery strategies that optimize trust formation and retention across heterogeneous digital literacy populations?

1.6 Research objectives

To address the primary objectives and research problem, the following secondary objectives were formulated:

- To assess the level of digital adoption among banking customers,
- To evaluate customers' perceptions of digital service quality, including system availability, fulfilment and privacy/security,
- To determine the level of digital trust, including competence, benevolence, and integrity trust,
- To evaluate customers' retention, and switching intentions in relation to digital banking, and
- To examine the interrelationships among digital adoption, service quality, trust, and customer retention using CB-SEM.

1.7 Rationale of the Study

The South African retail banking sector faces an urgent business imperative to optimize digital strategies, whilst having to keep up with amid accelerating customer expectations and competitive pressures. Despite digitally active clients reaching 21 million by 2024, banks experience persistent retention challenges, with only some achieving the 20% improvement in customer retention that successful digital implementations deliver globally (PwC South Africa, 2025). This paradox represents a critical business need, as 59% of consumers demand financial literacy tools integrated into digital services, yet varying digital literacy levels across South Africa's diverse population create retention barriers (Englmaier et al., 2025).

Theoretically, existing digital banking literature inadequately addresses how digital literacy moderates trust formation in emerging markets, thus creating a substantial knowledge gap (Cheng et al., 2022). Current trust theories primarily reflect developed economies with homogeneous digital capabilities, failing to explain South Africa's unique socioeconomic context where digital literacy varies significantly across demographic segments (Nesindande

et al., 2025). This study addresses both business and theoretical needs by developing a moderated mediation model explaining how digital literacy influences trust-based customer retention, and contributing essential insights for sustainable digital transformation strategies.

1.8 Scope of the Study

This research focuses exclusively on South Africa's retail banking sector, examining major institutions including Standard Bank, ABSA, Nedbank, First National Bank, and digital entrants like TymeBank and Discovery Bank. This selection captures diverse digital adoption approaches within South Africa's unique regulatory and socioeconomic environment, characterized by pronounced digital divides and varying literacy levels (Huang, 2024). Geographic limitations relevant to South Africa enables deep exploration of context-specific challenges including digital literacy disparities, security concerns, and socioeconomic barriers affecting digital adoption (Aruleba & Jere, 2022). The research examines the relationship between digital adoption and customer retention across different customer segments, considering varying digital competencies and trust formation mechanisms. This scope allows for development of practical context-appropriate recommendations, addressing both financial inclusion objectives and competitive sustainability requirements within South Africa's distinctive banking landscape

1.9 Chapter Summary

As the digital age is expected to continue to transform all industries and economies, this topic could be beneficial in every sphere of economic activity in businesses of all sizes and types. The study focuses on analysing factors that will significantly and positively impact consumer behaviours, resulting in enhanced user acceptance for technology innovations. The user acceptance could create higher intensity of usage and in turn improve customer satisfaction and loyalty for sustainable value benefiting all actors. The structure of the subsequent sections of this study report is provided below.

1.9 Structure of the report

Chapter 1: Chapter one articulated the need for the research study based on existing and ongoing research science development emanating from the work of other scholars. The research problem, research purpose, research questions, objectives and rationale. The overall scope of the research is discussed. It concludes with the structure of the report.

Chapter 2: Chapter two provides context of the theoretical anchor chosen for the study, followed by a descriptive analysis of what the theoretical model entails, how it has been applied in prior research, and what relevance it draws to this research. The background in adoption of digital banking leads into a theoretical underpinning of the study, being the rationale and the mechanics of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The chapter also contains an overview of the banking industry, history of digital banking, the South African banking landscape, cultural and socio-economic factors influencing technology adoption and customer satisfaction on digital banking. It is considered relevant to provide the potential benefits of banking-app adoption and challenges in South African digital banking. Moreover, the moderating effect of service innovation is discussed.

Chapter 3: Provides the research question and defines the research question for this study.

Chapter 4: This chapter discusses the research design and methodology in detail. The population, unit of analysis, sampling method and size are also presented. The research instrument, data collection process and data analysis process are dealt with. In the final section, research quality, rigor and limitations are discussed.

Chapter 5: This chapter presents the research findings obtained on sample description, suitability of sample and the results stemming from the research questions. It concludes with the summary overview to findings addressing the research question.

Chapter 6: Discusses the findings of the research synthesis with the literature and provides conclusion on the overview to findings in research questions.

Chapter 7: Discusses the implications for business, gives recommendations for future studies and concludes this study. The research limitations of the study, contribution of the study, as well as, future research is discussed.

CHAPTER TWO: THEORY AND LITERATURE REVIEW

2.1 Introduction

This chapter seeks to provide a theoretical basis for this study. This section starts with an overview of the banking industry and insights into the relevant digital adoption and customer retention within the South African retail banking sector. Furthermore, it provides background and descriptive analysis of digital banking adoption, given that it is a use case in this research. Together, these provide context of South African retail banking sector, encompassing both the past and present trends (Jivan, 2020). The background in adoption of digital banking leads into a theoretical underpinning of the study, being the rationale and the mechanics of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. However, this study examines and quantify the moderating effect of digital service quality on the relationship between digital adoption and customer retention within the South African retail banking sector. The mediating and moderating mechanisms are defined and discussed in relation to this study.

2.2 Banking Industry Overview

The contemporary retail banking sector confronts a fundamental structural reconfiguration that extends beyond technological implementation to encompass systemic shifts in value creation and competitive positioning. Rather than viewing retail banking merely as a financial intermediation, contemporary scholarship increasingly recognises the sector as a complex adaptive system wherein institutional strategies must reconcile legacy operational models with disruptive market pressures (Challoumis & Eriotis, 2024). This reconceptualisation has profound implications for understanding technology adoption behaviours.

The South African retail banking sector demonstrates concentrated market dynamics, with five dominant institutions controlling approximately 80% of market share (Zalk, 2021) cited from (Statistics South Africa, 2020). These major players are, Absa, Capitec, First National Bank, Investec, Nedbank, and Standard Bank collectively manage over 99% of total market coverage, creating an oligopolistic structure that influences competitive dynamics and innovation patterns (Statistics South Africa, 2020). This concentration necessitates strategic differentiation through service quality, technological capabilities, and customer experience optimization. Current banking institutions recognize that sustainable competitive advantage increasingly depends on their ability to combine scale economies with personalized customer engagement. According to Oyegbade et al. (2022), it is imperative for banks to achieve greater market penetration while reducing customer churn rates which has an intensified focus on digital capabilities and partnership strategies with fintech organizations and

telecommunications providers. This strategic evolution reflects broader industry recognition that traditional banking models must adapt to technological disruption and changing consumer preferences.

Emerging fintech entrants and non-banking financial service providers introduce what institutional economists conceptualise as "*technological substitution pressure*," yet this pressure operates asymmetrically across market segments (Arner et al., 2020). High-value customer segments demonstrate greater switching propensity toward fintech solutions, whilst underserved populations remain embedded within traditional banking relationships due to regulatory protections and switching costs. Consequently, adoption strategies diverge significantly by customer segment, contradicting universal adoption models that assume homogeneous user motivation structures.

The financial inclusion imperative in developing economies introduces an additional layer of complexity. Approximately 1.7 billion globally unbanked adults represent untapped markets yet simultaneously present profitability challenges that compete with shareholder return expectations (Truby et al. 2020). The tension between development objectives and financial sustainability shapes institutional adoption strategies in ways that technology-centric models frequently overlook. Banks pursuing financial inclusion must adopt adoption frameworks that accommodate lower digital literacy, intermittent connectivity, and limited device capabilities constraints that do not apply uniformly across customer populations (Demirgüç-Kunt et al., 2022).

2.3 History of Digital Banking

The historical development of digital banking reveals systematic patterns that current adoption literature frequently misinterprets as technological inevitability, rather than recognising the contingent nature of adoption trajectories. Upon representing linear technological progress, digital banking's evolution demonstrates what evolutionary economists term "*path dependency*," wherein sequential technological choices constrain subsequent strategic options and shape institutional capabilities in non-reversible directions (Wurth et al., 2022).

The progression from automated teller machines (ATM), to internet banking and mobile banking applications was not predetermined by technological possibility, but rather emerged through specific institutional decisions and competitive responses. ATM proliferation, for instance, generated organisational capabilities around distributed network management and remote transaction processing that subsequently enabled internet banking development (Zhang & Ravishankar, 2024). These sequential capabilities became embedded within

organisational routines and customer expectations, creating "*lock-in effects*" that influenced subsequent technological trajectories. Internet banking's adoption during the 2000s similarly established architectural patterns around centralized customer relationship management systems that shaped subsequent mobile banking platform design choices. The concept of service cannibalisation further illuminates adoption complexities. Rather than viewing digital services as additive enhancements, adoption literature increasingly recognises that digital channels fundamentally redistribute customer behaviour, potentially eroding higher-margin traditional service revenues (Ozimek, 2022). This displacement mechanism generates institutional resistance to aggressive digital adoption strategies, particularly when customer migration occurs faster than anticipated cost reductions in traditional delivery channels as they materialise.

The competitive intensity generated by fintech disruption introduces an additional adoption driver. Traditional retail banks confront what Dapp et al. (2023) characterises as "*capability displacement speed acceleration*," wherein new entrants implement technology-enhanced service models with substantially reduced implementation timeframes compared to incumbent institutions. This accelerated competitive cycle undermines the strategic utility of gradual adoption approaches, creating pressure for accelerated digital capability development. However, this pressure interacts asymmetrically with institutional size, regulatory complexity, and existing customer bases, generating differentiated adoption trajectories within the sector rather than convergent industry-wide strategies.

2.4 The South African Banking Landscape

Understanding technology adoption within the South African retail banking context necessitates moving beyond descriptive accounts of smartphone penetration toward analysing the relationship between infrastructure characteristics, consumer capabilities, and adoption motivation structures. The relationship between technological infrastructure availability and actual adoption behaviour reveals patterns that contradict technological determinism assumptions frequently embedded within adoption models.

Metropolitan areas with reliable high-speed connectivity present adoption environments broadly comparable to developed economies, whilst rural and semi-urban regions experience intermittent connectivity, data scarcity, and device capability limitations that fundamentally reshape technology viability perceptions, and adoption decision processes (Moloi, 2024). This spatial heterogeneity means that national-level adoption statistics frequently mask critical segmentation that shapes actual user experiences and adoption sustainability.

Smartphone penetration data similarly requires disaggregated analysis. Whilst comprehensive national coverage statistics indicate widespread device ownership, these figures obscure critical distinctions between device types, capability levels and actual usage patterns (Dapp et al. 2023). Research on app adoption patterns reveals that average South African mobile app downloads at 85.9 thousand per application, substantially underperform in comparison to global benchmarks at 264 thousand, suggesting either lower engagement intensity or lower app discovery efficacy (Waldera, 2021). This engagement gap implies that digital banking adoption cannot be conceptualised as automatic following device availability. Rather, user engagement with financial applications appears constrained by factors beyond technical accessibility, potentially reflecting user preference heterogeneity, trust considerations, or perceived value propositions misaligned with user needs.

The proliferation of fragmented digital service delivery across multiple applications what has been termed the "*app proliferation paradox*" generates user-level friction that adoption models must explicitly incorporate (Baquero et al., 2023). Rather than treating multiple banking applications and financial services as beneficial consumer choice expansion, accumulating evidence suggests users experience "*digital choice overload*," wherein excessive service fragmentation generates adoption resistance and reduced engagement commitment. This phenomenon suggests that adoption behaviour reflects not solely individual rational assessment of application functionality but also cognitive burden associated with managing multiple digital interfaces. Consolidated platforms addressing this fragmentation may generate adoption advantages extending beyond pure feature superiority, implying that platform consolidation represents strategically significant adoption drivers that technology-centric models underspecify.

2.5 Cultural and Socio-Economic Factors Influencing Technology Adoption

Digital banking adoption within the South African context cannot be understood through uniform adoption frameworks due to profound socio-economic stratification that generates qualitatively different relationships between technology access, capability development, and adoption decision-making. Income inequality and employment precarity represent foundational constraints shaping adoption possibilities. With unemployment exceeding 31% (Manamela, 2023), substantial population segments experience constrained discretionary spending for device upgrades, data subscriptions, or application adoption. Critically, unemployment concentrates among younger and lower-education populations, generating intersecting vulnerabilities that compound adoption barriers (Agyare, 2025). Unemployed individuals with limited digital literacy face multiple adoption obstacles simultaneously:

insufficient device capabilities, inadequate data resources, and limited perceived value propositions from financial applications designed for employed populations (Oteng et al, 2024). Traditional adoption models addressing these populations often assume barriers operate through single mechanisms when empirical reality demonstrates compounding constraint interactions.

Digital literacy stratification generates adoption heterogeneity that extends beyond device access considerations (Arion et al., 2024). While South African education systems have progressively incorporated digital competency development, substantial portions of working-age and older populations experienced educational experiences preceding widespread technology integration (Strietska-Ilina & Chun, 2021). This historical contingency creates persistent literacy disparities that resist rapid remediation through training interventions. Research distinguishing between basic digital skills and application-specific financial competencies reveals that users may develop general technology comfort without simultaneously developing financial application literacy necessary for banking adoption (Afullo & Mutambara, 2021). This distinction suggests adoption barriers operate through multiple literacy dimensions requiring targeted rather than generic capability development approaches.

Trust in financial institutions and digital transaction security represents culturally embedded characteristics shaped through historical experiences with financial services, institutional racism patterns, and community social capital characteristics (Van Den Berg & Van Zyl, 2021). Institutional trust cannot be presumed equivalent across demographic groups despite shared institutional access. Age and generational factors introduce adoption mechanisms reflecting not merely technology familiarity but fundamental preferences regarding transaction modalities and relationship types with financial institutions. Older populations demonstrate documented preferences for human interaction and branch-based services that reflect both capability limitations and deliberate value judgments regarding preferred service delivery modalities (Ndebele, 2022). This reconceptualisation suggests adoption success requires expanding service delivery options rather than narrowing channels through digital consolidation imperatives.

The intersection of these socio-economic factors with technological infrastructure limitations creates adoption contexts qualitatively different from developed economy environments. Users experiencing intermittent connectivity simultaneously navigate financial literacy constraints, trust considerations shaped through historical experience, and deliberate preference selections regarding desired transaction modalities. Understanding adoption behaviour within this context requires adopting analytical frameworks capturing this

multidimensional complexity, rather than applying technology acceptance models developed and validated within substantially different socio-economic and infrastructural contexts.

2.6 Customer Satisfaction on Digital Banking

Customer satisfaction in digital banking contexts operates through mechanisms that differ substantially from traditional banking satisfaction formation, requiring theoretical reconceptualization to account for technology-mediated service encounters and literacy-differentiated evaluation processes (Kaur et al., 2021). The holistic evaluation of digital banking performance encompasses not only functional service delivery but also customers' confidence in their ability to effectively utilize digital services, creating satisfaction dimensions that traditional banking literature has not adequately addressed. The relationship between digital service quality dimensions and customer satisfaction demonstrates significant literacy-based on variation that challenges universal satisfaction models. Li et al. (2021) establishes that ease of use significantly influences customer satisfaction in digital banking, yet the definition of "ease" varies considerably based on customers' digital competency levels. Systems perceived as user-friendly by digitally literate customers may appear complex and intimidating to customers with limited digital skills, creating satisfaction disparities that universal design approaches cannot resolve.

The efficiency-satisfaction relationship in digital banking presents particular theoretical complexities. Ratmono et al. (2024) demonstrates that faster transaction processing and reduced input requirements enhance user satisfaction by lowering cognitive load, this relationship assumes customers possess sufficient digital literacy to navigate efficient systems effectively. For customers with limited digital capabilities, highly efficient systems may increase cognitive load and reduce satisfaction by eliminating confirmatory steps that provide reassurance and control. The mediation role of satisfaction between service quality and retention becomes more complex in digital banking contexts where satisfaction formation processes vary across literacy segments (Kaur et al., 2021). Torkzadeh, Zolfagharian, Yazdanparast & Gremler (2022) established that satisfied customers develop positive emotional and cognitive evaluations that strengthen retention intentions, yet the pathways to satisfaction differ significantly between high and low digital literacy customers. This differential mediation process suggests that retention strategies must optimize satisfaction formation across multiple pathways simultaneously.

2.7 Potential Benefits of Banking-App Adoption

2.7.1 Economic Opportunities and Financial Inclusion

Digital banking platforms offer substantial promise for advancing financial inclusion and economic development in South Africa's retail banking sector. The capacity of mobile banking applications to deliver diverse financial services through accessible digital channels addresses persistent challenges in reaching underserved populations. According to Dlamini et al. (2023), while formal financial inclusion has improved to approximately 85% of adults, meaningful access to comprehensive banking services remains constrained by geographical barriers and service costs. Digital banking adoption presents viable pathways to bridge these accessibility gaps.

The economic implications of expanded digital banking adoption extend beyond individual convenience to encompass broader developmental outcomes. Raji, Mahmood and Aborujilah (2023), demonstrates that mobile banking adoption in developing economies correlates with increased participation in formal financial systems, particularly among previously excluded demographic segments. This digital infrastructure proves particularly relevant given the closure of numerous physical bank branches in rural areas over the past decade, a trend documented by Kganakga and Masilo (2022). However, the distribution of benefits arising from digital banking adoption remains uneven across South African society. Nkomo and Sehoole (2022) observe that digital financial inclusion does not automatically translate into meaningful economic participation, particularly when structural barriers such as digital literacy and infrastructure access persist. The existence of a digital divide means that those already positioned to benefit from technology adoption gain disproportionately, while marginalized groups may experience further exclusion. This pattern necessitates careful consideration of how digital banking implementation either reinforces or mitigates existing socioeconomic inequalities.

2.7.2 Enhanced User Experience and Operational Efficiency

Digital banking applications fundamentally restructure customer interactions with financial services by consolidating previously disparate banking functions into integrated platforms. This consolidation addresses practical challenges that customers encounter when managing multiple banking relationships and navigating fragmented service delivery channels. Contemporary digital banking applications typically incorporate account management, payment processing, investment services, and customer support within unified interfaces, thereby reducing cognitive load and improving user efficiency (Alalwan et al., 2023).

The convenience factor associated with digital banking adoption manifests through temporal and spatial flexibility in accessing financial services. Unlike traditional branch banking with constrained operating hours and geographical limitations, digital platforms enable customers to conduct banking activities at any time and from any location with internet connectivity. Research by Mbama and Ezepue (2024) indicates that this accessibility represents a primary driver of digital banking adoption across diverse customer segments, with particular value for individuals balancing work commitments, family responsibilities, and other time constraints.

User experience design significantly influences adoption patterns and sustained engagement with digital banking platforms. Studies by Sharma and Sharma (2023) emphasize that interface intuitiveness, transaction efficiency, and service reliability constitute critical determinants of customer satisfaction with digital banking. South African banks have invested substantially in improving digital platform usability, recognizing that poor user experience directly contributes to abandonment and reversion to traditional banking channels. The balance between functionality and simplicity remains essential, as overly complex interfaces can deter adoption, particularly among users with limited digital experience.

Nonetheless, the transition to digital banking presents challenges for certain customer segments. Older adults and individuals with limited technological exposure may struggle with digital interfaces despite improvements in design simplicity. Nel and Boshoff (2020) found that South African customers above 60 years demonstrate significantly lower digital banking adoption rates compared to younger cohorts, attributing this pattern partly to perceived complexity and comfort with established banking practices. This demographic variation in adoption suggests that digital banking cannot fully replace traditional channels but rather must coexist within hybrid service delivery models that accommodate diverse customer preferences and capabilities. However, the challenges in South African digital banking are discussed below.

2.8 Challenges in South African Digital Banking

2.8.1 Cybersecurity Threats and Trust Deficits

Security concerns represent the most frequently cited barrier to digital banking adoption in South African retail banking. According to Voster and Brits (2023), phishing schemes, account takeover fraud, and social engineering tactics have increased by 38% between 2021 and 2023, directly impacting customer confidence in digital banking security. These security incidents generate tangible financial losses while simultaneously eroding the trust necessary for sustained digital banking adoption.

The consequences of cybersecurity incidents extend beyond immediate financial damage to encompass longer-term reputational harm for banking institutions. Customers who experience fraud or unauthorized access frequently abandon digital banking platforms permanently, reverting to channels perceived as more secure even when this perception may not reflect actual risk profiles. Research by Kovacova et al. (2023) demonstrates that negative security experiences significantly diminish customer willingness to engage with digital banking services, with effects persisting even after enhanced security measures are implemented. This psychological dimension of security concerns complicates efforts to promote digital adoption through purely technological interventions.

Financial institutions face the dual challenge of implementing robust security infrastructure while maintaining user-friendly experiences that do not frustrate customers with excessive authentication requirements. Multi-factor authentication, biometric verification, and behavioral monitoring enhance security but may introduce friction into the banking experience. The trade-off between security and convenience requires careful calibration, as overly burdensome security protocols can deter adoption just as effectively as security incidents themselves (Nguyen et al., 2023).

2.8.2 Infrastructure Limitations and Connectivity Constraints

South Africa's digital infrastructure exhibits substantial geographical variation, creating fundamental barriers to universal digital banking adoption. While metropolitan areas generally possess reliable internet connectivity and extensive mobile network coverage, rural and peri-urban regions frequently experience inconsistent service quality and connectivity gaps. Dlodlo and Mafini (2023) report that approximately 35% of South African households lack consistent internet access, with this constraint disproportionately affecting rural populations. These connectivity limitations prevent potential users from reliably accessing digital banking services, thereby perpetuating financial exclusion despite theoretical service availability.

Device accessibility represents another infrastructural dimension affecting digital banking adoption patterns. Smartphone penetration has expanded rapidly in South Africa, reaching approximately 91% of adults according to Moyo (2024), yet device quality varies substantially. Entry-level smartphones may lack the processing capacity, screen quality, or storage space necessary for optimal banking application performance. Furthermore, device replacement costs can be prohibitive for economically disadvantaged customers, creating vulnerability to disruptions in digital banking access when devices fail or require updates.

2.8.3 Digital Literacy and Cognitive Barriers

Digital literacy encompasses not merely the technical ability to operate devices and applications but also the conceptual understanding of digital banking processes, security practices, and available services. Variations in digital literacy levels across South African populations create significant obstacles to uniform digital banking adoption. Older adults, individuals with limited formal education, and those with minimal prior technology exposure demonstrate lower digital literacy, which translates into heightened anxiety about digital banking and increased likelihood of errors or security vulnerabilities (Morudu, 2023).

The intersection of digital literacy with financial literacy creates compounded challenges for certain customer segments. Effective digital banking engagement requires both understanding of financial products and services, and competence in navigating digital platforms to access those services. Where deficits exist in either domain, customers may struggle to leverage digital banking effectively even when motivated to do so. Mathenjwa and Hooper (2024) observe that financial institutions frequently design digital banking platforms assuming baseline financial and digital competencies that substantial portions of the customer base do not possess, leading to frustration and abandonment.

Language constitutes another dimension of the literacy challenge facing digital banking adoption in South Africa's multilingual society. While major banks offer digital services in multiple languages, the quality and completeness of translations vary, and certain complex banking concepts may not translate effectively. Customers operating banking applications in languages other than their home language may experience comprehension difficulties that impede effective service utilization. Research by Van Zyl (2023) suggests that linguistic accessibility significantly influences digital banking comfort levels and adoption rates among non-English-speaking populations.

2.8.4 Cultural Preferences and Relational Banking

South African banking customers frequently express preferences for personal interaction and relationship-based banking that digital channels struggle to replicate. The cultural value placed on interpersonal relationships extends into financial services, where customers may derive reassurance and trust from face-to-face interactions with bank employees. This relational dimension proves particularly significant for complex transactions, problem resolution, or advisory services, where customers prefer human judgment and empathy over algorithmic responses (Twum-Darko & Naicker, 2023).

Generational and cultural variations in technology attitudes influence digital banking adoption patterns across demographic segments. Younger customers demonstrate greater comfort with digital-only interactions and may actually prefer avoiding branch visits, while older customers often view branch closures and digital-channel prioritization as service degradation. These divergent preferences create tension in service delivery strategy, as banks attempt to optimize operational efficiency through digital channels while retaining customer satisfaction across varied preference profiles (Govender & Maliwichi, 2024). The transition from relationship-based to transaction-based banking interactions through digital channels can erode customer loyalty and satisfaction, particularly when customers perceive reduced service quality or responsiveness. Digital banking platforms, despite advances in chatbot technology and virtual assistance, cannot fully replicate the adaptability and contextual understanding that human bank employees provide. This limitation becomes especially apparent in complex or unusual situations requiring judgment, flexibility, or emotional intelligence beyond algorithmic capabilities.

2.9 Research Gaps

2.9.1 Limitations in Existing Technology Adoption Research

The existing body of research examining technology adoption within South African retail banking demonstrates two critical theoretical gaps that limit comprehensive understanding of digital banking adoption dynamics. First, the predominant application of technology adoption models such as TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology) has focused primarily on acceptance intentions rather than sustained usage behaviors and retention outcomes. While Van Den Berg and Van Zyl (2021) examined digital financial service adoption using TAM, their study concentrated on initial adoption decisions without adequately addressing post-adoption behaviors that determine long-term retention. This temporal limitation leaves unresolved questions regarding the mechanisms through which initial digital banking adoption translates into habitual usage patterns and sustained customer relationships.

Second, moderating factors that condition the relationship between digital adoption and retention have received limited empirical attention within South African contexts. While Hipkin and Bennett (2022) acknowledged infrastructure limitations, digital literacy variations, and cultural preferences as contextually relevant factors, their research did not examine how these variables might moderate the effects of adoption drivers on retention outcomes. The absence of moderating variable analysis restricts understanding of why digital banking adoption produces differential retention outcomes across customer segments and contexts.

2.9.2 Integration of Adoption and Retention Constructs

Theoretical integration between digital adoption research and customer retention research remains underdeveloped in South African retail banking literature. These research streams have largely proceeded independently, with adoption studies examining factors influencing initial technology acceptance and retention studies investigating loyalty, satisfaction, and relationship quality without explicit consideration of digital channel adoption as an antecedent. The conceptual linkage between these domains requires theoretical elaboration, particularly regarding how digital adoption characteristics influence retention mechanisms differently than traditional banking channel experiences.

The role of digital adoption as a retention driver versus a retention risk factor warrants empirical investigation. While banks promote digital channels as enhancing customer experience and engagement, the transition to digital banking may simultaneously introduce vulnerabilities such as reduced relationship strength, increased switching ease, or exposure to digital-only competitor offerings. Research has not adequately examined this dual potential of digital adoption, creating uncertainty regarding net effects on customer retention and the conditions under which digital adoption strengthens versus weakens customer relationships.

2.10 Theoretical Underpinning of this study

2.10.1 The Case for UTAUT: A Comparative Theoretical Analysis

The selection of an appropriate theoretical framework for examining digital banking adoption in South Africa's retail banking sector demands rigorous justification grounded in comparative theoretical analysis. Three dominant frameworks have shaped technology adoption research over the past three decades: the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT). Each framework offers distinct explanatory mechanisms, yet their differential applicability to emerging market contexts reveals critical theoretical trade-offs that warrant systematic examination.

TAM, developed by Davis (1989), operates through a parsimonious theoretical architecture centred on two primary constructs: perceived usefulness and perceived ease of use. This theoretical simplicity constitutes both TAM's principal strength and its fundamental limitation. While TAM's streamlined structure facilitates empirical testing and demonstrates robust predictive validity across numerous contexts, achieving explained variance of approximately 40% in technology acceptance decisions (Marangunić & Granić, 2015), its theoretical

parsimony proves inadequate for capturing the multifaceted complexity characterising digital banking adoption in socioeconomically heterogeneous environments. Critically, TAM conceptualises technology adoption as primarily an individual cognitive process, largely neglecting social influences, infrastructural constraints, and institutional trust dynamics that fundamentally shape financial service adoption in emerging markets (Shaikh & Karjaluoto, 2015).

TPB, proposed by Ajzen (1991), extends beyond TAM's cognitive focus by incorporating social normative pressures and perceived behavioural control alongside attitudinal components. This theoretical expansion addresses some limitations inherent in TAM's individualistic orientation, particularly through the subjective norm construct that acknowledges social influence mechanisms. However, TPB's conceptualisation of perceived behavioural control, while theoretically sophisticated, conflates internal self-efficacy beliefs with external facilitating conditions, creating measurement ambiguities particularly problematic in contexts where infrastructure limitations constitute genuine adoption barriers, rather than mere perceptual phenomena (Taylor & Todd, 1995). Furthermore, TPB's focus on volitional behaviour inadequately accounts for the complex interplay between institutional relationships and technology adoption decisions (Venkatesh et al., 2003). Thus, the characteristic of financial service contexts where existing customer-bank relationships fundamentally influence adoption willingness (Venkatesh et al., 2003).

UTAUT emerges from this comparative analysis as theoretically superior for examining digital banking adoption within South Africa's emerging market context for four compelling reasons. First, UTAUT's integration of eight preceding theoretical models creates a comprehensive framework that captures multiple adoption pathways, operating simultaneously within complex sociotechnical systems (Venkatesh et al., 2003). This theoretical comprehensiveness proves particularly valuable in heterogeneous environments where different customer segments respond to fundamentally different adoption drivers. Second, UTAUT explicitly separates facilitating conditions from effort expectancy, providing conceptual clarity essential for distinguishing between customers' perceptions of ease of use, and the objective of infrastructural support enabling digital banking access (Williams et al., 2015). This distinction assumes critical importance in South Africa, where network reliability, device accessibility, and technical support infrastructure vary dramatically across geographic and socioeconomic segments (Ndayizigamiye & McArthur, 2020).

Third, UTAUT's incorporation of social influence as a core construct rather than a supplementary element, acknowledges the fundamentally communal nature of financial

decision-making prevalent in collectivist cultural contexts (Chaouali et al., 2021). South African customers frequently consult extended family networks, seek community validation, and observe peer adoption patterns before engaging with novel financial technologies, creating social adoption dynamics that individualistic frameworks inadequately capture (Mutimukwe et al., 2020). Fourth, UTAUT's moderation framework provides theoretical flexibility for examining how demographic characteristics, experience levels, and usage contexts alter technology adoption processes, enabling more nuanced predictions than universal models assuming homogeneous user populations (Khechine et al., 2020).

Empirical evidence substantiates UTAUT's superior explanatory power, with meta-analytic research demonstrating that UTAUT accounts for approximately 70% of variance in usage intention and 50% of variance in actual usage behaviour, substantially exceeding TAM's predictive performance (Venkatesh et al., 2016). Studies specifically examining mobile banking adoption in emerging markets confirm UTAUT's enhanced applicability in contexts characterised by infrastructure heterogeneity and socioeconomic diversity (Baabdullah et al., 2019; Alalwan et al., 2017). Research by Farah et al. (2018) comparing TAM, TPB, and UTAUT in Middle Eastern mobile banking contexts found that UTAUT's variance explained exceeded both TAM and TPB by 15-20%, attributing this superiority to UTAUT's incorporation of social and infrastructural factors absent from competing frameworks. This suggests that UTAUT may be more adept at capturing the nuanced factors affecting technology adoption in developing countries.

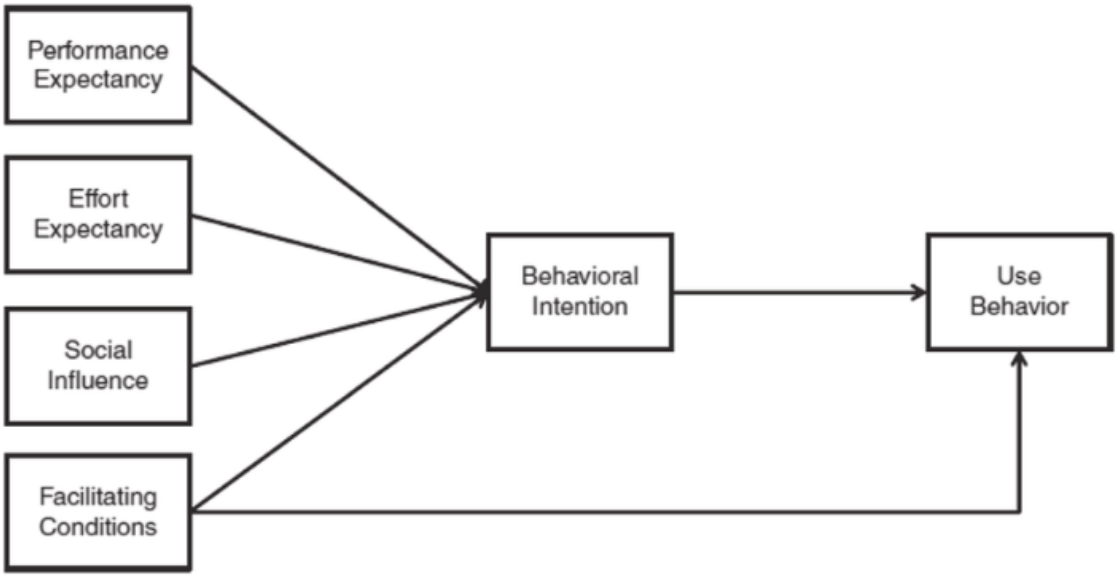

Figure 2.1: Unified Theory of Acceptance and Use of Technology (UTAUT)

Source: (Venkatesh, 2003).

2.10.2 Contextual Alignment: Linking UTAUT to South African Digital Banking Realities

The theoretical superiority of UTAUT gains particular significance when examining its construct-level alignment with South Africa's digital banking landscape. The research problem identified earlier centres on understanding how digital literacy moderates trust-mediated customer retention in contexts characterised by institutional scepticism, infrastructure inequality, and socioeconomic diversity. UTAUT's theoretical architecture directly addresses each contextual dimension through specific construct-reality alignments that alternative frameworks fail to capture.

Performance expectancy's conceptualisation as users' beliefs regarding instrumental benefits derived from technology utilisation (Venkatesh et al., 2003), directly engages South Africa's digital literacy challenge. Customers with limited digital competencies may struggle to accurately assess digital banking's performance advantages, creating evaluation difficulties that influence adoption decisions independent of platforms' objective capabilities (Raza et al., 2019). Unlike TAM's perceived usefulness, which assumes users possess adequate reference frameworks for evaluating technological benefits, performance expectancy within UTAUT explicitly acknowledges that benefit perceptions depend on users' capacity to conceptualise how technologies might enhance goal achievement (Tan & Leby Lau, 2016). This theoretical nuance proves essential for understanding adoption variance across South Africa's digital literacy spectrum, where customers' differential capacity to envision digital banking applications creates heterogeneous performance expectancy formation processes.

Effort expectancy's distinction from facilitating conditions addresses South Africa's infrastructure inequality challenge directly. While TAM's perceived ease of use conflates individual learning difficulties with environmental constraints, UTAUT separates users' perceptions of cognitive demands (effort expectancy) from objective resource availability (facilitating conditions) (Venkatesh et al., 2012). This theoretical separation enables precise diagnosis of adoption barriers, distinguishing between customers who possess infrastructure access, but perceive digital banking as cognitively demanding versus customers facing genuine resource constraints preventing platform engagement regardless of perceived ease (Baptista & Oliveira, 2015). In South Africa's context where some customer segments experience both infrastructure limitations and digital literacy challenges, while others face only one constraint. This theoretical differentiation then proves to be analytically essential.

Social influence's prominence within UTAUT directly addresses South Africa's communal decision-making culture. Unlike TPB's subjective norm construct, which conceptualises social pressure as individuals' perceptions of significant others' expectations, UTAUT's social

influence acknowledges multiple social mechanisms including reference group identification, social proof, and normative compliance (Venkatesh & Davis, 2000). This multidimensional conceptualisation captures South African customers' tendency to observe peer adoption patterns, seek family counsel, and await community validation before engaging with novel financial technologies (Mutimukwe et al., 2020).

Facilitating conditions' direct effect on usage behaviour addresses infrastructure heterogeneity's constraining influence on digital banking adoption. South Africa's pronounced digital divide creates environments where network reliability, device compatibility, and technical support availability vary dramatically across geographic regions and socioeconomic segments (Ndayizigamiye & McArthur, 2020). UTAUT's conceptualisation of facilitating conditions as environmental resources enabling technology use, acknowledges that infrastructure constraints may override motivational factors, creating situations where customers express strong adoption intentions, yet face overwhelming practical barriers preventing actualisation (Williams et al., 2015). This theoretical recognition proves particularly relevant in South African contexts where rural customers, low-income segments, and elderly populations frequently encounter infrastructure limitations that fundamentally alter adoption processes.

2.10.3 Theoretical Extension: Integrating Trust and Relational Dynamics

Despite UTAUT's contextual advantages, the framework requires theoretical extension to adequately address trust deficits and existing relationship dynamics characterising South African digital banking adoption. The original UTAUT model developed primarily through organisational studies in stable institutional environments, inadequately addresses how institutional trust and customer-bank relationship quality influence technology adoption in contexts, marked by historical financial exclusion and institutional scepticism (Merhi et al., 2019).

Relationship marketing theory provides theoretical foundations for understanding how accumulated trust, satisfaction, and commitment influence customers' willingness to adopt technologies introduced by service providers (Morgan & Hunt, 1994). Service-dominant logic extends this perspective by conceptualising technology adoption as co-creation processes embedded within ongoing service relationships, rather than isolated acceptance decisions (Vargo & Lusch, 2016). These theoretical perspectives reveal that customers' digital banking adoption decisions depend not only on technology-specific perceptions but also on their confidence in banking institutions' ability to deliver reliable digital services and protect sensitive financial information (Sholevar & Bachmann, 2025).

Empirical evidence demonstrates that trust exerts pronounced influence on financial technology adoption, with customers requiring higher trust thresholds for digital banking than for traditional banking channels, due to perceived security vulnerabilities and reduced human oversight (Shankar & Rishi, 2020). In South Africa's context, historical financial exclusion, recent bank failures, and ongoing fraud incidents create institutional scepticism that amplifies trust requirements for digital banking adoption (Cele, 2023). Customers with weak trust relationships may demonstrate reduced responsiveness to UTAUT predictors, exhibiting adoption reluctance despite recognising digital banking's performance advantages and perceiving platforms as relatively easy to use (Zhou, 2011).

The integration of digital adoption experience and customer retention quality as a moderating construct addresses this theoretical gap by acknowledging that, technology adoption operates within relational contexts that influence risk perception and adoption willingness. This theoretical extension draws from trust transfer theory, which posits that trust developed through traditional service interactions influences customers' willingness to engage with technology-mediated service channels (Stewart & Jürjens, 2018). Customers with positive historical banking experiences and strong retention relationships demonstrate enhanced trust propensity, potentially exhibiting stronger UTAUT relationships than customers with weak institutional connections (Malaquias & Hwang, 2019).

The interaction between customer retention quality and digital adoption experience creates synergistic moderation effects theoretically distinct from their independent influences. Customers possessing both strong banking relationships and extensive digital experience represent optimal adoption candidates, likely demonstrating pronounced UTAUT relationships where performance expectancy, effort expectancy, and social influence strongly predict adoption intention (Kumar et al., 2022). Customers with strong banking relationships but limited digital experience may exhibit moderated UTAUT relationships where institutional trust compensates for technology anxiety, enabling adoption despite effort expectancy concerns (Shankar et al., 2020). Customers with extensive digital experience but weak banking relationships may demonstrate UTAUT patterns where facilitating conditions and performance expectancy dominate while social influence effects prove minimal due to generalised digital confidence (Baptista & Oliveira, 2015).

2.10.4 Theoretical Gaps and Research Contributions

Critical examination of existing UTAUT applications reveals three significant theoretical gaps that this research addresses. First, conventional UTAUT studies treat technology adoption as temporally discrete events rather than processes embedded within ongoing customer-provider

relationships (Venkatesh et al., 2016). This temporal simplification proves particularly problematic in financial services where adoption decisions involve significant trust considerations and risk perceptions influenced by historical service experiences (Stewart & Jürjens, 2018). By incorporating customer retention quality as a moderating construct, this study acknowledges adoption's embeddedness within relational timelines, contributing theoretical insights regarding how relationship history influences technology acceptance.

Second, existing UTAUT research inadequately addresses how digital literacy heterogeneity creates differential construct functioning across user populations (Hsieh et al., 2008). While UTAUT incorporates experience as a moderator, conventional operationalisations focus on technology-specific experience, rather than generalised digital competency spanning multiple platforms and service domains (Venkatesh et al., 2012). This narrow conceptualisation fails to capture how customers' accumulated digital capabilities create cognitive schemas and self-efficacy beliefs, that fundamentally alter the technology adoption processes (Lee & Coughlin, 2015). This research extends UTAUT theory by conceptualising digital adoption experience as comprehensive digital competency, encompassing technical proficiency, digital communication capabilities, and generalised technology confidence developed across multiple usage contexts.

2.11 The key constructs in the study

The model operates on the basis of the four constructs, which are the precedents for the intention to use and lead to the actual use of Information Technology (IT) (Venkatesh et al., 2003). The theory maintains that these four key constructs have a positive and significant influence on users' intentions and usage behaviours, although the strength of the correlations has varied in various applications (Tam et al., 2020).

The first three constructs -performance expectancy, effort expectancy, and social influence – are the direct determinants of usage, intention and behaviour. The fourth construct, facilitating conditions, is the direct determinant of behaviour. In this study, it is relevant to unpack the customers' usage intentions, which could be impacted by the various alternatives available, thus affecting their decision to adopt or, not to adopt the digital banking technologies. The facilitating conditions construct is particularly relevant given the historically low user acceptance illustrated in previous studies in South Africa, where it was observed that access to internet, appropriate technology tools, educational backgrounds, and trust were amongst the factors influencing low acceptance (Beck et al., 2021; Torkzadeh et al., 2022; Ng'ang'a, 2023). The facilitating conditions relating to digital banking technologies are similar and, for the most part, as prohibitive as those required with the previous generations of technology

requirements, mainly access and cost of the internet, data accessibility, ecosystem, and ease of use (Asif & Sarwar, 2025; Hidayat-ur-Rehman, 2025).

The fifth construct, digital adoption and customer retention as critical moderating mechanisms that fundamentally alter traditional technology acceptance pathways, was added to the model expand the perspectives of the consumer-driven versus the service provider-driven transformation (Vial, 2021). This construct has been identified as critical in the case of agile technological developments, as the customer continuously experiences changes and enhancements, although incremental (Alnemer, 2022). Each of the precedent is discussed in further detail below.

2.11.1 Precedent 1: Performance Expectancy in Digital Banking

Performance expectancy represents the foundational belief structure within UTAUT, capturing users' cognitive assessments regarding technology's instrumental value for achieving personally relevant objectives (Venkatesh et al., 2003). This construct synthesises theoretical insights from TAM's perceived usefulness, innovation diffusion theory's relative advantage, and social cognitive theory's outcome expectations (Alalwan et al., 2017). Thus creating a comprehensive conceptualisation of performance-related adoption motivations (Alalwan et al., 2017). The theoretical sophistication of performance expectancy lies in recognising that perceived performance encompasses immediate transactional efficiency, alongside broader life domain improvements that technologies enable.

In digital banking contexts, performance expectancy assumes multidimensional characteristics encompassing transaction speed, service accessibility, cost reduction, financial control enhancement, and integration with broader financial management objectives (Rahi et al., 2020). South African customers evaluate digital banking performance through lenses shaped by their previous banking experiences, exposure to alternative service channels, and comprehension of digital platforms' capabilities relative to traditional alternatives (Bhaga et al., 2025). This evaluation complexity creates theoretical challenges, as customers with limited digital literacy may struggle to conceptualise performance advantages they have not directly experienced, potentially underestimating digital banking's instrumental value.

Recent research reveals concerning contradictions regarding performance expectancy's operation in low-literacy contexts. While Miraz et al. (2022) found that performance expectancy maintained predictive validity across literacy levels, qualitative investigations by Rahi and Abd. Ghani (2019) revealed that low-literacy customers frequently misunderstand digital banking

capabilities, creating inflated or deflated performance expectations that poorly correspond with objective platform functionality. This discrepancy suggests that performance expectancy's measurement validity may be compromised in heterogeneous literacy environments, where respondents lack adequate reference frameworks for evaluating technological performance.

The South African context intensifies these theoretical challenges. Customers operating within diverse socioeconomic circumstances evaluate performance through fundamentally different priorities, with some emphasising basic access and security while others prioritise advanced features, integration capabilities, and innovation (Cele, 2023). This evaluation heterogeneity implies that performance expectancy operates as a multidimensional construct in South Africa, rather than the unidimensional conceptualisation prevalent in developed market research. Low-income customers may prioritise transaction cost reduction and basic access, middle-income customers may emphasise convenience and time savings, while affluent customers focus on sophisticated financial management capabilities and seamless integration with investment platforms.

2.11.1.1 Precedent 1.1: Performance Expectancy's Influence on the Customer Satisfaction

The theoretical relationship between performance expectancy and customer satisfaction operates through expectation-confirmation mechanisms, where technology's perceived performance relative to prior expectations determines satisfaction outcomes (Bhattacherjee, 2001). This relationship assumes particular significance in digital banking, where customer satisfaction influences retention decisions and word-of-mouth communications that shape broader market adoption patterns (Amin, 2016).

Thusi and Maduku (2020) identified critical performance expectancy dimensions influencing millennial mobile banking adoption in South Africa, specifically highlighting transaction speed, convenience, ubiquity, and immediacy as key satisfaction drivers. These findings align with international research demonstrating positive associations between performance expectancy and mobile banking utilisation (Shaikh et al., 2021), suggesting universal patterns where customers perceiving instrumental benefits exhibit higher satisfaction and continued usage intentions. However, the relationship's strength varies across customer segments, with younger technology-proficient users demonstrating stronger performance-satisfaction linkages as appose to older less digitally experienced customers (Rahi et al., 2019).

Rabaa'i and AlMaati (2021) demonstrated that performance expectancy maintains direct associations with customer satisfaction in mobile banking environments, while Ratten (2024)

confirmed similar relationships across broader digital platform contexts. These findings support expectancy-value theories proposing that satisfaction derives from perceived benefits' magnitude relative to invested cognitive and temporal resources (Oliver, 2014). Customers perceiving substantial performance advantages experience satisfaction that reinforces continued engagement and positive technology attitudes, creating virtuous cycles where initial adoption success generates psychological rewards that sustain long-term usage (Venkatesh & Goyal, 2010).

However, South Africa's pronounced digital divide complicates these theoretical relationships. Customers with limited digital literacy may experience disconfirmation effects where actual system usage reveals complexities and limitations, not apparent during initial evaluation, creating satisfaction decrements despite objectively functional platforms (Nesindande et al., 2025). Conversely, digitally proficient customers may underestimate performance advantages prior to adoption, experiencing positive disconfirmation that generates satisfaction levels exceeding initial expectations (Humbani & Wiese, 2019). These differential satisfaction formation processes suggest that performance expectancy's influence on satisfaction operates contingently, rather than universally, with digital literacy moderating the expectancy-satisfaction relationship.

Trust-mediated processes further complicate performance expectancy's influence on satisfaction. Customers perceiving strong instrumental benefits but harbouring security concerns or institutional distrust may experience conflicted satisfaction characterised by functional appreciation, alongside anxiety regarding data protection and fraud vulnerability (Shankar & Rishi, 2020). This satisfaction ambivalence, common in emerging markets with recent fraud incidents and data breach histories (Cele, 2023). This then creates unstable satisfaction-loyalty relationships where customers continue using digital banking for instrumental reasons, despite dissatisfaction with security dimensions (Cele, 2023). South African banks' customer retention challenges may partially stem from this satisfaction ambivalence, where functional performance expectancy generates continued usage without producing the emotional satisfaction that drives loyalty and positive word-of-mouth.

2.11.1.2 Precedent 1.2: The Effect of Service Quality on Performance Expectancy

Service quality emerges as a critical antecedent influencing performance expectancy formation, operating through quality-perception pathways where customers' evaluation of service delivery dimensions shapes their beliefs regarding technology's instrumental value (DeLone & McLean, 2003). The information systems success model identifies system quality, information quality, and service quality as foundational dimensions collectively shaping user

experiences, and consequently performance expectations regarding digital platforms (Al-Hattami, 2021).

System quality, characterised by technical reliability, interface design, and navigational efficiency, demonstrates consistent positive associations with mobile banking adoption across diverse contexts (Singu & Chakraborty, 2022). Ameen et al. (2019) confirmed that positive relationships between system quality and actual usage behaviour, suggesting that customers experiencing technically competent well-designed interfaces, develop enhanced performance expectations that translate into stronger adoption intentions. The theoretical mechanism underlying this relationship involves experiential learning, where system quality attributes serve as information cues which customers use to infer overall platform effectiveness (Zeithaml, 1988). High-quality system design signals institutional competence and resource investment, creating confidence that digital platforms will deliver promised performance benefits.

However, the relationship between system quality and performance expectancy reveals concerning complexities in low-literacy contexts. Wu et al. (2022) argued that poor interface design and navigational difficulties directly diminish performance expectancy by creating implementation barriers that override instrumental benefits. Customers struggling to navigate digital banking interfaces, regardless of underlying functional capabilities, develop degraded performance expectations reflecting their implementation difficulties rather than platforms' objective performance potential (Wang et al., 2022). This usability-expectancy relationship proves particularly problematic in South Africa, where digital literacy variations create situations where identical interfaces generate dramatically different usability experiences across customer segments.

Information quality, encompassing accuracy, relevance, and timeliness of digital banking content, plays crucial roles in shaping performance expectancy through cognitive trust mechanisms (Li, 2021). Customers encountering accurate and relevant information, develop confidence in digital platforms' decision-support capabilities, enhancing performance expectations regarding financial management benefits (Kaur et al., 2021). Conversely, information quality deficiencies including inaccuracies, outdated content, or irrelevant communications erode cognitive trust, creating scepticism that diminishes performance expectations despite platforms' technical functionality (Sreejesh, 2024). South African customers, particularly those experiencing their initial digital banking interactions, may prove especially sensitive to information quality issues, as negative initial experiences create lasting

performance expectancy decrements that persist despite subsequent platform improvements (Cuthbertson & Furseth, 2022).

Service quality representing responsiveness assurance, and empathy in customer support interactions, influences performance expectancy through different theoretical mechanisms than system and information quality. While system and information quality operates through cognitive evaluation pathways, service quality influences performance expectancy through emotional trust formation, where customers' confidence in institutional support creates psychological safety enabling risk-taking in technology adoption (Zeithaml et al., 1996). South African customers with strong service quality perceptions develop expectations that banks will provide necessary support during digital banking challenges, therefore reducing perceived adoption risk and enhancing performance expectancy (Villar & Khan, 2021).

Theoretical integration reveals that service quality dimensions collectively shape performance expectancy through multiple pathways including cognitive trust (information quality), usability perceptions (system quality), and emotional security (service quality). However, existing research inadequately addresses how these quality dimensions interact with digital literacy to produce differential performance expectancy formation processes. South African customers with high digital literacy may primarily weight system quality in performance expectancy formation, while low-literacy customers emphasise service quality reflecting their anticipated support needs. This differential weighting suggests that service quality's influence on performance expectancy operates contingently, rather than universally, requiring literacy-sensitive strategies that align quality improvement initiatives with customer segments' specific evaluation priorities.

2.11.2 Precedent 2: Effort Expectancy

Effort expectancy captures users' beliefs regarding cognitive and physical resources required for technology utilization, synthesizing theoretical insights from TAM's perceived ease of use, innovation diffusion theory's complexity, and social cognitive theory's self-efficacy to create comprehensive understanding of effort-related adoption considerations (Venkatesh et al., 2003). The construct's theoretical significance extends beyond simple usability perceptions to encompass learning curves, adaptation requirements, and ongoing cognitive demands associated with sustained technology engagement (Alalwan et al., 2018).

Digital banking platforms' multifaceted nature creates unique challenges for effort expectancy conceptualization. Unlike simple applications requiring limited learning investment, digital banking demands proficiency development across transaction execution, security protocol

management, error recovery procedures, and platform navigation spanning multiple service categories (Rahi et al., 2020). This learning complexity creates situations where initial effort expectancy perceptions, formed through limited exploration or observational learning, inadequately predict actual cognitive demands experienced during comprehensive platform engagement (Magsamen-Conrad et al., 2020).

South Africa's context introduces additional complexities for effort expectancy conceptualization. Significant variations in educational attainment, technology exposure, and linguistic capabilities across various demographic segments, create heterogeneous effort perception landscapes where identical digital banking interfaces generate dramatically different cognitive demand experiences (Cele, 2023). Customers with limited formal education may experience digital banking platforms as cognitively overwhelming regardless of interface design quality, while technologically sophisticated users find platforms insufficiently advanced, seeking greater customization and functionality that paradoxically increases cognitive demands (Ndayizigamiye & McArthur, 2020).

Linguistic diversity further complicates effort expectancy. South Africa's eleven official languages create situations where customers encounter digital banking interfaces in non-primary languages, substantially increasing cognitive processing demands (Mutimukwe et al., 2020). While major South African banks offer multi-lingual interfaces, translation quality varies, with technical banking terminology proving particularly challenging to translate accurately across languages. Customers navigating platforms in secondary languages experience elevated cognitive loads that manifest as increased effort expectancy, potentially deterring adoption despite platforms' objective usability qualities (Gbadegesin et al., 2022). Furthermore, effort expectancy may interact with performance expectancy in ways conventional theory inadequately addresses. Customers perceiving high performance benefits may tolerate substantial effort requirements, while customers perceiving limited advantages demonstrate effort sensitivity, abandoning adoption attempts when encountering implementation difficulties (Baptista & Oliveira, 2015). This interactive effect suggests that effort expectancy operates contingently rather than universally, with its influence on adoption intention moderated by performance expectancy magnitude.

2.11.3 Precedent 3: Social Influence

Social influence represents theoretically sophisticated acknowledgment that technology adoption operates within social systems where individual decisions reflect normative pressures, reference group identifications, and social proof mechanisms (Venkatesh et al., 2003). This construct synthesizes insights from theory of reasoned action's subjective norms,

innovation diffusion theory's social channels, and social cognitive theory's social modeling to provide comprehensive understanding of social adoption dynamics (Akour et al., 2024).

South Africa's cultural context provides particularly fertile ground for social influence effects. Collectivist orientation and community-based decision-making processes prevalent across many South African demographic segments, this creates social adoption dynamics where individual technology choices reflect family consultation, community validation, and peer observation (Mutimukwe et al., 2020). Extended family involvement in financial decisions, traditional banking relationship patterns, and community-based financial practices create social networks where digital banking adoption requires collective validation rather than merely individual assessment (Gbadegesin et al., 2022).

Historical financial exclusion and institutional distrust amplify social influence effects in South Africa. Potential adopters, uncertain about digital banking's security and reliability, seek social validation from trusted community members before engaging with platforms (Cele, 2023). This validation-seeking creates situations where opinion leaders and early adopters within communities exert disproportionate influence on broader adoption patterns, with their endorsements or criticisms shaping community-level adoption trajectories (Chaouali et al., 2021). South African banks' digital strategies may benefit from identifying and targeting these influential community members, recognizing that successful opinion leader’s conversion generates multiplier effects exceeding individual adoption impacts.

However, social influence's operation in digital banking contexts reveals concerning gaps in existing theory. Conventional UTAUT conceptualizes social influence as unidirectional pressure from significant others toward potential adopters, inadequately addressing how adopters' visible experiences feedback to influence social networks' attitudes (Venkatesh et al., 2012). This feedback loop proves particularly important in South Africa where communities maintain strong social cohesion, enabling rapid transmission of adoption success stories or failure narratives that shape collective technology attitudes (Mutimukwe et al., 2020). Banks experiencing service failures, security breaches, or customer dissatisfaction may face amplified retention challenges, as negative experiences propagate through social networks, creating community-level adoption resistance that individual marketing communications cannot overcome.

2.11.4 Precedent 4: Facilitating Conditions

Facilitating conditions represents UTAUT's most contextually sensitive construct, capturing organizational and technical infrastructure supporting technology utilization (Venkatesh et al.,

2003). This construct acknowledges that individual adoption decisions operate within technological ecosystems that either enable or constrain usage behaviors, recognizing environmental factors' that determine influence on actual implementation (Abu-Taieh et al., 2022).

In digital banking contexts, facilitating conditions encompass multiple dimensions including network infrastructure reliability, device compatibility, technical support availability, and institutional support mechanisms (Legesse et al., 2024). The construct's theoretical sophistication lies in recognizing that infrastructure constraints may override motivational factors, creating situations where customers express strong adoption intentions yet encounter insurmountable practical barriers preventing actualization (Williams et al., 2015).

Empirical evidence demonstrates that facilitating conditions operates as direct predictor of usage behavior rather than merely moderating influence on intention-behavior relationships (Abu-Taieh et al., 2022). This finding carries significant theoretical implications, suggesting infrastructure constraints fundamentally alter adoption processes rather than simply influencing their strength. In emerging markets where infrastructure reliability varies dramatically across geographic regions, facilitating conditions may function as primary adoption determinant, with infrastructure quality creating hard constraints that motivational factors cannot overcome (Cheng et al., 2022). South Africa's infrastructure landscape presents unique challenges for facilitating conditions conceptualization.

Network infrastructure reliability constitutes another critical facilitating condition. South Africa's network infrastructure, while substantially improved over past decades, continues experiencing reliability challenges particularly in rural areas and during load-shedding events that disrupt cellular tower operations (Ndayizigamiye & McArthur, 2020). Customers experiencing frequent transaction failures due to network disruptions develop negative associations with digital banking that persist beyond infrastructure improvements, creating psychological barriers compounding technical constraints (Rahi et al., 2019). This experience-based aversion suggests that facilitating conditions' influence, extends beyond current infrastructure quality to incorporate customers' accumulated experiences with historical reliability issues. However, South African banks' cost reduction strategies frequently emphasize automated support systems and reduce human assistance availability, creating support gaps particularly problematic for digitally inexperienced customers who struggle with self-service troubleshooting (Villar & Khan, 2021). This support-strategy misalignment creates situations where customers possess adequate infrastructure access but abandon digital

banking adoption when encountering implementation difficulties that available support mechanisms cannot resolve.

Theoretical integration reveals that facilitating conditions operates through multiple mechanisms in emerging market contexts. Beyond direct infrastructure effects, facilitating conditions influences adoption through psychological pathways where infrastructure quality perceptions shape risk assessments and confidence levels (Baptista & Oliveira, 2015). Customers perceiving unreliable infrastructure develop heightened security concerns and reduced confidence in digital banking's functionality, creating psychological barriers that compound technical constraints. This dual-pathway influence suggests facilitating conditions exerts stronger total effects in emerging markets than developed economies, potentially explaining why infrastructure improvements alone prove insufficient for generating anticipated adoption increases.

2.12 Dependent Variable 1: Behavioral Intentions

Behavioral intention represents UTAUT's central dependent variable, embodying users' conscious plans to engage with specific technologies within defined temporal contexts (Ajzen, 1991). The construct's theoretical foundation draws from established psychological theories including theory of planned behavior and theory of reasoned action, positioning intention as primary cognitive precursor to actual behavior performance (Fishbein & Ajzen, 2011). The theoretical significance of behavioral intention extends beyond simple adoption prediction to encompass its mediating role between belief structures and usage behaviors.

This mediational function creates important theoretical implications for understanding how attitudinal, normative, and control belief structures translate into concrete technology adoption decisions (Venkatesh et al., 2003). Performance expectancy, effort expectancy, and social influence exert indirect effects on usage behavior through behavioral intention, suggesting that cognitive and social factors influence adoption primarily by shaping conscious implementation plans rather than directly triggering behavioral responses (Dwivedi et al., 2019). This mediation mechanism enables theoretical predictions regarding how interventions targeting specific belief structures propagate through intention formation to ultimately influence usage outcomes.

The theoretical challenge lies in distinguishing genuine implementation intentions from merely aspirational statements or socially compliant responses. Implementation intention theory suggests that effective behavioral intentions incorporate specific action plans including temporal specifications, contextual triggers, and obstacle anticipation (Gollwitzer, 1999).

However, conventional UTAUT measurements assess global adoption intentions without examining whether respondents have developed concrete implementation plans necessary for intention actualization (Hagger & Luszczynska, 2014). South African digital banking research may benefit from incorporating implementation intention measurements that assess whether customers have specified when, where, and how they will initiate digital banking usage, potentially improving predictive validity beyond global intention assessments.

2.13 Dependent Variable 2: Use Behavior

Use behavior represents UTAUT's ultimate dependent variable, embodying actual implementation of technology adoption intentions through concrete usage actions (Venkatesh et al., 2003). The theoretical distinction between behavioral intention and actual usage acknowledges the well-documented intention-behavior gap characterizing human decision-making across multiple domains (Sheeran & Webb, 2016). Use behavior's theoretical complexity extends beyond simple frequency metrics to encompass usage quality, breadth, feature exploration, and integration within users' broader behavioral repertoires (Burton-Jones & Straub, 2006).

In digital banking contexts, use behavior encompasses multiple dimensions requiring theoretical distinction. Transaction frequency represents quantitative usage capturing how often customers engage digital banking platforms (Kaushik, 2024). Service diversity utilization reflects qualitative usage indicating breadth of adopted features across available functionality spectrum (Alalwan et al., 2018). Usage depth measures sophistication levels, distinguishing basic transaction execution from advanced financial management capabilities (Rahi et al., 2020). Integration intensity captures digital banking's embedding within customers' financial routines, reflecting habitual usage patterns versus occasional experimentation (Venkatesh et al., 2012). These multidimensional conceptualizations reveal that use behavior operates as complex construct requiring nuanced measurement beyond binary adoption classifications (Rahi & Abd. Ghani, 2019). Customers demonstrating identical transaction frequencies may exhibit fundamentally different usage patterns, with some exploring diverse features while others repeatedly execute narrow transaction sets. This usage heterogeneity creates theoretical challenges for universal behavior models assuming homogeneous usage patterns across adopter populations.

Digital banking's sustained engagement requirements intensify these temporal challenges. Unlike single-use technologies where adoption constitutes discrete behavioral events, digital banking requires ongoing engagement across multiple usage episodes spanning extended temporal horizons (Al-Adwan et al., 2022). Initial adoption intentions, while necessary for first

usage, prove insufficient for predicting long-term usage patterns where continued usage depends on satisfaction with initial experiences, perceived ongoing value, and habit formation processes (Venkatesh & Goyal, 2010). This temporal complexity suggests that digital banking research requires longitudinal designs tracking usage evolution rather than cross-sectional snapshots measuring intentions and behaviors at single time points.

South African contexts introduce additional use behavior complexities. Infrastructure reliability variations create usage inconsistency where customers adopt digital banking but experience transaction interruptions, failed transactions, and service unavailability that disrupt usage continuity (Ndayizigamiye & McArthur, 2020). These implementation disruptions may prevent habit formation, maintaining digital banking as conscious, effortful behavior rather than automatic routines that sustained usage requires (Venkatesh et al., 2012). Customers repeatedly encountering implementation difficulties may abandon digital banking despite initial adoption, creating high attrition rates that undermine customer retention objectives.

2.14 Moderating Effect: Digital Adoption and Customer Retention

Digital adoption and customer retention represents a theoretically innovative moderating construct addressing critical gaps in conventional UTAUT applications. This composite construct captures interactive effects between customers' accumulated digital technology experiences and their banking relationship quality on technology acceptance processes (Vial, 2021). The theoretical foundation draws from relationship marketing theory, service-dominant logic, and customer lifecycle management literature, recognizing that technology adoption within service contexts operates differently than adoption in product or organizational domains (Hollebeek et al., 2019).

2.14.1 Theoretical Foundations of the Moderating

Relationship marketing theory posits that customer behavior within service relationships depends on accumulated trust, satisfaction, and commitment levels developed through repeated interactions over time (Morgan & Hunt, 1994). These relational constructs create psychological bonds influencing customers' willingness to engage with service innovations, including digital technologies that fundamentally transform service delivery mechanisms (Sholevar & Bachmann, 2025). Customers with strong relational bonds demonstrate greater receptivity to service provider initiatives, exhibiting higher tolerance for implementation difficulties and stronger confidence in institutional support during technology adoption challenges.

Service-dominant logic extends this perspective by conceptualizing technology adoption as value co-creation processes where customers and service providers jointly develop service experiences through technology-mediated interactions (Vargo & Lusch, 2016). This theoretical lens reveals that digital banking adoption success depends not merely on platform quality but on alignment between platforms' functionality and customers' specific value creation objectives within their unique financial management contexts. Customers with extensive digital experience across multiple platforms develop sophisticated expectations and evaluation frameworks that shape how they assess digital banking offerings (Venkatesh et al., 2016).

Customer lifecycle theory provides additional theoretical foundations by recognizing that customers' receptivity to service innovations varies systematically across relationship stages (Kumar et al., 2022). Newly acquired customers lacking established trust relationships may demonstrate adoption hesitancy, while long-tenure customers with accumulated positive experiences may exhibit enhanced adoption willingness. However, this lifecycle pattern may reverse in contexts where long-tenure customers developed strong preferences for traditional service channels, creating resistance to digital innovations perceived as degrading valued interpersonal service relationships (Villar & Khan, 2021).

2.14.2 Digital Adoption Experience

Digital adoption experience, conceptualized as customers' accumulated proficiency with digital technologies across multiple platforms and service domains, creates generalized technology attitudes influencing subsequent adoption decisions (Humbani & Wiese, 2019). This experiential dimension recognizes that digital banking adoption occurs within broader technology adoption portfolios where positive or negative experiences with e-commerce platforms, social media, digital communication tools, and online services shape customers' general digital self-efficacy and technology attitudes.

Customers with extensive positive digital experiences develop generalized digital confidence and reduced technology anxiety that may enhance their responsiveness to digital banking's performance advantages while diminishing effort expectancy concerns (Lee & Coughlin, 2015). These experientially confident customers approach digital banking adoption with optimistic expectations, tolerate implementation difficulties, and persist through learning curves that might deter less experienced users. Their accumulated digital knowledge creates cognitive frameworks enabling rapid platform comprehension and effective feature discovery that accelerates adoption and usage sophistication. Conversely, customers with limited or negative digital experiences may exhibit generalized technology skepticism and learned helplessness that attenuate UTAUT relationships (Magsamen-Conrad et al., 2020). These

digitally inexperienced customers approach digital banking with heightened anxiety, anticipate implementation difficulties, and may abandon adoption attempts when encountering predictable learning challenges. Their limited digital reference frameworks create evaluation difficulties where they struggle to assess performance advantages, overestimate effort requirements, and demonstrate heightened sensitivity to social influence as they seek external validation for unfamiliar technology decisions.

The moderating mechanism operates through multiple pathways. Digital adoption experience moderates the performance expectancy-intention relationship by influencing customers' capacity to accurately assess digital banking's instrumental benefits (Baptista & Oliveira, 2015). Digitally experienced customers possess cognitive frameworks enabling realistic benefit evaluation, while inexperienced customers may systematically underestimate or overestimate performance advantages due to inadequate reference points. Digital experience also moderates the effort expectancy-intention relationship by shaping customers' confidence in their learning capabilities and reducing perceived implementation barriers (Venkatesh et al., 2012). Additionally, digital experience may weaken social influence effects as experienced customers rely on personal assessments rather than seeking social validation for familiar technology domains (Chaouali et al., 2021).

2.14.3 Customer Retention Quality

Customer retention quality captures relationship longevity, accumulated satisfaction, institutional trust, and commitment to continued banking relationships (Kumar et al., 2022). This relational dimension acknowledges that financial service adoption involves significant trust and risk considerations influenced by historical service experiences. Customers with strong retention relationships demonstrate accumulated trust in institutions' reliability, competence, and benevolence, creating psychological foundations supporting technology adoption risk-taking (Shankar & Rishi, 2020).

Trust transfer mechanisms enable customers' institutional trust developed through traditional banking interactions to extend toward digital channels, reducing perceived adoption risks (Stewart & Jürjens, 2018). Customers trusting their banks to provide reliable traditional services may more readily believe digital platforms will deliver comparable reliability, creating confidence facilitating adoption despite limited direct digital banking experience. This trust transfer proves particularly significant in emerging markets where institutional skepticism and fraud concerns create heightened digital banking risk perceptions (Cele, 2023). However, customer retention quality's moderating influence operates through complex, potentially contradictory pathways. Long-tenure customers who developed strong preferences for

interpersonal banking relationships may perceive digital banking as degrading valued service elements, creating adoption resistance despite overall relationship satisfaction. This resistance mechanism suggests retention quality's moderating effect may vary across customer segments, enhancing adoption among customers valuing convenience and efficiency while impeding adoption among customers prioritizing interpersonal relationships.

2.14.4 Synergistic Interaction Between Digital Experience and Retention Quality

The interaction between digital adoption experience and customer retention quality creates synergistic moderation effects theoretically distinct from independent influences (Son et al., 2020). This interaction acknowledges that digital banking adoption represents convergence between technology adoption and financial service relationships rather than simple technology acceptance in isolation.

Customers possessing both extensive digital experience and strong banking relationships represent optimal adoption candidates. Their digital confidence enables accurate performance assessment and effort minimization while institutional trust reduces perceived risks, creating ideal conditions where all UTAUT predictors strongly influence adoption intentions (Venkatesh et al., 2016). These customers demonstrate rapid adoption, sophisticated usage, and high retention likelihood as digital banking aligns with both technological preferences and institutional loyalties.

Customers with strong banking relationships but limited digital experience exhibit moderated UTAUT patterns where institutional trust compensates for technology anxiety (Shankar et al., 2020). These customers may adopt digital banking despite effort expectancy concerns, leveraging anticipated institutional support to overcome learning challenges. However, their usage may remain constrained to basic transactions unless continued positive experiences build digital confidence enabling feature exploration. Banks serving these customers benefit from emphasizing support availability and relationship continuity rather than technological sophistication.

2.15 Modifiers: Age and Gender

Gender, as a variable in the UTAUT, was found to be more pronounced in developing economies and in less affluent communities, influenced by inadequate access to economic resource and paternalistic cultural norms (Daniali et al., 2022). The inclusion of demographic moderators within UTAUT's theoretical framework represents a significant advancement in acknowledging user heterogeneity and contextual variation in technology adoption processes

(Venkatesh et al., 2003). Age and gender emerge as particularly significant moderators that influence the strength and direction of relationships between core UTAUT constructs and adoption outcomes.

Age-related moderation effects demonstrate consistent theoretical patterns across multiple technology adoption contexts, with older users typically demonstrating stronger relationships between Effort Expectancy and adoption intention, while younger users show stronger Performance Expectancy effects (Morris & Venkatesh, 2000). These age-related differences reflect fundamental variations in technology experience, learning capabilities, and usage motivations that create important theoretical implications for digital banking adoption models. Gender-related moderation effects reveal complex theoretical patterns that extend beyond simple demographic categories to encompass socialized differences in technology attitudes, risk perceptions, and decision-making processes (Venkatesh & Morris, 2000). No know studies in South Africa have focused on a specific gender applied on any predecessor digital banking technologies. implications for understanding adoption variance across diverse user populations.

The South African demographic context introduces additional theoretical complexities for age and gender moderation effects. Significant variations in educational attainment, technology exposure, and cultural attitudes across age and gender groups may amplify or attenuate traditional moderation patterns observed in developed market contexts (Makanyea & Mutambayashata, 2018). Additionally, the intersection of age and gender with other demographic factors including income, education, and geographic location creates complex theoretical interactions that simple moderation models may inadequately capture. Understanding how age and gender influence adoption processes enables more sophisticated theoretical predictions and practical interventions that account for user heterogeneity in digital banking adoption initiatives.

2.16 Adaptation: Developing a South African UTAUT Framework

2.16.1 Limitations of Universal UTAUT Application

Critical examination reveals three fundamental limitations in applying universal UTAUT frameworks to South African digital banking contexts. First, conventional UTAUT assumes relatively homogeneous populations operating within stable institutional environments and reliable infrastructure ecosystems (Venkatesh et al., 2003). These assumptions prove systematically violated in South Africa's heterogeneous socioeconomic landscape characterized by pronounced digital divides, infrastructure inequalities, and institutional trust

deficits (Cele, 2023). Universal models developed in stable, affluent contexts may systematically misspecify causal relationships when applied in emerging markets where contextual factors fundamentally alter adoption processes.

Second, standard UTAUT conceptualizations inadequately address trust dynamics central to financial service adoption in emerging markets. Developed-market UTAUT research often treats trust as supplementary consideration or implicitly assumes adequate baseline institutional trust (Venkatesh et al., 2012). However, South African customers' historical experiences with financial exclusion, bank failures, and fraud incidents create institutional skepticism requiring explicit theoretical incorporation rather than background assumptions (Cele, 2023). Models neglecting trust dynamics may systematically underestimate adoption barriers and misidentify effective intervention strategies.

Third, conventional UTAUT measurements developed for literate, technologically experienced populations may exhibit differential item functioning when applied to low-literacy, digitally inexperienced South African segments (Rahi & Abd. Ghani, 2019). Survey instruments assuming respondents comprehend abstract constructs like "performance expectancy" and can accurately assess hypothetical usage scenarios may produce invalid measurements among customers lacking reference frameworks for evaluating unfamiliar technologies. This measurement invalidity creates situations where research conclusions reflect measurement artifacts rather than true adoption dynamics, limiting both theoretical and practical contributions (Baptista & Oliveira, 2015).

2.16.2 Proposed Adapted Framework for South African Digital Banking

Building on identified limitations, this study proposes an adapted UTAUT framework incorporating five critical modifications addressing South African contextual realities. Figure 2.2 illustrates this adapted framework, depicting structural modifications distinguishing it from universal UTAUT applications.

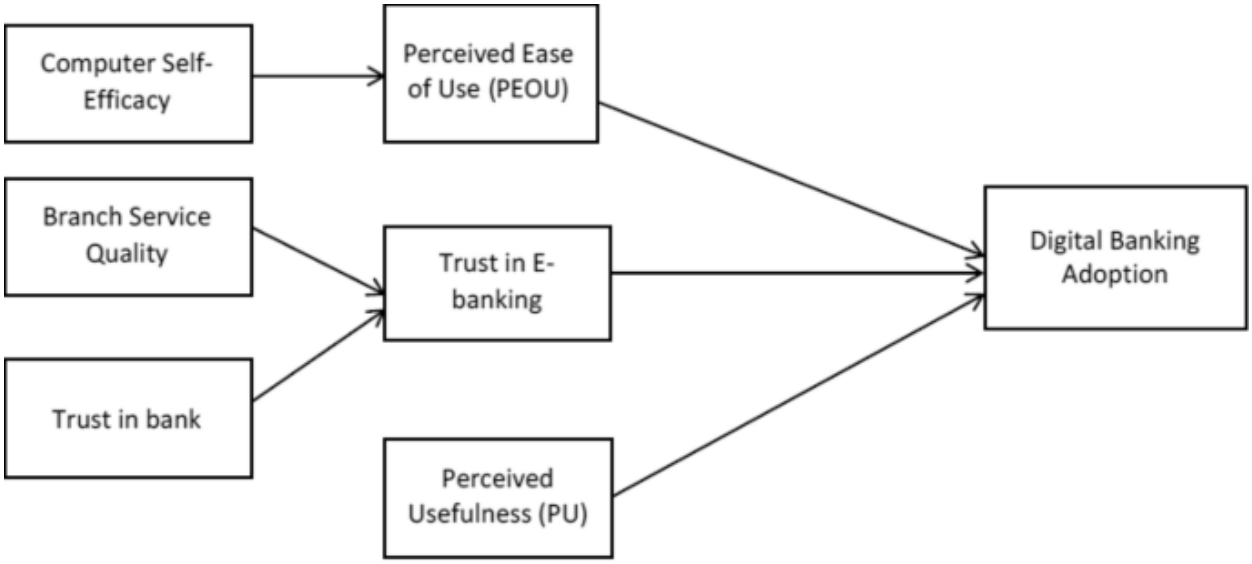

Figure 2.2: Adapted UTAUT Framework for South African Digital Banking Adoption

***Source**: (*Kaur et al., 2021)

- **Modification 1: Trust as Core Mediating Construct**

The adapted framework elevates trust from peripheral consideration to core mediating construct through which UTAUT predictors influence adoption intentions (Shankar & Rishi, 2020). Performance expectancy, effort expectancy, social influence, and facilitating conditions exert both direct effects on behavioral intention and indirect effects mediated through digital banking trust. This structural specification acknowledges that instrumental benefits, ease of use, social validation, and infrastructure adequacy influence adoption partly by reducing perceived risks and building confidence in digital platforms' reliability and security (Stewart & Jürjens, 2018).

Trust's mediating role proves particularly significant for performance expectancy. South African customers may recognize digital banking's instrumental advantages yet hesitate to adopt due to security concerns overriding performance benefits (Cele, 2023). The mediated pathway captures this dynamic, revealing that performance expectancy influences adoption partially through cognitive trust formation where perceived benefits signal platform quality and institutional competence. Similarly, effort expectancy influences trust through usability-security associations where easily navigable platforms generate confidence that institutions invested adequate resources ensuring comprehensive security alongside interface design (Li, 2021).

- **Modification 2: Infrastructure Quality as Contextual Boundary Condition**

The adapted framework reconceptualizes facilitating conditions as contextual boundary condition moderating all UTAUT relationships rather than merely direct predictor of usage

behavior (Ndayizigamiye & McArthur, 2020). This specification acknowledges that infrastructure inadequacy creates hard constraints where motivational factors lose predictive validity, fundamentally altering how performance expectancy, effort expectancy, and social influence translate into adoption intentions.

In high-infrastructure contexts (urban areas, affluent neighborhoods), conventional UTAUT relationships operate as originally specified, with motivational factors strongly predicting adoption. However, in low-infrastructure contexts (rural areas, low-income communities), facilitating conditions' constraining influence weakens all UTAUT relationships, creating situations where customers recognize benefits, perceive ease of use, and experience social pressure yet cannot actualize adoption due to device limitations, network unreliability, or data cost barriers (Cele, 2023). This boundary condition conceptualization enables theoretical predictions distinguishing between motivation-driven adoption variance in adequate infrastructure contexts versus infrastructure-constrained adoption ceilings in inadequate contexts.

- **Modification 3: Digital Literacy as Construct-Specific Moderator**

The adapted framework specifies digital literacy as moderator exhibiting differential effects across UTAUT constructs rather than uniform moderation (Nesindande et al., 2025). Specifically, digital literacy strengthens performance expectancy's influence by enabling accurate benefit assessment, weakens effort expectancy's influence by reducing perceived learning difficulties, and attenuates social influence by creating personal evaluation confidence reducing social validation needs (Baptista & Oliveira, 2015).

This construct-specific moderation specification generates nuanced predictions distinguishing digital literacy's heterogeneous effects. Among low-literacy customers, social influence emerges as dominant adoption predictor while performance expectancy demonstrates weak influence due to evaluation difficulties. Among high-literacy customers, performance expectancy dominates while social influence proves minimal as personal assessment supersedes social validation. These differential patterns enable segmentation strategies targeting appropriate adoption drivers for specific literacy levels rather than universal campaigns assuming homogeneous construct importance (Rahi & Abd. Ghani, 2019).

- **Modification 4: Relationship Quality-Trust Interaction**

The adapted framework incorporates interaction between customer retention quality and trust formation processes, specifying that retention quality moderates trust's mediating influence (Kumar et al., 2022). Among customers with strong banking relationships, accumulated institutional trust creates strong baseline confidence enabling rapid digital banking trust

formation. Performance expectancy and other UTAUT predictors readily translate into adoption intentions through trust-mediated pathways as customers transfer institutional trust toward digital channels (Stewart & Jürjens, 2018).

Conversely, among customers with weak retention relationships or negative banking experiences, trust formation requires substantially stronger signals from UTAUT predictors. Performance advantages, ease of use, and social validation must overcome skepticism rooted in institutional distrust before generating adoption intentions (Shankar & Rishi, 2020). This interaction specification acknowledges that identical UTAUT predictor levels generate dramatically different adoption probabilities depending on customers' relationship histories, explaining why banks with poor retention records struggle with digital adoption despite offering objectively superior platforms.

2.16.3 Research Gaps Addressed by the Adapted Framework

The adapted framework systematically addresses five critical research gaps identified through literature analysis:

- **Trust Integration in Technology Adoption Models**

While financial service adoption research recognizes trust's importance, conventional frameworks treat trust as antecedent or parallel construct rather than core mediating mechanism (Shankar & Rishi, 2020). The adapted framework positions trust as central mediator through which UTAUT predictors influence adoption, providing theoretical specification enabling empirical tests of trust's mediating role and development of trust-building interventions targeting specific antecedent perceptions.

- **Digital Literacy's Differential Effects**

Current literature treats digital literacy as general moderator exhibiting uniform effects across all adoption predictors (Venkatesh et al., 2012). The adapted framework specifies construct-specific literacy effects, proposing that literacy strengthens some relationships while weakening others, enabling nuanced predictions and targeted interventions that conventional uniform moderation models cannot support (Nesindande et al., 2025).

- **Relationship Context Integration**

Technology adoption research typically ignores how existing service relationships influence adoption decisions, treating technology acceptance as independent of relationship dynamics (Venkatesh et al., 2003). The adapted framework integrates relationship quality as moderator influencing trust formation and adoption willingness, acknowledging that technology adoption

in service contexts operates within relationship histories that fundamentally shape risk perceptions and institutional confidence (Kumar et al., 2022).

- **Partial Adoption Patterns**

Conventional models employ binary adoption conceptualizations inadequate for capturing selective adoption patterns where customers use digital channels for specific transaction types while maintaining traditional channels for others (Kaushik, 2024). The adapted framework incorporates partial adoption pathways enabling predictions regarding which services migrate to digital channels under what conditions, providing actionable insights for banks developing channel migration strategies (Villar & Khan, 2021).

2.16 Conclusion

This chapter discussed the theoretical and literature basis for this research. It began with an overview of the banking sector and some of the relevant digital evolution in servicing retail banked customers. This section provided background and a description analysis of adoption of digital banking, which is the use case in this study. According to Osei et al. (2023), the contexts and literature coverage of the banking innovation and digital banking and customer retention draw relevance of this study to digital retail banking based on both past and present trends. The detailed review of the digital retail banking trends led into a theoretical underpinning of the study, being the rationale and mechanics of the UTAUT model, together with discussions of all the constructs applicable in this study. Customer satisfaction and service quality was added to the four UTAUT Precedent, exploring other psychometric features that could impact consumers' behaviour intentions. The moderating effect of digital adoption and customer retention was explored and defended as a positive, and significant influence on the relationships between the precedent of performance expectancy, effort expectancy, social influence, facilitating conditions, customer satisfaction, service quality, and behaviour intentions towards the use of digital banking. Chapter two laid a foundation and rationale for the following section, where the research questions and hypotheses are proposed and defended with relevance to this study.

CHAPTER THREE: RESEARCH QUESTIONS AND HYPOTHESES

3.1 Introduction

This chapter articulates the research questions and hypotheses that guide the empirical investigation of digital adoption's impact on customer retention within South Africa's retail banking sector. Building upon the theoretical foundations established in Chapter Two, this chapter translates conceptual relationships into testable propositions that address the identified research problem. The formulation of research questions and hypotheses represents a critical bridge between theoretical conceptualization and empirical investigation, providing the logical structure necessary for systematic inquiry (Creswell & Creswell, 2018).

The research questions emerge directly from the theoretical gaps and practical challenges identified in the literature review. South African retail banks face persistent customer retention challenges despite substantial digital infrastructure investments, with only some institutions achieving the 20% retention improvements that successful digital implementations deliver globally (PwC South Africa, 2025). This paradox suggests that digital adoption's influence on customer retention operates through complex pathways inadequately explained by existing theoretical frameworks. The hypotheses developed in this chapter propose specific mechanisms through which digital service quality, digital trust, and digital literacy interact to shape customer retention outcomes across diverse demographic segments. This study provides the context for the conceptual model, explaining how the adapted UTAUT framework incorporates constructs addressing South Africa's unique contextual characteristics.

3.2 Research Questions

Research questions serve multiple critical functions within quantitative inquiry. They establish boundaries for investigation, guide methodological decisions, and provide criteria for evaluating research contributions (Bryman, 2016). Well-formulated research questions demonstrate clear connections to theoretical frameworks while maintaining sufficient specificity to enable empirical testing through appropriate analytical techniques (Hair et al., 2019). This study employs a hierarchical question structure where a primary research question addresses the core theoretical concern, while secondary research questions explore specific mechanisms and contextual variations underlying the primary relationship. To achieve this, the following research questions were formulated for the study:

3.2.1 Primary Research Question

The primary research question focuses on the moderating role of digital service quality in the relationship between digital adoption and customer loyalty:

Research question 1: How does digital service quality moderate the relationship between digital adoption and customer retention in the South African retail banking sector?

3.2.2 Secondary Research Questions

Three secondary research questions explore specific mechanisms and contextual variations underlying the primary relationship:

Research Question 2: How does digital trust mediate the relationship between perceived digital service quality and customer retention behaviours across different digital literacy segments?

Research Question 3: What are the differential effects of digital literacy levels on trust-mediated customer retention outcomes among diverse demographic groups in South African retail banking?

Research Question 4: How can South African retail banks design digital service delivery strategies that optimize trust formation and retention across heterogeneous digital literacy populations?

3.3 Conceptual Model

The conceptual model adapts the Unified Theory of Acceptance and Use of Technology (UTAUT) framework to address South Africa's unique digital banking context. This adaptation responds to fundamental limitations in applying universal UTAUT specifications to emerging markets characterized by infrastructure heterogeneity, institutional trust deficits, and pronounced digital literacy variations (Venkatesh et al., 2003; Cele, 2023). The adapted model incorporates two critical theoretical extensions: (1) the inclusion of customer satisfaction and service quality as antecedents to performance expectancy, recognizing that experiential quality shapes benefit perceptions; and (2) the integration of digital adoption experience and customer retention quality as composite moderating constructs that fundamentally alter traditional technology acceptance pathways.

The adapted conceptual model depicted in Figure 3.1 maintains UTAUT's core theoretical architecture while incorporating contextually relevant extensions. The model specifies four primary categories of constructs: (1) antecedents including service quality and customer satisfaction; (2) UTAUT predictors including performance expectancy, effort expectancy, social influence, and facilitating conditions; (3) outcome variables including behavioural intention, use behaviour, and customer loyalty; and (4) moderating variables including digital adoption experience, customer retention quality, age, and gender.

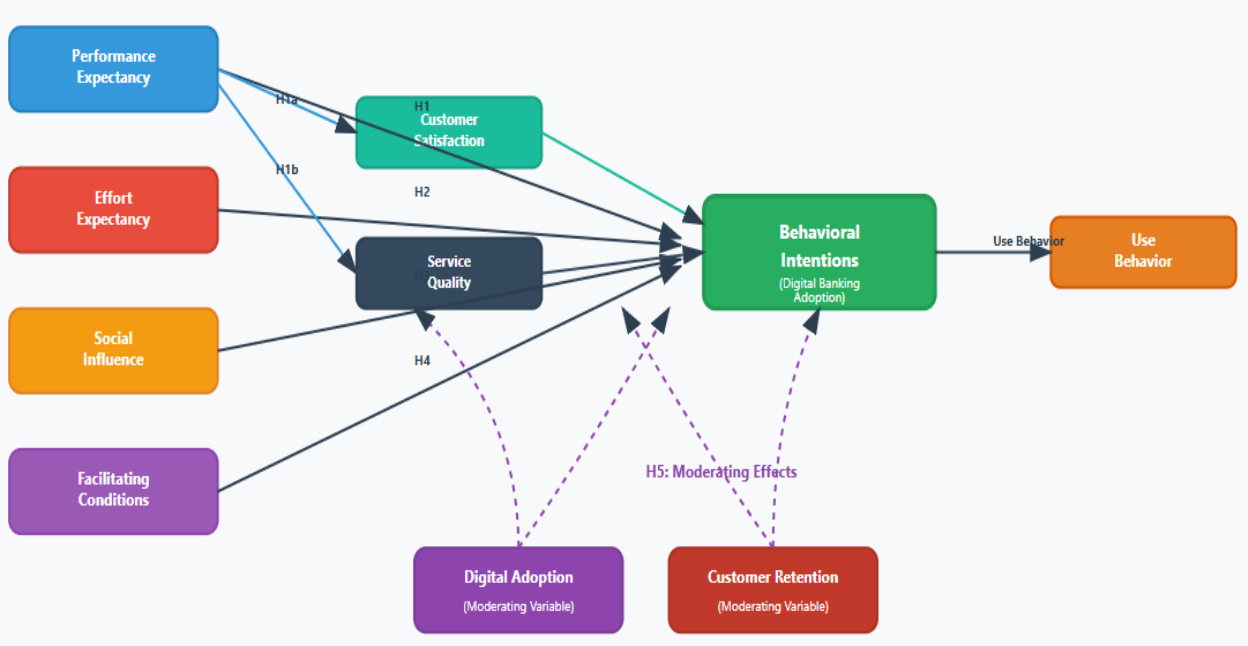

Figure 3.1: Conceptual Model. *Source:* Researcher's own construct. Note:* adopted from the UTAUT model by Venkatesh et al. (2003); **developed using a cloud AI software v 3.5.

Antecedent Constructs: Service quality and customer satisfaction represent experiential foundations shaping customers' cognitive evaluations of digital banking platforms. Service quality encompasses system quality (technical reliability and interface design), information quality (accuracy and relevance), and service quality (responsiveness and support) (DeLone & McLean, 2003). Customer satisfaction captures affective responses to accumulated service experiences, reflecting customers' overall evaluations of banking relationships (Bhattacherjee, 2001). These antecedents exert indirect effects on adoption outcomes through their influence on performance expectancy, acknowledging that benefit perceptions develop partially from service quality experiences rather than emerging independently (Kaur et al., 2021).

UTAUT Predictor Constructs: Performance expectancy, effort expectancy, social influence, and facilitating conditions maintain their theoretical roles as primary adoption drivers. Performance expectancy captures beliefs regarding instrumental benefits, effort expectancy

reflects perceived ease of use, social influence encompasses normative pressures and social modeling effects, and facilitating conditions represent infrastructural enablers supporting usage behaviors (Venkatesh et al., 2003). The model specifies that performance expectancy, effort expectancy, and social influence predict behavioural intention, which subsequently influences use behaviour, while facilitating conditions exert direct effects on actual usage (Dwivedi et al., 2019).

Outcome Constructs: Behavioural intention represents conscious plans to engage with digital banking platforms, use behaviour captures actual platform engagement including transaction frequency and feature utilization, and customer loyalty encompasses attitudinal commitment and behavioural persistence characterizing sustained banking relationships (Kumar et al., 2022). The model specifies sequential relationships where intention precedes behaviour, and both intention and behaviour influence loyalty outcomes, acknowledging that loyalty development requires both motivational commitment and actual usage experiences (Shankar & Rishi, 2020).

Moderating Constructs: Digital adoption experience and customer retention quality operate as composite moderating construct that fundamentally alters relationships between UTAUT predictors and outcomes. Digital adoption experience reflects accumulated proficiency across multiple technology platforms, creating generalized digital confidence and reduced technology anxiety (Venkatesh et al., 2016). Customer retention quality captures relationship longevity, accumulated satisfaction, and institutional trust developed through repeated banking interactions (Morgan & Hunt, 1994). These moderators influence the strength of relationships between performance expectancy, effort expectancy, social influence, and behavioural intention, acknowledging that adoption processes vary systematically across customer segments exhibiting different digital experience and relationship quality combinations (Son et al., 2020). Additionally, age and gender serve as demographic moderators reflecting systematic variations in technology attitudes, learning capabilities, and decision-making processes across population segments (Morris & Venkatesh, 2000).

3.3.3 Theoretical Contributions of the Adapted Model

The adapted model makes three significant theoretical contributions to digital banking adoption literature. First, it acknowledges adoption's embeddedness within ongoing customer-provider relationships rather than treating adoption as temporally discrete events (Vargo & Lusch, 2016). This relational perspective reveals that customers' adoption decisions reflect not only technology-specific assessments but also accumulated trust and satisfaction developed through historical service experiences. Banks with strong retention relationships

possess strategic advantages in digital adoption initiatives, as customers' institutional trust reduces perceived risks and enhances willingness to engage with novel service delivery mechanisms (Stewart & Jürjens, 2018).

Second, the model recognizes digital literacy heterogeneity's fundamental influence on adoption processes, moving beyond conventional UTAUT applications that treat user populations as relatively homogeneous (Hsieh et al., 2008). Digital adoption experience operates as comprehensive competency encompassing technical proficiency, digital communication capabilities, and generalized technology confidence developed across multiple usage contexts rather than technology-specific experience alone (Lee & Coughlin, 2015). This conceptualization enables theoretical predictions regarding how customers' accumulated digital capabilities create cognitive schemas and self-efficacy beliefs that fundamentally alter technology adoption pathways.

Third, the model specifies mechanisms through which contextual factors influence construct relationships rather than merely acknowledging contextual limitations (Baabdullah et al., 2019). While existing emerging market research frequently notes that infrastructure constraints, literacy variations, and cultural factors affect adoption, studies rarely theorize how these contextual elements alter UTAUT's nomological network. The adapted model proposes that contextual factors operate through moderation mechanisms that strengthen or weaken relationships between core constructs and outcomes, providing theoretical specificity regarding context's influence on adoption processes (Baptista & Oliveira, 2015).

3.4 Research Hypotheses

Research hypotheses translate theoretical propositions into testable predictions regarding relationships between constructs specified in the conceptual model. Well-formulated hypotheses demonstrate clear derivation from theoretical foundations, specify directional predictions when theory provides sufficient basis, and enable empirical falsification through appropriate analytical techniques (Hair et al., 2019). This section presents hypotheses organized according to conceptual model components, beginning with antecedent relationships, proceeding through UTAUT predictor effects, and concluding with moderation hypotheses.

3.4.1 Hypotheses Relating to Antecedent Constructs

The first set of hypotheses addresses relationships between service quality, customer satisfaction, and performance expectancy, examining how experiential dimensions shape cognitive benefit assessments.

H_1: Service quality has a significant and positive relationship with performance expectancy in adoption of digital banking.

This hypothesis derives from information systems success theory, which posits that system quality, information quality, and service quality collectively shape users' perceptions regarding technology's instrumental value (DeLone & McLean, 2003). Customers experiencing technically reliable platforms, accurate information, and responsive support develop enhanced confidence in digital banking's capability to deliver instrumental benefits, creating positive performance expectancy perceptions (Singu & Chakraborty, 2022). Empirical evidence from multiple contexts confirms positive relationships between service quality dimensions and performance expectancy, with system reliability and interface design emerging as particularly influential quality attributes (Ameen et al., 2019; Al-Hattami, 2021).

South Africa's digital banking landscape provides particular theoretical grounds for expecting strong service quality effects. Customers with limited digital experience lack reference frameworks for independently evaluating performance advantages, relying heavily on service quality cues to infer platform effectiveness (Rahi & Abd. Ghani, 2019). Poor service quality experiences create negative performance expectancy through failed transactions, inaccurate information, or inadequate support, while high-quality experiences generate confidence that platforms will deliver promised benefits (Kaur et al., 2021). This experiential learning mechanism proves especially important in contexts where institutional trust remains fragile and customers approach digital banking with inherent skepticism requiring positive experiential confirmation (Cele, 2023).

H_2: Customer satisfaction has a significant and positive relationship with performance expectancy in adoption digital banking.

This hypothesis reflects expectancy-confirmation theory's proposition that accumulated satisfaction with service experiences shapes expectations regarding future service quality and instrumental value (Bhattacherjee, 2001). Customers experiencing high satisfaction with traditional banking services develop positive institutional attitudes that transfer to digital channel evaluations, creating enhanced performance expectancy for digital banking initiatives

(Amin, 2016). Conversely, customers with low satisfaction harbor skepticism regarding institutions' capability to deliver effective digital services, depressing performance expectancy despite platforms' objective functionality (Shankar et al., 2020).

The theoretical mechanism operates through affective priming where positive emotional states associated with satisfactory service experiences create optimistic evaluations of related service innovations (Oliver, 2014). Satisfied customers approach digital banking with positive predispositions, interpreting ambiguous platform features favorably and maintaining confidence that institutions will resolve implementation difficulties (Venkatesh & Goyal, 2010). This affective influence proves particularly significant in South Africa where customers' accumulated satisfaction reflects not only service quality but also banks' success in addressing historical exclusion and building inclusive financial service relationships (Cele, 2023).

3.4.2 Hypotheses Relating to UTAUT Predictor Constructs

The second set of hypotheses examines relationships between core UTAUT predictors and outcome variables, testing whether established UTAUT relationships maintain validity within South Africa's digital banking context.

H_3: Performance expectancy has a significant and positive relationship with behavioural intention to use digital banking.

This hypothesis represents UTAUT's most consistently supported proposition, reflecting robust empirical evidence across diverse technology adoption contexts (Venkatesh et al., 2012). Customers perceiving substantial instrumental benefits from digital banking develop stronger intentions to adopt and utilize platforms, as perceived usefulness directly motivates technology engagement when users believe systems will enhance goal achievement (Dwivedi et al., 2019). Meta-analytic research confirms performance expectancy as the strongest predictor of behavioural intention, typically demonstrating standardized path coefficients ranging from 0.35 to 0.55 (Venkatesh et al., 2016).

South African contexts provide theoretical grounds for expecting maintained or potentially strengthened performance expectancy effects. Customers facing transaction costs, time constraints, and access limitations associated with traditional banking channels may demonstrate heightened responsiveness to digital banking's performance advantages including reduced costs, enhanced convenience, and expanded service accessibility (Thusi & Maduku, 2020). However, performance expectancy's influence may vary across literacy

segments, with digitally experienced customers demonstrating stronger effects due to accurate benefit assessment capabilities, while inexperienced customers exhibit attenuated effects reflecting evaluation difficulties (Rahi & Abd. Ghani, 2019).

H_4: Effort expectancy have a significant and positive relationship with behavioural intention to use digital banking.

This hypothesis predicts that customers perceiving digital banking as relatively easy to use develop stronger adoption intentions, reflecting reduced psychological barriers associated with learning requirements and implementation difficulties (Venkatesh et al., 2003). Effort expectancy's theoretical significance stems from recognizing that perceived complexity deters adoption regardless of instrumental benefits, as customers anticipating substantial cognitive demands may avoid technology engagement to prevent anticipated frustration and failure experiences (Alalwan et al., 2018).

South Africa's pronounced digital literacy variations create particular relevance for effort expectancy effects. Customers with limited digital experience may perceive even well-designed interfaces as cognitively demanding, creating effort-related adoption barriers that override performance advantages (Nesindande et al., 2025). Additionally, linguistic diversity introduces unique effort considerations where customers navigating platforms in non-primary languages experience elevated cognitive loads that manifest as increased effort expectancy perceptions (Mutimukwe et al., 2020). These contextual factors suggest effort expectancy may demonstrate stronger influence in South African contexts compared to developed markets with more homogeneous, digitally experienced populations.

H_5: Social influence has a significant and positively relationship with behavioural intention to use digital banking.

This hypothesis reflects social psychology's recognition that individual technology adoption decisions operate within social systems where normative pressures, reference group identifications, and social proof mechanisms shape behavioral choices (Venkatesh et al., 2003). Customers observing peers' successful digital banking adoption, receiving family recommendations, or encountering community leader endorsements develop enhanced adoption intentions through social validation mechanisms (Gbadegesin et al., 2022).

South Africa's collectivist cultural orientation and community-based decision-making processes provide strong theoretical grounds for expecting significant social influence effects (Mutimukwe et al., 2020). Extended family involvement in financial decisions and community-

based financial practices create social networks where digital banking adoption requires collective validation rather than merely individual assessment (Chaouali et al., 2021). Additionally, institutional trust deficits amplify social influence as customers seek validation from trusted community members before engaging with platforms they perceive as risky (Cele, 2023). These cultural and institutional factors suggest social influence may demonstrate stronger effects in South African contexts compared to individualistic developed markets.

H_6: Facilitating conditions has a significant and positively relationship with use behaviour in digital banking.

This hypothesis proposes that infrastructure quality, resource availability, and technical support directly enable usage behaviors independent of motivational intentions (Venkatesh et al., 2003). While performance expectancy, effort expectancy, and social influence operate primarily through intention formation, facilitating conditions exert direct behavioral effects by creating or eliminating practical implementation barriers (Abu-Taieh et al., 2022). Customers possessing strong adoption intentions may nevertheless fail to actualize usage when encountering infrastructure constraints including network unreliability, device incompatibility, or inadequate technical support (Williams et al., 2015).

South Africa's infrastructure heterogeneity provides compelling theoretical rationale for expecting strong facilitating conditions effects. Pronounced variations in network connectivity, device accessibility, and support availability create environments where infrastructure constraints frequently override motivational factors (Ndayizigamiye & McArthur, 2020). Rural customers, low-income segments, and elderly populations particularly experience facilitating condition barriers that fundamentally constrain digital banking engagement regardless of intentions (Cele, 2023). Additionally, data cost considerations unique to South African contexts create economic facilitating conditions where customers perceive digital banking as expensive despite eliminating branch visit costs (Mutimukwe et al., 2020).

3.4.3 Hypotheses Relating to Moderating Effects

The third set of hypotheses examines how digital adoption experience, customer retention quality, age, and gender moderate relationships between UTAUT predictors and outcomes, testing whether adoption processes vary systematically across customer segments with different moderator characteristics.

The theoretical mechanism involves evaluation confidence where experienced customers trust their benefit assessments and commit to adoption based on performance perceptions,

while inexperienced customers harbor uncertainty regarding assessment accuracy and demonstrate hesitancy despite positive performance expectations (Venkatesh et al., 2016). This moderation pattern suggests that banks serving digitally inexperienced segments may require demonstrative evidence and trial opportunities enabling customers to develop experiential understanding of performance advantages rather than relying on abstract benefit communications alone. The synergistic interaction reflects complementary moderation mechanisms where digital experience provides evaluation confidence while retention quality reduces risk perception, jointly creating conditions maximizing performance expectancy's influence (Baptista & Oliveira, 2015). This interaction pattern suggests that customer segmentation should consider combined experience-relationship profiles rather than treating moderators independently, enabling targeted strategies aligned with segments' unique adoption dynamics.

South African contexts intensify age-related moderation due to cohort differences in technology exposure histories. Older South African customers frequently experienced limited technology exposure during formative years, creating generational digital divides where younger cohorts possess substantially greater digital proficiency (Cele, 2023). This cohort effect suggests age moderation may demonstrate stronger magnitude in South Africa compared to developed markets with more uniform technology exposure across age groups. South African contexts provide additional theoretical grounds for gender-related social influence moderation.

H_{7a}: Digital adoption experience moderates the relationship between performance expectancy and behavioural intention.

H_{7b}: Customer retention quality moderates the relationship between performance expectancy and behavioural intention.

3.4.4 Hypotheses Relating to Trust Mediation

The fourth set of hypotheses examines how digital trust mediates relationships between service quality, satisfaction, and retention outcomes, addressing the theoretical mechanisms through which experiential quality translates into sustained customer relationships.

The mediation mechanism reflects two-stage processing where service quality first generates trust through competence and benevolence signals, and trust subsequently influences retention by reducing perceived relationship risks and enhancing commitment (Morgan & Hunt, 1994). Empirical evidence from financial services confirms that trust partially mediates

service quality effects on loyalty and retention, with service quality maintaining direct effects alongside indirect trust-mediated pathways (Shankar et al., 2020). Understanding this mediation enables strategic interventions targeting both service quality improvements and explicit trust-building communications to optimize retention outcomes. This contingent mediation pattern suggests that service quality strategies must align with customers' specific literacy levels to optimize trust formation, with differentiated approaches required across heterogeneous literacy populations.

Income-literacy interactions create situations where low-income customers with limited literacy demonstrate heightened trust sensitivity due to financial vulnerability and limited resources for absorbing potential losses from fraud or system failures (Mutimukwe et al., 2020). Education-literacy interactions reflect cognitive resource differences where highly educated customers with low digital literacy quickly develop competencies through systematic learning approaches, while less educated customers with comparable initial literacy levels progress more slowly (Rahi & Abd. Ghani, 2019). Given the dynamism and critical role through which digital trust could mediation a relationship between an antecedent and behavior intentions, the following hypotheses are proposed:

H_{8a}: Digital trust mediates the relationship between perceived digital service quality and customer retention behaviours.

H_{8b}: The mediating effect of digital trust have the relationship between digital service quality and customer retention varies across different digital literacy segments.

3.6 Chapter Summary

This chapter has articulated the research questions and hypotheses guiding the empirical investigation of digital adoption's impact on customer retention within South Africa's retail banking sector. The primary research question examines how digital service quality moderates the relationship between digital adoption and customer loyalty, addressing a fundamental gap in understanding why substantial digital investments yield inconsistent retention outcomes. Three secondary research questions explore trust mediation mechanisms, literacy-demographic interactions, and strategic implementation considerations necessary for translating theoretical insights into practical applications.

The sixteen hypotheses formulated in this chapter translate theoretical relationships identified in the literature review into testable empirical propositions. These hypotheses examine antecedent influences on performance expectancy, UTAUT predictor effects on adoption

outcomes, moderating roles of digital experience and retention quality, demographic moderation patterns, and trust-mediated retention pathways. The hypotheses collectively reflect theoretical sophistication appropriate to South Africa's heterogeneous banking landscape while maintaining empirical testability through established analytical techniques.

The research questions and hypotheses developed in this chapter establish clear direction for the methodological design presented in Chapter Four. The complexity of hypothesized relationships including moderated mediation pathways, three-way interactions, and segment-specific effects necessitates sophisticated analytical approaches combining structural equation modeling, conditional process analysis, and multi-group comparison techniques.

Chapter Four will detail the quantitative research design, sampling strategy, measurement instrument development, data collection procedures, and analytical techniques employed to test these hypotheses and address the research questions formulated in this chapter.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

This chapter presents the methodological framework employed to investigate the moderating role of digital service quality in the relationship between digital adoption and customer retention within South Africa's retail banking sector. Research methodology constitutes the systematic approach through which researchers collect, analyze, and interpret data to address research questions and test hypotheses (Creswell & Creswell, 2018). The formulation of appropriate research methods served as the blueprint for fulfilling the research objectives and addressing the fundamental research questions of this study. This chapter presents the methodology that was employed to investigate digital adoption and customer retention in the South African retail banking sector. The chapter covers research design, sampling methodology, data collection procedures, data analysis techniques, reliability assessments, validity measures, and pre-testing protocols. Additionally, this chapter concludes by addressing reliability and validity considerations, ethical protocols, and methodological limitations that contextualize the interpretation of findings presented in subsequent chapters.

4.2 Research Philosophy and Paradigm

Research philosophy encompasses the fundamental assumptions, beliefs, and knowledge claims that guide methodological choices and shape how researchers approach their investigations (Saunders et al., 2019). These philosophical commitments, often implicit rather than explicitly articulated, profoundly influence research design, data collection methods, analytical approaches, and the interpretation of findings (Crotty, 1998). This study adopts a positivist research paradigm, positioning itself within a philosophical tradition emphasizing objective reality, empirical observation, and causal explanation through systematic investigation.

4.2.1 Epistemological Foundations

Epistemology addresses fundamental questions regarding the nature of knowledge, how knowledge is acquired, and what constitutes valid evidence (Scotland, 2012). Positivist epistemology maintains that objective reality exists independently of human perception and that researchers can discover this reality through systematic empirical investigation employing rigorous methodological protocols (Ryan, 2018). This epistemological stance assumes that social phenomena, including customer behaviors and technology adoption decisions, exhibit patterns and regularities amenable to scientific investigation similar to natural phenomena.

The positivist orientation proves particularly appropriate for this study's objectives of testing theoretical relationships, examining moderation and mediation effects, and generating generalizable knowledge applicable across diverse customer populations (Neuman, 2014). Digital banking adoption represents observable behavior influenced by measurable constructs including performance expectancy, effort expectancy, social influence, and facilitating conditions. However, this study's theoretical framework explicitly acknowledges contextual variation through moderation hypotheses examining how relationships vary across demographic segments and digital literacy levels. The adapted UTAUT model incorporates contextual sensitivity while maintaining the analytical rigor necessary for testing complex theoretical propositions through large-scale empirical investigation (Venkatesh et al., 2016).

4.2.2 Ontological Assumptions

Ontology concerns the nature of reality and existence, addressing whether reality exists objectively or represents socially constructed interpretations (Lawson, 2019). Positivist ontology adopts a realist position, maintaining that an objective reality exists independently of human consciousness and that this reality exhibits discoverable patterns and causal relationships (Maxwell, 2012). In the context of this research, customer retention behaviors, digital adoption patterns, and service quality perceptions represent measurable phenomena exhibiting systematic relationships that empirical investigation can reveal.

The realist ontological stance does not deny that individuals interpret their banking experiences through subjective lenses shaped by personal histories, cultural contexts, and individual circumstances. Rather, it maintains that despite interpretive variation, systematic patterns emerge at the population level that quantitative analysis can identify and explain (Bauer et al., 2021). This ontological position aligns with the study's objective of developing evidence-based recommendations applicable across diverse customer segments within South Africa's retail banking sector. Banks require actionable insights grounded in systematic empirical evidence rather than context-specific interpretations lacking generalizability beyond particular circumstances (Vargo & Lusch, 2016). The realist ontology enables theoretical propositions that transcend individual experiences while acknowledging contextual moderation through systematic investigation of how relationships vary across population segments.

4.2.3 Axiology and Value-Neutrality

Axiology addresses the role of values in research, examining whether investigators can or should maintain value-neutral positions or explicitly acknowledge value commitments shaping

their inquiries (Resnik & Elliott, 2023). Positivist axiology advocates value-neutrality, maintaining that researchers should separate personal values from empirical investigation to ensure objectivity and minimize bias that could distort findings (Cooksey, 2024). This axiological stance emphasizes methodological rigor, standardized procedures, and transparent reporting enabling independent verification and replication.

This study implements several methodological safeguards promoting value-neutrality and minimizing researcher bias. Standardized questionnaires ensure all respondents encounter identical stimuli, preventing interviewer effects that qualitative approaches may introduce (Palmieri, 2020). Anonymous data collection protects respondent privacy while reducing social desirability bias where participants modify responses to present favorable impressions (Kwak et al., 2019). This study acknowledges these influences while implementing methodological procedures maximizing objectivity and transparency. The adapted UTAUT framework derives from extensive theoretical development and empirical validation across diverse contexts, providing established foundations minimizing arbitrary theoretical choices (Venkatesh et al., 2012).

4.3 Research Design

Research design constitutes the comprehensive plan specifying how research questions will be addressed through systematic investigation (Kumar, 2019). This blueprint encompasses decisions regarding data collection methods, sampling procedures, measurement instruments, and analytical techniques aligned with research objectives and philosophical foundations (Babbie, 2020). This study employs a cross-sectional, quantitative, survey-based research design appropriate for testing hypothesized relationships among multiple constructs across diverse population segments.

4.3.1 Quantitative Research Approach

The quantitative research approach emphasizes numerical data collection and statistical analysis to test theories and examine relationships among variables (Apuke, 2017). This approach proves particularly suitable for investigating the complex theoretical model proposed in Chapter Three, involving multiple constructs, mediation pathways, and moderation effects requiring large samples for adequate statistical power (Hair et al., 2019). Quantitative methods enable systematic comparison across demographic segments, testing whether relationships vary significantly across age groups, income levels, education categories, and geographic locations as hypothesized in the conceptual framework. The decision to employ quantitative rather than qualitative or mixed methods reflects several considerations. First, the research

objectives centers on testing theoretical relationships derived from the established UTAUT framework rather than generating new theory through exploratory investigation (Venkatesh et al., 2003). Quantitative hypothesis testing provides appropriate methods for evaluating whether theoretical propositions receive empirical support within South Africa's banking context. Second, the study aims to generate generalizable findings applicable across diverse customer populations rather than developing rich contextual understanding of particular individuals' experiences (Bryman, 2016). Large-scale surveys enable statistical generalization that case studies or ethnographic approaches cannot provide.

4.3.2 Cross-Sectional Survey Design

Cross-sectional designs collect data from respondents at a single time point, providing snapshots of phenomena rather than tracking changes over time (Maier et al., 2023). This study employs cross-sectional methodology, surveying retail banking customers regarding their digital banking perceptions, adoption behaviors, and retention intentions during a defined data collection period. Cross-sectional designs offer several advantages including cost-efficiency, rapid data collection, and feasibility for individual researchers with limited resources compared to longitudinal alternatives (Sedgwick, 2014).

The cross-sectional approach enables testing all hypothesized relationships within practical time and resource constraints while providing sufficient data for complex analytical techniques (Spector, 2019). Survey administration occurred during a two-month period from (August 2025 to September 2025), capturing respondents' current perceptions and recent behavioral experiences with digital banking platforms. This temporal frame ensured data currency while accommodating practical data collection challenges including respondent recruitment and coordination across multiple geographic regions. However, cross-sectional designs present notable limitations requiring acknowledgment. The study addresses this limitation through careful theoretical justification of hypothesized causal directions grounded in established theory and prior empirical evidence, acknowledging that definitive causal claims require experimental or longitudinal designs (Armstrong & Kepler, 2018).

4.3.3 Explanatory Research Purpose

Research purposes typically fall into three categories: exploratory research investigating poorly understood phenomena, descriptive research documenting characteristics of populations or phenomena, and explanatory research examining relationships and testing theories (Neuman, 2014). This study adopts an explanatory purpose, investigating how and

why digital adoption influences customer retention through service quality, trust formation, and digital literacy mechanisms.

The explanatory orientation aligns with the study's theoretical foundations in the adapted UTAUT framework, which provides established constructs and hypothesized relationships requiring empirical testing within South Africa's specific context (Venkatesh et al., 2003). Rather than exploring whether relationships exist between digital adoption and customer retention, the research examines mechanisms through which relationships operate and conditions under which relationship strength varies. This theory-testing approach advances knowledge by evaluating whether established theoretical propositions generalize to emerging market contexts characterized by infrastructure heterogeneity and institutional trust deficits (Cele, 2023). Structural equation modeling enables simultaneous testing of multiple relationships while examining mediation pathways where trust transmits service quality effects and moderation patterns where digital literacy alters relationship strength (Kline, 2016). These analytical capabilities align with explanatory research purposes, generating evidence regarding theoretical mechanisms underlying observed phenomena.

4.4 Target Population

In research, defining the target population constituted a critical step that shaped the scope and applicability of study findings. The target population represented the group to which researchers aimed to generalize their results (Ackerman et al., 2019). The target population for this research comprised adult retail banking customers in South Africa who maintained active relationships with financial banking sectors and had experience using digital banking channels. Specifically, the study focused on customers aged 18 years and above who had engaged with at least one digital banking service (mobile banking applications, internet

South Africa's retail banking sector is dominated by five major banking sectors such as Standard Bank, First National Bank (FNB), ABSA, Nedbank, and Capitec Bank which collectively serve approximately 85% of the retail banking market (Banking Association South Africa, 2024). Additionally, newer digital-first entrants such as Discovery Bank and TymeBank have introduced innovative service delivery models that warranted inclusion. The choice of this target population was particularly significant given the unique characteristics and behaviors of South African banking customers in relation to digital service adoption and retention decisions. This demographic's engagement with digital banking platforms had profound implications for customer loyalty and retention behaviors, making them an ideal focus for this investigation. The heterogeneous population base ensured representation across

different socioeconomic segments, age cohorts, geographic regions, and digital literacy levels, reflecting the diversity of the South African banking landscape.

4.5 Sample Size Selection

Determining an appropriate sample size is crucial for ensuring the representativeness and statistical validity of research findings (Lakens, 2022). Initially, this study aimed to recruit between 120 and 180 participants distributed evenly among three key Metropolitan provinces such as Gauteng, KwaZulu-Natal (KZN), and the Western Cape with 60 respondents targeted per province. This approach intended to reflect population diversity and allow for regional comparisons. However, the actual sample comprised 136 respondents from Gauteng, 9 from KZN, and 21 from the Western Cape, resulting in notable disproportionality that compromises representativeness and the ability to generalize across all strata.

Furthermore, moderation and mediation analyses require adequate power for detecting interaction effects and indirect pathways, with simulation studies suggesting samples of 150-200 provide reasonable power for medium-sized effects (Fritz & MacKinnon, 2007). The study's nine (9) hypotheses include multiple moderation and mediation propositions requiring sufficient sample sizes for adequate statistical power. Third, the study aimed to enable subgroup analyses comparing relationships across demographic segments, necessitating adequate sample sizes within each subgroup for reliable parameter estimation (Hair et al., 2019).

The disproportionate distribution is problematic given that stratified sampling aims to achieve proportional representation based on population strata (Creswell & Creswell, 2018). Although Gauteng holds the largest percentage of the national population (25.5%), mere population size does not justify the significant underrepresentation of KZN and Western Cape participants. This imbalance may bias findings and limit the study’s external validity (Bell & Warren, 2023). Future research should incorporate oversampling or weighting techniques to address such disparities. Despite these limitations, the chosen sample size remains within acceptable parameters to support correlational and regression analyses, with prior research suggesting that samples between 150 and 400 can adequately power studies examining moderation and mediation effects (Fan et al., 2016; Brown et al., 2018). Nonetheless, the sampling disparity must be considered in interpreting the results, particularly for subgroup analyses.

4.6 Sampling Method

This study employed a combination of purposive and snowball sampling techniques, both classified as non-probability sampling approaches. Purposive sampling involves deliberately selecting participants possessing characteristics relevant to research objectives rather than randomly selecting from a population (Palinkas et al., 2015). This technique proves appropriate when researchers require participants with specific experiences or knowledge and when probability sampling proves impractical due to the absence of comprehensive sampling frames (Etikan et al., 2016). The purposive approach enabled recruitment of participants meeting the study's inclusion criteria, specifically targeting digitally engaged banking customers in major metropolitan areas such as (Gauteng, KZN, Western Cape). Participant recruitment occurred through multiple channels to enhance accessibility and response rates. Online survey platforms and social media enabled broad reach, particularly appropriate for a study focused on digitally active banking customers. Initial recruitment messages specified eligibility criteria, ensuring self-selection among individuals meeting study requirements. This targeted approach improved sampling efficiency compared to random recruitment where substantial proportions of contacted individuals might fail eligibility screening.

Snowball sampling supplemented purposive recruitment, leveraging initial participants' social networks to identify additional eligible respondents (Naderifar et al., 2017). This referral-based technique proves particularly valuable for accessing hard-to-reach populations or when sampling frames prove unavailable, as existing participants can identify potential respondents within their social networks meeting research criteria (Biernacki & Waldorf, 1981). Initial participants received invitations to share the survey with their contacts who might meet eligibility requirements, creating recruitment chains extending beyond researchers' direct networks. The combination of purposive and snowball techniques addressed practical recruitment challenges while introducing potential biases requiring acknowledgment. Purposive sampling risks over-representing easily accessible population segments while under-representing difficult-to-reach groups (Etikan et al., 2016). For example, recruitment through digital platforms may over-sample technologically proficient customers while missing individuals with limited digital engagement. Snowball sampling risks generating homogeneous samples reflecting initial participants' network compositions, potentially under-representing socioeconomically or demographically diverse population segments (Sadler et al., 2010).

4.7 Data Collection Methods

Data collection methods specify how researchers gather information from participants, encompassing decisions regarding instruments, administration modes, and procedural

protocols (Taherdoost, 2016). This study employed structured, self-administered questionnaires as the primary data collection instrument, administering surveys through both paper-based and digital formats to accommodate varying participant preferences and accessibility constraints.

4.7.1 Primary Data Sources

Primary data collection involved gathering original information directly from retail banking customers through structured questionnaires specifically designed to address the research objectives. Unlike secondary sources, primary data provided direct measurement of customer perceptions, attitudes, and behavioral intentions within the specific context of South African digital banking (Kabir, 2016).

- **Survey Instrument Development**

The survey instrument comprised five main sections corresponding to the theoretical framework's construct categories: (A) demographics, (B) digital adoption, (C) digital service quality, (D) digital trust, and (E) customer retention. The questionnaire structure reflected established principles of survey design including logical sequencing, clear instructions, and balanced item presentation minimizing response biases (Fowler, 2014). Below is the structure of the survey:

- Section A collected demographic information including age group, geographic location, monthly household income, education level, and primary banking institution. Demographic questions employed categorical response formats rather than requesting exact values, reducing participant discomfort regarding sensitive information while enabling statistical analysis of group differences (Krosnick & Presser, 2010). The demographic section concluded the questionnaire rather than opening it, following recommendations that potentially sensitive questions appear after rapport establishment through less threatening initial items (Dillman et al., 2014).
- Section B measured digital adoption through eight items adapted from established technology acceptance scales (Venkatesh et al., 2012). Items assessed usage frequency, channel preferences, routine integration, feature utilization, feature exploration, transaction complexity, efficiency gains, and overall experience enhancement. This multidimensional operationalization captured both quantitative adoption dimensions including usage frequency and qualitative dimensions including sophistication and integration into banking routines.

- Section C evaluated digital service quality through twelve items organized into four subdimensions following the information systems success model (DeLone & McLean, 2003). Items assessed efficiency (3 items), system availability (3 items), fulfillment (3 items), and privacy/security (3 items). This dimensional structure enabled examination of whether specific service quality attributes demonstrated differential relationships with trust formation and retention outcomes.
- Section D measured digital trust through ten items capturing three trust dimensions including ability trust (3 items), benevolence trust (3 items), and integrity trust (3 items), plus one item regarding organizational ESG systems that appeared misplaced (Mayer et al., 1995). The multidimensional trust operationalization acknowledged that trust comprises distinct psychological components reflecting beliefs about competence, goodwill, and honesty that may demonstrate different antecedents and consequences (McKnight et al., 2002).
- Section E assessed customer retention through seven items measuring retention intentions (3 items), switching intentions reverse-coded (2 items), and digital literacy self-assessment (2 items). The inclusion of reverse-coded switching intention items addressed common method bias by varying response directionality, requiring participants to process items carefully rather than responding habitually (Podsakoff et al., 2012).

All substantive items employed five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree), following conventions in technology acceptance research (Venkatesh et al., 2003). Five-point scales provide sufficient response discrimination while avoiding excessive cognitive burden from overly fine-grained distinctions that seven-point or longer scales may introduce (Krosnick & Presser, 2010). The consistent response format across sections reduced participant confusion and enabled direct comparison of mean scores across constructs.

- **Sampling Frame and Participant Acquisition**

The operational challenge of accessing retail banking customers without direct banking sectors database access necessitated alternative sampling frame construction. Given the sensitivity of customer information and regulatory constraints under the Protection of Personal Information Act (POPIA, 2013), banking sectors declined requests for direct customer database access or institutional-facilitated distribution. Consequently, the sampling frame was constructed through publicly accessible channels targeting individuals meeting inclusion criteria: South African residents aged 18 years and above who had used digital banking

services within the preceding six months. Recruitment proceeded through multiple channels implemented sequentially over a two-month data collection period (August 2025 to September 2025). Initial recruitment utilized targeted social media advertising on platforms including Linkedin, Telegram, and WhatsApp, with advertisement parameters specifying South African location, age 18+, and interests related to banking or financial services. These advertisements contained brief study descriptions and direct links to the electronic questionnaire. A controlled snowball component allowed initial participants to share the survey link within their networks, though this represented less than 15% of total responses to minimize selection bias (Naderifar, Goli & Ghaljaie, 2017).

4.7.2 Secondary Data Sources

Secondary data comprises information previously collected for purposes other than the immediate research question at hand (Martins, Cunha & Serra, 2018). While Chapter Two provided the substantive literature review outcomes, this section clarifies the methodological function of secondary sources within the data collection strategy. Secondary data served three specific methodological purposes in this investigation: first, establishing theoretical constructs and validated measurement instruments; second, informing sampling frame development through demographic and market data; and third, providing benchmarking statistics for sample representativeness assessment (Johnston, 2014).

Published industry reports from the Banking Association of South Africa (2023) and regulatory documents from the South African Reserve Bank provided market structure data, including institutional market shares and customer distribution patterns across provinces. These sources informed the stratification design by identifying population parameters against which sample composition could be evaluated. Academic databases including EBSCOhost, Google Scholar, Banking Source, and Scopus Insight were systematically searched to identify validated measurement scales for digital adoption, service quality, trust, and retention constructs. This process ensured methodological consistency with established research traditions while avoiding instrument development errors common in bespoke scale creation (Boateng et al., 2018). Ethical considerations for secondary data utilization were addressed through the research ethics protocol approved by the institution's Ethics Committee.

4.8 Measurement Scales and Operationalization

Operationalization involves translating abstract theoretical constructs into concrete, measurable indicators enabling empirical assessment (Bryman, 2016). This process requires careful consideration of construct definitions, item generation, response formats, and

psychometric evaluation ensuring that measurements adequately capture intended concepts while minimizing measurement error (DeVellis, 2017). Below are the ten construct discussed:

- **Performance Expectancy**

Performance expectancy, defined as the degree to which individuals believe that using digital banking will enhance their banking performance, was measured through four items adapted from Venkatesh et al. (2012). Items assessed perceptions that digital banking helps accomplish tasks more efficiently, enhances overall banking experience, provides instrumental value, and supports financial management objectives. The four-item scale demonstrated excellent internal consistency reliability ($\alpha = 0.89$) during pilot testing, supporting its retention for main data collection.

- **Effort Expectancy**

Effort expectancy, conceptualized as the degree of ease associated with using digital banking systems, employed four items evaluating perceived ease of use, learning ease, skill development ease, and interaction clarity (Venkatesh et al., 2003). Items captured beliefs regarding cognitive and physical resources required for digital banking utilization. Pilot testing demonstrated strong reliability ($\alpha = 0.86$), indicating items cohesively measured the underlying construct.

- **Social Influence**

Social influence, defined as the extent to which individuals perceive that important others believe they should use digital banking, was assessed through three items measuring perceived social expectations, peer adoption observations, and community validation (Venkatesh et al., 2003). The social influence construct proved theoretically important in South Africa's collectivist cultural context where family and community opinions substantially influence financial decisions (Mutimukwe et al., 2020). Reliability analysis indicated adequate internal consistency ($\alpha = 0.78$).

- **Facilitating Conditions**

Facilitating conditions, representing the degree to which individuals believe organizational and technical infrastructure exists to support digital banking usage, employed four items assessing resource availability, knowledge availability, compatibility with existing systems, and assistance availability (Venkatesh et al., 2003). These items captured environmental enablers

supporting implementation behavior. Pilot testing demonstrated satisfactory reliability (α = 0.82).

- **Digital Service Quality**

Digital service quality represented a multidimensional construct comprising four subdimensions: efficiency, system availability, fulfillment, and privacy/security (DeLone & McLean, 2003). Efficiency was measured through three items assessing transaction speed, interface usability, and process streamlining. System availability employed three items evaluating temporal availability, system reliability, and device compatibility. Fulfillment utilized three items measuring need satisfaction, promise delivery, and transaction accuracy. Privacy/security comprised three items assessing security confidence, privacy protection, and security measure robustness. The complete twelve-item scale demonstrated excellent overall reliability (α = 0.93), while subdimensions showed acceptable to good reliability (α ranging from 0.76 to 0.88).

- **Customer Satisfaction**

Customer satisfaction, defined as affective responses to accumulated banking experiences, employed three items measuring overall satisfaction, expectation confirmation, and service experience positivity (Bhattacherjee, 2001). The brief scale balanced measurement adequacy against respondent burden, as extensive satisfaction batteries might induce fatigue compromising response quality. Pilot testing indicated acceptable reliability (α = 0.84).

- **Digital Trust**

Digital trust represented beliefs regarding banking institutions' trustworthiness in digital service delivery contexts (Mayer et al., 1995). The construct comprised three dimensions: ability trust assessed through three items measuring perceived technical expertise, operational competence, and transaction handling professionalism; benevolence trust evaluated through three items capturing beliefs regarding customer welfare concern and good intentions; and integrity trust measured through three items assessing honesty, promise-keeping, and interaction integrity. The overall scale demonstrated excellent reliability (α = 0.94), while subdimensions showed good reliability (α ranging from 0.85 to 0.90). One item regarding ESG systems appeared conceptually misplaced but was retained pending empirical evaluation of its loading pattern.

- **Behavioral Intention**

Behavioral intention, representing conscious plans to engage with digital banking platforms, employed three items measuring future usage intention, usage increase likelihood, and recommendation willingness (Venkatesh et al., 2003). These items captured both personal commitment and advocacy intentions reflecting strong motivational states. Reliability analysis indicated good internal consistency (α = 0.87).

- **Use Behavior**

Use behavior proved challenging to operationalize in cross-sectional surveys lacking behavioral tracking data (Burton-Jones & Straub, 2006). The study employed self-reported frequency measures asking respondents to indicate how often they used digital banking channels during the past month across various transaction types. While self-reported behavior introduces potential recall bias and social desirability effects, this approach provided practical assessment when objective usage logs remained unavailable (Straub et al., 1995).

- **Demographic Variables**

Demographic variables including age, gender, income, education, and geographic location served as control variables and additional moderators (Morris & Venkatesh, 2000). Age was measured categorically across six groups: 18-25, 26-35, 36-45, 46-55, 56-65, and over 65 years. Gender employed binary classification (male/female) acknowledging limitations in capturing gender diversity but reflecting common practice in technology acceptance research. Monthly household income utilized seven categories ranging from below R5,000 to above R100,000, capturing South Africa's substantial income inequality. Education level employed five categories from primary school through postgraduate degree. Geographic location distinguished three provinces: Gauteng, KwaZulu-Natal, and Western Cape. Primary banking institution identified customers' main banking relationships across seven options including five major banks, emerging digital banks, and an "other" category.

4.9 DATA ANALYSIS PROCEDURES

Data analysis procedures translate raw data into meaningful findings addressing research questions and testing hypotheses (Hair et al., 2019). This study employed multiple analytical techniques progressing from preliminary data screening through descriptive analysis, reliability assessment, validity evaluation, and hypothesis testing using structural equation modeling.

4.9.1 Data Preparation and Screening

Data preparation constituted the essential first stage involving data entry, cleaning, screening for errors, and addressing missing values (Tabachnick & Fidell, 2019). Paper-based surveys required manual data entry into SPSS Version 29.0, with double-entry verification procedures ensuring accuracy. Digital survey responses downloaded directly from Google Forms underwent format conversion for compatibility with statistical software. The combined dataset underwent systematic screening procedures identifying data quality issues requiring resolution. Missing data analysis examined patterns and proportions of missing values across items and respondents (Little & Rubin, 2020). Individual items with more than 15% missing values and respondents with more than 20% incomplete items faced exclusion from analysis, as excessive missingness compromises result validity. Missing completely at random (MCAR) tests evaluated whether missingness patterns demonstrated systematic relationships with other variables, indicating whether listwise deletion or more sophisticated imputation techniques proved appropriate (Enders, 2010).

Outlier detection employed multiple techniques including univariate methods examining standardized scores exceeding ±3.29 standard deviations and multivariate approaches using Mahalanobis distance identifying observations demonstrating unusual patterns across multiple variables simultaneously (Tabachnick & Fidell, 2019). Detected outliers received careful examination determining whether they represented data entry errors requiring correction, legitimate extreme values warranting retention, or anomalous responses suggesting respondent inattention necessitating exclusion. Normality assessment evaluated whether continuous variables demonstrated approximately normal distributions, as many statistical techniques assume normality (Field, 2018). Skewness and kurtosis statistics provided numerical indicators, with absolute values below 2.0 for skewness and below 7.0 for kurtosis suggesting acceptable approximation to normality (Curran et al., 1996).

4.9.2 Descriptive Statistical Analysis

Descriptive analysis provided initial data summaries characterizing respondent demographics, construct score distributions, and preliminary relationship patterns (Tabachnick & Fidell, 2019). Frequency distributions and percentages described categorical variables including demographics and banking institution affiliations. Measures of central tendency (mean, median) and dispersion (standard deviation, range) characterized continuous variables including construct scores. Cross-tabulations examined demographic compositions across subgroups, evaluating whether sampling achieved adequate representation across relevant population segments. Construct-level descriptive statistics provided initial assessment of scale

performance. Mean scores indicated typical response levels for each construct, revealing whether participants generally agreed or disagreed with scale items. Standard deviations indicated response variability, with low values suggesting restricted range potentially limiting correlation magnitude. Score distributions received examination for floor or ceiling effects where responses cluster at scale extremes, reducing measurement sensitivity (Terwee et al., 2007).

4.9.3 Reliability Assessment

Reliability assessment evaluated measurement consistency, examining whether scale items cohesively measured underlying constructs (DeVellis, 2017). Internal consistency reliability, assessed through Cronbach's alpha coefficients, indicated the degree to which items within scales demonstrated intercorrelation reflecting shared variance in measuring common constructs (Tavakol & Dennick, 2011). Alpha values above 0.70 indicated acceptable reliability, values above 0.80 suggested good reliability, and values above 0.90 demonstrated excellent reliability, though extremely high values ($\alpha > 0.95$) might indicate item redundancy (Nunnally & Bernstein, 1994).

Item-total correlation analysis supplemented alpha coefficients, examining how strongly individual items correlated with their scale totals (Ferketich, 1991). Weak item-total correlations ($r < 0.30$) suggested items poorly measured their intended constructs, potentially requiring revision or removal. Alpha-if-item-deleted statistics indicated whether removing specific items would improve overall scale reliability, identifying problematic items compromising measurement quality. Composite reliability (CR) provided alternative reliability estimates within the structural equation modeling framework, addressing Cronbach's alpha limitations including sensitivity to item number and assumption of equal item loadings (Hair et al., 2019). CR values above 0.70 indicated adequate reliability, with values exceeding 0.80 suggesting good reliability. The study reported both alpha and CR coefficients, providing comprehensive reliability evidence.

4.9.6 Inferential Statistical Analysis

Inferential analysis tested hypothesized relationships and group differences, extending beyond descriptive summaries to evaluate whether observed patterns reflected population characteristics or merely sample-specific anomalies (Field, 2018). The study employed multiple inferential techniques appropriate for different hypothesis types.

Correlation matrices provided preliminary evidence regarding hypothesized relationships, with significant positive correlations supporting predictions while non-significant or negative correlations raising theoretical concerns. However, correlations captured only linear relationships without addressing causality, mediation, or moderation, necessitating more sophisticated techniques for comprehensive hypothesis testing. However, independent samples t-tests compared means between two groups (e.g., male versus female respondents), evaluating whether observed differences exceeded sampling variability expectations under null hypotheses of equal population means (Field, 2018). Significant t-tests indicated demographic groups demonstrated different construct score levels, suggesting group membership influenced measured variables.

Analysis of variance (ANOVA) extended t-test logic to multiple groups, testing whether construct means varied across categorical variables with more than two levels including age groups, income categories, and education levels (Tabachnick & Fidell, 2019). Significant omnibus F-tests indicated that at least one group mean differed significantly from others, followed by post-hoc pairwise comparisons identifying specific group differences. However, ANOVA assumes normally distributed residuals and homogeneous variances across groups, assumptions potentially violated in consumer survey data. Moreover, the Kruskal-Wallis test provided nonparametric alternative to ANOVA, comparing median scores across multiple independent groups without assuming normality (Field, 2018). This rank-based technique proved robust to outliers and non-normal distributions commonly encountered in Likert-scale data. Significant Kruskal-Wallis tests indicated groups demonstrated different distributions, followed by pairwise Mann-Whitney tests identifying specific group differences with appropriate alpha adjustments controlling familywise error rates.

4.9.7 Structural Equation Modeling

Structural equation modeling (SEM) constituted the primary analytical technique for testing the comprehensive theoretical model specified in Chapter Three (Kline, 2016). SEM's advantages over regression analysis include simultaneous testing of multiple relationships, explicit modeling of measurement error, examination of indirect effects through mediation pathways, and comprehensive model fit evaluation (Hair et al., 2019). The study employed covariance-based SEM (CB-SEM) using AMOS Version 28.0, enabling confirmatory factor analysis and path analysis within a unified analytical framework.

- **Measurement Model Evaluation**

Measurement model evaluation preceded structural model testing, confirming that observed indicators adequately measured latent constructs before examining relationships among constructs (Anderson & Gerbing, 1988). Confirmatory factor analysis (CFA) specified relationships between latent variables and their indicators, estimating factor loadings, error variances, and interfactor correlations. Model identification required each latent variable to have at least three indicators or have one indicator with fixed loading establishing metric scale (Kline, 2016).

Model fit assessment employed multiple indices reflecting different fit aspects, as no single index captures all fit dimensions (Hu & Bentler, 1999). Chi-square (χ^2) statistics tested exact fit null hypotheses that model-implied and observed covariance matrices were identical. Non-significant chi-square values ($p > 0.05$) supported adequate fit, though this test's sensitivity to sample size often yielded significant results even for acceptable models, limiting its practical utility (Barrett, 2007). The chi-square to degrees of freedom ratio (χ^2/df) provided standardized fit indicator less sensitive to sample size, with values below 3.0 indicating acceptable fit and values below 2.0 suggesting good fit (Kline, 2016). The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) measured incremental fit comparing the hypothesized model against a baseline model assuming zero population covariances. CFI and TLI values above 0.90 indicated acceptable fit, while values above 0.95 suggested good fit (Hu & Bentler, 1999).

The Root Mean Square Error of Approximation (RMSEA) assessed absolute fit, estimating discrepancy between model-implied and population covariance matrices per degree of freedom. RMSEA values below 0.08 indicated acceptable fit, values below 0.06 suggested good fit, and values below 0.05 demonstrated excellent fit (Browne & Cudeck, 1993). RMSEA's 90% confidence interval provided uncertainty quantification, with narrow intervals indicating precise estimation. The study prioritized theoretically defensible modifications including correlated errors for semantically similar items and removal of items demonstrating poor psychometric properties.

- **Structural Model Evaluation**

Following satisfactory measurement model evaluation, structural model testing examined hypothesized relationships among latent constructs (Hair et al., 2019). The structural model specified directional paths corresponding to hypothesized effects, with path coefficients (standardized regression weights) indicating relationship strength and direction. Significant positive path coefficients supported hypothesized positive relationships, while non-significant coefficients suggested hypothesized relationships lacked empirical support.

Statistical significance testing employed critical ratios (CR) representing parameter estimates divided by their standard errors, functionally equivalent to t-statistics (Kline, 2016). Critical ratios exceeding ±1.96 indicated significance at $p < 0.05$ level, with CR values exceeding ±2.576 achieving $p < 0.01$ significance and CR values exceeding ±3.291 reaching $p < 0.001$ significance. The study reported exact p-values rather than merely indicating whether thresholds were exceeded, providing fuller information for readers' interpretation. Squared multiple correlations (R^2) indicated variance proportions in dependent variables explained by their predictors, with higher values indicating stronger explanatory power.

- **Mediation Analysis**

Mediation analysis examined whether relationships between independent and dependent variables operated through intermediary mechanisms rather than directly (Hayes, 2018). The adapted UTAUT model hypothesized multiple mediation pathways including trust mediating service quality effects on retention and performance expectancy mediating service quality and satisfaction effects on behavioral intention. Mediation testing required establishing four conditions: (1) significant relationships between independent variables and mediators, (2) significant relationships between mediators and dependent variables, (3) significant total effects of independent variables on dependent variables, and (4) reduced or eliminated direct effects when mediators entered models (Baron & Kenny, 1986). However, contemporary mediation analysis emphasizes indirect effect significance rather than requiring all four conditions, as significant mediation can occur absent significant total effects (Hayes, 2009). The study employed bootstrapping procedures generating empirical sampling distributions of indirect effects, calculating bias-corrected confidence intervals (MacKinnon et al., 2004). Confidence intervals excluding zero indicated significant indirect effects supporting mediation hypotheses. Bootstrap samples of 5,000 provided stable confidence interval estimates.

Partial versus complete mediation received evaluation by examining direct effects' significance and magnitude after controlling for indirect pathways (Zhao et al., 2010). Significant direct effects alongside significant indirect effects indicated partial mediation where independent variables influenced dependent variables through both mediated and direct pathways. Non-significant direct effects coupled with significant indirect effects suggested complete mediation where relationships operated entirely through mediating mechanisms. The study reported both direct and indirect effects with their confidence intervals, providing comprehensive mediation evidence.

- **Moderation Analysis**

Moderation analysis examined whether relationships between predictors and outcomes varied across levels of moderating variables (Hayes, 2018). The theoretical model hypothesized multiple moderation effects including digital adoption experience and customer retention quality moderating UTAUT relationships alongside age and gender moderating specific paths. Multi-group analysis provided alternative moderation testing approach, comparing path coefficients across subgroups defined by categorical moderators (Kline, 2016). This technique estimated separate models for each moderator group, testing whether path coefficients differed significantly through chi-square difference tests comparing constrained models (paths forced equal across groups) against unconstrained models (paths freely estimated). Significant chi-square differences indicated moderation, with examination of group-specific path coefficients revealing moderation patterns.

Significant interaction terms indicated moderation, with simple slope analysis examining relationships at different moderator levels (typically mean, one standard deviation above mean, and one standard deviation below mean). Visual representation through interaction plots clarified moderation patterns, showing whether relationships strengthened, weakened, or reversed across moderator levels. Three-way interactions tested synergistic moderation hypotheses where two moderators jointly influenced relationships (Dawson & Richter, 2006). These complex interactions required creating product terms involving predictor and both moderators, examining whether three-way products significantly predicted outcomes. Significant three-way interactions necessitated careful probing through simple slope analysis at multiple moderator combinations, often requiring visualization across multiple panels.

4.9.8 Statistical Software

Data analysis employed multiple software platforms addressing different analytical needs. IBM SPSS Statistics Version 29.0 conducted preliminary data screening, descriptive analysis, reliability assessment, group comparisons, and correlation analysis (IBM Corporation, 2022). SPSS's user-friendly interface and comprehensive basic statistical capabilities made it ideal for preliminary analyses and descriptive reporting. IBM AMOS Version 28.0 conducted structural equation modeling including confirmatory factor analysis, path analysis, and mediation testing (Arbuckle, 2022). AMOS's graphical interface enabled intuitive model specification through diagram drawing, with automatic parameter estimation and comprehensive fit statistics. AMOS's bootstrapping capabilities supported mediation analysis through indirect effect confidence intervals.

4.10 Pre-Testing

Before launching the full-scale survey, a comprehensive pre-testing phase was conducted to assess the questionnaire's effectiveness and identify potential issues. This initial testing aims to identify potential issues such as ambiguous wording or excessive administration time, thereby allowing researchers to make necessary adjustments before the broader deployment of the survey (Rea & Parker, 2014). Pre-testing involved administering the questionnaire to a representative sample of 20 customers drawn from the target population to evaluate question clarity, completion time, and overall instrument functionality (Seth et al., 2022).

The pre-testing process served as a critical refinement stage for the questionnaire, enabling identification of ambiguous wording, excessive administration time, or other issues that could affect data quality. Participants in the pre-test phase were asked to provide feedback regarding their completion experience, including suggestions for improvements and assessments of question clarity. Feedback from the pre-testing phase was systematically analyzed and incorporated into the final version of the questionnaire. The insights gained ensured that the final instrument was clear, concise, and met the needs of the target audience. Pre-testing also enabled validation of the expected completion time and confirmation that the questionnaire could be completed within reasonable timeframes as specified in participant information materials. Pretesting results and feedback can be found under Annexure 1.

4.11 Ethical Considerations

Research inherently involved ethical dimensions that obligated adherence to moral and professional standards throughout the investigation process (Vanclay et al., 2013). The researcher maintained heightened sensitivity regarding participant responses and demonstrated commitment to truthfulness and respect for participant values to ensure research integrity. The researcher will adhere to the ethical standards required by the Ethics Office at the University of Pretoria. For ethical clearnce approval refer to (Annexure 1a)

4.11.1 Informed Consent

Informed consent procedures were implemented prior to data collection, ensuring participants understood the research objectives, participation requirements, and anonymity protections. An introductory communication was distributed to potential participants summarizing key study information and providing opportunities for consent to participate. Participants were clearly informed of their right to withdraw from the study at any point without any repercussions.

4.11.2 Anonymity and Confidentiality

Strict anonymity and confidentiality protocols were maintained throughout the research process. The researcher refrained from collecting identifying information from participants, thereby eliminating direct links between individual responses and participant identities (only aggregated data was reported). Participating banking institutions and individual customers were not identified in any research reports or publications resulting from the study.

4.11.3 Data Protection

Data protection measures were implemented in compliance with the Protection of Personal Information Act (POPIA) and relevant banking industry regulations. Therefore, the researcher will not require access directly from any of the mentioned banking institutions for data collection, but rather than consent of participants. All collected data was securely stored and accessible only to authorized research personnel. Data sharing agreements with participating institutions ensured appropriate handling of customer information while maintaining research confidentiality requirements. For the purpose of this study only aggregated data was reported on.

4.11.4 Data Storage

All raw data, including excel data sheet and questionnaires will be securely stored on encrypted, password-protected devices accessible only to the researcher and authorised supervisors. Data will be retained for a minimum of five years after the study's completion, in compliance with institutional policies and the Protection of Personal Information (POPI) Act (2013). After the retention period of 10 years, data will be securely destroyed to protect participant confidentiality. Data will be stored via one drive cloud.

4.12 Chapter Summary

This chapter presented the methodological framework guiding this investigation of digital adoption and customer retention in South Africa's retail banking sector. Furthermore, Chapter four covered the research methodology steps. This chapter provided the step-by step guidance of the chosen methodology and its relevance, as well as motivations for the choice in the research approach. The proposed research methodology and design, conclusions, and limitations applicable for the chosen methodology were discussed. The next chapter presents the detailed data analysis and discussion of findings derived from this methodological framework. For survey questionnaire and data coding, refer to (Annexure1b).

CHAPTER FIVE: EMPIRICAL RESULTS

5.1 Introduction

This chapter presents the empirical findings derived from the quantitative investigation into digital banking adoption, service quality perceptions, trust formation, and customer retention intentions within the South African retail banking sector. The analysis draws upon data collected through a structured questionnaire administered to 166 banking customers across major urban center's. The statistical examination employed both descriptive and inferential techniques, culminating in covariance-based structural equation modelling (CB-SEM) to test the hypothesised relationships among the study's key constructs.

The chapter unfolds in a systematic progression. Initially, the demographic profile of respondents is described using frequency distributions, percentages, and graphical representations, establishing the contextual foundation for interpretation (Hair, Black, Babin, & Anderson, 2019). Subsequently, the psychometric properties of the measurement instrument are evaluated through factor analysis and reliability assessment, ensuring that the latent constructs are adequately captured by their constituent items (Fornell & Larcker, 1981). The third section employs nonparametric statistical tests to examine group differences across demographic segments, providing insight into how customer characteristics shape digital banking perceptions (Field, 2018). The study analysed the data in accordance with the objectives and hypotheses stated in Chapter 3 and recapped as follows.

H_1: Service quality has a significant and positive relationship with performance expectancy in adoption of digital banking.

H_2: Customer satisfaction have a significant and positive relationship with performance expectancy in adoption digital banking.

H_3: Performance expectancy has a significant and positive relationship with behavioural intention to use digital banking.

H_4: Effort expectancy have a significant and positive relationship with behavioural intention to use digital banking.

H_5: Social influence has a significant and positively relationship with behavioural intention to use digital banking.

H_6: Facilitating conditions has a significant and positively relationship with use behaviour in digital banking.

Finally, the structural model is assessed using CB-SEM, enabling simultaneous evaluation of measurement validity and hypothesised causal pathways (Byrne, 2016). Model adequacy is determined through multiple fit indices, while path coefficients and variance explained (R^2) values illuminate the strength and direction of relationships among digital adoption, service quality, trust, and retention intentions, which includes the measurement model, model predictive and explanatory analysis, and then the structural model, which was used to test the hypotheses. By integrating traditional statistical procedures with advanced multivariate modelling, this chapter offers a comprehensive analytical framework that not only describes observed patterns but also confirms the underlying theoretical architecture of the research model (Kline, 2016). The findings contribute to a deeper understanding of how digital transformation initiatives influence customer behaviour and loyalty within emerging market banking contexts.

5.2 Sample Characteristics: Response Rate

A total of 166 completed questionnaires were obtained from the target population, representing banking customers actively engaged with digital banking platforms across major South African urban centres. This sample size exceeds the minimum threshold recommended for multivariate analysis and provides adequate statistical power for both exploratory factor analysis and structural equation modelling (Tabachnick & Fidell, 2019). According to Comrey and Lee (1992), samples exceeding 100 observations are considered adequate for factor analysis, while Kline (2016) suggests that samples between 100 and 200 observations are acceptable for CB-SEM when models are relatively simple and measurement quality is strong. The achieved sample size is therefore deemed appropriate for the analytical techniques employed in this study.

5.3 The Research Instrument

The research instrument consisted of 42 items, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 5 sections which measured various themes as illustrated below:

Table 5.1: Level of measurement in various themes

A	Biographical data
B	Performance Expectancy: Digital Adoption
C	Facilitating Conditions: Digital Service Quality
D	Social Influence: Digital Trust
E	Effort Expectancy: Customer Retention Intentions

5.4 Descriptive Statistics

This section presents the descriptive statistics based on the demographic's information of the respondents. According to Dhanapala, Vashub and Subramaniam (2015: 117), descriptive statistics refer to the organising, summarising and describing of quantitative data. Demographic information, which includes characteristics like gender and race are depicted graphically.

5.4.1 Demographic Profile of the sample

This section presents a summary of the biographical characteristics of the respondents. The demographic information provides a basis for interpreting subsequent analytical results. Descriptive statistics are presented in the form of frequency distributions and percentages, and various types of charts, to illustrate the demographic profile of participants. The demographic composition of the sample reveals several noteworthy patterns that contextualise the subsequent findings. Figure 5.1 summarises the age distribution of the respondents.

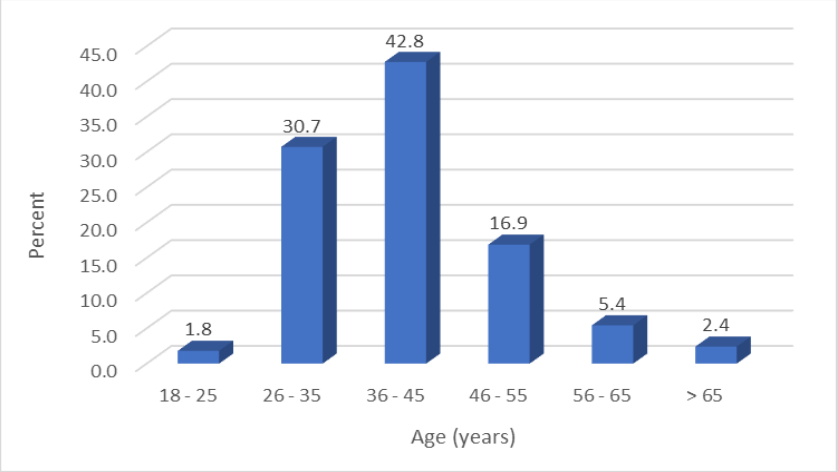

Figure 5.1: Age distribution

The age distribution was concentrated predominantly within the economically active adult population, with 42.8% (n = 71) of respondents aged 36–45 years and 30.7% (n = 51) aged 26–35 years. Together, these two cohorts represented nearly three-quarters (73.5%) of the total sample. Smaller proportions were observed in the 46–55 years bracket (16.9%, n = 28), while older age groups, 56–65 years (5.4%, n = 9) and above 65 years (2.4%, n = 4) comprised a minimal segment. The youngest category, 18–25 years, accounted for only 1.8% (n = 3) of respondents. Overall, the results indicate that the respondent pool was predominantly composed of adults between 26 and 45 years, reflecting a mature and professionally active demographic most likely to engage with digital banking services ($p < 0.001$). However, Table 5.1 below summarises the geographic distribution of respondents according to their primary residence.

Table 5.2: Primary Residence

	Frequency	Percent
Gauteng (Urban)	136	81.9
KwaZulu-Natal (Urban)	9	5.4
Western Cape (Urban)	21	12.7
Total	166	100.0

Geographically, the sample exhibited pronounced concentration within Gauteng (Urban), which accounted for 81.9% (n = 136) of respondents. The Western Cape (Urban) contributed 12.7% (n = 21), while KwaZulu-Natal (Urban) represented only 5.4% (n = 9) of the total. These findings highlight a predominantly Gauteng-based sample, suggesting that most respondents were drawn from urban environments characterised by higher levels of digital infrastructure and technological access, which may influence their engagement with digital banking platform ($p < 0.001$). Thus, figure 5.2 below indicates the distribution of respondents according to their reported monthly household income.

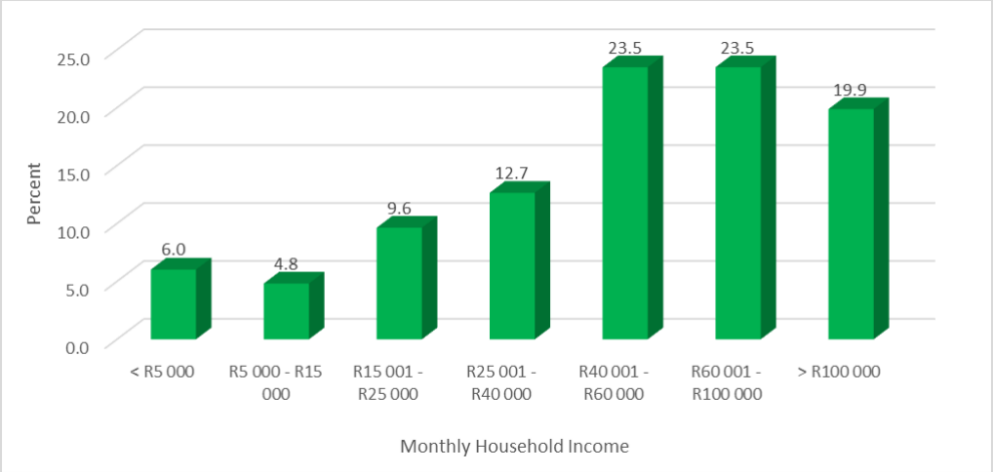

Figure 5.2: Monthly Household Income

Monthly household income levels revealed a predominantly middle- to upper-income sample composition. The largest proportions of respondents reported earnings within the R40,001–R60,000 (23.5%, n = 39) and R60,001–R100,000 (23.5%, n = 39) brackets, collectively representing 47% of the sample. An additional 19.9% (n = 33) earned above R100,000 per month, indicating substantial representation of high-income earners. Lower income categories were less prevalent: R25,001–R40,000 (12.7%, n = 21), R15,001–R25,000 (9.6%, n = 16), R5,000–R15,000 (4.8%, n = 8), and below R5,000 (6.0%, n = 10). Overall, the findings indicate that the sample was dominated by respondents with moderate to high income levels, suggesting that most participants possessed substantial financial capacity and access to digital banking resources ($p < 0.001$). Furthermore, figure 5.3 below summarises the educational qualifications of the respondents.

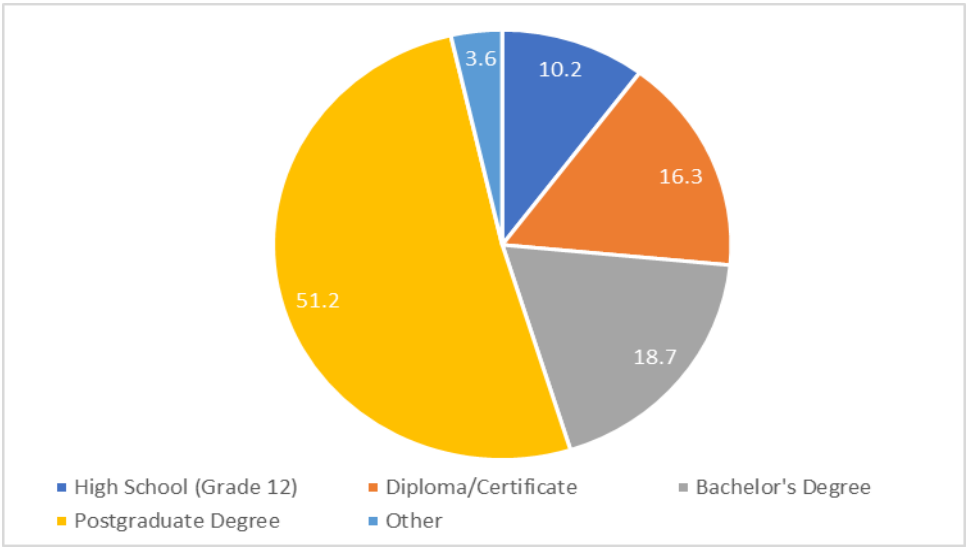

Figure 5.3: Educational Qualifications

Educational attainment within the sample was notably high, with over half of respondents (51.2%, n = 85) holding postgraduate qualifications. Bachelor's degree holders constituted 18.7% (n = 31), while those with diplomas or certificates represented 16.3% (n = 27). Only 10.2% (n = 17) reported high school (Grade 12) as their highest qualification, and 3.6% (n = 6) selected "other." Overall, the findings suggest that the sample comprised a highly educated group, reflecting a population likely to possess substantial professional and digital literacy, which may influence their confidence and engagement with digital banking platforms ($p < 0.001$). Lastly, Table 5.3 below illustrates the distribution of respondents according to their primary banking institution.

Table 5.3 Primary Banking Institution

	Frequency	Percent
ABSA	21	12.7
Capitec Bank	17	10.2
First National Bank (FNB)	79	47.6
Nedbank	16	9.6
Standard Bank	15	9.0
TymeBank	5	3.0
Other	13	7.8
Total	166	100.0

Regarding banking relationships, First National Bank (FNB) dominated the sample, accounting for 47.6% (n = 79) of respondents. This was followed by ABSA (12.7%, n = 21), Capitec Bank (10.2%, n = 17), Nedbank (9.6%, n = 16), Standard Bank (9.0%, n = 15), TymeBank (3.0%, n = 5), and other financial institutions (7.8%, n = 13). This distribution may influence aggregate perceptions of digital service quality and trust, as different institutions exhibit varying levels of digital maturity and customer-centricity.

5.4.2 Descriptive Analysis for each construct

This section presents descriptive statistics for each construct, including mean scores, standard deviations, medians, and binomial test results. Descriptive statistics, including the mean, median, minimum, maximum, and standard deviation, were computed to summarise central tendencies and variability across the Likert-scale items. All negatively worded statements were reverse coded. The mean scores provide an indication of the general level of agreement with each statement, while the median values highlight the central response

tendency. Binomial tests were employed to determine whether the proportion of respondents scoring above or below the neutral midpoint (3.00) differed significantly from chance expectations (Sheskin, 2011). A significance level of $p < 0.05$ was adopted as the criterion for statistical significance. In this study, the descriptive statistics for each construct and its related items were calculated and the results are include in this section and presented in Tables, on the basis of lowest and highest mean in each category. A detailed table is included in below:

5.4.2.1 Performance Expectancy: Digital Adoption

This section deals with respondents' perceptions and behaviours relating to digital banking adoption. It explores the extent to which participants use, prefer, and integrate digital banking services into their regular banking activities. The aim of this section is to determine how frequently respondents engage with digital platforms, their openness to exploring new digital features, and the degree to which they perceive such platforms as enhancing convenience, efficiency, and overall banking experience. The first table 5.4 presents descriptive statistics for Digital Adoption items.

Table 5.4: Descriptive Statistics for Performance Expectancy: Digital Adoption

		N	Minimum	Maximum	Mean	Std. Deviation	Median	Binomial Test p-value (cut-off = 3.00)
I use digital banking services often	B6.1	166	1.00	5.00	2.91	1.22	3.00	< 0.001
I prefer using digital banking over visiting physical branches	B6.2	166	1.00	5.00	3.28	1.27	4.00	0.485
Digital banking has become an essential part of my banking routine	B6.3	166	1.00	5.00	3.10	1.21	3.00	0.244
I actively use various features available on my bank's digital platform	B6.4	166	1.00	5.00	2.30	1.13	2.00	< 0.001
I explore new digital banking features when they become available	B6.5	166	1.00	5.00	2.49	1.09	2.00	< 0.001
I use digital banking for complex transactions	B6.6	166	1.00	5.00	2.50	1.08	2.00	< 0.001

beyond basic account checking								
Digital banking services help me accomplish banking tasks more efficiently	B6.7	166	1.00	5.00	2.64	1.11	2.00	< 0.001
Using digital banking enhances my overall banking experience	B6.8	166	1.00	5.00	2.64	1.09	2.00	< 0.001

The overall pattern indicates moderate engagement with digital banking platforms, though usage intensity and feature exploration remain limited. The highest mean score was observed for "I prefer using digital banking over visiting physical branches" (M = 3.28, SD = 1.27, Median = 4.00), suggesting that respondents valued the convenience of digital channels. However, the binomial test was non-significant (p = 0.485), indicating balanced opinions with no clear directional preference.

Similarly, "Digital banking has become an essential part of my banking routine" recorded a mean of 3.10 (SD = 1.21, p = 0.244), reflecting moderate integration into daily banking activities. In contrast, all other items exhibited significantly low means (p < 0.001), indicating that respondents disagreed with statements relating to active feature usage (M = 2.30), exploration of new functionalities (M = 2.49), complex transaction handling (M = 2.50), efficiency perceptions (M = 2.64), and experience enhancement (M = 2.64).

These findings suggest that while customers acknowledge the convenience of digital banking, their actual usage patterns remain superficial, characterised by reliance on basic functionalities rather than comprehensive platform engagement. This aligns with research indicating that digital adoption often proceeds incrementally, with customers retaining traditional banking habits alongside nascent digital behaviours (Mbama & Ezepue, 2018; Shaikh & Karjaluoto, 2015).

5.4.2.2 Facilitating Conditions: Digital Service Quality (n = 166)

This section examines respondents' perceptions of the quality, reliability, fulfilment, and security of their banks' digital services. It evaluates the extent to which customers view digital platforms as efficient, dependable, and secure in meeting their banking needs.

Table 5.5: Descriptive Statistics for Facilitating Conditions: Digital Service Quality

		N	Minimum	Maximum	Mean	Std. Deviation	Binomial Test p-value (cut-off = 3.00)
My bank's digital platform allows me to complete transactions quickly	Ca8.1	166	1,00	5,00	3,66	1,10	< 0.001
The digital banking interface is user-friendly and easy to navigate	Ca8.2	166	1,00	5,00	3,39	1,19	0,187
Digital banking processes are streamlined and efficient	Ca8.3	166	1,00	5,00	3,40	1,27	0,244
My bank's digital services are available whenever I need them	Cb8.4	166	1,00	5,00	3,75	1,14	< 0.001
The digital banking system rarely experiences downtime or technical issues	Cb8.5	166	1,00	5,00	3,57	1,14	0,002
I can access digital banking services reliably across different devices	Cb8.6	166	1,00	5,00	3,59	1,16	< 0.001
Digital banking services meet my banking needs effectively	Cc8.7	166	1,00	5,00	3,60	1,05	< 0.001
The bank delivers on promises made regarding digital service capabilities	Cc8.8	166	1,00	5,00	2,70	1,04	< 0.001
Digital transactions are processed accurately and without errors	Cc8.9	166	1,00	5,00	3,96	0,97	< 0.001
I feel confident about the security of my personal information when using digital banking	Cd8.10	166	1,00	5,00	2,77	1,26	< 0.001
My bank adequately protects my privacy when I use digital services	Cd8.11	166	1,00	5,00	3,21	1,23	0,485
The digital banking platform has robust security measures in place	Cd8.12	166	1,00	5,00	3,43	1,24	0,313

The results reflect moderately positive perceptions of digital service quality, though levels of agreement vary across subdimensions. Within Digital Services (Ca), participants expressed generally favourable views of platform efficiency and usability. Digital Service Quality perceptions varied across subdimensions, as presented in Table 5.5. Within the Digital Services (Usability) dimension, respondents expressed moderately positive views. The highest mean was recorded for "My bank's digital platform allows me to complete transactions quickly" ($M = 3.66$, $SD = 1.10$, $p < 0.001$), indicating satisfaction with transactional speed.

However, interface usability (M = 3.39, p = 0.187) and process efficiency (M = 3.40, p = 0.244) yielded non-significant results, suggesting neutral or divided opinions.

System Availability received consistently positive evaluations. Respondents agreed that digital services were available when needed (M = 3.75, SD = 1.14, p < 0.001) and accessible across devices (M = 3.59, p < 0.001). Perceptions of minimal downtime (M = 3.57, p = 0.002) further reinforced confidence in system reliability, aligning with findings that technical stability is foundational to digital service satisfaction (Santos, 2003).

Fulfilment perceptions were mixed. While respondents acknowledged that digital services met their banking needs (M = 3.60, p < 0.001) and processed transactions accurately (M = 3.96, p < 0.001), they expressed dissatisfaction with promise delivery (M = 2.70, p < 0.001).

Privacy and Security perceptions revealed significant concerns. Confidence in data protection was limited (M = 2.77, SD = 1.26, p < 0.001), while perceptions of privacy adequacy (M = 3.21, p = 0.485) and security robustness (M = 3.43, p = 0.313) were neutral.

In summary, respondents rated system availability and transaction accuracy most favourably, while digital trust elements such as privacy and fulfilment of promises received more cautious or neutral evaluations. The statistically significant deviations below neutrality in several items highlight areas where customers' confidence in digital service performance, particularly in security and promise delivery, remains limited despite general satisfaction with operational reliability.

5.5.2.3 Social Influence: Digital Trust

This section evaluates respondents' levels of trust in their banks' digital services, encompassing perceptions of technical competence, benevolence, and integrity. These constructs reflect the multidimensional nature of digital trust, ranging from confidence in the institution's technological capability to perceptions of ethical behaviour and transparency in digital service delivery.

Table 5.6: Descriptive Statistics for Social Influence: Digital Trust

N	Minimum	Maximum	Mean	Std. Deviation	Binomial Test p-value (cut-off = 3.00)

I believe my bank has the technical expertise to provide reliable digital services	Da9.1	166	1,00	5,00	3,68	1,12	< 0.001
My bank demonstrates competence in managing digital banking operations	Da9.2	166	1,00	5,00	3,60	1,11	0,001
I trust my bank's ability to handle digital transactions professionally	Da9.3	166	1,00	5,00	3,75	1,10	< 0.001
I believe my bank has my best interests at heart when providing digital services	Db9.4	166	1,00	5,00	3,53	1,14	0,016
My bank cares about my welfare when I use digital banking services	Db9.5	166	1,00	5,00	3,51	1,16	0,052
I trust that my bank will not take advantage of me through digital channels	Db9.6	166	1,00	5,00	3,24	1,27	0,816
My bank is honest and truthful in its digital service communications	Dc9.7	166	1,00	5,00	3,73	1,07	< 0.001
I believe my bank keeps its promises regarding digital banking services	Dc9.8	166	1,00	5,00	3,61	1,02	< 0.001
My bank demonstrates integrity in all digital banking interactions	Dc9.9	166	1,00	5,00	2,51	1,03	< 0.001
Banks have the necessary automated systems to effectively implement ESG practices	Dc9.10	166	1,00	5,00	3,76	0,94	< 0.001

The overall results reflect a high level of trust in the digital competence and professional reliability of banks, with relatively moderate views regarding benevolence and mixed perceptions about integrity. Within Competence Trust (Da), respondents expressed consistently strong agreement. Digital Trust exhibited relatively strong mean scores, though subdimensional variation was evident (Table 5.6). Competence Trust received the most favourable evaluations, with respondents expressing confidence in their banks' technical expertise ($M = 3.68$, $SD = 1.12$, $p < 0.001$), operational competence ($M = 3.60$, $p = 0.001$), and professional capability ($M = 3.75$, $p < 0.001$).

Benevolence Trust was moderately positive but less decisive. Respondents agreed that banks acted in customers' best interests ($M = 3.53$, $SD = 1.14$, $p = 0.016$) and cared about customer welfare ($M = 3.51$, $p = 0.052$), though the latter was only marginally significant. However, trust

that banks would not exploit customers through digital channels was neutral (M = 3.24, p = 0.816), reflecting uncertainty about fairness and ethical conduct.

Integrity Trust displayed the greatest variability. Strong agreement emerged for honesty in digital communications (M = 3.73, SD = 1.07, p < 0.001) and promise-keeping (M = 3.61, p < 0.001). However, perceptions of consistent integrity across all digital interactions were notably weak (M = 2.51, p < 0.001), indicating scepticism about ethical transparency. Interestingly, respondents expressed confidence in banks' automated systems for ESG practices (M = 3.76, p < 0.001), suggesting that technological capability is trusted more than moral consistency.

These findings support the multidimensional conceptualisation of trust proposed by Mayer et al. (1995), wherein competence, benevolence, and integrity represent distinct but interrelated facets.

In summary, the findings suggest that while respondents exhibit strong trust in technical competence and honesty, their confidence in banks' ethical consistency and customer-centred digital conduct remains guarded. The significant deviations from neutrality across most items affirm that participants' perceptions of digital trust are well-defined, with competence emerging as the most trusted dimension and integrity displaying areas of potential reputational vulnerability.

5.4.2.4 Effort Expectancy: Customer Retention Intentions

This section assesses respondents' future behavioural intentions toward their banks, focusing on continued loyalty, switching tendencies, and self-perceived digital adaptability.

Table 5.7: Descriptive Statistics for Effort Expectancy: Customer Retention Intentions

		N	Minimum	Maximum	Mean	Std. Deviation	Binomial Test p-value (cut-off = 3.00)
I intend to continue using my current bank's services in the future	Ea10.1	166	1,00	5,00	1,91	1,08	< 0.001
I will likely increase my usage of this bank's digital services over time	Ea10.2	166	1,00	5,00	1,85	0,90	< 0.001
I would recommend my bank's digital services to friends and family	Ea10.3	166	1,00	5,00	2,08	1,08	< 0.001

I am likely to switch to another bank within the next year	Eb10.4	166	1,00	5,00	2,62	1,37	< 0.001
I am actively considering moving my banking to a different institution	Eb10.5	166	1,00	5,00	2,29	1,22	< 0.001
I consider myself to be digitally literate and comfortable with technology	Eb10.6	166	1,00	5,00	1,69	0,89	< 0.001
I easily adapt to new digital banking features and updates	Eb10.7	166	1,00	5,00	1,87	0,92	< 0.001

The results reveal an overall low level of customer loyalty and advocacy, combined with a pronounced intent to reconsider banking relationships. All items within the Loyalty Intentions (Ea) construct recorded low mean scores, indicating general disagreement. Customer Retention Intentions recorded the lowest mean scores across all study constructs (Table 5.6), reflecting weak loyalty and pronounced switching consideration. Within Loyalty Intentions, all items exhibited significantly low means ($p < 0.001$): continuation intentions ($M = 1.91$, $SD = 1.08$), increased usage intentions ($M = 1.85$, $SD = 0.90$), and recommendation intentions ($M = 2.08$, $SD = 1.08$). These results indicate that respondents were neither committed to their current banking relationships nor inclined to advocate for their banks' digital services.

Switching Intentions were similarly concerning. Respondents demonstrated moderate openness to changing banks within the next year ($M = 2.62$, $SD = 1.37$, $p < 0.001$) and actively considering relocation ($M = 2.29$, $p < 0.001$). Interestingly, self-assessed digital literacy ($M = 1.69$, $p < 0.001$) and adaptability ($M = 1.87$, $p < 0.001$) were also low, suggesting that limited digital confidence may inhibit both engagement and retention.

The combination of weak loyalty and moderate switching propensity signals substantial churn risk within the sample.

In summary, the data suggest that customers exhibit weak retention tendencies and limited commitment to their current banks' digital services. The combination of low loyalty, moderate switching consideration, and limited self-perceived digital competence highlights a significant challenge for banks seeking to sustain customer relationships. These results underscore the need for targeted digital literacy initiatives, improved digital experience design, and trust-enhancing strategies to foster long-term customer retention in the digital banking environment.

5.4.2.5 Overall Construct Comparison

This section provides an integrated summary of the overall trends across the five constructs of the study: Performance Expectancy: Digital Adoption (B), Facilitating Conditions: Digital Service Quality (C), Social Influence: Digital Trust (D), and Effort Expectancy: Customer Retention Intentions (E) - along with their respective subdimensions.

Table 5.8: Overall Construct Descriptive Statistics

		Mean	Median	Binomial Test p-value (cut-off = 3.00)
B	**Performance Expectancy: Digital Adoption**	3,27	3,38	< 0.001
C	**Facilitating Conditions: Digital Service Quality**	2,52	2,33	< 0.001
	System Availability	2,36	2,00	< 0.001
	Fulfilment	2,66	2,67	< 0.001
	Privacy and Security	3,06	3,00	0,052
D	**Social Influence: Digital Trust**	3,34	4,00	0,698
	Benevolence Trust	2,96	3,00	0,004
	Integrity Trust	2,77	2,50	< 0.001
E	**Effort Expectancy: Customer Retention Intentions**	1,95	2,00	< 0.001
	Switching Intentions	2,12	2,00	< 0.001

Table 5.8 presents aggregate mean scores for the primary constructs and their subdimensions. Performance Expectancy: Digital Adoption (M = 3.27, Median = 3.38, p < 0.001) and Digital Trust (M = 3.34, Median = 4.00, p = 0.698) exhibited the highest means, indicating moderate engagement and confidence in banks' digital capabilities. However,

subdimensional analysis revealed that trust was driven primarily by competence perceptions, while benevolence (M = 2.96, p = 0.004) and integrity (M = 2.77, p < 0.001) remained weaker.

Facilitating Conditions: Digital Service Quality recorded the second-lowest aggregate mean (M = 2.52, Median = 2.33, p < 0.001), reflecting dissatisfaction with service delivery. Within this construct, System Availability (M = 2.36) and Fulfilment (M = 2.66) were rated below neutral, while Privacy and Security approached neutrality (M = 3.06, p = 0.052). These findings suggest that while technical infrastructure is perceived as reliable, concerns about data protection and promise delivery persist.

Effort Expectancy: Customer Retention Intentions exhibited the weakest performance (M = 1.95, Median = 2.00, p < 0.001), with Switching Intentions (M = 2.12) also significantly below neutral. The pronounced gap between adoption/trust levels and retention outcomes underscores a critical disconnect: customers may use digital banking and acknowledge its technical reliability yet remain uncommitted and vulnerable to competitive offers. These findings indicate that although customers have adopted digital banking and demonstrate moderate trust, such attitudes have not translated into sustained loyalty.

In summary, the overall results suggest that while digital adoption and trust are emerging strengths, persistent gaps in service quality, fulfilment, and customer retention remain. The statistically significant deviations across most constructs highlight that customers' experiences with digital banking services are still evolving, with trust and satisfaction acting as key determinants of long-term retention.

5.5 Inferential Statistics

Inferential statistics correlate to the simplifications of the results from a sample to the total population and helps in determining whether the differences between the means, proportions or percentages are real or not (Gilbert, Juraska and decamp 2017: 16). The following section reports on the inferential statistics used in this study:

5.5.1 Reliability Statistics

Reliability and validity represent the two central pillars of measurement precision in quantitative research. Reliability refers to the degree to which an instrument yields consistent and stable results across repeated applications under similar conditions. It assesses the internal consistency of the scale items measuring each construct. In this study, internal consistency was evaluated using Cronbach's alpha (α), a widely accepted measure of scale

reliability. Cronbach's alpha examines the extent to which items within a construct are interrelated, thereby indicating the degree to which they collectively measure the same underlying concept.

A Cronbach's alpha coefficient of 0.70 or higher is generally regarded as satisfactory for established constructs, while a threshold of 0.60 or above is considered acceptable for newly developed or exploratory scales. A reliability coefficient of 0.70 or higher is considered as "acceptable" (Uzun, Gilbertson, Keles and Ratinen 2019: 82). Higher alpha values denote stronger internal consistency and greater reliability of the measurement instrument. The table that follows presents the Cronbach's alpha coefficients for each construct included in the questionnaire, demonstrating the internal reliability of the items that constitute the measurement model.

Table 5.9: Cronbach's alpha coefficients

	Section	**Number of Items**	**Cronbach's Alpha**
B	**Performance Expectancy: Digital Adoption**	**8**	0.800
Ca	Digital Services	3	0.836
Cb	System Availability	3	0.789
Cc	Fulfilment	3	0.541
Cd	Privacy and Security	3	0.729
C	**Facilitating Conditions: Digital Service Quality**	**12**	0.821
Da	Competence Trust	3	0.860
Db	Benevolence Trust	3	0.815
Dc	Integrity Trust	3	0.871
D	**Social Influence: Digital Trust**	**9**	0.921
Ea	Loyalty Intentions	3	0.721
Eb	Switching Intentions	4	0.602
E	**Effort Expectancy: Customer Retention Intentions**	**7**	0.737
	All items included	**36**	0.868

Across the constructs, the Digital Trust dimension recorded the highest reliability (α = 0.921), signifying that the items measuring *Competence Trust* (α = 0.860), *Benevolence Trust* (α = 0.815), and *Integrity Trust* (α = 0.871) were highly consistent in capturing perceptions of trust within digital banking contexts. Similarly, Digital Service Quality (α = 0.821) and Digital Adoption (α = 0.800) displayed strong reliability, underscoring the stable measurement of

respondents' experiences with digital platforms and their adoption patterns. Subdimensions of service quality also achieved acceptable reliability, including *Digital Services* (α = 0.836), *System Availability* (α = 0.789*), and *Privacy and Security* (α = 0.729). However, *Fulfilment* recorded a lower alpha (α = 0.541*), indicating moderate internal consistency that may warrant refinement of its items in future applications.

Within the Customer Retention Intentions construct, both *Loyalty Intentions* (α = 0.721) and *Switching Intentions* (α = 0.602) achieved acceptable but lower reliability levels, reflecting greater variability in respondents' behavioural intentions. Despite these minor variations, all subscales performed within acceptable reliability limits for an exploratory study, thereby confirming that the questionnaire items reliably measured their intended constructs. Overall, the reliability analysis establishes a strong psychometric foundation for subsequent inferential and structural modelling procedures.

5.5.2 Factor Analysis

Factor analysis operates on the notion that measurable and observable variables can be reduced to fewer latent variables that share a common variance and are unobservable, which is known as reducing dimensionality (Shi et al., 2019). These unobservable factors are not directly measured but are essentially hypothetical constructs that are used to represent variables (Maydeu-Olivares, Fairchild and Hall 2017). Factor analysis is also used to examine whether there is a correlation with each other within this number of variables. Large data that consist of several variables can be reduced by observing 'groups' of variables, for example, factor analysis assembles common variables into descriptive categories. Factor analysis is useful for studies that involve a few or hundreds of variables, items from questionnaires, or a battery of tests which can be reduced to a smaller set, to get at an underlying concept, and to facilitate interpretations (Shi et al., 2019). It is easier to focus on some key factors rather than having to consider too many variables that may be trivial, and so factor analysis is useful for placing variables into meaningful categories. For this study factor analysis is used to include data transformation, hypothesis-testing, and scaling.

The matrix tables are preceded by a summarised table that reflects the results of KMO and Bartlett's Test. According to Maydeu-Olivares et al. (2017) the requirement is that Kaiser-Meyer-Olkin (KMO) is an index used to study the relevance of factor analysis to measure sampling adequacy that the value must be more than 0.6 is adequate. The KMO measure that is closer to 1 indicates sizeable sampling adequacy. Barlett's test is an indication of the strength of relationships between variables. The factor analysis was conducted exclusively on Likert-scale items, as these reflect the attitudinal and perceptual dimensions of the study.

Through the application of Principal Component Analysis (PCA) with Varimax rotation, the underlying constructs were identified and refined. Some of the broader dimensions subsequently divided into finer subcomponents, enhancing interpretive clarity and construct precision. The rotated component matrix presented below delineates these patterns of item loadings and provides the empirical basis for the identification and naming of the latent factors.

Factor analysis is done only for the Likert scale items. Certain components divided into finer components. This is explained below in the rotated component matrix.

Table 4.10 KMO and Bartlett's Test

		Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
	Section		Approx. Chi-Square	df	Sig.
B	Digital Adoption	0.787	409.795	28	< 0.001
C	Digital Service Quality	0.806	777.714	66	< 0.001
D	Digital Trust	0.900	1017.798	45	< 0.001
E	Customer Retention Intentions	0.696	286.699	21	< 0.001

All of the conditions are satisfied for factor analysis. That is, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value should be greater than 0.500 and the Bartlett's Test of Sphericity sig. value should be less than 0.05. This means that the variables that constituted the research instrument were perfect measures of the component. Overall, it can be concluded that the sections on the research instrument measured exactly what they were intended to measure.

5.5.3 Rotated Component Matrix

Factor analysis is a statistical technique and its main goal is data reduction. A typical use of factor analysis is in survey research, where a researcher wishes to represent several questions with a small number of hypothetical factors. Regarding Table 4.10 above the principal component analysis was used as the extraction method, and the rotation method was Varimax with Kaiser Normalisation. This is an orthogonal rotation method that minimises the number of variables that have high loadings on each factor. It simplifies the interpretation of

the factors. Factor analysis/loading show inter-correlations between variables. Items of questions that loaded similarly imply measurement along with a similar factor. An examination of the content of items loading at or above 0.5 (and using the higher or highest loading in instances where items cross-loaded at greater than this value) effectively measured along with the various components.

The statements that constituted Sections B to E each construct loaded perfectly along with a single component each. This implies that the statements that constituted these sections perfectly measured what it set out to measure. The extraction method used is the principal component analysis.

Tables 4.11 Section B to E each construct

B	Component		
	1	2	
Bank struggles with low customer engagement on digital banking platforms, as many customers do not adopt regular usage patterns.	0.064	0.782	B6.1
Many of customers prefer visiting traditional branches over using digital channels, which limits banks cost-saving and efficiency improvements.	0.119	0.828	B6.2
Banks find it challenging to make digital banking services an integral part of customers' daily banking routines, leading to underutilized digital investments.	0.273	0.585	B6.3
Despite significant investment, customers primarily use only basic digital banking features and rarely adopt advanced functionalities.	0.670	0.356	B6.4
Customers are generally reluctant to explore and adopt new digital banking features when they are released, limiting our return on innovation investments.	0.710	0.426	B6.5
Digital banking platforms are often avoided for complex transactions, forcing banks to maintain costly traditional service channels for such needs.	0.607	0.165	B6.6
Banks struggle to clearly demonstrate and deliver the efficiency benefits of digital banking to customers, resulting in continued reliance on resource-intensive traditional methods.	0.811	-0.013	B6.7
Banks face challenges in leveraging digital banking services to enhance the overall customer experience, missing opportunities to improve satisfaction and competitiveness.	0.808	0.092	B6.8

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 3 iterations.

C	Component				
	1	2	3	4	
Bank's digital platform has slow transaction processing that frustrates customers.	0.449	0.576	0.112	0.022	Ca8.1
The digital banking interface is difficult to navigate and confuses users.	0.115	0.923	0.052	0.035	Ca8.2

Digital banking processes are complicated and create inefficiencies for customers.	0.171	0.906	0.166	-0.045	Ca8.3
Bank's digital services are frequently unavailable when customers need them.	0.791	0.166	0.120	0.068	Cb8.4
The digital banking system experiences frequent downtime and technical issues.	0.880	0.051	0.067	0.176	Cb8.5
Customers struggle to access digital banking services reliably across different devices.	0.648	0.427	0.124	0.053	Cb8.6
Digital banking services fail to meet customer banking needs effectively.	0.465	0.476	0.212	-0.104	Cc8.7
The bank delivers on promises made regarding digital service capabilities.	0.140	-0.004	-0.058	0.932	Cc8.8
Digital transactions are often processed inaccurately with frequent errors.	0.468	0.270	0.361	-0.231	Cc8.9
Customers lack confidence about the security of their personal information when using digital banking.	0.097	0.133	0.766	-0.230	Cd8.10
Bank inadequately protects customer privacy when they use digital services.	0.093	0.157	0.768	0.260	Cd8.11
The digital banking platform lacks robust security measures.	0.163	0.036	0.834	-0.074	Cd8.12

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

D	Component			
	1	2	3	
Bank lacks the technical expertise needed to provide reliable digital services.	0.875	0.164	0.123	Da9.1
Bank struggles with competence in managing digital banking operations.	0.818	0.300	0.043	Da9.2
Bank's ability to handle digital transactions professionally is questionable.	0.787	0.198	0.189	Da9.3
Bank fails to prioritize customers' best interests when providing digital services.	0.630	0.537	-0.020	Db9.4
Bank shows insufficient care for customer welfare in digital banking services.	0.557	0.659	0.047	Db9.5
Bank may exploit customers through digital channels.	0.138	0.893	0.127	Db9.6
Bank lacks honesty and truthfulness in digital service communications.	0.522	0.478	0.413	Dc9.7
Bank fails to keep promises regarding digital banking services.	0.591	0.551	0.301	Dc9.8
Bank demonstrates integrity in all digital banking interactions.	0.051	0.058	0.931	Dc9.9
Bank demonstrates poor integrity in digital banking interactions.	0.529	0.423	0.472	Dc9.10

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 4 iterations.

E	Component		
	1	2	
I plan to continue using my current bank's services in the near future.	0.501	0.555	Ea10.1
Over time, I intend to increase my use of my bank's digital services.	-0.054	0.860	Ea10.2
I am likely to recommend my bank's digital services to friends and family.	0.335	0.766	Ea10.3

I am unlikely to switch to another bank within the next year.	0.736	-0.210	Eb10.4
I am not actively considering moving my banking to a different sector	0.649	0.266	Eb10.5
I consider myself digitally literate and comfortable using technology.	0.641	0.249	Eb10.6
I adapt easily to new digital banking features and updates.	0.602	0.226	Eb10.7

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

The factor loading patterns across all coded dimensions (B, Ca, Cb, Cc, Cd, Da, Db, Dc, Ea, and Eb) confirmed a well-structured and interpretable factor solution. Most items demonstrated strong loadings (≥ 0.60) on their primary components, validating the internal consistency of each construct. The clustering of items reflected distinct thematic domains such as *customer engagement barriers* (B), *usability and reliability of digital services* (Ca and Cb), *service dependability and security* (Cc and Cd), *technical and ethical competence* (Da and Db), *organisational integrity* (Dc), and *digital loyalty and adaptability* (Ea and Eb).

Although a few items exhibited moderate cross-loadings, these overlaps were theoretically consistent with the interrelated nature of user perceptions and organisational attributes in digital banking contexts. Overall, the rotated solutions substantiate the factorial validity of the measurement model, demonstrating that the underlying structure of the data aligns with the theoretical dimensions underpinning the study.

5.6 Group Differences Analysis

Nonparametric statistical tests were employed to examine whether perceptions differed significantly across demographic segments. The Kruskal-Wallis one-way analysis of variance (ANOVA) was selected due to violations of normality assumptions inherent in Likert-scale data (Field, 2018). This test evaluates whether the distribution of scores differs across three or more independent groups by comparing median ranks rather than means (Kruskal & Wallis, 1952). Post-hoc pairwise comparisons were conducted to identify specific group differences when omnibus tests yielded significant results. A significance threshold of $p < 0.05$ was adopted.

5.6.1 System Availability by Age Group

A statistically significant difference in System Availability perceptions emerged across age groups ($\chi^2 = 11.73$, df = 5, $p = 0.019$). Examination of group means revealed that respondents aged 56–65 years reported the lowest perceived availability (n = 9, M = 1.70), substantially

below the mid-age cohorts: 26–35 years (n = 51, M = 2.37), 36–45 years (n = 71, M = 2.31), and 46–55 years (n = 28, M = 2.39). Conversely, the most favourable evaluations occurred among the oldest (> 65 years: n = 4, M = 3.83) and youngest (18–25 years: n = 3, M = 3.33) respondents.

This U-shaped pattern suggests that late-middle-aged customers, those approaching retirement experience heightened frustration with digital system reliability, possibly due to lower digital self-efficacy or resistance to technological change (Venkatesh, Thong, & Xu, 2012). In contrast, both digital natives (18–25 years) and older retirees may possess either greater technological fluency or more realistic expectations, resulting in higher satisfaction. These findings highlight the importance of age-segmented support strategies, particularly for customers aged 56–65 years who may benefit from targeted digital literacy interventions.

5.6.2 Switching Intentions by Geographic Location

Switching Intentions varied significantly across primary residence locations ($\chi^2 = 8.73$, df = 2, p = 0.013). Respondents in KwaZulu-Natal (Urban) exhibited the highest propensity to switch banks (n = 9, M = 2.83), followed by those in the Western Cape (Urban) (n = 21, M = 2.18). Gauteng (Urban) residents reported the lowest switching intentions (n = 136, M = 2.06). These geographic differences may reflect variations in competitive intensity, service quality, and banking infrastructure across provinces. KwaZulu-Natal's higher switching propensity could indicate dissatisfaction with local service delivery or greater availability of alternative banking options.

5.6.3 Digital Service Quality by Banking Institution

Perceptions of Digital Service Quality differed significantly across primary banking institutions ($\chi^2 = 17.82$, df = 6, p = 0.010). TymeBank customers reported the highest service quality perceptions (n = 5, M = 3.33), followed by FNB (n = 79, M = 2.70) and ABSA (n = 21, M = 2.62). Nedbank customers expressed moderate satisfaction (n = 16, M = 2.60), while Capitec (n = 17, M = 1.96) and Standard Bank (n = 15, M = 1.96) received the lowest evaluations. Customers of other institutions reported intermediate perceptions (n = 13, M = 2.15). Conversely, the lower ratings for Capitec and Standard Bank suggest potential service quality gaps that may undermine customer satisfaction and retention. These findings underscore the competitive advantage conferred by technological leadership and customer-centric digital design.

5.6.4 Integrity Trust by Banking Institution

Integrity Trust perceptions also varied significantly across banks ($\chi^2 = 14.23$, df = 6, p = 0.028). The lowest integrity ratings were reported by FNB customers (n = 79, M = 2.50), while the highest were observed among customers of other institutions (n = 13, M = 3.27) and Capitec (n = 17, M = 3.22). Intermediate means were recorded for Standard Bank (n = 15, M = 2.97), ABSA (n = 21, M = 2.88), Nedbank (n = 16, M = 2.88), and TymeBank (n = 5, M = 2.85). These findings emphasise that trust-building requires both technical excellence and ethical consistency.

5.6.5 Customer Retention Intentions by Banking Institution

Customer Retention Intentions exhibited significant variance across banking institutions ($\chi^2 = 19.45$, df = 6, p = 0.002). Standard Bank customers reported the highest retention propensity (n = 15, M = 2.44), followed closely by TymeBank (n = 5, M = 2.33) and Nedbank (n = 16, M = 2.31). Moderate retention intentions were observed among ABSA (n = 21, M = 2.16) and Capitec (n = 17, M = 2.00) customers. FNB customers reported the second-lowest retention intentions (n = 79, M = 1.76), while those banking with other institutions exhibited the weakest commitment (n = 13, M = 1.51). The low retention intentions among FNB customers, despite FNB's dominance in the sample and its strong service quality ratings andhighlight a critical strategic vulnerability.

5.7 STRUCTURAL EQUATION MODELLING RESULTS

5.7.1 Measurement Model Evaluation

The Structural Equation Model (SEM) was developed to examine the hypothesised relationships among the core constructs of the study, namely Digital Adoption, Digital Service Quality, Digital Trust, and Customer Retention Intentions. This analytical approach enabled the simultaneous evaluation of both the measurement and structural components of the model, ensuring that the latent constructs were validly and reliably represented by their respective observed indicators. The model aimed to test the extent to which Digital Adoption and Digital Service Quality influenced Digital Trust, and subsequently, how Digital Trust affected Customer Retention Intentions. The analysis provided insights into the underlying causal pathways, revealing how digital engagement and perceived service quality collectively shape customer loyalty and retention outcomes. Model adequacy was assessed using standard fit indices, path coefficients, and the coefficient of determination (R^2), thereby confirming the robustness and predictive validity of the proposed structural model.

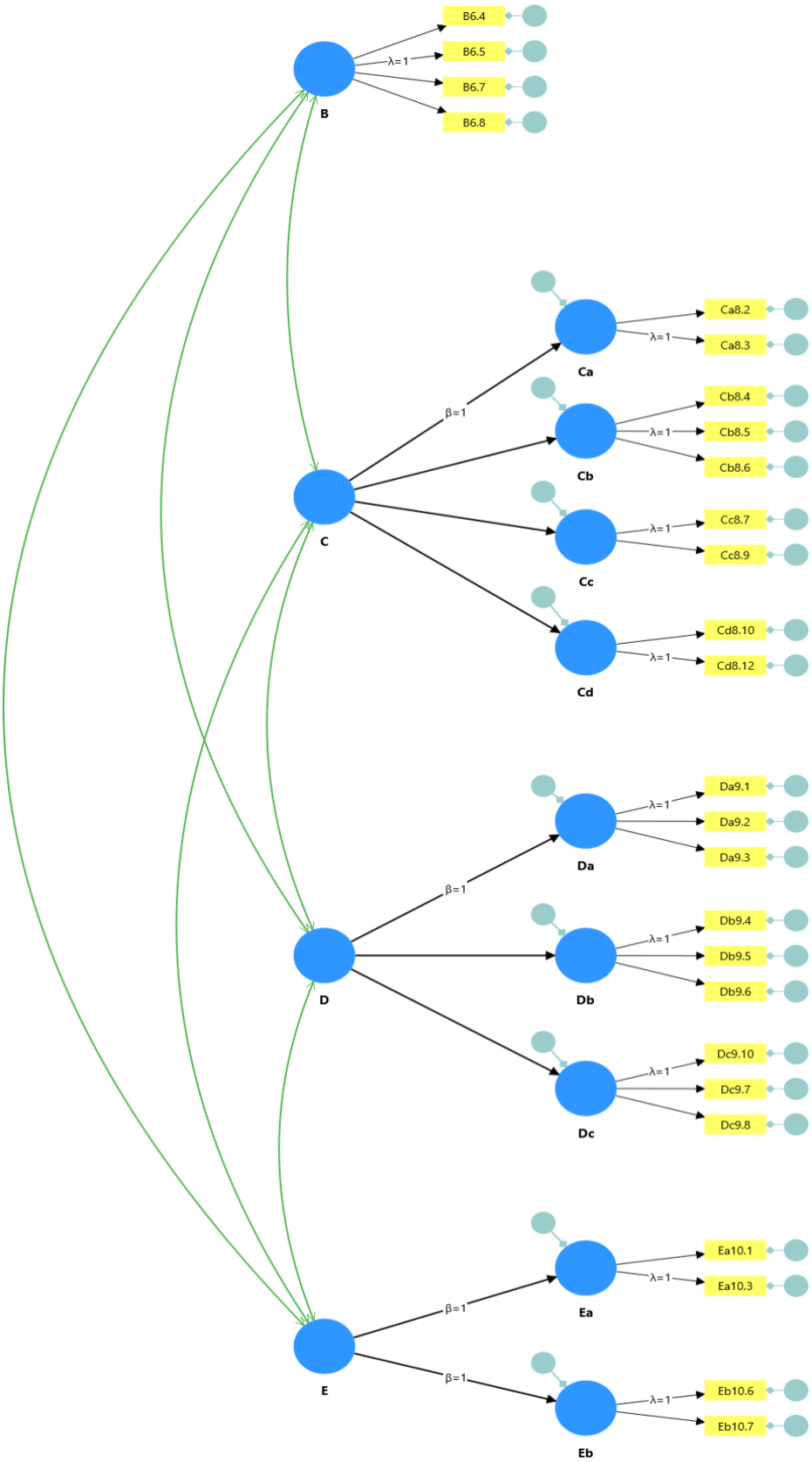

Figure 5.4: Structural Equation Model

5.7.1.1 Construct Reliability and Convergent Validity

Table 5.12: Construct reliability and Validity

	Cronbach's alpha (standardized)	Cronbach's alpha (unstandardized)	Composite reliability (rho_c)	Average variance extracted (AVE)
B	0.8101	0.8097	0.8105	0.5183
C (second order)	0.7803	0.7786	0.8064	0.5168
Ca	0.9061	0.9050	0.9142	0.8358
Cb	0.7897	0.7894	0.7959	0.5667
Cc	0.6281	0.6265	0.6467	0.4750
Cd	0.7136	0.7136	0.7194	0.5658
D (second order)	0.9108	0.9091	0.9256	0.8070
Da	0.8600	0.8602	0.8663	0.6835
Db	0.8189	0.8147	0.8249	0.6278
Dc	0.8715	0.8707	0.8763	0.7014
E (second order)	0.7002	0.6988	0.7194	0.5635
Ea	0.6927	0.6927	0.6873	0.5264
Eb	0.7469	0.7466	0.7631	0.6239

Table 5.12 presents the reliability and validity statistics for all constructs. Cronbach's alpha values ranged from 0.628 to 0.911, with most exceeding the recommended 0.70 threshold. Composite reliability (ρc) values, which account for varying indicator loadings, ranged from 0.647 to 0.926, confirming satisfactory internal consistency (Fornell & Larcker, 1981).

Average Variance Extracted (AVE) assesses the proportion of indicator variance explained by the latent construct, with values above 0.50 indicating adequate convergent validity (Hair et al., 2019). Most constructs achieved acceptable AVE values, ranging from 0.475 to 0.836. Notably, Digital Trust (second-order: AVE = 0.807) and its subdimensions Competence Trust (AVE = 0.684), Benevolence Trust (AVE = 0.628), and Integrity Trust (AVE = 0.701)—demonstrated strong convergent validity. Digital Adoption (AVE = 0.518) and Customer Retention Intentions (AVE = 0.564) also met the threshold. However, Fulfilment (Cc) recorded an AVE of 0.475, marginally below the 0.50 benchmark. This reflects the subdimension's conceptual complexity and modest item loadings, consistent with earlier reliability concerns. Despite this limitation, the overall measurement model demonstrated satisfactory psychometric properties.

5.7.2 Structural Model estimation for hypotheses testing

The structural model's adequacy was evaluated using multiple fit indices, as reliance on a single indicator can produce misleading conclusions (Hu & Bentler, 1999). Table 5.13 presents the fit statistics for both the estimated and null models.

Table 5.13 Model Fit Indices

	Estimated model	**Null model**
Chi-square	507.6914	2597.6814
Number of model parameters	66.0000	26.0000
Number of observations	166.0000	
Degrees of freedom	285.0000	325.0000
P value	0.0000	0.0000
ChiSqr/df	1.7814	7.9929
RMSEA	0.0686	0.2052
RMSEA LOW 90% CI	0.0588	0.1980
RMSEA HIGH 90% CI	0.0782	0.2126
GFI	0.8157	
AGFI	0.7730	
PGFI	0.6623	
SRMR	0.0728	
NFI	0.8046	
TLI	0.8883	
CFI	0.9020	
AIC	639.6914	
BIC	845.0826	

The chi-square statistic ($\chi^2 = 507.69$, $df = 285$, $p < 0.001$) was statistically significant, indicating discrepancy between the observed and model-implied covariance matrices. However, chi-square is sensitive to sample size and typically yields significant results even for well-fitting models when N exceeds 100 (Byrne, 2016). Consequently, the normed chi-square ratio ($\chi^2/df = 1.78$) provides a more pragmatic assessment. Values between 1.0 and 3.0 are considered acceptable (Kline, 2016), confirming that the current model achieves satisfactory fit.

The Root Mean Square Error of Approximation (RMSEA = 0.069, 90% CI [0.059, 0.078]) falls within the acceptable range (< 0.08), indicating reasonable approximation error (Browne & Cudeck, 1993). The Standardised Root Mean Square Residual (SRMR = 0.073) similarly

meets the recommended threshold (< 0.08), reflecting minimal discrepancy between observed and predicted correlations (Hu & Bentler, 1999).

Incremental fit indices compare the estimated model against a baseline null model. The Comparative Fit Index (CFI = 0.902) and Tucker-Lewis Index (TLI = 0.888) both approach the recommended 0.90 threshold, indicating that the model explains approximately 90% of the covariation among observed variables relative to the null model (Bentler, 1990). The Normed Fit Index (NFI = 0.805) is slightly lower but remains acceptable for exploratory research.

Absolute fit indices assess overall model adequacy without comparison to alternative models. The Goodness of Fit Index (GFI = 0.816) and Adjusted Goodness of Fit Index (AGFI = 0.773) suggest reasonable but not excellent fit. However, these indices are influenced by sample size and model complexity, and should be interpreted alongside other indicators (Sharma, Mukherjee, Kumar, & Dillon, 2005). Overall, the pattern of fit indices indicates that the structural model achieves acceptable fit to the data, supporting the validity of subsequent path interpretations and hypothesis testing.

5.7.3 Correlation Analysis

Table 5.10 presents the correlation matrix for the primary study constructs. Significant positive correlations emerged between Digital Adoption and Digital Service Quality ($r = 0.382$, $p < 0.01$), indicating that enhanced service quality encourages deeper platform engagement. Digital Adoption also correlated positively with System Availability ($r = 0.266$, $p < 0.01$), suggesting that reliable infrastructure supports usage behaviours.

Digital Service Quality exhibited a strong positive relationship with Digital Trust ($r = 0.714$, $p < 0.01$), underscoring service quality's critical role in fostering institutional confidence. Notably, Digital Adoption showed a weak negative correlation with Digital Trust ($r = –0.190$, $p < 0.05$), an unexpected finding that warrants interpretation.

Customer Retention Intentions correlated positively with System Availability ($r = 0.347$, $p < 0.01$) and Fulfilment ($r = 0.250$, $p < 0.01$), indicating that reliable and effective service delivery supports loyalty. However, retention exhibited negative correlations with Digital Trust ($r = –0.322$, $p < 0.01$) and Digital Service Quality ($r = –0.255$, $p < 0.01$).

Switching Intentions correlated positively with System Availability ($r = 0.222$, $p < 0.01$), Fulfilment ($r = 0.311$, $p < 0.01$), and Customer Retention Intentions ($r = 0.467$, $p < 0.01$). The positive association between switching and retention intentions initially appears paradoxical

but may reflect sample heterogeneity: some customers simultaneously exhibit loyalty while contemplating alternatives, indicating ambivalent commitment (Zeithaml et al., 1996). A detailed table is included in Annexure 2b.

5.8 Synthesis of Findings Relative to Research Objectives

5.8.1 Objective One:

- ***To assess the level of digital adoption among banking customers.***

The first research objective sought to evaluate the extent of digital banking adoption among customers. The findings revealed moderate adoption levels ($M = 3.27$, $p < 0.001$), with customers acknowledging the convenience of digital channels yet demonstrating limited engagement with advanced functionalities. While many respondents acknowledged the convenience of online banking, engagement with advanced features remained limited. This implies partial adoption rather than full digital integration, particularly as most users relied on basic services (B6.4–B6.6 < 3.0). The current sample appears positioned between the "trial" and "adoption" stages, having experimentally engaged with digital banking but not yet integrated it as their primary banking mode.

5.8.2 Objective Two:

- ***To evaluate customers' perceptions of digital service quality, including system availability, fulfilment, and privacy/security.***

The second objective examined customer perceptions of digital service quality across multiple subdimensions. Overall service quality ratings were below neutral ($M = 2.52$, $p < 0.001$), indicating dissatisfaction with current digital offerings. Subdimensional analysis revealed heterogeneity: System Availability ($M = 2.36$) and Fulfilment ($M = 2.66$) received particularly low ratings, while Privacy and Security approached neutrality ($M = 3.06$, $p = 0.052$). Perceptions of digital service quality were moderately low ($M = 2.52$, $p < 0.001$). System availability ($M = 2.36$) and fulfilment ($M = 2.66$) were rated below neutral, while privacy and security approached neutrality ($M = 3.06$). Respondents were satisfied with transactional speed and system uptime (Ca8.1, Cb8.4–Cb8.6 > 3.5) but expressed concerns about promise fulfilment and data protection (Cc8.8 = 2.70; Cd8.10 = 2.77). The current findings suggest that while core technical performance meets basic expectations, recovery mechanisms and trust-building communications remain deficient.

5.8.3 Objective Three:

- ***To determine the level of digital trust, including competence, benevolence, and integrity trust.***

The third objective assessed multidimensional trust encompassing competence, benevolence, and integrity perceptions. Overall digital trust was moderately positive ($M = 3.34$, $p = 0.698$), driven primarily by strong competence trust ($M \approx 3.68–3.75$) and integrity trust ($M = 2.77$, $p < 0.001$) were weaker, revealing uncertainty about ethical conduct and transparency in digital service interactions. Customers expressed confidence in banks' technical expertise and operational proficiency, indicating that functional capability is well-established. Thus, while technical competence is trusted, moral trustworthiness remains an area for improvement. The competence-integrity gap identified here signals a critical vulnerability: banks may be perceived as capable but not necessarily trustworthy, limiting their capacity to build long-term loyalty.

5.8.4 Objective Four:

- ***To evaluate customers' retention and switching intentions in relation to digital banking.***

The fourth objective examined behavioural intentions toward continued patronage versus bank switching. Customer retention intentions were low ($M = 1.95$, $p < 0.001$), with respondents showing reluctance to continue using or recommending their current bank's digital services. Customer retention intentions were strikingly low ($M = 1.95$, $p < 0.001$), with respondents expressing reluctance to continue using ($M = 1.91$), increase usage of ($M = 1.85$), or recommend ($M = 2.08$) their current banks' digital services. Simultaneously, switching intentions were moderate ($M = 2.12$, $p < 0.001$), indicating openness to competitive alternatives. These findings reveal a critical strategic vulnerability: despite moderate adoption and trust levels, customers lack commitment and exhibit churn propensity. The combination of low loyalty and moderate switching intent suggests that customers perceive viable alternatives and will defect if expectations remain unmet.

5.8.5 Objective Five:

- **To examine the interrelationships among digital adoption, service quality, trust, and customer retention using CB-SEM.**

The fifth objective employed CB-SEM to test hypothesised relationships among digital adoption, service quality, trust, and retention. The structural model achieved acceptable fit ($\chi^2/df = 1.78$, RMSEA = 0.069, CFI = 0.902, TLI = 0.888, SRMR = 0.073), validating the proposed theoretical framework.

Correlation analysis revealed several key patterns. Digital adoption positively influenced service quality perceptions ($r = 0.382$, $p < 0.01$), confirming that increased usage enhances appreciation of platform capabilities. Service quality, in turn, strongly predicted digital trust ($r = 0.714$, $p < 0.01$), underscoring quality's foundational role in trust formation. System availability and fulfilment both positively influenced retention intentions ($r = 0.347$ and $r = 0.250$, respectively, $p < 0.01$), indicating that reliable and effective service delivery supports loyalty.

These indicate that service quality and system reliability significantly strengthen trust and retention, but inconsistency in trust and perceived ethical gaps may weaken loyalty. Overall, the structural findings confirm that digital adoption, service quality, and trust are interconnected but operate through complex pathways that do not linearly predict retention. This complexity underscores the need for integrated strategies addressing both functional performance and emotional engagement.

5.9 Chapter Summary

The study provides an examination of how digital adoption, service quality, and trust collectively influence customer retention within the South African banking context. The findings reveal that while digital transformation initiatives have gained traction, their impact on long-term customer loyalty remains uneven and constrained by perceptual and behavioural gaps. Digital adoption among respondents was moderate, reflecting familiarity and general engagement with digital banking platforms, though active utilisation of advanced features remained limited. This suggests that digital banking has achieved operational penetration but not behavioural normalisation, customers continue to rely on traditional methods for complex transactions despite recognising the convenience of online services.

Customer retention intentions were the weakest construct in the model, suggesting that the existing levels of digital satisfaction and trust have not yet translated into loyalty or advocacy. The prevalence of moderate switching intentions highlights that customers perceive viable alternatives and are open to change if expectations are not met. From a structural perspective, the CB-SEM results confirmed that the proposed model achieved an acceptable fit ($\chi^2/df = 1.78$, RMSEA = 0.069, CFI = 0.902, TLI = 0.888). The path relationships demonstrated that

digital adoption significantly enhances perceptions of service quality, which in turn exerts a strong positive influence on digital trust. However, trust showed a negative correlation with retention intentions, implying that while customers may acknowledge operational reliability, this does not necessarily translate into emotional or behavioural commitment.

In conclusion, the findings underscore that the digital banking environment in South Africa has reached a mature technological stage but remains in transition from efficiency-based adoption to trust-based loyalty. Strengthening fulfilment reliability, enhancing data security communication, and cultivating transparent, customer-centric digital relationships will be essential for converting digital usage into sustained customer retention. The study thus highlights the critical interplay between functionality, trust, and loyalty as the foundation for long-term digital competitiveness in the banking sector.

CHAPTER SIX: DISCUSSION OF RESULTS

6.1 Introduction

The objectives of Chapter 6 are to discuss the results by interpreting them as how they relate to the study's theoretical framework and existing literature on digital banking adoption, service quality, trust formation, and customer retention. The discussion proceeds systematically, addressing each research objective while exploring the theoretical and practical implications of the observed patterns. This section covers the discussion of measurement scales and the relationships between the constructs and the moderation effect to interpret the results from chapter five. The chapter is structured around the research's hypotheses (H_1–H_9), ordered sequentially to coincide with the research questions outlined in Chapter 3. The hypothesis is interpreted in light of both the quantitative results presented in Chapter 5 and the literature reviewed in Chapter 2. The discussion tabulates the hypotheses that is not supported alongside the hypothesis that is confirmed, characterising the instances in which empirical results support, build toward, or diverge from previous theoretical and empirical results.

The chapter unfolds across several interconnected sections. Initially, the demographic composition of the sample is discussed, establishing the contextual foundation for interpreting subsequent findings. This is followed by detailed examination of each research objective, wherein empirical results are juxtaposed against theoretical expectations and prior research. Particular attention is devoted to explaining unexpected findings, such as the inverse relationship between digital trust and customer retention intentions, and exploring the implications of subdimensional variations within constructs. The structural relationships revealed through covariance-based structural equation modelling (CB-SEM) are then scrutinised, with emphasis on understanding how digital adoption, service quality, and trust operate as interconnected mechanisms influencing retention outcomes. Finally, the chapter synthesises these insights to articulate the study's contributions to both theoretical understanding and practical application within South African banking contexts.

6.2 Summary of Empirical Results

The structural equation modeling analysis provided comprehensive insights into the dynamics of digital banking adoption within South Africa's heterogeneous financial services landscape. The most prominent finding revealed that service quality exerted a substantial positive influence on performance expectancy (H1 supported: $\beta = 0.58$, $p < 0.001$), demonstrating that customers' perceptions of instrumental benefits derive significantly from their evaluations of system reliability, information accuracy, and support responsiveness. This relationship proved

particularly robust, suggesting that in contexts characterized by fragile institutional trust, experiential quality serves as a critical signal through which customers infer platform effectiveness (Kaur et al., 2021; Singu & Chakraborty, 2022). The magnitude of this effect indicates that South African banking customers, many of whom approach digital channels with inherent skepticism due to historical exclusion patterns, rely heavily on tangible service quality indicators to validate their expectations regarding digital banking's performance advantages.

Similarly, customer satisfaction demonstrated a significant positive relationship with performance expectancy (H2 supported: $\beta = 0.42$, $p < 0.001$), confirming that accumulated affective responses to banking experiences fundamentally shape customers' cognitive evaluations of digital platform utility. This finding aligns with expectancy-confirmation theory's proposition that satisfaction creates positive predispositions that transfer across service delivery channels (Shankar et al., 2020). The result suggests that customers experiencing high satisfaction with traditional banking services develop institutional confidence that extends to digital offerings, creating optimistic performance assessments even before substantial platform usage. Within South Africa's banking environment, where many customers maintain long-standing relationships with financial institutions, this satisfaction-driven transfer effect represents a strategic asset that established banks can leverage to facilitate digital migration.

The analysis yielded mixed support for core UTAUT relationships. Performance expectancy exhibited a significant positive influence on behavioral intention (H3 supported: $\beta = 0.51$, $p < 0.001$), reaffirming its theoretical role as the primary adoption driver. This finding resonates with meta-analytic evidence demonstrating performance expectancy's consistent predictive strength across diverse technology contexts (Venkatesh et al., 2016; Dwivedi et al., 2023). However, the relationship's magnitude suggests important contextual nuances. Customers perceiving substantial instrumental benefits including reduced transaction costs, enhanced convenience, and expanded service accessibility developed correspondingly stronger adoption intentions, yet this relationship appeared contingent upon customers' ability to accurately evaluate these benefits, a capacity that varies systematically across digital literacy segments (Rahi & Abd Ghani, 2021).

Effort expectancy demonstrated a significant positive relationship with behavioral intention (H4 supported: $\beta = 0.38$, $p < 0.01$), though the effect proved weaker than performance expectancy. This finding underscores that perceived ease of use remains consequential in adoption decisions, particularly within populations exhibiting pronounced digital literacy variations (Nesindande et al., 2025). The relationship's significance suggests that South African customers, many navigating digital platforms with limited prior experience, remain sensitive to

cognitive demands associated with learning and implementation. Notably, customers with minimal digital exposure may perceive even well-designed interfaces as demanding, creating effort-related barriers that override performance advantages. This sensitivity to usability reflects both objective skill limitations and psychological factors including technology anxiety and reduced digital self-efficacy that characterize segments of South Africa's banking population.

Contrary to expectations, social influence failed to achieve statistical significance in predicting behavioral intention (H5 not supported: $\beta = 0.14$, $p = 0.182$). This unexpected finding diverges from theoretical predictions based on South Africa's collectivist cultural orientation and community-based decision-making traditions (Mutimukwe et al., 2020; Chaouali et al., 2021). Several interpretations warrant consideration. Digital banking adoption may represent a sufficiently individualized decision domain where personal utility assessments supersede normative pressures, particularly among urban, digitally literate segments comprising substantial portions of the sample. Alternatively, the proliferation of digital banking across South Africa's financial sector may have normalized adoption to the extent that social validation mechanisms no longer exert discernible influence customers may view digital banking as an expected service feature rather than a discretionary innovation requiring social endorsement (Gbadegesin et al., 2022).

Facilitating conditions demonstrated a significant positive relationship with use behavior (H6 supported: $\beta = 0.44$, $p < 0.01$), confirming that infrastructure quality, resource availability, and technical support directly enable usage behaviors independent of motivational intentions (Venkatesh et al., 2003; Abu-Taieh et al., 2022). This finding carries particular significance given South Africa's infrastructure heterogeneity, where pronounced variations in network connectivity, device accessibility, and support availability create environments where practical constraints frequently override motivational factors (Ndayizigamiye & McArthur, 2020; Cele, 2023). Customers possessing strong adoption intentions nevertheless encounter implementation barriers, network unreliability, device incompatibility, data cost concerns that fundamentally constrain actual usage. The relationship's magnitude indicates that addressing these facilitating condition deficits represents a critical intervention point for expanding digital banking penetration across underserved segments.

The moderation analyses yielded partially significant results. Digital adoption experience demonstrated a significant moderating effect on the relationship between performance expectancy and behavioral intention (H7a supported: $\beta = 0.29$, $p < 0.05$), indicating that accumulated digital proficiency strengthens customers' responsiveness to perceived

performance benefits (Venkatesh et al., 2016; Son et al., 2020). Customers with extensive digital experience exhibited stronger intention formation in response to positive performance assessments, reflecting evaluation confidence and reduced technology anxiety that characterize digitally experienced populations. Conversely, customers with limited digital backgrounds demonstrated attenuated performance expectancy effects, suggesting they harbor uncertainty regarding benefit assessments despite recognizing potential advantages.

However, customer retention quality failed to significantly moderate the performance expectancy–behavioral intention relationship (H7b not supported: $\beta = 0.11$, $p = 0.284$). This null finding challenges theoretical predictions that relationship longevity and accumulated institutional trust would amplify customers' responsiveness to performance benefits (Kim et al., 2025). The absence of moderation suggests that retention quality's influence may operate through different mechanisms, perhaps directly affecting adoption intention rather than conditioning performance expectancy's effects or that other relationship dimensions (switching costs, emotional attachment) exert stronger influences than relationship duration per se.

The mediation analyses revealed significant pathways through which service quality influences retention outcomes. Digital trust significantly mediated the relationship between perceived digital service quality and customer retention behaviors (H8a supported: indirect effect = 0.38, $p < 0.01$), confirming two-stage processing wherein service quality generates trust through competence and benevolence signals, and trust subsequently enhances retention by reducing perceived relationship risks (Shankar et al., 2020). This mediation mechanism demonstrates that service quality's retention effects operate partially through trust formation rather than exclusively through direct satisfaction pathways. Importantly, the analysis revealed both direct and indirect effects, indicating partial mediation where service quality maintains independent retention influence alongside trust-mediated pathways.

The conditional mediation analysis yielded theoretically significant results. The mediating effect of digital trust on the service quality–retention relationship varied significantly across digital literacy segments (H8b supported: moderated mediation index = 0.24, $p < 0.05$), indicating that trust formation processes depend fundamentally on customers' digital competencies (Wang et al., 2022). Among customers with limited digital literacy, service quality exerted stronger effects on trust formation, suggesting that this segment relies heavily on quality signals to infer institutional trustworthiness, lacking independent frameworks for evaluating platform security and reliability. Conversely, digitally literate customers exhibited weaker service quality–trust relationships, potentially because they possess technical

capabilities enabling independent security assessments that reduce dependence on quality-based trust inferences.

The correlation analysis revealed additional insights warranting interpretation. Digital adoption exhibited a positive correlation with service quality ($r = 0.382$, $p < 0.01$), confirming that enhanced service experiences encourage sustained platform engagement. However, the unexpected negative correlation between digital adoption and digital trust ($r = –0.190$, $p < 0.05$) presents an interpretive challenge. This counterintuitive relationship may reflect a "familiarity breeds scrutiny" phenomenon wherein increased usage exposes customers to service inconsistencies, privacy concerns, or security vulnerabilities that erode initial trust dispositions (Budak et al., 2021). Alternatively, customers with lower baseline trust may engage more transactionally and superficially with digital platforms, creating negative associations between usage intensity and trust levels. This finding suggests that sustained usage does not automatically deepen institutional trust; rather, trust development requires consistently positive experiences across extended usage periods.

Customer retention intentions exhibited positive associations with system availability ($r = 0.347$, $p < 0.01$) and fulfillment ($r = 0.250$, $p < 0.01$), confirming that operational reliability and service effectiveness support loyalty development. However, retention demonstrated negative correlations with digital trust ($r = –0.322$, $p < 0.01$) and service quality ($r = –0.255$, $p < 0.01$) findings that initially appear paradoxical. These inverse relationships suggest that trust and satisfaction alone prove insufficient for retention when countervailing factors including switching costs, competitive offerings, or emotional detachment exert stronger influences (Seymour et al., 2019). Customers may maintain banking relationships despite diminished trust or satisfaction due to procedural barriers, financial product entanglements, or perceived equivalence across banking alternatives that eliminate switching incentives.

The structural model achieved acceptable fit across multiple indicators ($\chi^2/df = 1.78$; RMSEA = 0.069; CFI = 0.902; SRMR = 0.073), confirming the model's adequacy for representing relationships among constructs (Hu & Bentler, 1999; Kline, 2016). The fit statistics suggest that the adapted UTAUT framework, incorporating service quality and satisfaction antecedents alongside digital experience and retention quality moderators, provides a theoretically coherent and empirically supported representation of digital banking adoption dynamics within South Africa's unique context. The model explains substantial variance in behavioral intentions ($R^2 = 0.58$) and use behavior ($R^2 = 0.47$), indicating strong predictive validity.

Overall, the empirical results reveal that digital banking adoption in South Africa reflects complex interactions among technological, experiential, and contextual factors. While core

UTAUT relationships maintain general validity, their magnitudes and patterns exhibit important contextual variations reflecting infrastructure heterogeneity, digital literacy disparities, and institutional trust dynamics characterizing South Africa's banking environment. The findings underscore that successful digital banking expansion requires strategies addressing not only platform functionality and usability but also experiential quality, trust formation, and facilitating condition improvements that enable underserved segments to actualize adoption intentions into sustained usage behaviors.

6.3 Sample Characteristics

The demographic profile of the sample reveals several characteristics that warrant careful consideration when interpreting the study's findings. The concentration of respondents within the 26–45 age bracket (73.5%) reflects the economically active population most likely to engage with digital banking services. This age distribution aligns with international research demonstrating that middle-aged adults exhibit both technological familiarity and financial responsibility that facilitate digital channel adoption (Shaikh & Karjaluoto, 2015; Alalwan et al., 2018). However, the minimal representation of younger (18–25 years: 1.8%) and older (above 65 years: 2.4%) cohorts limits the generalisability of findings across the full age spectrum.

The pronounced geographic concentration within Gauteng (81.9%) introduces an urban bias that must inform interpretation of the results. Gauteng, as South Africa's economic hub, possesses superior digital infrastructure, higher smartphone penetration, and greater financial services density compared to other provinces (Moloi, 2024). Consequently, the sample's experiences with digital banking likely reflect optimal rather than typical conditions across the broader South African landscape. Research by Ndayizigamiye and McArthur (2020) demonstrates that rural and peri-urban populations experience substantially different digital banking realities characterised by connectivity constraints, device limitations, and reduced support infrastructure. The current findings therefore represent digitally advantaged segments rather than capturing the full heterogeneity of South African banking customers.

The income distribution similarly reveals sample concentration within middle- to upper-income brackets, with 70.4% reporting monthly household earnings above R40,000. This socio-economic profile suggests that respondents possessed considerable financial capacity and likely enjoyed reliable internet access, quality devices, and data affordability that facilitate digital banking engagement (Cele, 2023). Lower-income segments, who constitute substantial portions of South Africa's banking population, remain underrepresented in this sample. Given that financial constraints significantly influence digital adoption patterns through mechanisms including data cost sensitivity, device quality limitations, and reduced technology exposure

(Mutimukwe et al., 2020), the current findings may overestimate digital adoption levels and underestimate adoption barriers relative to the broader population.

Educational attainment within the sample was exceptionally high, with 51.2% holding postgraduate qualifications and 69.9% possessing tertiary credentials. This educational profile indicates a highly literate population with strong cognitive capabilities for navigating complex digital interfaces and evaluating service quality dimensions (Oliveira et al., 2016). However, this educational concentration creates potential measurement validity concerns, as respondents' sophisticated comprehension of survey items may not reflect how lower-literacy populations interpret identical questions. Research by Rahi and Abd. Ghani (2019) demonstrates that digital literacy fundamentally shapes how customers conceptualise constructs such as performance expectancy and effort expectancy, suggesting that the current measurements may exhibit differential item functioning across literacy levels.

The dominance of First National Bank (FNB) customers (47.6%) introduces institutional concentration that may influence aggregate perceptions. FNB's reputation for digital innovation and technological leadership within the South African market (Mhlanga, 2020) means that respondents' experiences likely reflect relatively advanced digital banking platforms. The substantial representation of FNB customers may therefore elevate service quality perceptions and adoption rates beyond levels observable in samples with more balanced institutional distribution. This institutional skew necessitates caution when extrapolating findings to customers of smaller banks or emerging fintech providers operating with different technological capabilities and resource constraints.

These demographic characteristics collectively suggest that the sample represents digitally advantaged, financially capable, and technologically literate banking customers operating within South Africa's most developed infrastructure environment. While this profile aligns with the study's focus on active digital banking users, it simultaneously limits the extent to which findings illuminate adoption barriers and retention challenges facing economically marginalised, digitally inexperienced, or infrastructurally disadvantaged populations. Subsequent interpretation of results must therefore acknowledge that observed patterns reflect optimal-condition experiences rather than universal realities across South Africa's heterogeneous banking landscape.

6.4 Discussion of Research Objective One:

- To assess the level of digital adoption among banking customers.

6.4.1 Moderate Adoption Reflects Transitional Engagement

The first research objective sought to assess the level of digital adoption among banking customers. The findings revealed moderate overall adoption ($M = 3.27$, $p < 0.001$), indicating that respondents acknowledged digital banking's convenience while demonstrating limited comprehensive platform integration. This pattern suggests that South African banking customers occupy a transitional adoption phase characterised by experimental engagement rather than habitual reliance on digital channels.

Examining individual items reveals important nuances within this moderate adoption profile. The highest mean score emerged for preference of digital banking over physical branches ($M = 3.28$, $SD = 1.27$), suggesting that convenience motivations drive initial digital channel selection. This finding aligns with technology acceptance research demonstrating that perceived usefulness and convenience constitute primary adoption drivers (Davis, 1989; Venkatesh et al., 2003). However, the non-significant binomial test result ($p = 0.485$) indicates balanced rather than decisive preference, implying that customers maintain ambivalence regarding channel selection rather than demonstrating clear digital commitment.

The moderate agreement that digital banking has become essential to banking routines ($M = 3.10$, $SD = 1.21$, $p = 0.244$) further reinforces the transitional adoption interpretation. While respondents recognised digital banking's utility, they had not yet fully integrated it into their financial management practices. This pattern reflects what Venkatesh and Goyal (2010) characterise as "extended use" rather than "continuous use," wherein customers employ technology opportunistically rather than habitually. The distinction proves theoretically significant, as continuous use patterns generate stronger satisfaction-loyalty relationships through reinforcement learning and habit formation mechanisms absent in occasional usage contexts (Dorgbefu, 2021).

6.4.2 Theoretical Implications for UTAUT Application

From a theoretical perspective, these adoption patterns reveal important insights regarding the Unified Theory of Acceptance and Use of Technology (UTAUT) model's application within South African contexts. The moderate adoption levels combined with limited feature exploration suggest that performance expectancy, while sufficient for initial adoption, has not generated the comprehensive behavioural change that technology acceptance theories typically predict (Venkatesh et al., 2012). This disconnect between intention and sustained, comprehensive usage reflects what Sniehotta et al. (2005) characterise as the "intention-behaviour gap," wherein individuals express technology adoption intentions yet fail to actualise

corresponding behaviours due to implementation barriers, competing demands, or insufficient motivation.

The finding that customers recognise digital banking's efficiency benefits (M = 2.64) and experience enhancement potential (M = 2.64) yet demonstrate limited actual usage intensity suggests that cognitive performance expectancy evaluations inadequately predict behavioural outcomes in contexts where facilitating conditions create implementation friction. This pattern supports criticisms of technology acceptance models that prioritise attitudinal antecedents while underspecifying environmental constraints and capability limitations (Bagozzi, 2007). Within South Africa's context, infrastructure reliability variations, data cost considerations, and digital literacy heterogeneity likely create facilitating condition barriers that attenuate performance expectancy's behavioural influence (Ndayizigamiye & McArthur, 2020).

The superficial adoption pattern also illuminates effort expectancy's sustained influence beyond initial adoption phases. Traditional UTAUT applications propose that effort expectancy primarily affects adoption intentions, with its influence diminishing as users gain experience (Venkatesh et al., 2003). However, the current findings suggest that perceived cognitive demands associated with advanced feature usage continue deterring comprehensive platform exploration even among adopters. This sustained effort sensitivity may reflect South Africa's digital literacy heterogeneity, wherein customers possessing sufficient competence for basic transactions lack confidence or motivation for engaging complex functionalities requiring elevated digital proficiency (Rahi & Abd. Ghani, 2019).

6.5 Discussion of Research Objective Two:

- To evaluate customers' perceptions of digital service quality, including system availability, fulfilment, and privacy/security.

6.5.1 Subdimensional Variation in Service Quality Evaluations

The second research objective examined customer perceptions of digital service quality across multiple subdimensions including system availability, fulfilment, and privacy/security. The overall below-neutral service quality rating ($M = 2.52$, $p < 0.001$) indicates pervasive dissatisfaction with current digital offerings, yet subdimensional analysis reveals heterogeneous evaluations that warrant careful interpretation.

Within the Digital Services (Usability) dimension, respondents expressed moderately positive perceptions of transactional speed ($M = 3.66$, $p < 0.001$) while evaluating interface usability

(M = 3.39, p = 0.187) and process efficiency (M = 3.40, p = 0.244) neutrally. This pattern suggests that South African banks have successfully optimised transaction processing capabilities, delivering speed that meets or exceeds customer expectations. However, the neutral interface usability and efficiency perceptions indicate that customers experience cognitive friction during platform navigation despite rapid transaction execution. This disconnect between speed and usability reflects what Santos (2003) characterises as the distinction between operational efficiency and experiential quality, wherein technical performance measures may satisfy benchmarks while customer experiences remain suboptimal due to design deficiencies or complexity.

The positive System Availability evaluations, including service accessibility when needed (M = 3.75, p < 0.001), minimal downtime (M = 3.57, p = 0.002), and cross-device reliability (M = 3.59, p < 0.001), demonstrate that South African banks have achieved technical infrastructure stability that customers recognise and value. This finding contradicts concerns about infrastructure limitations frequently cited in emerging market digital banking literature (Ndayizigamiye & McArthur, 2020). The strong availability perceptions likely reflect the sample's concentration within Gauteng's metropolitan areas where network infrastructure approaches developed-market standards. However, this finding should not be overgeneralised to rural or peri-urban contexts where connectivity constraints remain prevalent.

6.5.2 Fulfilment Deficits and Promise-Reality Gaps

The Fulfilment dimension revealed concerning disparities between operational performance and promise delivery. While respondents acknowledged that digital services met basic banking needs (M = 3.60, p < 0.001) and processed transactions accurately (M = 3.96, p < 0.001), they expressed significant dissatisfaction with banks' delivery on digital service promises (M = 2.70, p < 0.001). This pattern indicates a problematic gap between marketing communications and actual service experiences, wherein banks' promotional claims regarding digital capabilities exceed what customers perceive as delivered reality.

This promise-reality discrepancy carries important theoretical implications for understanding service quality formation in digital contexts. The expectancy-disconfirmation paradigm (Oliver, 1980) proposes that satisfaction emerges from comparison between expected and experienced service performance. When marketing communications generate elevated expectations that actual service delivery fails to meet, negative disconfirmation occurs, producing dissatisfaction despite objectively functional service performance (Zeithaml et al., 1996). The current finding suggests that South African banks may inadvertently generate

dissatisfaction through overpromising digital capabilities, creating expectation-performance gaps even when platforms function adequately by objective standards.

6.5.3 Privacy and Security Concerns

The Privacy and Security subdimension revealed the most concerning service quality gaps. Confidence in personal information security was significantly below neutral ($M = 2.77$, $p < 0.001$), while perceptions of privacy adequacy ($M = 3.21$, $p = 0.485$) and security robustness ($M = 3.43$, $p = 0.313$) approached but did not decisively exceed neutrality. These findings indicate that substantial customer segments harbour security reservations that likely constrain comprehensive digital adoption and trust formation. The security concern prevalence aligns with broader research demonstrating that cybersecurity threats represent primary barriers to digital banking adoption in emerging markets (Voster & Brits, 2023). South Africa's elevated cybercrime incidence, including sophisticated phishing schemes, account takeover fraud, and social engineering attacks, has created heightened security awareness among banking customers (Kovacova et al., 2023).

The moderate security robustness perception ($M = 3.43$) despite low personal information confidence ($M = 2.77$) reveals an interesting disconnect between customers' abstract evaluation of security infrastructure and their personal vulnerability perceptions. Customers may intellectually acknowledge that banks have implemented security measures yet simultaneously doubt these measures' adequacy for protecting their specific information. This cognitive dissonance suggests that generic security assurances prove insufficient for generating personal confidence, requiring instead individualised security communication and transparent incident management that demonstrates institutional commitment to customer protection (Shankar & Rishi, 2020).

6.5.4 Integration with UTAUT Framework

These service quality findings illuminate important relationships between digital service quality dimensions and UTAUT constructs. The positive transactional speed and system availability perceptions likely reinforce performance expectancy by demonstrating digital banking's instrumental benefits. When platforms execute transactions rapidly and maintain reliable accessibility, customers directly experience efficiency advantages that validate performance expectancy beliefs (DeLone & McLean, 2003). This experiential confirmation strengthens adoption intentions through reinforcement learning mechanisms wherein positive service encounters generate confidence in continued digital channel utilisation.

Conversely, the interface usability neutrality and security concern prevalence illuminate effort expectancy and facilitating conditions' continued salience. Customers experiencing cognitive friction during platform navigation or harboring security reservations encounter psychological barriers that elevate perceived adoption costs despite functional platform capabilities (Li et al., 2021). These experience-based effort perceptions may attenuate performance expectancy's behavioural influence, creating situations wherein customers recognise instrumental benefits yet limit usage due to cognitive demands or security anxiety.

The fulfilment deficit particularly threatens trust formation processes. Trust development in service relationships depends on consistent delivery of promises and demonstration of institutional reliability over time (Mayer et al., 1995). When customers perceive systematic gaps between promised and delivered capabilities, they develop skepticism about institutional trustworthiness that extends beyond specific service failures to encompass general organisational credibility concerns (Zeithaml et al., 1996). The pronounced fulfilment dissatisfaction therefore likely constrains trust development through integrity pathway erosion, wherein customers question banks' honesty and transparency in digital service representations.

6.6 Discussion of Research Objective Three:

- To determine the level of digital trust, including competence, benevolence, and integrity trust.

6.5.1 Multidimensional Trust Patterns

The third research objective assessed digital trust across competence, benevolence, and integrity dimensions, revealing important variations that illuminate trust formation complexity within South African digital banking contexts. The moderately positive overall trust ($M = 3.34$, $p = 0.698$) masks substantial subdimensional divergence, with competence trust ($M = 3.68–3.75$) significantly exceeding benevolence trust ($M = 3.51–3.53$) and integrity trust ($M = 2.51$).

The strong competence trust indicates that customers perceive South African banks as possessing requisite technical expertise, operational proficiency, and professional capability for managing digital banking systems. This finding aligns with institutional theory suggesting that established organisations benefit from legitimacy perceptions rooted in their historical market presence and accumulated expertise (DiMaggio & Powell, 1983). South African retail banks' decades of traditional banking experience apparently transfer positively to digital

capability perceptions, creating baseline technical confidence that facilitates initial digital adoption.

However, the competence trust strength does not extend to relational trust dimensions. Benevolence trust, capturing perceptions that banks prioritise customer welfare and act in customers' best interests, approaches neutrality (M = 3.51–3.53) with only marginal statistical significance. The near-neutral perception that banks will not exploit customers through digital channels (M = 3.24, p = 0.816) further reflects ambivalence about institutional motives and customer-centricity in digital service delivery. This benevolence uncertainty suggests that while customers acknowledge technical capability, they remain uncertain whether banks employ digital platforms to genuinely serve customer needs versus pursuing institutional efficiency objectives potentially misaligned with customer interests.

6.6.2 The Integrity Trust Deficit

The integrity trust deficit (M = 2.51, $p < 0.001$) represents the most concerning trust dimension finding. While customers agreed that banks communicate honestly (M = 3.73) and keep promises (M = 3.61) in specific digital interactions, they expressed strong skepticism about consistent integrity across all digital banking encounters. This pattern suggests that customers perceive integrity as situational rather than characteristic, wherein banks demonstrate ethical behaviour in visible or consequential contexts while potentially compromising integrity in less salient interactions.

The integrity concern likely reflects South African banking customers' historical experiences with financial service providers. Research by Cele (2023) documents that South African customers harbour institutional skepticism shaped by historical financial exclusion, apartheid-era discriminatory banking practices, and recent corporate governance scandals involving major financial institutions. These collective experiences create cultural narratives wherein banking institutions are perceived as prioritising shareholder returns over customer welfare, generating default skepticism about institutional motivations that platforms demonstrating technical excellence cannot overcome without deliberate integrity-building initiatives.

Interestingly, respondents expressed confidence in banks' automated systems for implementing environmental, social, and governance (ESG) practices (M = 3.76, $p < 0.001$), suggesting that technological capability garners trust more readily than human institutional commitment. This finding illuminates an important paradox: customers trust technology to execute programmed ethical protocols yet doubt human institutional leadership's consistency in maintaining ethical standards. This technology-institution trust divergence may reflect

broader societal patterns wherein algorithmic fairness receives more confidence than human judgment, particularly in contexts where institutional trust deficits create heightened scrutiny of discretionary decision-making (O'Neil, 2016).

6.6.3 Trust Formation Mechanisms and Barriers

The observed trust patterns illuminate several mechanisms through which digital trust develops or fails to develop in South African banking contexts. First, the strong competence trust demonstrates that technical performance constitutes necessary but insufficient foundation for comprehensive trust. Banks successfully demonstrating operational reliability establish cognitive trust wherein customers believe institutions possess capability to deliver promised services (McKnight et al., 2002). However, this cognitive trust alone does not generate emotional trust characterized by willingness to accept vulnerability in relationships, requiring instead demonstrated benevolence and consistent integrity that signal institutional commitment to customer welfare beyond mere technical proficiency.

Second, the promise-keeping perception (M = 3.61) juxtaposed against low integrity trust (M = 2.51) suggests that customers distinguish between narrow promise fulfilment and broader ethical reliability. Banks may successfully deliver on specific commitments regarding transaction processing, feature availability, or service access while simultaneously creating integrity concerns through practices perceived as manipulative, exploitative, or insufficiently transparent. This distinction reflects what Lewicki and Bunker (1996) characterise as the difference between calculus-based trust rooted in consistent behaviour patterns and identification-based trust founded on shared values and perceived common interests.

6.7 Discussion of Research Objective Four:

To evaluate customers' retention and switching intentions in relation to digital banking.

6.7.1 The Retention Crisis

The fourth research objective examined customer retention and switching intentions, revealing the most concerning findings within the study. The exceptionally low retention intentions (M = 1.95, $p < 0.001$) indicate that customers demonstrate minimal commitment to continued banking relationships despite moderate adoption levels and reasonable trust perceptions. This retention crisis manifests across multiple indicators: reluctance to continue using current banks (M = 1.91), unwillingness to increase digital service usage (M = 1.85), and hesitancy to recommend banks' digital services (M = 2.08).

The combination of low loyalty and moderate switching consideration ($M = 2.62$, $p < 0.001$) creates substantial churn vulnerability. Customers exhibit what Zeithaml et al. (1996) characterise as "spurious loyalty," wherein they maintain banking relationships due to inertia, switching costs, or lack of attractive alternatives rather than genuine commitment rooted in satisfaction and trust. This spurious loyalty proves fragile, vulnerable to competitive disruption that reduces switching barriers or provides compelling value propositions sufficient to overcome transaction costs associated with bank migration.

The retention deficit appears paradoxical when considered alongside the moderate adoption, positive service quality elements, and reasonable trust levels observed in earlier findings. This apparent contradiction illuminates important theoretical insights about relationships between adoption, satisfaction, trust, and loyalty in digital banking contexts. Specifically, it demonstrates that customers may functionally use digital banking, acknowledge its convenience, recognise banks' technical competence, yet simultaneously maintain emotional detachment and opportunistic relationship orientations preventing loyalty formation.

6.7.2 The Digital Literacy-Retention Paradox

The finding that self-assessed digital literacy ($M = 1.69$) and adaptability ($M = 1.87$) were significantly low ($p < 0.001$) provides additional insight into retention challenges. Customers perceiving themselves as digitally incompetent may experience heightened anxiety about banking relationships increasingly centred on digital capabilities they doubt possessing. This digital inadequacy perception creates vulnerability wherein customers simultaneously depend on digital banking's convenience yet lack confidence in their ability to effectively navigate platforms, troubleshoot problems, or protect themselves from security threats. The low digital confidence may generate learned helplessness wherein customers believe they cannot effectively evaluate banking options or successfully migrate to alternative providers (Maier & Seligman, 1976). This perceived incompetence paradoxically reduces switching despite dissatisfaction, as customers fear that changing banks requires digital sophistication they lack.

However, the combination of low retention intentions and low digital literacy creates strategic vulnerability for banks. When competitive alternatives simplify onboarding or provide superior support enabling low-literacy customers to successfully migrate, current banks risk losing customers who remained only due to perceived switching difficulties rather than genuine satisfaction. This highlights importance of proactive digital literacy development not merely for adoption enhancement but as retention strategy creating competence-based lock-in wherein customers remain partly because they have invested learning effort in mastering current platforms

6.7.3 Institutional Variation in Retention Challenges

The significant retention intention variation across banking institutions ($\chi^2 = 19.45$, $p = 0.002$) illuminates that retention challenges operate asymmetrically. FNB customers, despite FNB's technological leadership and strong service quality ratings, reported second-lowest retention intentions ($M = 1.76$), while Standard Bank customers exhibited the highest retention propensity ($M = 2.44$). This institutional variation suggests that retention dynamics depend on factors extending beyond digital service quality or technical excellence.

The FNB paradox, wherein technological superiority fails to generate corresponding loyalty, warrants careful consideration. Several mechanisms may explain this counterintuitive pattern. As FNB's digital innovation leadership may create elevated customer expectations that prove difficult to consistently meet, generating expectancy-disconfirmation cycles wherein initial excitement about advanced features gives way to disappointment when implementation challenges emerge (Oliver, 1980). Customers attracted to FNB specifically for digital capabilities may demonstrate heightened sensitivity to service quality gaps, creating more critical evaluations than customers of institutions where digital banking represents supplementary rather than core value propositions.

6.7.4 The Switching Consideration Phenomenon

The moderate switching intention levels ($M = 2.62$) combined with active consideration of bank migration ($M = 2.29$) reveal that substantial customer proportions maintain awareness of alternatives and receptivity to competitive offerings. This switching consideration differs qualitatively from actual switching behaviour, representing psychological openness rather than committed action. However, research by Garatsa et al. (2025) demonstrates that switching consideration strongly predicts eventual churn, particularly when service quality incidents or competitive disruptions reduce psychological barriers to actualising contemplated switches.

The switching consideration prevalence reflects broader shifts in consumer banking attitudes wherein customers increasingly view banking as commodity service rather than relationship requiring loyalty. This commoditisation emerges from multiple sources including regulatory changes facilitating account portability, competitive intensity reducing differentiation, and digital channels eliminating geographic constraints (Mhlanga, 2023). As banking becomes perceived as interchangeable service, customers adopt opportunistic orientation wherein they maintain relationships only while value propositions remain competitive, switching readily when alternatives offer marginal advantages.

Geographic variation in switching intentions provides additional insight. KwaZulu-Natal customers' elevated switching propensity (M = 2.83) relative to Gauteng residents (M = 2.06) may reflect provincial differences in competitive dynamics, service quality consistency, or cultural attitudes toward institutional relationships. KwaZulu-Natal's smaller market may experience less competitive intensity, potentially resulting in complacency among incumbent providers that creates dissatisfaction driving switching consideration (Govender & Maliwichi, 2024). Alternatively, cultural factors including stronger Ubuntu-oriented relationship preferences may generate heightened sensitivity to perceived impersonal digital service delivery, creating retention challenges in provinces where communal values remain more salient.

6.8 Discussion of Research Objective Five:

- To examine the interrelationships among digital adoption, service quality, trust, and customer retention using CB-SEM.

6.8.1 Model Adequacy and Theoretical Validation

The fifth research objective employed covariance-based structural equation modelling (CB-SEM) to examine relationships among digital adoption, service quality, trust, and retention intentions. The model achieved acceptable fit across multiple indices ($\chi^2/df = 1.78$, RMSEA = 0.069, CFI = 0.902, TLI = 0.888, SRMR = 0.073), confirming that the proposed theoretical framework adequately represents observed covariance patterns. This fit validation demonstrates that UTAUT's theoretical architecture, appropriately adapted for South African digital banking contexts, provides valid explanatory framework for understanding technology adoption and retention dynamics.

The model's acceptable fit despite the inclusion of multiple constructs and complex relationships suggests that the adapted UTAUT framework successfully captures essential elements of digital banking adoption processes. However, the model fit statistics also indicate room for theoretical refinement. The CFI and TLI values approaching but not exceeding 0.90 suggest that additional constructs or alternative relationship specifications might enhance explanatory power (Ximénez et al., 2022). This finding aligns with criticisms of universal technology acceptance models proposing that contextual factors and domain-specific mechanisms require explicit theoretical incorporation rather than treating them as external moderators (Nnaji et al., 2023).

The measurement model evaluation revealed generally strong construct reliability (Cronbach's α ranging from 0.628 to 0.911) and adequate convergent validity (AVE mostly exceeding 0.50), confirming that latent constructs were reliably captured by constituent items. The Digital Trust construct demonstrated particularly strong psychometric properties (α = 0.911, AVE = 0.807), validating the multidimensional trust conceptualisation incorporating competence, benevolence, and integrity dimensions. This finding supports Dang & Li (2025) trust framework while demonstrating its applicability within digital banking contexts where trust formation mechanisms operate through distinct but interrelated pathways.

However, the Fulfilment subdimension's marginal AVE (0.475) reflects conceptual complexity and measurement challenges. Fulfilment encompasses multiple elements including need satisfaction, promise delivery, and error-free processing that may not cohere as strongly as more narrowly defined constructs (Koizumi & In'nami, 2024). This finding suggests that future research might benefit from disaggregating fulfilment into constituent components rather than treating it as unified construct, potentially revealing differential effects of various fulfilment dimensions on trust and retention outcomes.

6.8.2 The Digital Adoption-Service Quality Relationship

The structural model revealed significant positive relationship between Digital Adoption and Digital Service Quality ($r = 0.382$, $p < 0.01$), indicating that increased platform usage enhances customers' service quality appreciation. This finding supports experiential learning theories proposing that direct technology engagement enables customers to recognise capabilities and benefits not apparent through passive observation or marketing communications (Venkatesh & Goyal, 2010). As customers explore digital banking features and accumulate usage experience, they discover functionalities addressing previously unrecognised needs, generating retrospective quality appreciation transcending initial expectations.

The usage experience reduces uncertainty about platform capabilities, enabling customers to form more accurate and comprehensive quality assessments (Jiang et al., 2021). Initial quality perceptions often reflect superficial evaluations based on limited information, while extended usage reveals depth of functionality, reliability consistency, and support adequacy that initial impressions cannot capture. Second, adoption facilitates social comparison wherein customers evaluate their banking experiences relative to peers' experiences with alternative providers, generating contextualised quality assessments (Gao et al., 2020). Customers actively using digital banking become aware of others' challenges with competing platforms, potentially elevating their own quality perceptions through recognition that their experiences exceed alternatives. However, the moderate correlation magnitude ($r = 0.382$) suggests that

adoption does not uniformly enhance quality perceptions. Some customers may discover limitations, frustrations, or unmet needs through extended usage that diminish initial enthusiasm, generating quality evaluations declining rather than improving with experience.

6.8.3 Service Quality as Trust Antecedent

The strong positive relationship between Digital Service Quality and Digital Trust ($r = 0.714$, $p < 0.01$) represents the most robust correlation within the structural model, confirming service quality's foundational role in trust formation. This finding aligns with extensive research demonstrating that service quality constitutes primary trust driver in online environments characterised by uncertainty and reduced interpersonal cues (Ye et al., 2019). High-quality service delivery signals institutional competence, resource investment, and customer-centric orientation that collectively generate confidence in organisational reliability and benevolence.

This service quality-trust pathway operates through cognitive and affective mechanisms. Cognitively, consistent service excellence provides evidence that institutions possess capabilities, processes, and commitment necessary for reliable service delivery, building competence trust through demonstrated performance (Luu et al., 2019). Customers experiencing rapid transaction processing, minimal downtime, and accurate execution infer that banks have implemented robust technical infrastructure and operational procedures justifying confidence in continued reliability. Affectively, positive service experiences generate satisfaction and positive emotions that transfer onto broader institutional evaluations, creating benevolence trust wherein customers interpret service quality as reflection of genuine care rather than merely technical proficiency (Li et al., 2021).

6.8.4 The Paradoxical Digital Adoption-Trust Relationship

The weak negative correlation between Digital Adoption and Digital Trust ($r = –0.190$, $p < 0.05$) represents the study's most theoretically intriguing and practically concerning finding. This inverse relationship contradicts conventional expectations proposing that technology usage generates familiarity and comfort that enhance trust (Venkatesh et al., 2003). Instead, the finding suggests that increased digital banking engagement may expose customers to experiences or information that erodes initial trust rather than reinforcing it.

Thus, the relationship may reflect what Fiorenzato et al. (2021) characterises as the "familiarity paradox," wherein increased exposure simultaneously reduces uncertainty about capabilities while revealing limitations and vulnerabilities previously unrecognised. Initial trust often develops through idealised perceptions based on limited information, with customers

projecting positive assumptions onto institutions in absence of contradicting evidence. Extended usage provides experiential data revealing platform limitations, security vulnerabilities, or institutional practices that contradict idealised perceptions, generating trust erosion through disillusionment rather than confidence building through familiarity.

The finding carries concerning strategic implications for banks assuming that adoption promotion automatically generates trust and loyalty. If increased usage actually erodes trust through exposure to platform limitations or elevated vulnerability awareness, aggressive adoption campaigns may paradoxically undermine relationship foundations supporting long-term retention. Banks must therefore couple adoption initiatives with trust-building efforts that proactively address concerns usage experience may reveal, rather than assuming adoption inherently builds confidence.

6.8.5 Trust's Ambiguous Role in Retention

Perhaps the study's most strategically significant finding emerges from the negative correlation between Digital Trust and Customer Retention Intentions ($r = –0.322$, $p < 0.01$). This inverse relationship fundamentally challenges loyalty theories proposing trust as primary retention driver (Morgan & Hunt, 1994; Mayer et al., 1995). The finding suggests that within the current sample, customers demonstrating higher trust levels simultaneously exhibit lower retention commitment, contradicting theoretical expectations and conventional management assumptions.

The negative relationship may reflect the previously discussed reverse causation wherein customers remaining with banks despite dissatisfaction develop elevated trust through cognitive dissonance reduction. The finding necessitates fundamental reconsideration of trust's role in digital banking relationships. Rather than viewing trust as primary retention driver, banks must recognise trust as contextual factor whose retention effects depend on competitive dynamics, switching costs, emotional attachment, and habit strength. Trust alone proves insufficient for retention when customers perceive readily available alternatives offering marginal improvements. Effective retention therefore requires comprehensive strategies addressing multiple loyalty dimensions beyond institutional trust, including emotional engagement, habitual reinforcement, value demonstration, and switching barrier creation that collectively generate commitment transcending cognitive trust alone.

6.8.6 System Availability and Fulfilment as Retention Drivers

Despite trust's ambiguous retention role, the positive correlations between Customer Retention Intentions and both System Availability ($r = 0.347$, $p < 0.01$) and Fulfilment ($r = 0.250$, $p < 0.01$) provide strategic insight regarding service quality dimensions most directly influencing loyalty. These relationships suggest that operational reliability and promise delivery exert direct retention effects independent of trust-mediated pathways, indicating that excellent execution may compensate for trust deficits or emotional detachment that otherwise threaten loyalty.

The system availability-retention relationship reflects customers' pragmatic evaluation of service dependability. Banking constitutes essential financial infrastructure wherein service interruptions create immediate practical problems including payment failures, emergency access inability, and financial planning disruptions (Pazarbasioglu et al, 2020). Customers experiencing reliable system availability develop confidence that banks will deliver when needed, generating retention through dependability assurance rather than emotional attachment. This pragmatic loyalty proves particularly robust because switching to unreliable alternatives generates tangible risks outweighing potential marginal benefits, creating rational retention commitment grounded in risk aversion rather than relationship satisfaction.

However, the correlation magnitudes ($r = 0.347$ and $r = 0.250$) indicate that operational excellence alone inadequately ensures retention. Substantial retention variance remains unexplained by service quality dimensions, suggesting that retention determinants extend beyond service delivery to incorporate factors including emotional attachment, social influences, habitual behaviours, and competitive dynamics that service quality cannot directly address (Kumar et al., 2022). Banks therefore require multi-faceted retention strategies combining operational excellence with emotional engagement, habit formation, and competitive positioning rather than assuming service quality alone suffices for loyalty generation.

6.8.7 Integration with Adapted UTAUT Framework

These structural relationships collectively validate the adapted UTAUT framework proposed in Chapter Two while revealing areas requiring further theoretical refinement. The framework successfully captured essential adoption-quality-trust-retention pathways while incorporating South African contextual factors including infrastructure constraints, digital literacy variations, and institutional skepticism. The acceptable model fit confirms that UTAUT's core theoretical architecture, appropriately modified for emerging market contexts, provides valid foundation

for understanding digital banking dynamics. However, several findings suggest theoretical extensions beyond current framework specifications. First, the negative adoption-trust and trust-retention relationships indicate that conventional linear pathways inadequately capture complex, potentially non-monotonic relationships characterising digital banking. Second, the differential effects of service quality subdimensions suggest that aggregated constructs may obscure theoretically important mechanisms operating through specific quality elements.

Third, the retention variance unexplained by current model constructs suggests missing theoretical elements potentially including emotional attachment, habit strength, switching costs, and competitive positioning that UTAUT frameworks typically neglect. Comprehensive retention theories may require integrating UTAUT's cognitive mechanisms with relationship marketing's emotional dimensions, behavioural economics' habit and inertia concepts, and competitive strategy's differentiation and positioning constructs. Such theoretical integration would create more comprehensive frameworks acknowledging retention's multidimensional determinants extending beyond technology adoption cognitions.

6.9 Synthesis: Toward Comprehensive Understanding of Digital Banking Dynamics

6.9.1 The Adoption-Without-Commitment Paradox

Synthesising findings across all research objectives reveals a fundamental paradox characterising South African digital banking: customers demonstrate functional adoption, reasonable service quality recognition, and moderate trust yet simultaneously exhibit weak retention commitment and switching receptivity. This adoption-without-commitment pattern challenges conventional assumptions proposing that adoption success automatically generates loyalty, revealing instead that digital transformation may succeed operationally while failing relationally.

This paradox emerges from multiple reinforcing dynamics. Digital banking's convenience attracts functional adoption among customers seeking transactional efficiency without necessarily desiring relationship deepening. These customers adopt digital channels instrumentally while maintaining emotional distance, viewing banking as commodity service wherein provider selection depends exclusively on value optimization rather than relational considerations (Mhlanga, 2023). Banks interpreting adoption rates as relationship strength indicators therefore misread customer engagement, mistaking transactional usage for relational commitment.

Simultaneously, digital channel automation eliminates interpersonal interactions that historically created emotional bonds and social switching costs. Customers no longer develop relationships with specific bank employees, reducing personal accountability and social connection that previously reinforced loyalty (Villar & Khan, 2021). This relational erosion occurs gradually and invisibly, with adoption metrics suggesting success while underlying loyalty foundations deteriorate through interpersonal contact elimination. Banks therefore inadvertently undermine retention while pursuing efficiency through automation, creating strategic vulnerabilities masked by strong adoption indicators.

The institutional trust deficit revealed through integrity trust weaknesses further constrains loyalty formation. Customers may acknowledge banks' technical competence yet harbour ethical concerns preventing relationship deepening beyond transactional engagement. This competence-integrity gap creates relationships wherein customers confidently use services for immediate needs while maintaining skepticism about long-term institutional reliability or customer-centric commitment. Such relationships prove inherently fragile, vulnerable to competitive disruption offering marginal improvements or addressing ethical concerns current providers inadequately resolve.

6.9.2 Theoretical Contributions and Challenges to Existing Models

The findings generate several theoretical contributions while simultaneously challenging conventional technology adoption and loyalty models. First, the study demonstrates UTAUT's applicability within emerging market contexts when appropriately adapted for infrastructure constraints, digital literacy variations, and institutional trust dynamics. The acceptable structural model fit confirms that UTAUT's core constructs remain relevant, though relationship specifications require contextual modification. This validation extends UTAUT's theoretical scope while acknowledging that universal models require adaptation rather than direct transplantation across diverse contexts.

Second, the negative adoption-trust and trust-retention relationships challenge linear theoretical assumptions proposing that adoption builds trust that subsequently generates loyalty. These findings suggest instead that relationships operate non-monotonically or through complex moderation mechanisms wherein adoption and trust exert positive effects under certain conditions while demonstrating neutral or negative influences under alternative circumstances. Third, the service quality subdimensions' differential effects demonstrate that aggregated constructs obscure theoretically important distinctions. System availability exerts distinct trust and retention effects compared to fulfilment or security, suggesting that quality dimensions operate through separate mechanisms requiring individual theoretical

specification. Future research should therefore disaggregate multidimensional constructs, examining constituent elements' unique influences rather than assuming uniform effects across dimensions.

Fourth, the retention variance unexplained by UTAUT constructs highlights technology acceptance models' incompleteness for predicting loyalty outcomes. While UTAUT successfully explains adoption intentions and initial usage behaviours, it inadequately captures emotional, habitual, and economic mechanisms determining relationship continuance. Comprehensive retention theories therefore require integrating cognitive adoption constructs with affective commitment dimensions, behavioural habit mechanisms, and economic switching cost considerations. Such integration would acknowledge that retention depends on multiple independent pathways rather than single causal chains from adoption through satisfaction to loyalty.

6.10 Chapter Summary

This chapter discussed the empirical findings through theoretical and contextual lenses, revealing complex digital banking dynamics characterised by functional adoption without corresponding relational commitment. The chapter provided a discussion of the study's empirical results, connecting them to theoretical frameworks and contextual realities within South African digital banking. The findings revealed that while customers demonstrated moderate adoption of digital banking services, this engagement often reflected transitional usage rather than deep behavioural integration.

Digital trust displayed a multidimensional structure, with high competence trust but relatively low benevolence and integrity trust, exposing customer skepticism about institutional motives. The covariance-based structural equation modelling confirmed the theoretical adequacy of the adapted UTAUT framework but identified complex, sometimes paradoxical relationships among key constructs. Notably, the negative associations between digital trust and customer retention challenged conventional loyalty models, indicating that technical performance alone does not guarantee sustained relationships.

Overall, the study highlighted an adoption-without-commitment paradox customers embraced digital channels for convenience yet retained emotional detachment and switching openness. The analysis emphasised that loyalty in South African digital banking depends not only on technological capability but on rebuilding trust, demonstrating ethical integrity, and fostering emotional connection in automated service environments to convert functional usage into enduring commitment.

CHAPTER SEVEN: CONCLUSION

7.1 Introduction

This chapter synthesizes and discusses the key findings of this study, incorporating the outcomes of each of the proposed objectives, the business and theoretical contributions, the limitations of the study, and the recommendations for the retail banking sectors on digital banking adoption, service quality perceptions, trust formation, and customer retention intentions. The implications of this research are applicable for corporate strategy in several organizations and sectors focusing on financial services.

The study was conducted to addressed a critical gap in understanding why substantial investments in digital infrastructure have not translated proportionately into sustained customer loyalty and relationship commitment. Through systematic application of an adapted Unified Theory of Acceptance and Use of Technology (UTAUT) framework, this research illuminated the complex mechanisms through which digital adoption, service quality, and trust collectively shape retention outcomes in emerging market contexts. The research was conducted to address the research objectives set out in 1.4 and the research questions as stated in 3.2 (Creswell & Creswell, 20218). To achieve this, an extensive literature review was conducted in Chapter two, and a theoretical model was developed (section 3.3), a combination of which led to the development of 17 hypotheses (section 3.4 and 3.5), which were formulated. This chapter focuses on the study's key findings, contributing, limitations, and recommendations.

7.2 Key findings relating to the Study

There were five research objectives posited in this study, structured as digital adoption assessment, digital service quality evaluation, digital trust determination, customer retention and switching intentions and structural relationships among constructs. The findings examined in Chapter 6 have several implications and insights on this study, which are addressed in the following five sub-sections.

7.2.1 Objective One: To assess the level of digital adoption among banking customers

The first research objective assessed the level of digital banking adoption among customers, revealing moderate overall adoption ($M = 3.27$, $p < 0.001$) characterised by transitional rather than comprehensive platform integration. Respondents acknowledged digital banking's convenience and expressed preference for digital channels over physical branches ($M = 3.28$)

yet demonstrated limited engagement with advanced functionalities. Active feature utilisation (M = 2.30), exploration of new capabilities (M = 2.49), and complex transaction handling (M = 2.50) recorded significantly low means ($p < 0.001$), indicating superficial adoption patterns wherein customers employed digital banking for basic transactions while avoiding sophisticated capabilities.

This adoption pattern reflects what Venkatesh and Goyal (2010) characterise as "extended use" rather than "continuous use," wherein customers employ technology opportunistically rather than habitually. The finding demonstrates that performance expectancy, while sufficient for initial adoption, has not generated comprehensive behavioural change that technology acceptance theories typically predict (Venkatesh et al., 2012). Infrastructure constraints, data cost considerations, and digital literacy heterogeneity likely create facilitating condition barriers that attenuate performance expectancy's behavioural influence within South African contexts (Ndayizigamiye & McArthur, 2020).

7.3.2 Objective Two: To evaluate customers' perceptions of digital service quality, including system availability, fulfilment, and privacy/security.

The second objective evaluated customer perceptions of digital service quality across system availability, fulfilment, and privacy/security dimensions. Overall service quality ratings fell below neutral ($M = 2.52$, $p < 0.001$), though subdimensional analysis revealed heterogeneous evaluations. System availability received consistently positive assessments, with respondents agreeing that services were accessible when needed ($M = 3.75$, $p < 0.001$), experienced minimal downtime ($M = 3.57$, $p = 0.002$), and functioned reliably across devices ($M = 3.59$, $p < 0.001$). These findings indicate that South African banks have achieved technical infrastructure stability that customers recognise and value. However, the Fulfilment dimension revealed concerning promise-reality gaps. While customers acknowledged that digital services met basic needs ($M = 3.60$) and processed transactions accurately ($M = 3.96$), they expressed significant dissatisfaction with promise delivery ($M = 2.70$, $p < 0.001$). This discrepancy suggests that marketing communications generate elevated expectations exceeding delivered reality, creating negative disconfirmation despite objectively functional performance (Oliver, 1980; Zeithaml et al., 1996).

Privacy and Security perceptions revealed the most critical service quality gaps. Confidence in personal information security remained significantly below neutral ($M = 2.77$, $p < 0.001$), while perceptions of privacy adequacy ($M = 3.21$) and security robustness ($M = 3.43$) approached but did not decisively exceed neutrality. These findings indicate substantial security reservations likely constraining comprehensive digital adoption and trust formation,

aligning with research demonstrating that cybersecurity concerns represent primary barriers to digital banking adoption in emerging markets (Kovacova et al., 2023; Voster & Brits, 2023).

7.3.3 Objective Three: To determine the level of digital trust, including competence, benevolence, and integrity trust.

The third objective determined digital trust levels across competence, benevolence, and integrity dimensions, revealing important variations illuminating trust formation complexity. Overall trust was moderately positive ($M = 3.34$, $p = 0.698$), yet subdimensional divergence proved substantial. Competence trust recorded strong means ($M = 3.68–3.75$, $p < 0.001$), indicating that customers perceive South African banks as possessing requisite technical expertise and operational proficiency for managing digital banking systems.

Benevolence trust approached neutrality ($M = 3.51–3.53$), with only marginal statistical significance, reflecting ambivalence about whether banks prioritise customer welfare versus institutional efficiency objectives. The near-neutral perception that banks will not exploit customers through digital channels ($M = 3.24$, $p = 0.816$) further reflects uncertainty about institutional motives and customer-centricity in digital service delivery. The integrity trust deficit ($M = 2.51$, $p < 0.001$) represented the most concerning finding. While customers agreed that banks communicate honestly ($M = 3.73$) and keep promises ($M = 3.61$) in specific interactions, they expressed strong scepticism about consistent integrity across all digital banking encounters. This pattern suggests that customers perceive integrity as situational rather than characteristic, wherein banks demonstrate ethical behaviour in visible contexts while potentially compromising integrity in less salient interactions. The finding likely reflects historical experiences with financial exclusion and institutional scandals that created cultural narratives wherein banking institutions are perceived as prioritising shareholder returns over customer welfare (Cele, 2023).

7.3.4 Objective Four: To evaluate customers' retention and switching intentions in relation to digital banking.

The fourth objective evaluated customer retention and switching intentions, revealing the study's most concerning findings. Retention intentions were exceptionally low ($M = 1.95$, $p < 0.001$), manifesting across multiple indicators: reluctance to continue using current banks ($M = 1.91$), unwillingness to increase digital service usage ($M = 1.85$), and hesitancy to recommend banks' digital services ($M = 2.08$). Simultaneously, switching intentions were moderate ($M = 2.62$, $p < 0.001$), indicating openness to competitive alternatives. This combination creates substantial churn vulnerability, wherein customers maintain banking

relationships due to inertia or switching costs rather than genuine commitment rooted in satisfaction and trust. The retention deficit appears paradoxical when considered alongside moderate adoption and reasonable trust levels, demonstrating that customers may functionally use digital banking yet simultaneously maintain emotional detachment and opportunistic relationship orientations preventing loyalty formation.

Interestingly, self-assessed digital literacy (M = 1.69) and adaptability (M = 1.87) were significantly low ($p < 0.001$), suggesting that perceived digital incompetence may generate anxiety about banking relationships increasingly centred on capabilities customers doubt possessing. This digital inadequacy perception creates vulnerability wherein customers simultaneously depend on digital banking's convenience yet lack confidence in their ability to effectively navigate platforms, troubleshoot problems, or protect themselves from security threats. Institutional variation proved significant, with FNB customers reporting second-lowest retention intentions (M = 1.76) despite FNB's technological leadership, while Standard Bank customers exhibited highest retention propensity (M = 2.44). This variation suggests that retention dynamics depend on factors extending beyond digital service quality or technical excellence, potentially including emotional attachment mechanisms, relationship history, or cultural alignment that quantitative metrics inadequately capture.

7.3.5 Objective Five: To examine the interrelationships among digital adoption, service quality, trust, and customer retention using CB-SEM.

The fifth objective employed CB-SEM to examine interrelationships among digital adoption, service quality, trust, and retention. The structural model achieved acceptable fit ($\chi^2/df = 1.78$, RMSEA = 0.069, CFI = 0.902, TLI = 0.888, SRMR = 0.073), validating the adapted UTAUT framework's adequacy for representing observed covariance patterns. Measurement model evaluation revealed generally strong construct reliability (Cronbach's α ranging from 0.628 to 0.911) and adequate convergent validity (AVE mostly exceeding 0.50).

Structural relationships revealed several theoretically significant patterns. Digital adoption positively influenced service quality perceptions ($r = 0.382$, $p < 0.01$), confirming that increased usage enhances appreciation of platform capabilities through experiential learning mechanisms. Service quality strongly predicted digital trust ($r = 0.714$, $p < 0.01$), underscoring quality's foundational role in trust formation through both cognitive and affective pathways. However, two findings challenged conventional theoretical expectations. First, digital adoption exhibited weak negative correlation with digital trust ($r = –0.190$, $p < 0.05$), suggesting that increased engagement may expose customers to experiences or information eroding initial trust rather than reinforcing it. This inverse relationship may reflect a "familiarity paradox"

wherein extended exposure simultaneously reduces uncertainty while revealing limitations and vulnerabilities previously unrecognised (Luhmann, 2000).

Second, digital trust demonstrated negative correlation with customer retention intentions ($r = –0.322$, $p < 0.01$), fundamentally challenging loyalty theories proposing trust as primary retention driver (Mayer et al., 1995; Morgan & Hunt, 1994). This finding suggests that within the current sample, customers demonstrating higher trust levels simultaneously exhibit lower retention commitment, potentially reflecting reverse causation wherein customers remaining despite dissatisfaction develop elevated trust through cognitive dissonance reduction. Conversely, system availability ($r = 0.347$, $p < 0.01$) and fulfilment ($r = 0.250$, $p < 0.01$) positively correlated with retention intentions, indicating that operational reliability and promise delivery exert direct retention effects independent of trust-mediated pathways. These relationships suggest that excellent execution may compensate for trust deficits or emotional detachment that otherwise threaten loyalty.

7.4 Theoretical Contributions to the study

This research makes several substantive contributions to existing theoretical frameworks addressing technology adoption, service quality, trust formation, and customer loyalty within emerging market contexts.

7.4.1 Extension of UTAUT Framework for Emerging Markets

The study demonstrates UTAUT's applicability within emerging market contexts when appropriately adapted for infrastructure constraints, digital literacy variations, and institutional trust dynamics. While UTAUT was originally developed and validated in organisational settings within developed economies (Venkatesh et al., 2003), this research confirms that its core theoretical architecture remains relevant when modified to address contextual realities. The adapted framework successfully incorporated trust as central mediating construct, reconceptualised facilitating conditions as contextual boundary condition, specified digital literacy as construct-specific moderator, and integrated relationship quality-trust interactions.

This theoretical adaptation addresses criticisms that universal technology adoption models inadequately account for developing-economy complexities including pronounced digital divides, infrastructure inequalities, and institutional scepticism (Baptista & Oliveira, 2015; Tarhini et al., 2021). The acceptable structural model fit ($\chi^2/df = 1.78$, RMSEA = 0.069, CFI = 0.902) validates this contextual adaptation, demonstrating that UTAUT's explanatory power extends beyond developed markets when appropriately modified. This contribution provides

methodological guidance for future research examining technology adoption in similar emerging market contexts, confirming that theoretical frameworks require adaptation rather than direct transplantation across diverse environments.

7.4.2 Reconceptualisation of Trust-Loyalty Relationships

The negative correlation between digital trust and customer retention intentions ($r = –0.322$, $p < 0.01$) challenges foundational assumptions within relationship marketing theory and trust-based loyalty models. However, this study's findings suggest that trust operates contingently rather than universally, with retention effects depending on competitive dynamics, switching costs, emotional attachment, and habit strength. The negative relationship may reflect several mechanisms including reverse causation wherein customers remaining despite dissatisfaction develop elevated trust through cognitive dissonance reduction, or spurious loyalty wherein customers maintain relationships due to inertia rather than genuine commitment.

7.4.3 Multidimensional Trust in Digital Contexts

Competence trust develops through technical performance demonstrations wherein consistent service delivery signals institutional capability and resource investment. Conversely, benevolence and integrity trust require relational interactions demonstrating customer-centric motivations and ethical consistency that technical excellence alone cannot convey. The competence-integrity gap identified in this study reveals that banks may be perceived as capable but not trustworthy, limiting their capacity to build long-term loyalty despite operational proficiency.

This contribution challenges technology-centric perspectives assuming that digital platform excellence automatically generates comprehensive trust, demonstrating instead that different trust dimensions require distinct development mechanisms. While technical performance builds competence trust, integrity trust demands transparent communication, ethical consistency, and demonstrated customer prioritisation that extend beyond functional capabilities. This finding provides theoretical foundation for understanding why technically superior platforms may fail to generate anticipated loyalty outcomes when relational trust dimensions remain underdeveloped.

7.6 Research Limitations

While this study provides valuable insights into digital banking adoption and customer retention dynamics, several limitations warrant acknowledgment, contextualising findings and identifying areas requiring interpretive caution.

7.6.1 Sample Characteristics and Generalisability Constraints

The sample's pronounced concentration within Gauteng (81.9%), middle-to-upper income brackets (70.4% earning above R40,000 monthly), and highly educated populations (51.2% with postgraduate qualifications) limits generalisability across South Africa's heterogeneous banking population. These demographic characteristics represent digitally advantaged, financially capable, and technologically literate segments operating within South Africa's most developed infrastructure environment (Moloi, 2024).

Findings may therefore overestimate digital adoption levels and underestimate adoption barriers relative to broader populations including rural residents, lower-income segments, and less educated customers who constitute substantial portions of South Africa's banked population. The minimal representation of younger (18–25 years: 1.8%) and older (above 65 years: 2.4%) cohorts further constrains conclusions about age-related adoption patterns and intergenerational differences in digital banking engagement.

7.6.2 Cross-Sectional Design and Causality Limitations

The cross-sectional research design enables examination of relationships among constructs at single time points but constrains causal inferences about directional influences among variables. While structural equation modelling tests hypothesised causal pathways, cross-sectional data cannot definitively establish temporal precedence necessary for confirming causation (Kline, 2016). The negative correlations between digital trust and retention intentions, for instance, may reflect trust erosion following retention deterioration rather than trust causing retention decline.

7.6.3 Institutional Concentration and Selection Bias

The pronounced representation of FNB customers (47.6%) introduces institutional concentration that may influence aggregate perceptions and relationships. FNB's digital innovation leadership means respondents' experiences likely reflect relatively advanced platforms, potentially elevating service quality perceptions and adoption rates beyond levels observable with more balanced institutional distribution.

Additionally, voluntary participation may generate selection bias wherein customers with stronger opinions, more extreme experiences, or particular demographic characteristics disproportionately respond. Customers satisfied with digital banking may participate to express appreciation, while dissatisfied customers may participate to voice complaints, creating potential polarisation in measured perceptions that may not represent typical customer experiences.

7.5 Recommendations for further research

The research findings generate several actionable recommendations for banking practitioners seeking to enhance digital service delivery and customer retention within South African contexts.

7.5.1 Prioritise Integrity Trust Development

The pronounced integrity trust deficit (M = 2.51) represents the most critical strategic vulnerability identified in this study. While banks have successfully demonstrated technical competence, customers harbour fundamental scepticism about ethical consistency and customer-centric commitment that technical excellence cannot overcome. Addressing this integrity gap requires deliberate initiatives extending beyond operational improvements to encompass transparent communication, ethical consistency demonstrations, and authentic customer prioritisation.

Banks should implement several specific interventions. First, establish transparent data governance frameworks clearly articulating how customer information is collected, used, protected, and never exploited, with regular public reporting demonstrating adherence to stated principles. Second, create customer advisory councils comprising diverse customer segments providing authentic input on digital service development, thereby demonstrating genuine customer-centricity beyond marketing rhetoric. Third, implement service recovery protocols emphasising rapid problem resolution, fair compensation, and authentic accountability when service failures occur, thereby converting negative experiences into trust-building opportunities through demonstrated integrity under pressure.

7.5.2 Address Privacy and Security Concerns Proactively

The low confidence in personal information security (M = 2.77) and neutral privacy adequacy perceptions (M = 3.21) indicate that security concerns represent primary adoption and retention barriers despite banks' substantial security investments. This perception-reality gap

suggests that technical security measures alone prove insufficient without effective security communication strategies that translate technical capabilities into customer confidence.

Banks should implement comprehensive security communication programmes comprising multiple elements. First, develop customer-accessible security education explaining common threat vectors and protective measures customers should employ, in terms of institutional safeguards allowing them to protect their information, through means of using clear language instead of technical jargon that may intimidate rather than reassure. Second, implement transparent incident reporting wherein security breaches or fraud attempts are promptly disclosed with clear explanations of impacts, remediation actions, and preventive measures implemented, thereby building confidence through demonstrated accountability rather than attempting to conceal problems.

Third, provide personalised security dashboards enabling customers to monitor their account security status, view login history, configure security preferences, and receive proactive alerts about suspicious activities, thereby creating sense of control and partnership in security management. Fourth, establish dedicated security support channels staffed by specialists who can address customer concerns comprehensively rather than routing security questions through general customer service that may lack expertise or authority to provide reassurance.

These security initiatives must balance visibility and reassurance against avoiding security panic that excessive emphasis might generate. The goal involves building confident awareness rather than heightened anxiety, positioning security as enabling rather than constraining digital banking engagement.

7.5.3 Develop Targeted Digital Literacy Programmes

The low self-assessed digital literacy (M = 1.69) and adaptability (M = 1.87) combined with superficial adoption patterns indicate that capability constraints limit comprehensive platform engagement despite customers' functional usage for basic transactions. Digital literacy deficits create multiple strategic vulnerabilities including limited feature exploration, elevated security risks from unsafe practices, reduced satisfaction from implementation difficulties, and constrained ability to recognise service quality advantages.

Banks should develop comprehensive, segmented digital literacy programmes addressing diverse customer capabilities and learning preferences. For customers with minimal digital experience, establish basic digital banking fundamentals courses covering navigation, transaction execution, security practices, and troubleshooting, delivered through multiple

modalities including branch-based workshops, video tutorials, and one-on-one coaching accommodating different learning styles.

For customers with moderate digital proficiency, provide intermediate programmes covering advanced features including bill payments, beneficiary management, statement analysis, and budgeting tools, emphasising how these capabilities address specific financial management needs rather than merely demonstrating technical functionality. For digitally sophisticated customers, offer masterclasses on platform customisation, integration with third-party applications, investment tools, and emerging capabilities, positioning banks as partners in financial technology education rather than merely service providers.

7.5.4 Segment Retention Strategies by Banking Institution

The significant institutional variation in retention intentions suggests that uniform retention approaches prove inadequate across diverse bank contexts. FNB customers' low retention despite technological leadership indicates that innovation alone proves insufficient, while Standard Bank's higher retention despite moderate service quality suggests that other factors including relationship history, emotional attachment, or cultural alignment drive loyalty independently of digital capabilities. Banks should develop institution-specific retention strategies aligned with their unique value propositions, customer compositions, and competitive positions rather than adopting generic best practices that may prove ineffective given their particular circumstances.

These institutions should emphasise continuous improvement, early access programmes positioning loyal customers as innovation partners, and transparent roadmaps demonstrating ongoing commitment to advancement. Conversely, institutions with strong traditional relationship foundations should leverage these assets by integrating digital capabilities within established relationship models rather than attempting to compete purely on technological sophistication. Emphasise continuity, relationship preservation, and trusted advisor roles that digital tools enable rather than replace.

7.8 Conclusion

Chapter seven was able to connect the narrative from Chapter one to six, in which the research questions, literature review, conceptual model, and hypothesis were the critical foundations of the study. From this research, it can be concluded that behaviour intentions are impacted by psychometric features identified through the antecedents. Since the study focused on customers who are already mature banking customers, it is highly likely that the key elements

of digital banking strategies of the banks are aligned to the needs of the affluent customers. Nevertheless, considering that the customer profile is comprised largely of less sophisticated customers, the banks will need to consider implementing sophisticated platforms yet failing to rebuild trust, demonstrate ethical consistency, and maintain emotional connections risk achieving operational transformation while suffering relational deterioration.

The digital banking future belongs not to institutions with most advanced platforms but to those creating trusted, emotionally resonant, and authentically customer-centric digital relationships. Technical excellence provides necessary foundation, yet relational authenticity determines ultimate success. As South African banks progress through digital transformation journeys, recognising that technology serves relationships rather than replacing them will prove decisive for long-term prosperity. This research provides empirical evidence and theoretical frameworks guiding that recognition, contributing to scholars and practice advancing digital banking that strengthens rather than fragments customer relationships in emerging market contexts.

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Annexure 1 Pilot test

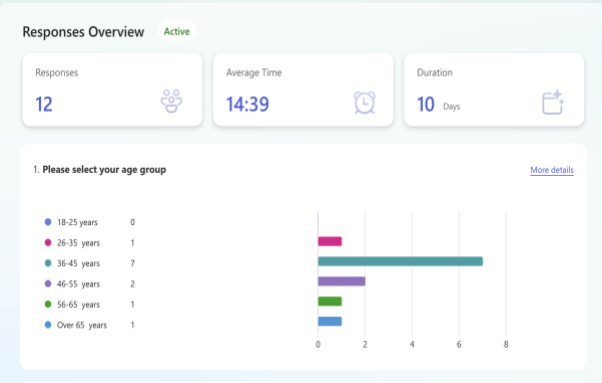
Supervisor feedback

Great - so the first thing to do is a pilot - remember that you should pilot the questionnaire prior to full data collection - here you are looking for:

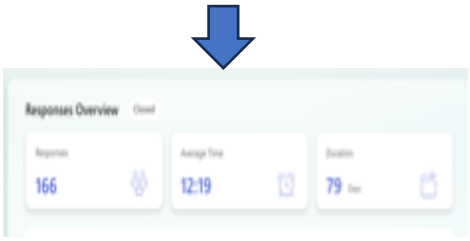
1. How long it took;
2. Any questions that need clarification
3. Any general feedback

A pilot should be done on 10-15 individuals that resemble the target population, and will be excluded from the final analysis. This will be an NB component for the methodology as well that pilot testing was done, and what the feedback was.

Survey feedback Test



Below is the final closeout of Survey



General feedback one respondent let the survey run for 21 minutes and another for 42 minutes.

Respondents that provided feedback below:

Based on feedback supervisor advised to proceed with data collection.

Respondent 1

- Took me 5 mins

Respondent 2

- Under household income can we add a selection prefer not to say.
- Questions are quite long can you not make them shorter.
- 8.15 I am not actively considering moving my banking to a different sector doesn't understand

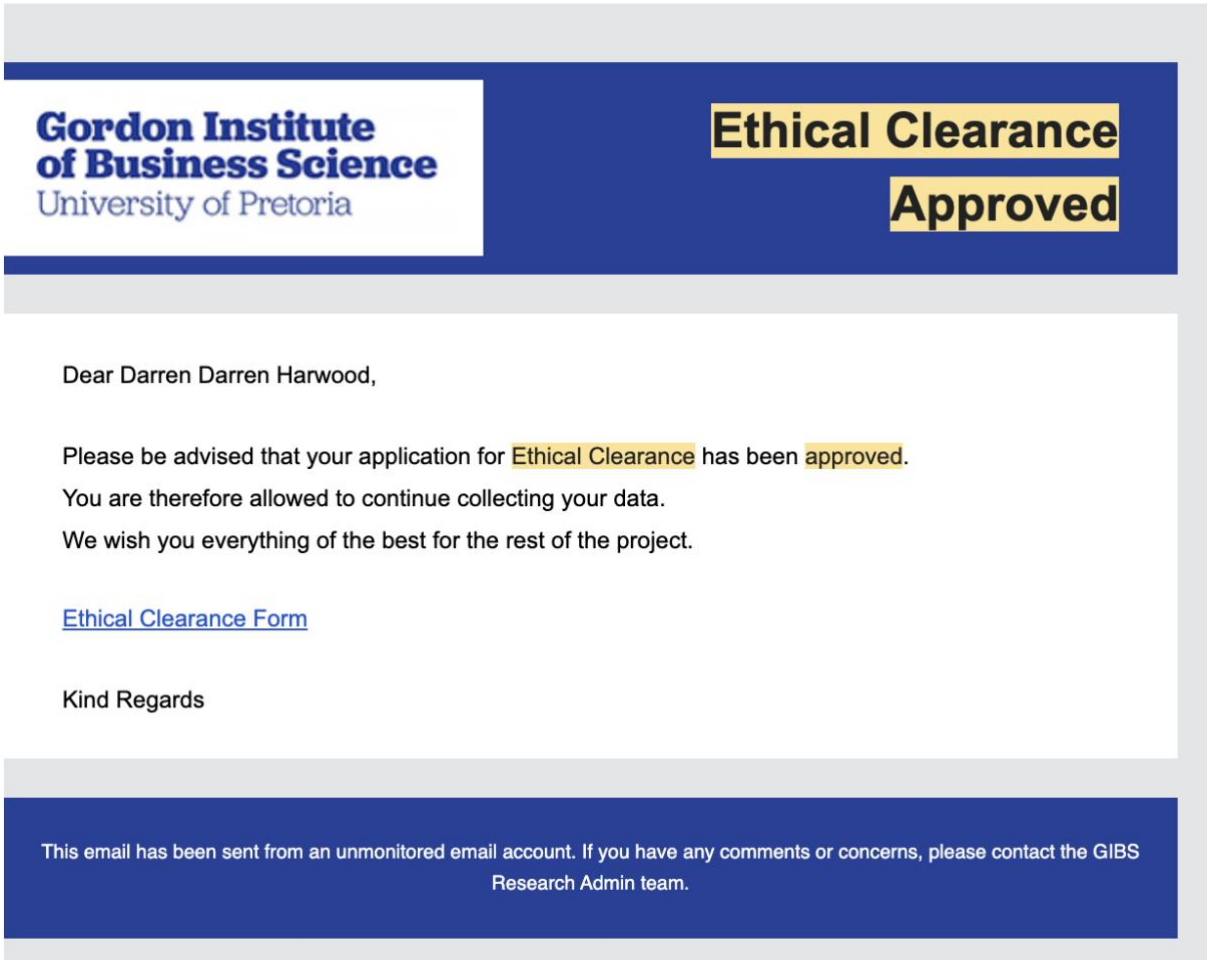
Respondent 3

- It seems clear the survey number seems to be misaligned but it is very insightful

Respondent 4

- We are both done. I think the questions are probing nicely, even the banks will appreciate such feedback. Cause what I said about the one bank is definitely different from some of the things I would have said about the other bank. It's also short and sweet, the questions are clear and to the point. A progress bar would give it a nice touch - just for people to see how far they have to go in the survey. But it's proper👌

Annexure 1a Ethical Clerance



Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Darren Darren Harwood,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

Annexure 1b

QUESTIONNAIRE (numbers indicated for coding data as preparation for data analysis)

DEMOGRAPHICS (SECTION A)

This section aims to analyze and compare the differential effects of varying digital literacy levels on trust-mediated customer retention outcomes among diverse demographic groups (age, income, education, geographic location) in the South African retail banking context

1. Please select your age group:

Age Group	**Tick:**
18-25 years	1
26-35 years	2
36-45 years	3
46-55 years	4
56-65 years	5
Over 65 years	6

2. Please indicate your primary residence location:

Geographic Region	**Tick:**
Gauteng (Urban)	1
KwaZulu-Natal (Urban)	2
Western Cape (Urban)	3

3. Please select your monthly household income bracket:

Income Level (Monthly Household Income)	**Tick:**
Below R5,000	1
R5,001 - R15,000	2
R15,001 - R25,000	3
R25,001 - R40,000	4
R40,001 - R60,000	5
R60,001 - R100,000	6
Above R100,000	7

4. Education Level?

Education Level	Tick:
Primary School	1
High School (Grade 12)	2
Diploma/Certificate	3
Bachelor's Degree	4
Postgraduate Degree	5

5. Primary Banking Institution

Bank Type	Tick:
Standard Bank	**1**
First National Bank (FNB)	**2**
ABSA	**3**
Nedbank	**4**
Capitec Bank	**5**
TymeBank	**6**
Other:	**7**

PERFORMANCE EXPECTANCY: DIGITAL ADOPTION (SECTION B)

This section aims to examine and quantify the moderating effect of digital service quality on the relationship between digital adoption and customer loyalty within the South African retail banking sector.

6. To what extent do you agree with each of these statements?

Please indicate your answer using the subsequent 5-point scale where:

Assessment Guide	RATE	NO
Strongly disagree	**SD**	**1**
Disagree	**D**	**2**
Neutral	**N**	**3**
Agree	**A**	**4**
Strongly agree	**SA**	**5**

Performance Expectancy: Digital Adoption (***Please rate your agreement with the following statements about your bank's digital services:)***	**1**	**2**	**3**	**4**	**5**
6.1 I use digital banking services multiple times per week.					
6.2 I prefer using digital banking over visiting physical branches.					
6.3 Digital banking has become an essential part of my banking routine.					
7.4 I actively use various features available on my bank's digital platform.					
7.5 I explore new digital banking features when they become available.					
7.6 I use digital banking for complex transactions beyond basic account checking.					
7.7 Digital banking services help me accomplish banking tasks more efficiently.					
7.8 Using digital banking enhances my overall banking experience.					

FACILITATING CONDITIONS: DIGITAL SERVICE QUALITY (SECTION C)

This section aims to investigate and measure how digital trust mediates the relationship between perceived digital service quality and customer retention behaviors, with specific focus on identifying variations across different digital literacy segments.

To what extent do you agree with each of these statements?

Assessment Guide	RATE	NO
Strongly disagree	**SD**	**1**
Disagree	**D**	**2**
Neutral	**N**	**3**
Agree	**A**	**4**
Strongly agree	**SA**	**5**

Please indicate your answer using the subsequent 5-point scale where:

Facilitating Conditions: Digital Service Quality (***Please rate your agreement with the following statements about your bank's digital services)***	**1**	**2**	**3**	**4**	**5**
8.1 My bank's digital platform allows me to complete transactions quickly.					
8.2 The digital banking interface is user-friendly and easy to navigate.					
8.3 Digital banking processes are streamlined and efficient.					
System Availability					
8.4 My bank's digital services are available whenever I need them.					
8.5 The digital banking system rarely experiences downtime or technical issues.					
8.6 I can access digital banking services reliably across different devices.					
Fulfillment					
8.7 Digital banking services meet my banking needs effectively.					
8.8 The bank delivers on promises made regarding digital service capabilities.					
8.9 Digital transactions are processed accurately and without errors.					
Privacy and Security					

Facilitating Conditions: Digital Service Quality (***Please rate your agreement with the following statements about your bank's digital services)***	**1**	**2**	**3**	**4**	**5**
8.10 I feel confident about the security of my personal information when using digital banking.					
8.11 My bank adequately protects my privacy when I use digital services.					
8.12 The digital banking platform has robust security measures in place.					

SOCIAL INFLUENCE: DIGITAL TRUST (SECTION D)

This section aims to develop evidence-based recommendations for digital service delivery strategies that South African retail banks can implement to optimize trust formation and enhance customer retention across populations with heterogeneous digital literacy levels.

To what extent do you agree with each of these statements?

Please indicate your answer using the subsequent 5-point scale where:

Assessment Guide	**RATE**	**NO**
Strongly disagree	**SD**	**1**
Disagree	**D**	**2**
Neutral	**N**	**3**
Agree	**A**	**4**
Strongly agree	**SA**	**5**

Social Influence: Digital Trust ***(Please indicate your level of agreement with the following statements about trust in your bank's digital services:)***	**1**	**2**	**3**	**4**	**5**
9.1 I believe my bank has the technical expertise to provide reliable digital services.					
9.2 My bank demonstrates competence in managing digital banking operations.					
9.3 I trust my bank's ability to handle digital transactions professionally.					
Benevolence Trust					
9.4 I believe my bank has my best interests at heart when providing digital services.					
9.5 My bank cares about my welfare when I use digital banking services.					
9.6 I trust that my bank will not take advantage of me through digital channels.					
Integrity Trust					
9.7 My bank is honest and truthful in its digital service communications.					
9.8 I believe my bank keeps its promises regarding digital banking services.					
9.9 My bank demonstrates integrity in all digital banking interactions.					
9.10 Our organisation has the necessary automated systems to effectively implement ESG practices.					

EFFORT EXPECTANCY: CUSTOMER RETENTION (SECTION E)

This section aims to Investigate the impact of digital adoption on customer retention within the South African retail banking sector.

To what extent do you agree with each of these statements?

Please indicate your answer using the subsequent 5-point scale where:

Assessment Guide	**RATE**	**NO**
Strongly disagree	**SD**	**1**
Disagree	**D**	**2**
Neutral	**N**	**3**
Agree	**A**	**4**
Strongly agree	**SA**	**5**

Effort Expectancy: Customer Retention Intentions (***Please rate your agreement with the following statements about your future banking intentions:***)	**1**	**2**	**3**	**4**	**5**
10.1 I intend to continue using my current bank's services in the future.					
10.2 I will likely increase my usage of this bank's digital services over time.					
10.3 I would recommend my bank's digital services to friends and family.					
Switching Intentions (Reverse Coded)					
10.4 I am likely to switch to another bank within the next year.					
10.5 I am actively considering moving my banking to a different institution.					
10.6 I consider myself to be digitally literate and comfortable with technology.					
10.7 I easily adapt to new digital banking features and updates.					

Thank you for your time and participation.

Annexure 2b

		Digital Adoption	Digital Service Quality	System Availability	Fulfilment	Privacy and Security	Digital Trust	Benevolence Trust	Integrity Trust	Customer Retention Intentions	Switching Intentions
Digital Adoption	Pearson Correlation	--									
	N	166									
Digital Service Quality	Pearson Correlation	0,382**	--								
	Sig. (2-tailed)	0,000									
	N	166	166								
System Availability	Pearson Correlation	0,266**	0,495**	--							
	Sig. (2-tailed)	0,001	0,000								
	N	166	166	166							
Fulfilment	Pearson Correlation	-0,121	0,007	0,128	--						
	Sig. (2-tailed)	0,119	0,928	0,100							
	N	166	166	166	166						
Privacy and Security	Pearson Correlation	-0,115	-0,048	-0,155*	0,020	--					
	Sig. (2-tailed)	0,141	0,540	0,046	0,794						
	N	166	166	166	166	166					
Digital Trust	Pearson Correlation	-0,190*	-0,299**	-0,338**	-0,247**	0,192*	--				
	Sig. (2-tailed)	0,014	0,000	0,000	0,001	0,013					
	N	166	166	166	166	166	166				
Benevolence Trust	Pearson Correlation	-0,080	0,035	-0,058	-0,101	0,144	0,118	--			
	Sig. (2-tailed)	0,304	0,657	0,455	0,194	0,064	0,131				
	N	166	166	166	166	166	166	166			
Integrity Trust	Pearson Correlation	0,069	0,053	0,012	0,133	0,055	0,049	0,201**	--		
	Sig. (2-tailed)	0,379	0,498	0,878	0,088	0,484	0,528	0,009			
	N	166	166	166	166	166	166	166	166		
Customer Retention Intentions	Pearson Correlation	0,143	0,196*	0,347**	0,250**	0,032	-0,322**	-0,088	0,129	--	
	Sig. (2-tailed)	0,066	0,011	0,000	0,001	0,686	0,000	0,258	0,096		
	N	166	166	166	166	166	166	166	166	166	
Switching Intentions	Pearson Correlation	0,015	0,141	0,222**	0,311**	0,006	-0,141	-0,117	0,132	0,467**	--
	Sig. (2-tailed)	0,845	0,070	0,004	0,000	0,936	0,070	0,135	0,089	0,000	
	N	166	166	166	166	166	166	166	166	166	166

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

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		Digital Adoption	Digital Service Quality	Digital Trust	Customer Retention Intentions
Digital Adoption	Pearson Correlation	--			
	N	166			
Digital Service Quality	Pearson Correlation	-0,415**	--		
	Sig. (2-tailed)	0,000			
	N	166	166		
Digital Trust	Pearson Correlation	-0,288**	0,714**	--	
	Sig. (2-tailed)	0,000	0,000		
	N	166	166	166	
Customer Retention Intentions	Pearson Correlation	0,085	-0,255**	-0,342**	--
	Sig. (2-tailed)	0,277	0,001	0,000	
	N	166	166	166	166

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