A COMPARATIVE ANALYSIS OF DIGITAL BANKING AND FINANCIAL INCLUSION IN SOUTH AFRICA AND ZIMBABWE

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2026

A COMPARATIVE ANALYSIS OF DIGITAL BANKING AND FINANCIAL INCLUSION IN SOUTH AFRICA AND ZIMBABWE

BY

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Submitted in fulfilment of the requirement for the degree of
DOCTOR OF PHILOSOPHY (BUSINESS MANAGEMENT)
In the Faculty of Business and Economic Sciences at the Nelson Mandela University, South Africa

April 2026

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DECLARATION

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DECLARATION:

In accordance with Rule G5.11.4, I hereby declare that the above-mentioned thesis is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

SIGNATURE

6 March 2026
DATE

DEDICATION

I dedicate this thesis to my late parents, Reverend Elias H. Kupika and Mrs Mercy Tariro Bozhiwa Kupika. I could not have chosen the right things in this life without your love and guidance. I know you are celebrating with me from above.

ACKNOWLEDGEMENTS

The completion of this academic journey has been both challenging, stimulating, and memorable. In achieving this, I wish to thank the following for their contribution to the successful execution of this study:

- The Almighty God, with whom all things are possible, for giving me the life, capacity, and capabilities to see this through.
- My supervisor, Professor Chantal Rootman, and co-supervisor, Professor Janine Krüger. Their patience, inspiring insights, guidance, and knowledge sharing were invaluable. This feat could only be achieved through their tireless support and warmth. They went out of their way to help me; hence, I am truly and forever indebted to these eminent academics.
- My family, Kiki, Craig, and Kara. Their love, encouragement, and personal support made this achievement a reality.
- The statistician for assistance with the data analysis, as well as the language editor for assistance with fine-tuning the language aspects of this thesis.
- All respondents and participants for taking the time to participate in this study by completing the online questionnaire.

ABSTRACT

The question of financial inclusion remains an unresolved problem in South Africa and Zimbabwe. Technological developments and innovations have brought about significant benefits to modern businesses, banks included. Given that many women and youth are financially excluded in the two countries, technology, in the form of digital banking, may be a solution to achieve total financial inclusion. An empirical study was conducted to examine aspects related to the adoption of digital banking and how these can be used to increase the financial inclusion of women and youth. This study aimed to answer the following question: Which digital banking factors influence the financial inclusion of women and youth, and how do these compare between South Africa and Zimbabwe? The primary objective of the study was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe.

An extensive review of literature on digital banking, financial inclusion, and technology adoption models was conducted, from which a hypothesised model was developed. The model identified four digital banking factors (performance expectancy, effort expectancy, social influence, and facilitating conditions) as digital banking factors with the potential to influence the financial inclusion of women and youth in South Africa and Zimbabwe. All variables were well-defined and operationalised using items from previously validated research instruments in addition to new self-generated items from secondary sources. Non-probability sampling techniques, namely quota, convenience, and snowball sampling, were used for this study. Respondents completed the questionnaire online and were able to share the link to the questionnaire using digital means. A total of 832 questionnaires were completed and returned as usable for data analysis.

Exploratory factor analysis and Cronbach's alpha were done, after which the original factors and items were revisited, leading to the revision of the hypotheses and hypothesised model. Consequently, a revised model with three independent factors (performance expectancy, social influence, and digital banking performance) and financial inclusion as the dependent variable was developed. The revised model was tested using correlation analysis, regression analysis, and *t*-tests. Resultantly, a validated model identified performance expectancy, social influence, and digital

banking performance as the digital banking factors related to financial inclusion. A comparative analysis of the relationships between the effects of digital banking factors on financial inclusion was conducted between South African and Zimbabwean respondents. As a result of the study, recommendations are given to financial services providers, governments, and development institutions on the use of digital banking factors to achieve the goal of financial inclusion of women and youth in South Africa and Zimbabwe.

Keywords: *digital banking, financial inclusion, performance expectancy, social influence, digital banking performance*

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LIST OF ABBREVIATIONS

AI	–	Artificial Intelligence
ATM	–	Automated Teller Machine
EFA	–	Exploratory Factor Analysis
FSP	–	Financial Services Provider
ML	–	Machine Learning
PEU	–	Perceived Ease of Use
POS	–	Point of Sale
PU	–	Perceived Usefulness
SADC	–	Southern African Development Community
USSD	–	Unstructured Supplementary Services Data

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Financial exclusion, or the lack of financial inclusion, for those living in poverty, remains a challenge hindering inclusive economic development and exacerbating inequalities in many global economies (Eriqat, Badwan, Al-Khazaleh & El Shlmani, 2025:461; Louis & Chartier, 2017:172). Although there have been divergent views regarding the definition of financial inclusion, certain unambiguous characteristics define the concept. Therefore, financial inclusion, based on these characteristics, relates to accessibility to financial services and consistent usage thereof, the quality of financial services available, and the potential for financial services to improve the welfare of citizens (Kabakova & Plaksenkov, 2018:200).

There is a growing interest in the topic of financial inclusion, which rests on the recognition that financial inclusion aids in achieving economic stability and development (Cabeza-García, Del Brio & Oscanoa-Victorio, 2019:1,18). According to the World Bank (2019:17-18), achieving financial inclusion can reduce poverty and improve livelihoods by increasing people's income-earning potential to meet their financial needs and increase consumption. When financial inclusion is achieved, economies, banks, and other economic players benefit through higher consumer spending, increased business capacity, market/economic growth, and improved operational efficiency (Cull, Ehrbeck & Holle, 2014:7; Ozili, 2020a:4-5). For governments, financial inclusion can also result in reduced corruption, especially when strong financial inclusion innovations are implemented (World Bank, 2019:18).

Unfortunately, it is not the case that all citizens are financially included. According to the World Bank's Global Findex database (2023), 24% of adults worldwide (about 1.4 billion people) and 34% in sub-Saharan Africa remained unbanked in 2021, which means they do not have a bank account or mobile money account. According to Finmark (2020), 32% of adult citizens in the Southern African Development Community (SADC), that is 41.9 million people, are financially excluded, which shows only a slight improvement from 34% in 2015. Specifically, in South Africa and

Zimbabwe, approximately 15% and 60% of all adults, respectively, are financially excluded in terms of account ownership (World Bank, 2021). Of those included, only 84% of South African adults (Finmark Trust, 2025) and 46% of Zimbabwean adults (Finmark Trust, 2022:57) are formally banked, which means they have an official bank account in their own name. Empirical evidence shows that women and youth, including the less educated and those living in poverty within these groups, are the most exposed to financial exclusion, indicating a considerable gap between males and females in relation to financial inclusion (Lyons & Kass-Hanna, 2019:30). In SADC, account ownership is skewed towards males, with 59% and 51% of men holding accounts respectively, a gender gap of 8% (World Bank, 2022). Financial exclusion of women for South Africa and Zimbabwe is 14% and 46%, respectively, while financial exclusion of the youth aged 15 to 24 years is 15% and 52%, respectively (World Bank, 2021).

Factors influencing financial inclusion can be demand- or supply-side related. Demand-side factors are those socioeconomic characteristics, such as income, education, age, and gender, which limit a consumer's ability to fully adopt and utilise financial products and services (Abel, Mutandwa & Le Roux, 2018:3; Anifowose & Chummun, 2025:5-6; Finmark Trust, 2018:8; Oke & Adamson, 2023:63-64; Singh & Roy, 2015:15; Zins & Weill, 2016:46-57). In comparison, supply-side factors are those that limit the ability, capacity or willingness of a financial services provider (FSP) to extend products and services to underserved segments of society (Finmark Trust, 2018:8; Yoshino & Morgan 2023:5-6). These include the availability of relevant technologies, infrastructure, products and services (Sofi & Zamir, 2019:101; Sukumaran, 2020:275; Yoshino & Morgan, 2023:5-6) that influence financial inclusion.

In addition to demand and supply factors, it is possible that digital banking can influence financial inclusion. This is relevant because various information and communication technology (ICT) developments have opened new ways of delivering financial services, which exhibit a potential for increasing financial inclusion (UNCTAD, 2021:17).

The use of digital banking by banks and their clients is on the rise. Banking institutions have been compelled to offer services to customers through various technologies,

including automated teller machines (ATMs), point-of-sale (POS) machines, debit and credit cards, the internet, mobile devices, mobile applications, contact call centres, chatbots, and social media. Through using digital technologies, financial services providers (FSPs) can reduce the costs of offering services by 80% to 90% compared to physical branches (Manyika, Lund, Singer, White & Berry, 2016:5; Ocharive & Iworiso, 2024:28; World Bank, 2024:xiv-xv). In addition to lowering the costs of serving clients, digital banking enables banks to reduce manual paperwork and maintain fewer brick and mortar branches (OECD, 2020:7; Pazarbasioglu, Mora, Uttamchandani, Natarajan, Feyen & Saal, 2020:v, 2). For clients, digital banking offers convenience, flexibility and perceived value for customers, along with the option to switch banks easily, thus compelling banks to provide quality and value for money offerings (Chu & Zhan, 2024:357-358; Raza, Umer, Qureshi & Dahri, 2024:2; Ozili, 2018:331).

Many studies employing different theories have been conducted on digital banking and digital banking-led transformation in the financial services sector across various contexts (Baabdullah, Alalwan, Rana, Kizgin & Patil, 2019; Baptista & Oliveira, 2016). Studies have also focused on the potential impact of digital banking on financial sector stability and financial inclusion (Durai & Stella, 2019; Ozili, 2018). Various other studies have been conducted on specific digital banking channels/methods in single countries, such as the studies of Afshan and Sharif (2016), Alalwan, Dwivedi and Rana (2017), Bongomin, Ntayi, Munene and Akol (2017), Brown and Molla (2005), Louis and Chartier (2017), Lyons and Kass-Hanna (2019), Rana, Dwivedi, Lal, Williams and Clement (2017), and Zhang, Weng and Zhu (2018).

Although studies were found that focused on identifying digital banking factors that can be used to influence financial inclusion in two or more countries in Southern Africa; comparative studies on digital banking factors in Southern Africa are still limited, reflecting the relatively recent emergence of digital banking as a research focus area of growing importance (Meniago, 2025:2-3; SADC Secretariat, 2024; Sithole, 2025:2-3). Regional initiatives and country level strategies of both South Africa (South African Treasury, 2020) and Zimbabwe (RBZ, 2015) emphasise technology's central role in expanding digital financial inclusion. While traditional financial inclusion has been extensively examined, there is limited empirical research focusing on digital financial inclusion in the SADC, particularly in cross country comparisons, hence creating a

knowledge gap justifying comparative research (Meniago, 2025:1). Furthermore, as financial inclusion is generally low, especially for women and children (ACET, 2019:2-3; World Bank, 2023a; Yédéhou, Nonvide & Chabossou, 2025), and considering the many advantages of financial inclusion for clients, banks, and the general economy (Tita & Aziakpono, 2017:2; World Bank, 2019:17-18), research is needed in this field of study and in the selected contexts. This study aimed to investigate and compare digital banking factors that can potentially increase the financial inclusion of women and youth in South Africa and Zimbabwe.

1.2 PROBLEM STATEMENT

The wave of technological changes in the world, along with the accompanying innovations, has brought about significant benefits to modern businesses, including banks. The inclusion of digital technology into the sphere of banking has brought about a paradigm shift in how banks do business, thereby creating what is referred to as digital banking (Alalwan, Dwivedi & Rana, 2023:15; Sardana & Singhania, 2018:28). Banks' use of technology is expected to increase financial inclusion in the countries in which those banks operate (Lauer & Lyman, 2015:1; World Bank, 2023a, 2023b; Yédéhou, Nonvide & Chabossou, 2025:3).

Financial inclusion is important as it allows households and businesses to reduce transactional costs while enabling consumers to accumulate savings, develop entrepreneurship, and access credit to support investment and education (Tita & Aziakpono, 2017:2; World Bank 2023a, 2023b; Yédéhou *et al.,* 2025:4). Overall, this results in economic growth through greater participation of the population in economic activities, the creation of a larger market for financial institutions, and increases employment/self-employment while reducing poverty and inequality (Tita & Aziakpono, 2017:2; World Bank, 2019:17-18; World Bank, 2023a, 2023b; Yédéhou *et al.,* 2025:4).

Despite steady growth in financial inclusion since the turn of the millennium, financial inclusion across Africa remains low (Denyes, 2019:5). Notably, financial inclusion varies across countries. The reasons for the variations could be micro or macro in nature (Abel *et al.,* 2018:3; Anifowose & Chummun, 2025:4-6; World Bank, 2023a, 2023b), meaning they can be due to national, household, or individual consumer

reasons. It therefore follows that factors affecting financial inclusion can be context-based; hence, they may be similar or vary due to differences in contexts, such as different markets or countries. This study was conducted in two countries, namely, South Africa and Zimbabwe, to investigate the influence of digital banking factors on the financial inclusion of women and youth, and to identify how this influence compares between the two countries.

Women constitute 52% of the populations of both South Africa and Zimbabwe, while the youth constitute 45% and 21%, respectively (Stats SA, 2020; Zimbabwe National Statistics Agency, 2015). Although women and youth constitute large population proportions in South Africa and Zimbabwe, sizeable proportions of these groups are financially excluded (ACET, 2019:9). This is because the financial inclusion rates for women in South Africa and Zimbabwe are 86% and 54%, respectively. In comparison, the financial inclusion rate among the youth aged 15 to 24 in South Africa and Zimbabwe is 85% and 48%, respectively (World Bank, 2021).

The question of financial inclusion in South Africa and Zimbabwe, therefore, remains unresolved. Given that many women and youth are often financially excluded in the two countries, digital banking may be a solution to achieve increased or total financial inclusion of these groups (Demirgüc-Kunt, Klapper, Singer, Answer & Hess, 2022:12-18; Lauer & Lyman, 2015:7; OECD, 2020:7; OECD, 2021:9-11; Patwardhan *et al.,* 2018:12; World Bank, 2023a, 2023b). However, there might also be aspects that influence the adoption of digital banking. Therefore, this empirical study was conducted to examine aspects related to the adoption of digital banking and how these can be used to increase the financial inclusion of women and youth.

This study's problem statement was framed by the following question: Which digital banking factors influence the financial inclusion of women and youth, and how do these compare between South Africa and Zimbabwe?

1.3 RESEARCH OBJECTIVES

This section details the primary and secondary objectives identified for the study.

1.3.1 Primary objective

The primary objective of the study was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe.

1.3.2 Secondary objectives

The study's secondary objectives were as follows:

SO_1: To investigate what the concepts of digital banking and financial inclusion entail.

SO_2: To identify possible digital banking factors that influence the financial inclusion of women and youth.

1.3.3 Methodological objectives

The study's methodological objectives were as follows:

MO_1: To conduct a detailed review of literature related to digital banking and financial inclusion in general, and in South Africa and Zimbabwe.

MO_2: To build a hypothesised model based on the literature that illustrates possible relationships between digital banking factors and financial inclusion.

MO_3: To describe the most appropriate research design and methodology, including the questionnaire development, for this study.

MO_4: To empirically test the hypothesised relationships to determine digital banking factors that can be used to influence the financial inclusion of women and youth.

MO_5: To make recommendations to banks, governments, and other role players regarding the use of digital banking to achieve and improve the financial inclusion of women and youth in South Africa and Zimbabwe.

1.4 RESEARCH QUESTIONS

Given the research problem and study objectives, the following research questions were developed:

RQ_1: What is the meaning of digital banking and financial inclusion, and how do they affect citizens and economies in South Africa and Zimbabwe?

RQ_2: Which digital banking factors influence the financial inclusion of women and youth?

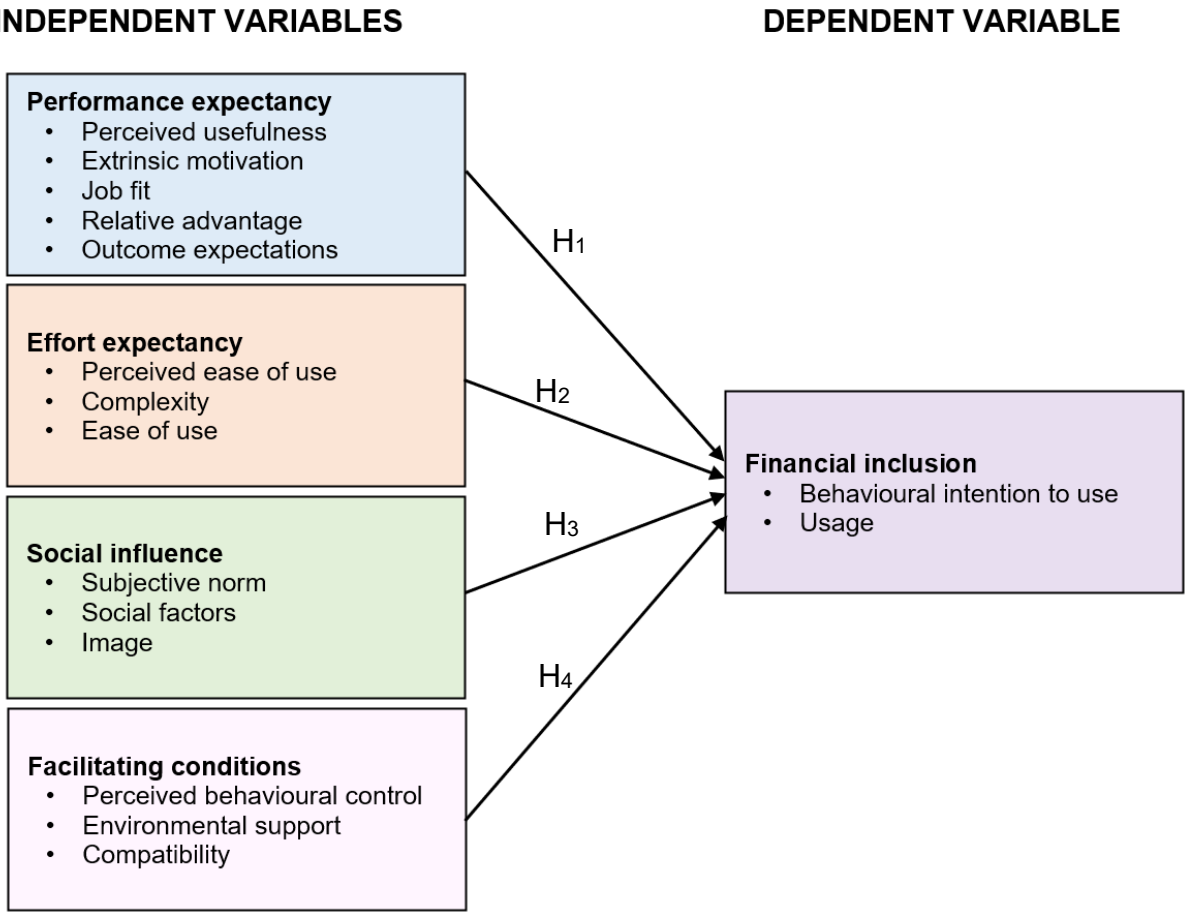
RQ_3: What similarities and differences exist between South Africa and Zimbabwe regarding the influence of digital banking factors on the financial inclusion of women and youth?

RQ_4: What recommendations can be made that are useful to financial institutions, governments, development institutions, and other role players, regarding the use of digital banking to achieve and improve the financial inclusion of women and youth in South Africa and Zimbabwe?

1.5 HYPOTHESISED MODEL AND HYPOTHESES

A review of technology adoption models and digital banking resulted in the identification of factors that may influence financial inclusion. This is further discussed and justified in the chapters to follow. Figure 1.1 presents the proposed hypothesised model for this study, representing possible relationships between digital banking factors and financial inclusion. The model depicts how digital banking factors, which are performance expectancy, effort expectancy, social influence, and facilitating conditions, can potentially be used to promote or increase financial inclusion, that is, the behavioural intention and actual usage of financial services.

FIGURE 1.1: PROPOSED HYPOTHESISED MODEL



Source: Researcher's own construction based on the Unified theory of acceptance and use of information technology (UTAUT) (Venkatesh, Morris Davis & Davis, 2003:447)

The following set of hypotheses was derived from the hypothesised model:

H_1: Performance expectancy has a statistically significant relationship with financial inclusion.

H_2: Effort expectancy has a statistically significant relationship with financial inclusion.

H_3: Social influence has a statistically significant relationship with financial inclusion.

H_4: Facilitating conditions have a statistically significant relationship with financial inclusion.

1.5.1 Independent variables

Independent variables are defined as those variables which are antecedent to the dependent variable, and the effect of these variables on the outcome(s) is to be tested as part of the research (Bell, Bryman & Harley, 2022:52; Creswell & Creswell, 2023:58; Pandey & Pandey, 2015:29). Overall, the UTAUT was used to inform the independent variables for this study's hypothetical model, as the theory could conceptually represent the majority of the eight separate models that formed the basis for the model (Alwahaishi & Snasel, 2013:30). The eight models are the theory or reasoned action (TRA), the theory of planned behaviour (TPB), the technology acceptance model (TAM), the motivational model (MM), a model combining the technology acceptance model and theory of planned behaviour (C-TAM-TPB), the model of PC (personal computer) utilisation, the innovation diffusion theory (IDT) and the social cognitive theory (SCT) (Ahmad, 2014:2).

Thus, the independent variables and their sub-constructs were derived from numerous models and theories of technology adoption that informed the UTAUT. This study focused on *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions* as the independent variables (digital banking factors) that possibly influence financial inclusion. The motivation for selecting these variables and the definitions thereof are provided in Chapter 4.

1.5.2 Dependent variable

If one variable depends on or is a consequence of another, it is termed a dependent variable, which is the basis on which the independent variable is studied (Bell *et al.,* 2022:53; Cresswell & Creswell, 2023:59; Pandey & Pandey 2015:29). The dependent variable for this study was *financial inclusion*. Financial inclusion is defined as a situation where most individuals in a country's population have access to and use quality, relevant, and affordable financial services that sustainably address their needs (Cabeza-García *et al.,* 2019:3; Ozili, 2021c:2; Varghese & Viswanathan, 2018:2; Yadav & Saxena, 2019:23).

Fishbein and Ajzen's TRA first introduced the concept of behavioural intention, which refers to the intention that a person has prior to an actual behaviour (actual usage), thus it is a measure of one's intention to perform the (actual) behaviour (Chutter,

2009:3). This study tested the possible influence of digital banking factors on financial inclusion, that is, access to quality, relevant, and affordable financial services that sustainably address the needs of women and youth in both South Africa and Zimbabwe. The dependent variable, *financial inclusion*, is further elaborated in Chapter 2 of this thesis.

1.6 BRIEF RESEARCH METHODOLOGY

The research paradigm used to achieve the study's research objectives is hereby briefly described. The literature review context and the process used for the empirical investigation are also summarised.

1.6.1 Research paradigm

The study adopted a positivist research paradigm to achieve its objectives by empirically testing the hypothesised relationships. Positivism presupposes that reality is tangible, and its meaning can be recognised and measured using objective natural science approaches (Bryman & Bell, 2011:15; Saunders, Lewis & Thornhill, 2023:144). Positivism was therefore deemed appropriate for this study, as it aimed to identify the real-world relationships among digital banking factors and the financial inclusion of women and youth. This was done using a quantitative research method.

1.6.2 Data collection

Both primary and secondary data were collected for this study. The secondary data informed the literature review, providing available facts and figures related to digital banking and financial inclusion. Secondary data were collected from various sources, including national reports, survey data, institutional publications, national policy literature, banks' annual reports, and other credible official statistics and publications, such as from the World Bank's statistical database.

Primary data were collected using structured questionnaires, where respondents' perceptions were gathered as part of the empirical study. The study employed non-probability sampling techniques, mainly quota, convenience, and snowball sampling. Self-administered online questionnaires were used as the measuring instrument. A hyperlink to the questionnaire was electronically distributed via the email addresses

and social media pages of respondents known to the researcher (convenience sampling). The hyperlink was shared via social media platforms to invite potential respondents, who were asked to share the link further to achieve snowball sampling. Before the main study, to ensure face and content validity, respectively, academics' input was sought, and a pilot study was conducted to test the appropriateness of the measuring instrument.

1.6.3 Data analysis

Data from the online questionnaires were downloaded into Microsoft Excel, and Statistica was used to perform the statistical data analyses. Following data cleaning, the data were subjected to both descriptive and inferential statistics. In terms of inferential statistics, various data analysis steps were followed. Exploratory factor analysis (EFA) was done to identify the number of constructs that explain a set of variables and to assess construct validity, which is the extent to which the questionnaire items measure the presence of those constructs intended to be measured (Saunders *et al.,* 2023:517). Cronbach's alpha coefficients with a cut-off of 0.70 were used to measure the reliability of the data collection instrument (Saunders *et al.,* 2023:518).

Correlation analysis was conducted to identify the direction and strength of the relationships between variables. Pearson's product-moment correlation coefficients were calculated during the correlation analysis (Saunders *et al.,* 2023:615-616). Multiple regression analysis was also conducted to determine the statistical significance of the relationships between the variables, thereby accepting or rejecting the study's hypotheses (Hair, Black, Babin & Anderson, 2014:1150).

T-tests were conducted to assess differences in perceptions among respondents from different groups, such as different demographic and geographic groups (differences between responses from South African and Zimbabwean groups, as well as between the different women and youth groups). Following the presentation of empirical results in Chapter 6, the study's conclusions and recommendations based on these results are discussed in Chapter 7.

1.7 ETHICAL CONSIDERATIONS

As part of this study, respect and recognition of intellectual property occurred through the use of citations and the acknowledgement of references. Ethical clearance was applied for through the Nelson Mandela University Research Ethics Committee for Human respondents (REC-H). Additionally, permission to conduct research in Zimbabwe was obtained from the Research Council of Zimbabwe (RCZ). The purpose of the study was clearly communicated to the respondents, and consent to participate was obtained from each respondent. Respondents were assured of the voluntariness of their participation and that their personal details would not be disclosed to any third party, ensuring their anonymity and privacy were protected. They were also assured that no identifying information would be reflected in any future research publications and that data would be kept confidential. Respondents were also made aware of their ability to opt out of the study at any stage without penalty.

1.8 DEMARCATION AND CONTRIBUTION OF THE STUDY

The study was conducted in two countries, namely South Africa and Zimbabwe. The survey population consisted of women and youth in the two countries. The United Nations defines youth as those persons between the ages of 15 and 24 years, without prejudice to other definitions by member states (UNDESA, 2021:1). The African Union's African Youth Charter (2006:3) defines youth as those aged between 15 and 35 years. The United Nations definition was used for this study because it includes more countries of the world than the African Union Charter definition.

The study contribution entails conducting research on the influence of digital banking factors on financial inclusion in two countries in Southern Africa, and making comparisons between these concepts as applicable to the countries' women and youth. This focus and approach have not yet been explored. The study also contributes to the body of knowledge in the field of financial inclusion through a detailed literature review and the identification of specific digital banking factors that may possibly influence the financial inclusion of women and youth. Moreover, the study offers recommendations on the use of digital banking factors to increase financial inclusion, which is beneficial to FSPs, governments, development institutions, and other role players. It is envisaged that the study will impact future financial

services-related innovation decisions, digital strategies, and commercial strategies of institutions with an interest in financial inclusion.

1.9 CONCEPT CLARIFICATION

Two key concepts, 'digital banking' and 'financial inclusion', are continuously referred to in this study and are hereby defined to provide clarity:

- **Financial inclusion** is defined as a situation where most individuals in a country's population have access to and use quality, relevant, and affordable financial services that sustainably address their needs (Cabeza-García *et al.,* 2019:3; Demirgüc-Kunt *et al*., 2022:4; Ozili, 2021c:2; Varghese & Viswanathan, 2018:2; Yadav & Saxena, 2019:23).
- **Digital banking** is defined as the delivery of banking products and services to clients through digital technology channels, including ATMs, mobile networks, POS machines, mobile devices, and the internet (Alalwan, Dwivedi & Rana, 2023:14-15; OECD, 2021:10).

1.10 DIVISION OF CHAPTERS

This thesis consists of seven chapters:

Chapter 1 is the introductory chapter detailing the study's background, problem statement, objectives, and hypotheses, as well as a summary of the methodology.

Chapter 2 presents a literature review that incorporates the theoretical foundations of financial inclusion, as well as discussions on its importance, influence, determinants, measurement, and barriers, with a focus on the global, South African, and Zimbabwean contexts.

Chapter 3 provides a detailed literature review on the topic of digital banking. It discusses theoretical and market analyses of technology adoption and digital banking, including digital banking channels, the evolution of digital banking models, technologies, and digital transformation. The chapter also provides a world overview, with a specific focus on the South African and Zimbabwean contexts within the digital banking environment.

Chapter 4 describes the study's proposed hypothesised model, motivating the selection of the variables to be tested.

Chapter 5 discusses and justifies the research design and methodology adopted for this study.

Chapter 6 presents the empirical results of the study.

Chapter 7 focus on the discussion of the results, including its reporting and interpretation.

Chapter 8 presents a summary of the study, along with overall conclusions and recommendations on how digital banking factors can be used to improve the financial inclusion of women and youth in South Africa and Zimbabwe.

1.11 CHAPTER SUMMARY

This chapter started with an introduction and background to the study. This is followed by an explanation of the problem statement as well as the primary, secondary and methodological objectives of the study. Research questions were also unravelled followed by a presentation and justification of the study's hypothesised model detailing the independent and dependent variables. An overview of the research methodology is also given covering the research paradigm, data collection and data analysis. This is followed by an explanation of ethical considerations for this study. The chapter closes with a demarcation and contribution of the study, clarification of concepts and an explanation of the division of chapters.

Chapter 2 will focus on a detailed review of literature related to the concept of financial inclusion which is the main area of focus for this study. The chapter will answer the question regarding what financial inclusion entails.

CHAPTER TWO

AN OVERVIEW OF FINANCIAL INCLUSION

2.1 INTRODUCTION

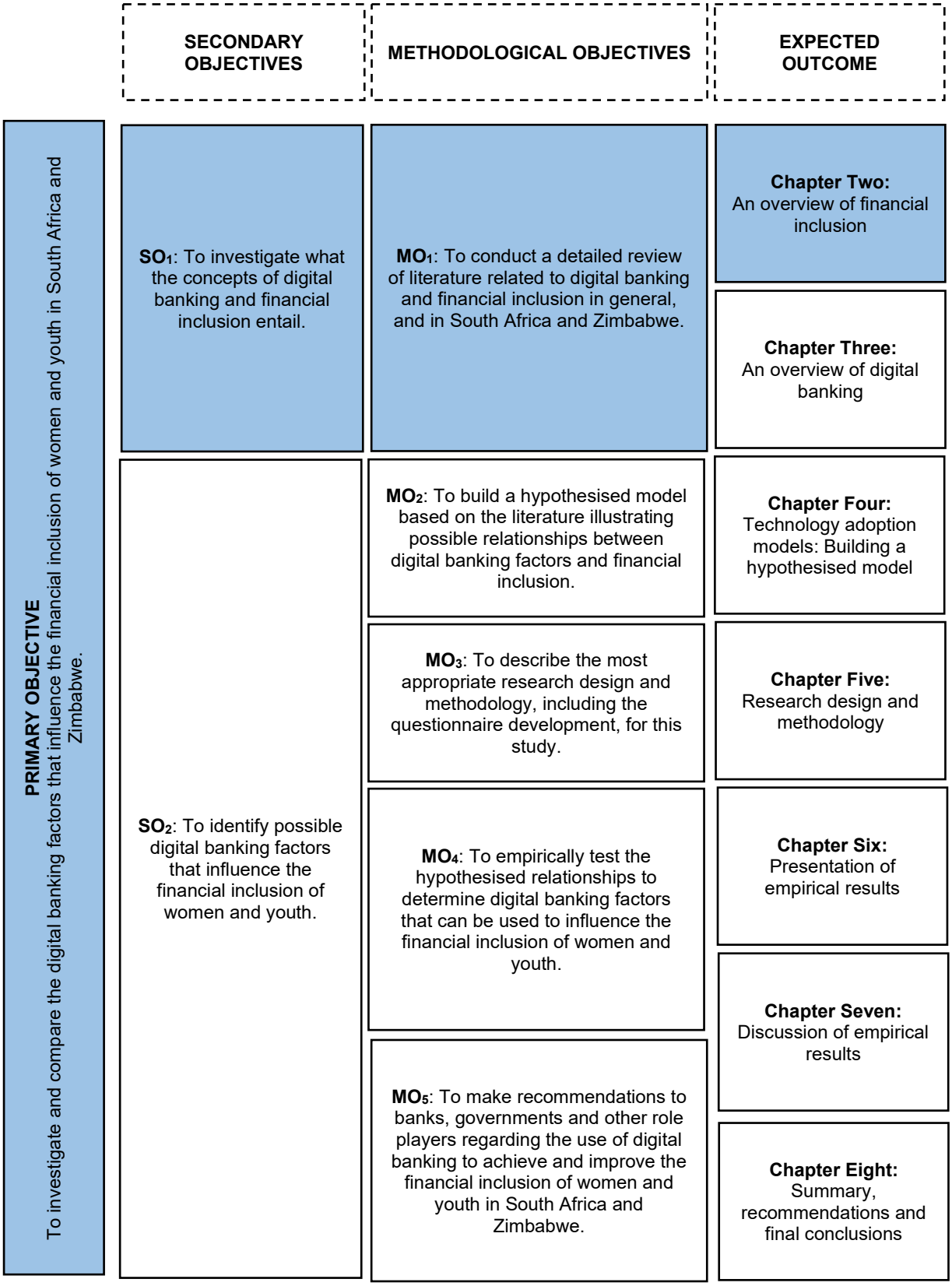
Chapter 1 introduced the study, focusing on its background, research problem, research objectives and research questions. It also covered the hypothesised model for the study, overview of the proposed methodology, ethical considerations, a demarcation of the study parameters, clarification of key concepts and an explanation of how the study chapters are divided.

The primary objective of this study was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe. It, therefore, follows that financial inclusion was the focus of the study. This chapter partially addresses SO_1 of the study by unravelling what financial inclusion entails. It also addresses part of MO_1 of the study, which was to conduct a detailed review of the literature related to financial inclusion in general, as well as in South Africa and Zimbabwe in particular.

This chapter specifically focuses on discussing various issues related to the concept of financial inclusion. Discussions include the meaning and definition of financial inclusion, theories of financial inclusion, the importance of financial inclusion, its determinants, measurement, barriers, and various perspectives on financial inclusion within global and African contexts. The literature review concludes with a comparison of the status of financial inclusion in South Africa and Zimbabwe.

Figure 2.1 shows the placement of Chapter 2 in the overall research framework.

FIGURE 2.1: CHAPTER 2 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

2.2 DEFINITION OF FINANCIAL INCLUSION

The concept of financial inclusion is broad, multidimensional, has been given different meanings, keeps changing, and has been discussed in different ways (Carballo, 2017:2). Financial inclusion can be used as a multidimensional concept because of the various elements and variables which are deemed to be part of the concept, and these include the availability of accessible, quality, and relevant financial services that the vulnerable members of society generally seek. Generally, financial inclusion is a concept that can be approached from different perspectives; hence, there is still considerable work to be done for the phenomenon to be better understood.

Various definitions of financial inclusion exist from different perspectives. According to Cabeza-García *et al.* (2019:3), financial inclusion refers to the access and use of quality, sustainable, and safe financial services by all economic agents (individuals and institutions) of a population. Demirgüc-Kunt *et al.* (2022:3-5) and Mehrotra, Puhazhendhi, Nair and Sahoo (2009:14) assert that it is easier to define financial inclusion by stating what it is not, hence a group can be considered as financially excluded if they do not have access to mainstream formal financial services, such as bank accounts, credit cards, insurance, remittances, credit, ATMs, and payment services (Cabeza-García *et al.,* 2019:3; Nkemjika, 2021:10). Along the same lines of products and services access, financial inclusion is also defined by Zins and Weill (2016:46) as referring to the fact that a person owns an account at a formal financial institution which allows them to save and borrow money formally, to contract insurance, or to use payment services.

According to Ozili (2021a:2), a review of definitions emphasises that financial inclusion is achieved when all or most members of the population have access to finance. A society is, therefore, financially inclusive if most of its vulnerable population groups have access to financial products and services (Demirgüc-Kunt *et al*., 2022:4-6; Ozili, 2023:5). Financial inclusion involves access to all financial services. It can be distinguished from ‘banking inclusion’ which denotes access to a deposit or loan account from a bank (Masiyandima, Mlambo & Nyarota, 2017:14). OECD (2021:17-18) and Ozili (2023:6) assert that financial inclusion is an ecosystem which includes the interaction of the supply of financial services, demand for financial services, as well as the financial services regulatory framework, and all the factors are equally

relevant. Carballo (2017:1) further defines financial inclusion as the establishment, promotion, and regulation of an accessible, affordable, and safe financial environment for society, thus adding the aspects of regulation and safety to the earlier definitions (Demirgüc-Kunt *et al*., 2022:6; World Bank, 2023a, 2023b).

For this study, financial inclusion is defined as when most individuals in the population of a country have access to and use quality, relevant, and affordable financial services that sustainably address their needs (Cabeza-García *et al.,* 2019:3; Ozili, 2021c:2; Varghese & Viswanathan, 2018:2; Yadav & Saxena, 2019:23). Having defined and contextualised financial inclusion, a discussion of the existing theories of financial inclusion follow next.

2.3 THEORIES OF FINANCIAL INCLUSION

Ozili (2020b:2) asserts that currently, there are no elaborate theories of financial inclusion in the academic literature, and the general conception is that it is better to focus on accumulating evidence on financial inclusion rather than developing separate theories on the concept of financial inclusion. Ozili (2020b:2), therefore, proposes theories of financial inclusion, the bases of which are supported by sentiments from other authors. These theories can be categorised into three main areas: theories on financial inclusion beneficiaries, theories of financial inclusion delivery, and theories of financial inclusion funding.

2.3.1 Theories of financial inclusion beneficiaries

Theories of financial inclusion beneficiaries were developed by Ozili (2020b) and explain who benefits from the outcomes of financial inclusion. According to Ozili (2020b:5-6), apart from women and youth citizens, there are other potential beneficiaries of financial inclusion, such as the lower-income, elderly, institutionalised, ill, and disabled groups, and previously those excluded from the financial services industry for committing criminal offences. Ozili (2020b:5-6) proposes the following theories as part of those related to financial inclusion beneficiaries: public good theory, dissatisfaction theory, vulnerable group theory, and systems theory of financial inclusion.

2.3.1.1 Public good theory of financial inclusion

The public good theory asserts that the delivery of formal financial services to entire populations and ensuring unrestricted access to finance for all should be regarded as a public good that benefits all members of society. Something is considered a public good if it meets the conditions of non-rivalness in consumption and non-excludability (Mankiw, 2021:223-224; Stiglitz & Rosengard, 2021:128-129). Therefore, although the condition of rivalness in financial inclusion may be different from the standpoint of a typical public good, financial inclusion meets the two criteria of being non-rivalled and non-excludable to a large degree, and, to that extent, is a quasi-public good. According to Ozili (2020b:5), the public good theory of financial inclusion implies that all members of society will benefit from financial services without paying, and nobody is left out. Financial inclusion may therefore be regarded as a quasi-public good because its expansion generates positive externalities, promotes shared economic participation, and benefits society beyond the individual user (Ozili, 2023:7; World Bank, 2022). While banks will incur sunk costs, governments can offer subsidies and lump-sum cash deposits to banks on condition that they offer free services. This theory is applauded for affording citizens access to financial services and affording the government the leeway to monitor and promote financial inclusion. However, it ignores the role of the private sector and places the burden of the inevitable costs incurred from offering financial services onto the FSPs.

2.3.1.2 Dissatisfaction theory of financial inclusion

According to Ozili (2020b:5), the dissatisfaction theory of financial inclusion posits that financial inclusion activities and programmes in a country should first target all individuals who previously used formal financial services but are no longer clients. Such individuals may have been dissatisfied with the rules of engagement in the formal financial services industry, such as disclosure requirements, pricing, service delivery, or had other unfavourable experiences dealing with firms and agents in the formal financial services industry. This theory suggests that it is easier to persuade past users of financial services to start using the services again than to convince new ones. Previously recruited users may have been dissatisfied with fraud, bad service, high transactional costs, and bank charges, among other reasons, and these users may potentially be recovered.

Hubner, Herberger and Charifzadeh (2023:655) researched the determinants of customer recovery in the retail banking sector and found that the client's general willingness to return (GWR) to a banking relationship is correlated with their satisfaction with the former relationship. The theory is applauded for identifying and addressing the voluntarily financially excluded while relying on persuading them to use financial services again, without the involvement of governments to promote their financial inclusion. However, the theory is criticised for omitting other factors, such as voluntary reasons for exclusion, while also ignoring other excluded clients, especially those who have never been involved with the formal financial services industry.

2.3.1.3 Vulnerable group theory of financial inclusion

The vulnerable group theory of financial inclusion, as proposed by Ozili (2020b:5-6), posits that financial inclusion activities or programmes in a country should be targeted at the vulnerable members of society who suffer the most from economic hardship and crises, such as young people, women, the elderly, and the displaced. According to AFI (2021a:4), vulnerable groups also include persons with disabilities, older persons, and rural populations in general. The vulnerable group theory of financial inclusion also aligns with views by Atkinson and Messy (2013:19, 28) and focuses on vulnerable groups who generally face lower levels of financial literacy (AFI, 2021a:4). One way to achieve financial inclusion is by bringing the vulnerable into the formal financial services industry through government-to-person social cash transfers into the formal bank accounts of beneficiaries, thus encouraging ownership of formal accounts (AFI, 2021a:6-7). While the theory has merits in identifying and targeting vulnerable groups, its demerits include ignoring or failing to focus on catering to non-vulnerable groups outside the formal financial services industry. For instance, assuming that women are vulnerable may lead to unintended consequences of societal resentment among men towards women (Ozili, 2020b:5-6).

2.3.1.4 Systems theory of financial inclusion

The systems theory of financial inclusion states that financial inclusion outcomes are achieved through existing subsystems (whether economic, social, or financial systems) on which financial inclusion relies (Arun & Kamath, 2015:279; Ozili, 2020b:5-6). Changes in subsystems can affect expected financial inclusion outcomes, while

the efficiency and effectiveness of subsystems determines the success of the financial inclusion agenda (Ozili, 2020b:5). The systems theory is applauded for recognising the macro perspective to financial inclusion while its demerits include not considering the possible effects of different environments on financial inclusion and the effects of other factors outside the systems which may affect financial inclusion, such as political goodwill, and economic and personal factors.

Different theories of financial inclusion for beneficiaries have been discussed. The theories intend to address the question of who benefits from financial inclusion. Additionally, other theories exist that address the question of who has the mandate to offer or deliver financial products and services to intended beneficiaries, in order to ensure financial inclusion, as proposed by Ozili (2020b:9).

2.3.2 Theories of financial inclusion delivery

There are several ideas on the responsibility and approaches to delivering financial services to intended beneficiaries. Different views exist on the roles and responsibilities of the government and the private sector in delivering financial services. Suggested theories of financial inclusion delivery, namely the community echelon theory, public service theory, special agent theory, collaborative theory, and the financial literacy theory of financial inclusion, are discussed to establish why other parties, called agents in the delivery process, are necessary to deliver financial inclusion opportunities (Ozili, 2020b:9).

2.3.2.1 Community echelon theory of financial inclusion

The community echelon theory of financial inclusion posits that financial inclusion should be delivered to the financially excluded population through communal leaders (Ozili, 2020b:9). The theory recognises that community leaders are influential and can use their influence to encourage or persuade community members to participate in the formal financial services industry. Community efforts include promoting and supporting opportunities for families to connect with formal FSPs to open and use bank accounts (Birkenmaier, Despad, Friedline & Huangu, 2019:3,11). This theory capitalises on the cultural connections and trust that communities have in their leaders to make important decisions on their behalf (Ozili, 2020b:9). While the basis of the theory is commendable, this theory ignores the effects of self-serving and corrupt community

leaders while also omitting the views of community members, some of whom may have valuable experiences and ideas.

2.3.2.2 Public service theory of financial inclusion

The public service theory of financial inclusion states that the government has a public responsibility to promote and offer financial services to citizens (Atkinson & Messy, 2013:21-22; McKinsey & Company, 2010:14-15; Ozili, 2020b:9). From this theory, it is evident that financial inclusion is a public responsibility that governments owe to citizens, hence citizens expect their governments to ensure financial inclusion. This theory puts the government at the centre to control activities and institutions responsible for promoting financial inclusion, thus creating public confidence. Government is placed at the centre of financial inclusion because of its interest in improving development goals through financial inclusion (UNCTAD, 2021:17). However, the theory is criticised for ignoring private sector participation, burdening taxpayers to pay for the services, and the susceptibility of the financial inclusion systems to abuse for political benefit (Ozili, 2020a:9).

2.3.2.3 Special agent theory of financial inclusion

According to Ozili (2020b:9), the special agent theory of financial inclusion emphasises that the achievement of financial inclusion for the excluded population can be hindered by complex issues and technicalities related to the nature of the community, its people, or geography. For this reason, there is the need to employ the services of other parties (agents) to achieve the goal of financial inclusion for excluded communities (Ozili, 2020b:9). The special agent under this theory is expected to be highly skilled, understand the peculiarities of the excluded population and the existing formal financial systems, identify areas for improvement through innovation, and create means of integrating the local financial system into the formal financial services industry. Independent consultants and non-governmental development institutions are examples of special agents.

The special agent theory is applauded for its merits, including allowing the government to focus on core issues while allowing special agents to focus on financial inclusion. There is confidence in the abilities of special agents, and there exists a measurable nature of special agent activities. However, the demerits of this theory include the

possibility that the government chooses its own agent, thereby limiting the agent's independence, and a special agent may abandon financial inclusion projects due to a lack of commercial viability.

2.3.2.4 Collaborative theory of financial inclusion

Collaboration between financial and non-financial services sector players is important for achieving financial inclusion (Birkenmaier *et al.,* 2019:3, 11). The collaborative theory of financial inclusion posits that financial inclusion can be achieved through collaborative interventions by multiple stakeholders (Aran & Kamath, 2015:279; Archana, 2013:44-47; Carballo, 2017:11; CGD, 2016:3; McKinsey & Company, 2010:14-15; Ozili, 2020b:5-6). The multiple stakeholders involved in financial inclusion include governments, financial institutions, regulatory authorities, and technology firms. Expanding access to financial services through combined efforts of different networks, such as synergies between postal services and digital FSPs, where post offices act as cash merchants for FSPs (UNCTAD, 2021:25), is an example of collaborative financial inclusion activities.

The emphasis on the joint efforts from many stakeholders encourages a multi-stakeholder approach to achieving financial inclusion, which largely brings a sense of belonging and satisfaction (Ozili, 2020b:6). Collaboration between stakeholders also allows for sharing of information and knowledge and increasing the capacity of many players to contribute to the development of ideal services required to achieve financial inclusion (AFI, 2021a:9). Collaboration between banks, postal and telecommunications firms can generate more efficient services with lower costs, which offers the potential to reach remote locations with financial services such as remittances (UNCTAD, 2021:13).

However, the demerits of the collaborative theory of financial inclusion lie in the difficulty of determining optimal stakeholders, as there might be inactivity by some stakeholders, and the adverse impact of the many stakeholders might be relevant, which may not necessarily guarantee a higher probability of achieving financial inclusion (Ozili, 2020b:6).

2.3.2.5 Financial literacy theory of financial inclusion

According to the financial literacy theory of financial inclusion, financial inclusion can be achieved through education that increases citizens' financial literacy, which in turn increases their willingness to participate in the financial services industry (Atkinson & Messy, 2013:18; Ozili, 2020b:5-6). This theory emphasises the important need for creating awareness of the financial products and services available to potential beneficiaries. However, the theory is criticised for addressing consumers' willingness to participate in formal financial services more than creating the conditions for participation (Ozili, 2020b:6).

Elaborate theories of financial inclusion delivery have been discussed to understand the responsibility for achieving financial inclusion for the intended beneficiaries. Additional theories related to the funding of the financial inclusion agenda are also relevant. Therefore, the theories of financial inclusion funding are discussed next.

2.3.3 Theories of financial inclusion funding

Suggestions on who should fund expenditure towards ensuring financial inclusion have been made. The public (through taxpayers' funds), capitalists, and various role players are among those who could be regarded as responsible for the funding of financial inclusion efforts. Ozili (2020b:13) proposes three theories of financial inclusion funding, which are important for answering the question of who should fund financial inclusion: the private money theory, public money theory, and intervention fund theory.

2.3.3.1 Private money theory of financial inclusion

The private money theory of financial inclusion states that financial inclusion activities should be supported by private providers of funds who will require accountability from the users of the funds (Archana, 2013:44-47; Dashi, Lahaye & Rizvanolli, 2013:1; Lahaye, Dashi, Dolke & Soursourian, 2015:1-3; McKinsey & Company, 2010:14-15) Cobb, Wry and Zhao (2016:2104, 2107) refer to these as commercial funders of financial inclusion as being banks, development institutions, and venture capitalists. Private funders will ensure that private funds are utilised efficiently and ensure that financial products and services are delivered to excluded members of populations.

The merits of this theory include that it is faster to get approval for private funding than public funding for financial inclusion projects, and private players are more involved and committed in projects in which they inject funding; hence the chances of success are higher (Ozili, 2020b:13). However, the costs of using private resources may be high while the focus may be on the private interests of these funders at the detriment of the financially excluded population. Governments may also lose control of serving public interests, as key infrastructure, such as fibre connectivity, falls into the hands of private players.

2.3.3.2 Public money theory of financial inclusion

The public money theory of financial inclusion posits that financial inclusion programmes must be funded from national budgets (Cobb *et al.,* 2016:2104; Dashi *et al.,* 2013:1; Lahaye *et al.,* 2015:1-3; McKinsey & Company, 2010:14-15). Thus, the tax-paying public will be indirectly responsible for funding financial inclusion programmes. According to Ozili (2020b:13), this theory is applauded for encouraging the redistribution of wealth and reducing income inequality for the benefit of the financially excluded population. The cost of using public money also makes financial inclusion relatively cheap, while unscrupulous players will not have a chance to participate in the programmes because of controls around the use of public money. The public money theory is criticised for the generally slow planning and implementation of government bureaucracies, the likelihood of increasing government debt to fund financial inclusion programmes, and the ineffective delegation of inclusion programmes to other agents by the government, thereby inhibiting proper implementation.

2.3.3.3 Intervention fund theory of financial inclusion

The intervention fund theory of financial inclusion suggests that financial inclusion activities and programmes can be funded by special interventions from diverse related and unrelated funders rather than using taxpayer funds (Lahaye *et al.,* 2015:1-3; McKinsey & Company, 2010:15). Furthermore, many ‘special funders’ exist, such as philanthropists, non-governmental organisations, and foreign governments, and these special funders tend to support inclusive finance for the global population. Under this

theory, special funders can selectively choose the financial inclusion projects they wish to fund.

This theory is commended for by-passing bureaucracies associated with using public funds to drive financial inclusion projects (Ozili, 2020b:13). However, it is criticised as the funders might have selective and subjective bases for selecting projects and beneficiaries (Ozili, 2020b:13). In addition, intervention funds from foreign governments and donors may have political attachments (requirements and restrictions of how funds can be used) and may damage the reputation of nations receiving the funding based on the perception that they are failing to take care of their own citizens.

Financial inclusion theories show that financial inclusion can be contextualised based on who benefits (beneficiaries), who has the responsibility for providing the funding (delivering), and who has the responsibility of receiving the funding among the intended beneficiaries. The discussion of these theories adds value to this study by providing an understanding of financial inclusion as a concept. Given that economies and other stakeholders are impacted by financial inclusion and having discussed the key theories to gain an understanding of the concept, it is crucial to assess its importance, as this assists in understanding the impact of financial inclusion, if achieved.

2.4 IMPORTANCE OF FINANCIAL INCLUSION

It is important to note that financial inclusion has been a subject of interest for governments/policymakers, researchers, development agencies, and society in general because of the significant gaps in the access and usage of financial products (Cabeza-García *et al.,* 2019:1-2; Nkemjika, 2021:3). The importance of financial inclusion mainly relates to its benefits when it is achieved.

The concept of financial inclusion is mainly treated as a supply-centric phenomenon, which assumes that the supply of financial services alone will lead to inclusive financial development (Nkemjika, 2021:4). Success in financial inclusion can only be assured if optimal financial inclusion is achieved. The conditions for optimal financial inclusion are that there should be access to basic financial services, basic financial services

should be offered at a price that is affordable to people experiencing poverty and the financially excluded population, and the price should be economically sufficient to the relevant providers to encourage the continuous provision of financial services (Ozili, 2020b:8).

However, before elaborating on the importance of financial inclusion, it is pertinent to understand the occurrence of its opposite, which is termed financial exclusion, and refers to the absence of financial inclusion. There is a distinction between involuntary exclusion, voluntary exclusion, and self-exclusion (Mehrotra *et al.,* 2009:14; Tuesta, Sorenses, Haring & Cámara, 2015:18). Involuntary exclusion occurs due to reasons, such as citizens' distance from financial access points, a lack of documentation/papers necessary to obtain financial products and services, the high cost of financial services, distrust of financial institutions, and lack of money (Mossie, 2023:5; Otitoju, 2025:18)). Some individuals may have access but decide not to use the services because of religious, cultural, and other reasons and this is referred to as voluntary financial exclusion (Mossie, 2023:5; Náñez Alonso, Jorge-Vazquez, Gallegos & Munoz del Nogal 2024:5). Self-exclusion occurs when individuals voluntarily opt out from participating in the formal financial services industry (Ozili, 2021c:4). Therefore, the problem of financial inclusion specifically relates to the involuntarily excluded, as they are the ones who, despite demanding financial services, do not have access to these services (Mehrotra *et al.,* 2009:14). If financial inclusion is achieved and improved for this group, various benefits transpire.

2.4.1 Macroeconomic benefits

Economies benefit from financial inclusion through the support it offers to ensure productive sectors of the economy, growth and employment, poverty reduction, welfare improvement, and economic development (Cull *et al.,* 2014:7; Nkemjika, 2021:1; Tita & Aziakpono, 2017:14; UNCTAD, 2021:3).

FSPs provide financial support for activities in the primary, secondary, and tertiary sectors, as well as for individuals in an economy. The broad availability of financial services facilitates domestic and international transactions, mobilise and channel domestic savings, and broaden the availability of credit (UNCTAD, 2021:3). Furthermore, local savings at a broad scale are evidence of financial inclusion

because, through local savings, economies achieve broader economic growth underpinned by a local currency-based financial system in which local savings fund local investments and local lending (AFI, 2018:6). The availability of credit facilities is important to finance production activities in an economy (UNCTAD, 2021:3). As a result, economies become less reliant on and exposed to foreign funding when local funding is available.

According to Cull *et al.* (2014:7), at the macroeconomic level, financial inclusion is positively correlated with growth and employment. This is due to low transaction costs for FSPs and better distribution of capital and risk across the economy. Preliminary evidence also suggests that broader access to bank deposits can have a positive effect on financial stability, directly benefiting those experiencing poverty (Azimi, 2022, IMF Financial Access Survey, 2024:4). In addition, at the macroeconomic level, benefits may arise from other private sector efforts through inclusive low-cost financial systems that reach a larger number of citizens, thus guaranteeing a larger and more active market (Meniago, 2025:4, World Bank, 2023a, 2023b).

Poverty eradication and inclusiveness are primary concerns of financial inclusion (Nkemjika, 2021:10). In a study on financial inclusion and poverty in South Africa, Simatele (2015:22) concludes that access to formal financial services is positively correlated to lower levels of poverty. In comparison, access to informal financial services is positively correlated with higher poverty levels. Financial inclusion can act as a strategy to foster shared prosperity that could translate into reduced poverty and less income inequality in an economy (Anifowose & Chummun, 2025:7-9; Tita & Aziakpono, 2017:14). An inclusive financial system must therefore foster nations' macroeconomic and national objectives of poverty reduction, improving the welfare of citizens, as well as improving the general standards of living of the marginalised members of society (Sawadogo & Semedo, 2021; Tita & Aziakpono, 2017:14; Tuesta *et al.* 2015:20; Yédéhou *et al*., 2025). This implies that for sustainable and inclusive economic development to be achieved, low-income earners, women, youth, and other vulnerable and previously marginalised groups must have access to appropriate financial services (Abel *et al.,* 2018:2).

At global macroeconomic level, financial inclusion has been recognised as one of the pillars of the global development agenda (Zins & Weill, 2016:46). It is also associated with economic development at both global and national levels, hence being financially included leads to economic growth and other related benefits (Carballo, 2017:1; Zins & Weill, 2016:46). Well-functioning financial services industry systems contribute to this economic development through offering savings, payment, credit, and risk management services (World Bank, 2019:17). However, economic growth from financial inclusion is both inclusive and sustainable because such economic growth cannot be achieved without empowering women, youth, low-income earners, and other marginalised groups (Abel *et al.,* 2018:2; Cabeza-García *et al.,* 2019:2, 16-17; Yédéhou *et al.,* 2025).

2.4.2 Consumer benefits

Financial inclusion also has benefits for individuals if achieved. Some of the benefits cited in the literature include that financial inclusion helps clients adopt more formal financial options which reduce costs and increase safety/security, provides access to resources to meet personal needs, allows clients to manage cash flows, allows for the mitigation of risks in life, boosts welfare at household level, contributes to poverty reduction, allows for better value derived from financial services, and increases clients' entrepreneurship potential (Barajas, Beck, Belhaj & Naceur, 2020:22; Manyika *et al.,* 2016:2; OECD, 2018:9; World Bank, 2019:17).

Achieving financial inclusion in a country means that clients are given access to formal financial services. According to Manyika *et al.* (2016:2), most people in emerging economies rely on informal financial solutions that are often less flexible and more costly than formal alternatives. Formal alternatives, such as using banks, generally reduce the costs associated with using financial services. Informal financial options available to clients include saving in the form of livestock, gold, or through informal savings groups, and borrowing from family, employers, or money lenders (Manyika *et al.,* 2016:2). These informal financial solutions frequently fail to deliver when they are needed the most because of prohibitive prices or failure to provide the intended benefits. Therefore, financial inclusion can ensure formalisation, flexibility, and affordability provided by the formal system, over cash or informal systems (OECD, 2018:9).

Financial solutions can provide clients with greater access to resources to meet their financial needs, such as consumption, investment in education, managing unexpected expenses, and providing insurance coverage to confront shocks or financial emergencies (Barajas *et al.,* 2020:22; World Bank, 2019:17). The use of financial products by the majority raises the likelihood of consumption, improving the existence of steady income cycles that are often disrupted by unanticipated needs or by irregular income flows, and as such, optimise the allocation of resources over time, thus improving standards of living in the process (Tuesta *et al.,* 2015:3). Therefore, financial inclusion also helps boost overall welfare at the household level (Cull *et al.*, 2014:7; Ozili, 2020a:4).

Greater financial inclusion also enables most individuals to save money and afford necessities (World Bank, 2019:18). Financially included clients also have access to insurance solutions that allow them to meet unforeseen life events. Savings help households to manage cash flow spikes, guarantee consumption, and build working capital (Cull *et al.,* 2014:4). As a result, savings can also boost overall household welfare and the general standard of living.

Poverty reduction can also be achieved through financial inclusion because, through greater financial access and usage, people's income earning potential can be increased, thus also contributing to poverty reduction (World Bank, 2019:18). Digital financial inclusion can also help clients meet pressing obligations and manage financial risks when times are difficult, for example, mobile money can make it easier for families to receive money from friends and relatives living far away (World Bank, 2019:18). Furthermore, financial inclusion can, through digital solutions, lower the cost of remittance as well as save time and travel costs (World Bank, 2019:18), thereby improving access to financial services and support for those living in poverty and other vulnerable groups.

Achievement of financial inclusion also allows for better value and convenience to clients of financial services, mainly through the availability of better infrastructure and improved product design (OECD, 2018:9). This is more so in the case of technology-driven financial inclusion, which ensures the improvement of physical infrastructure to address access constraints by enabling the deployment of connectivity technologies, such as fibre and mobile devices. This results in lower consumer transaction costs as

well as more convenient, faster, and secure financial transactions (OECD, 2018:9; Singh & Roy, 2015:15). The consumer ultimately benefits from improved, reliable financial products and services, thereby deriving better value from the financial services.

The entrepreneurial capabilities of individuals are improved if financial inclusion is achieved. According to Barajas *et al.* (2020:21) and the World Bank (2019:17), higher levels of financial inclusion can also increase entrepreneurship, as individuals may gain access to finance that would otherwise be unavailable to them. This has the aggregated effect of boosting economic activity, reducing poverty, and increasing income equality, and is considered the backbone of the world economy (AFI, 2021a:4).

2.4.3 Business benefits

Business entities also stand to benefit if financial inclusion is achieved. Some of the benefits to businesses include increased profitability and productivity, greater access to technology and innovation, the establishment of new firms, as well as financial services industry development (Abel *et al.,* 2018:2; Mehrotra *et al.,* 2009:x; Ozili, 2020a:4-5).

Financial inclusion brings increased business and profitability benefits to FSPs and other role players, such as ‘fintechs’, (‘fintech’ is a contraction of the term ‘financial technology’), which refers to additional non-bank financial services that use technology and innovative business models in their provision (AFI, 2018:3). Through financial inclusion, FSPs derive a wide range of funding opportunities by gaining greater resources as result of efficient financial intermediation and increased deposit mobilisation from higher levels of saving and investment by clients (Ozili, 2020a:4-5). This means that financial inclusion brings higher levels of business volumes, monetary values, and profitability for players involved in the financial services industry.

Additionally, financial inclusion allows FSPs to have greater access to more advanced technology and credit at lower interest rates. This results in lower costs per transaction, creating higher revenue generation capacity, thereby boosting profitability, and efficient loan collections, together with increased monetisation, which allows for competitive pricing of financial services (Mehrotra *et al.,* 2009:x). Therefore,

financial inclusion increases the business performance of FSPs, as their efficiency, costs, income, and profitability measures are positively affected by the use of technology.

Through financial inclusion, firms can increase productivity and growth. Evidence at the microeconomic level also shows that through higher levels of financial inclusion, firms benefit from greater access to credit (Mehrotra *et al.,* 2009:14). Generally, the increase in loans for productive sectors, such as agriculture and for micro, small, and medium enterprises (MSMEs), allows for increased productivity while achieving optimal economic growth (Ratnawati, 2020:79).

Access to financial services promotes the establishment of new firms and the growth of existing ones (Abel *et al.,* 2018:2). In an endeavour to promote financial inclusion by governments and regulatory authorities, incentives for firms are necessary for new players to join the financial services industry while stimulating greater participation by existing entities (Abel *et al.,* 2018:2).

The promotion of financial inclusion programmes by the government and regulators allows for innovation by FSPs. Opportunities for innovation in product design, such as the development of low-cost mobile wallets, arise from financial inclusion primarily due to the need to develop solutions that appeal to many vulnerable members of society (OECD, 2018:9). Such innovation enables firms to increase their income-earning potential. According to the Centre Global Development (CGD) (2016:2), addressing financial inclusion through regulatory interventions can also compel or incentivise FSPs to adopt new financial services innovations, which will have the effect of increasing competition among FSPs to the benefit of clients.

Achieving financial inclusion leads to greater participation by clients and the enhanced development of the financial services industry (Abel *et al.,* 2018:2). This increased participation is a result of the increased uptake and usage of financial services, thereby resulting in higher activity in the financial services industry.

2.4.4 Benefits to governments and regulators

Achieving financial inclusion is also important for governments. In achieving economic development, facilitating the participation of a broad range of clients and firms in the

mainstream economy, financial inclusion helps governments achieve some of their key objectives. Governments play an important role in implementing a coherent policy mix to promote financial inclusion through a participatory process that involves all stakeholders, including public sector agencies, central banks, private firms, and civil society (UNCTAD, 2021:27).

Financial inclusion helps governments achieve the financial access goals and targets of the Sustainable Development Goals (SDGs) (UNCTAD, 2021:3). Some of the benefits of financial inclusion to governments which have been cited across literature include that it helps achieve governments' social development objectives, allows effective national planning, and improves the efficiencies of government payment systems for safety nets and other support initiatives (Cabeza-García *et al.,* 2019:1; Cull *et al.,* 2014.7; World Bank, 2019:18). Social safety nets, also called social protection systems, are facilities put in place by governments to support vulnerable groups financially, such as poor populations during emergencies (AFI, 2021a: 6-7). Additionally, financial inclusion supports other national development priorities, allows governments to access funds to offset deficits, allows financial services industry efficiency, and allows for financial markets stability (Banerjee, Donato & Maruta, 2020:39; Ezzahid & Elouaourti, 2021:2). Financial inclusion creates a platform for innovation which benefits most of the population in line with the aspirations of governments and regulators (Yoshino & Morgan, 2016:28).

A well-functioning economy, including both private firms and public institutions, is a key objective of progressive governments. Therefore, when clients of firms benefit from financial inclusion, the objectives of governments are also met. Inclusive and efficient financial markets have the potential to improve the lives of citizens, reduce transaction costs across markets, spur economic activity, improve delivery of other social benefits, and offer innovative private sector solutions (Cull *et al.,* 2014.7). Social development is also important to governments; hence, when vulnerable members of society participate in the financial system, the inequality gap decreases, enabling higher economic development, which also increases both physical and social well-being (Cabeza-García *et al.,* 2019:1).

Governments and regulatory authorities can plan effectively and make more informed decisions if financial inclusion is achieved. Financial inclusion strategies are often led by central banks, in tandem with government policies (UNCTAD, 2021:27). According to Barajas *et al.* (2020:9), an optimal level of financial inclusion is possible when government policies are ideal and successfully facilitate the extension of financial services to most of the population. The measurement of the use of financial services by clients, along with their various socioeconomic factors, such as occupation, income, literacy, landholding patterns and rural indebtedness, will enable policy makers to have insight into the impact of these socioeconomic factors on the usage of formal financial services (Singh & Roy, 2015:15). This insight allows policymakers to be effective in planning, decision making, and the allocation of resources to achieve financial inclusion-related policy objectives.

Financial inclusion can also improve the effectiveness and efficiency of government payments of support funds, such as grants to vulnerable groups, including the elderly, and plays an important role in the welfare of many low-income individuals. According to Yoshino and Morgan (2016:28) and the World Bank (2019:18), switching from cash to digital payments can reduce corruption and money laundering, while also improving government efficiency. Ownership of a formal account by individuals also makes it cheaper and easier for the government to transfer wages, remittances, and other payments to these individuals (World Bank, 2019:18).

The achievement of financial inclusion is also important to policy makers as it contributes to other human developmental priorities, such as improved education and health, which are important objectives for policymakers (Banerjee *et al.,* 2020:39). Through financial innovations, such as mobile payments, FSPs can significantly lower costs and increase the reach of financial services, thereby enabling new technology driven capabilities that address other national development priorities, such as better education for, and financial inclusion of those living in poverty (Cull *et al.,* 2014.7-8).

Governments also benefit from financial inclusion through borrowing, by financing their deficits at the lowest cost (Ezzahid & Elouaourti, 2021:2). Financial system regulators can also benefit from financial inclusion through increased efficiency and stability of financial markets, because when financial inclusion is achieved across markets,

transactional activity will be done transparently through formal means, leaving an audit trail to allow monitoring, supervision, and the use of data to gain insights, which will inform decision making and policies (Ozili, 2020a:4). In addition, greater financial access provides benefits of financial stability and the efficacy of the monetary policy which are important objectives of financial services regulators, such as central banks. Furthermore, progress in achieving financial inclusion is of interest to financial regulators, as it safeguards the integrity of financial systems while also protecting clients (CGD, 2016:2).

Financial inclusion is important at both macroeconomic and microeconomic levels. Therefore, given its importance, it is critical to identify the determinants of financial inclusion to understand the ideal conditions for its achievement.

2.5 DETERMINANTS OF FINANCIAL INCLUSION

Determinants of financial inclusion refer to the factors that can positively enhance financial inclusion. These factors are important as they define the necessary conditions for financial inclusion to thrive. It is argued that the determinants of financial inclusion can be demand-side or supply-side factors. Demand-side factors are those related to clients and households, while supply-side factors are related to the FSPs (Abel *et al.,* 2018:3; Singh & Roy, 2015:15; Sukumaran, 2020:274-275). For example, demand-side factors include age, gender, education, distance, income, required documentation, and financial literacy, whereas supply-side factors include technology as well as innovative products and services.

The age and gender of individuals influence their financial inclusion. Age is one of the factors that drive financial inclusion, as older people are more likely to be financially included (Abel *et al.,* 2018:6; Zins & Weill, 2016:56). Gender also influences financial inclusion, where men are more inclined to be financially included (Zins & Weill, 2016:56).

Education is another identified determinant of financial inclusion, indicating that one's level of education has a significant impact on their being financially included. Therefore, more educated individuals are more likely to be financially included while the less educated are more likely to be financially excluded (Abel *et al.,* 2018:6; Sofi

& Zamir, 2019:101; Zins & Weill, 2016:56). It has been noted that the determinants of informal financial services can differ from the ones of formal financial services, as shown by the different role of gender and education. For women, saving money outside formal banking products and services is encouraged, while formal savings in banks are discouraged. This aligns with the view that African women tend to resort more to informal than formal financial services (Zins & Weill, 2016:55). However, the conclusion is different when it comes to credit, where being a woman often means lower levels of informal credit, while gender has no impact on the amount of formal credit. Although education is positively associated with both formal and informal credit, when it comes to saving, it only has a positive relation with formal saving (Zins & Weill, 2016:57).

Distance is also a determinant of financial inclusion (Abel *et al.,* 2018:6). Distance is related to what Masiyandima *et al.* (2017:1) refer to as geographical presence, as the location of financial services facilities determines the distance that must be travelled to access the services. A longer distance to the nearest financial access point reduces the chances of people being financially included. In addition, income has been identified as a key determinant of financial inclusion (Abel *et al.,* 2018:6; Masiyandima *et al.,* 2017:1; Sofi & Zamir, 2019:101; Sukumaran, 2020:275), in that having a higher income level increases the likelihood of being financially included (Zins & Weill, 2016:56). Income is one of the demand-side factors affecting financial inclusion both at personal and household levels (Barajas *et al.,* 2020:21-22). Another determinant of financial inclusion is required documentation, which has a negative relationship with financial inclusion, implying that an increase in the documentation required to access financial products, such as a national identification document, proof of residence, and proof of income, discourages people from being financially included due to the administrative difficulties applying for these, hence people may become involuntarily excluded (Abel *et al.,* 2018:6).

Financial literacy is also an important determinant of financial inclusion (Abel *et al.,* 2018:6; Masiyandima *et al.,* 2017:1). This is because financial literacy ensures that those who have access to financial services make informed choices (Narayana & Shagishna, 2020:46). According to Joseph and Antony (2021:171), financial literacy refers to the set of skills, along with some understanding of essential financial

concepts, that allow people to manage their money wisely. It is the ability to understand basic financial concepts and to accumulate the knowledge, skills, and experience necessary to make informed decisions based on proper planning and taking stock of available resources (Joseph & Antony, 2021:171). Masiyandima *et al.* (2017:1) combine financial literacy with the concept of financial capability. Financial literacy refers to the degree to which an individual understands how financial markets operate, while financial capability measures a person's capacity and ability to perform financial planning activities, such as budgeting (Masiyandima *et al.,* 2017:14).

According to Sukumaran (2020:275), the aspect of financial literacy is related to what is termed financial education information asymmetry. This implies that creating awareness or increasing literacy on the sound management of personal finance or carrying out well-structured financial education programmes can influence people to rely on formal financial agencies to assist in fulfilling their financial needs (Sukumaran, 2020:275). According to Bakari, Idi and Ibrahim (2018:99), awareness is important in determining financial inclusion, as financial exclusion is primarily associated with imperfect information about the existing formal financial products and services available in the industry. Awareness is also affected by a lack of financial knowledge, clients' hesitation to take the first step in trying services, as well as the unavailability of resources to users of financial services (Anand & Saxena, 2016:93).

Joseph and Antony (2021:171) assert that financial literacy is becoming important, owing to the increased complexity of financial transactions as FSPs compete to offer financial products and services that appeal to clients. Ignorance about financial products and services can have a negative outcome, as clients may end up subscribing to unsuitable offerings or incurring higher transaction costs (Joseph & Antony, 2021:171). The probability of obtaining better financial services increases with the level of awareness, and those with higher awareness make more optimal utilisation of financial services (Sofi & Zamir, 2019:101). Low financial literacy rates have been identified as a cause of low levels of financial inclusion, which in turn have a negative impact on the savings and borrowing abilities of vulnerable groups (Lyons & Kass-Hanna, 2019:32-33).

There is also a growing body of literature that places technology, mainly internet connectivity, at the centre of financial inclusion growth (Patwardhan *et al.,* 2018:9). This means that the availability of relevant and appealing technologies can be a catalyst for financial inclusion. Technology has been identified as a determinant of financial inclusion. In this regard, technology can help lower provider costs throughout the value chain, from distribution to customer service and back-office operations. Therefore, technology plays a crucial role in making financial services more widely available (Patwardhan *et al.,* 2018:11-12). Internet connectivity has been specifically singled out as having an impact on financial inclusion (Abel *et al.,* 2018:6). Inclusive of the internet, a financial revolution is taking place around the globe, powered by mobile phones, access to new data, technological innovations, and the changing mindsets of financial services users, thereby also enabling higher financial inclusion. The technology revolution also encompasses the emergence of commercial financial technology (fintech) players focused on enabling greater financial inclusion (Patwardhan *et al.,* 2018:9). This study aimed to empirically determine whether access to and use of digital banking can influence financial inclusion.

The availability of appropriate FSP products and services to the financially excluded population has also been noted as an important supply-side factor that can aid in achieving financial inclusion (Sofi & Zamir, 2019:101). One of the digital banking examples that has had a remarkable economic and business impact is the M-Pesa mobile wallet in Kenya, which has successfully provided access to financial services for over 9 million Kenyans through mobile banking (Jack & Suri, 2011; Mbiti & Weil, 2011).

Bringing appealing financial products and services to the deprived sections of society facilitates the inclusion of these citizens in mainstream economic activity, which in turn improves economic development (Sofi & Zamir, 2019:101). The participation of deprived sections of society in mainstream economic activities is a key objective of financial inclusion. Sukumaran (2020:275) asserts that the availability of customised products and services is an important determinant of financial inclusion, as clients are often dissatisfied with the stringent rules and deterrent costs attached to each product. In the same vein, Sukumaran (2020:275) explains that the FSPs' attitudes, support, and commitment are important in enhancing financial inclusion.

Demand-side and supply-side determinants of financial inclusion have been discussed. Demand-side determinants include age, gender, education, distance, income, required documents, and financial literacy. Supply-side factors include technology and innovative financial products and services. The existence and level of presence of each of these demand- and supply-side factors influence the financial inclusion situation. Having discussed the determinants of financial inclusion, it is also important to understand how the level of financial inclusion can be identified through the measurement of financial inclusion.

2.6 MEASUREMENT OF FINANCIAL INCLUSION

According to Cámara and Tuesta (2014:3), no standard measure of financial inclusion is universally accepted because of the existence of different definitions of the concept. Therefore, there is no single acceptable method to measure and evaluate the existence of financial inclusion in a country (Ngo, 2019:1371). Table 2.1 summarises some of the proposed methods for measuring financial inclusion.

TABLE 2.1: BASES FOR MEASURING FINANCIAL INCLUSION

Source	Measurement basis	Description of measurement
ACET (2019:3)	Access	Ability to reach financial services in terms of proximity.
	Usage	Actual use of financial services in terms of frequency and usage of the product.
	Welfare	How access, usage, and quality have impacted personal consumption levels and business productivity.
	Quality	Measure of relevance of financial products to consumer needs in terms of security, products, and consumer protection.
Arun and Kamath (2015: 271)	Availability of products/infrastructure	Measures of the level of product availability, for example, the number of bank branches or agents per 100,000 adults.
	Adoption	Actual ownership of products, for example, the number of bank accounts in existence.
	Usage	Addresses the question, “Has the consumer used the product over a specified time period, for example, the past 30 days?”

Source	Measurement basis	Description of measurement
	Usage degree	Considers how much the product is used to address the consumer needs, for example, the share of clients' payments made with a payment product versus cash.
Cámara and Tuesta (2014:7-9, 21,26)	Usage	Considers three measures to assess the extent of usage of formal financial services: holding at least one financial product, keeping savings, and having a loan with a formal financial institution.
	Access	Considers the following supply-side data at the country level: ATMs/100,000 population Branches per 100,000 population ATMS/1,000 km^2 Branches/1,000 km^2
	Barriers	Considers information about barriers that represent involuntary exclusion, such as distance, lack of necessary documentation, affordability, and lack of trust in the formal financial system.
Demirgüc-Kunt, Klapper, Singer, Ansar and Hess (2018:123-126)	Adult account ownership	Considers the proportion (%) of adults with a bank account.
	Gender gap in account ownership	Measures the gap between men and women (percentage points) in terms of bank account ownership. A negative value indicates a larger share of women than men have an account.
	Income gap in account ownership	Measures the gap between richer and poorer (percentage points) in terms of bank account ownership. Data are based on household income quantiles.
Hannig and Jansen (2010:3-4)	Access	The ability to use available financial services and a very basic proxy for determining access can be derived by counting the number of open bank accounts across financial institutions and estimating the proportion of the population with an account.
	Quality	Refers to the relevance of a financial service or product to the lifestyle needs of the consumer, as demonstrated in attitudes and opinions of users towards the products available to them.
	Usage	Focuses on the permanence and depth of financial product and service use through measuring regularity, frequency, and duration of use over time.

Source	Measurement basis	Description of measurement
	Impact	Measures the changes in the lives of clients that can be attributed to the usage of a financial product or service.

Source: Researcher's compilation from different sources

Evident in Table 2.1 is that access, usage, and quality are the most cited parameters for measuring financial inclusion (Tuesta *et al.,* 2015:20). Access refers to the supply of financial services, whereas both demand and supply determine usage of financial services (Mehrotra *et al.,* 2009:14). Another definition of access is the ease with which a consumer can obtain a financial service, which includes the physical and electronic reach of service provisioning as well as the affordability of financial services (FSCA, 2021:6). Access is also defined by Birkenmaier *et al.* (2019:2) as a client having the legal right, necessary documentation, eligibility, and ability to open, afford, and continuously use financial products and services. According to Arun and Kamath (2015:271), a relevant definition of access is the adoption of products, not their availability. This is because, according to all definitions cited, adoption is what gives clients the ability to use a product as opposed to availability, which may not lead to actual usage.

Providing access is an area of concern for policymakers because it has far-reaching economic and social implications. Access to financial services allows those who are impoverished to save money outside of the household safely, prevents concentration of power to a few individuals, and helps mitigate risks due to economic challenges (Chandran, 2014:45). A better understanding of how poor households access financial services is important to ensure the design of policies facilitate the achievement of financial inclusion (Rasheed, Law, Chin & Habibullah, 2016:330).

Access to financial services implies necessary but not sufficient conditions are present for financial inclusion, whereas the usage of the financial services implies sufficient conditions for financial inclusion are present (Tuesta *et al.,* 2015:3). This means that ownership of, and access to, a financial product, service, or device does not mean financial inclusion; instead it is the actual usage of those financial services that ultimately delivers the benefits of financial inclusion, such as economic empowerment

and self-reliance (Nkemjika, 2021:13-14). Usage refers to both the uptake of appropriate and needed products and services, as well as how the acquired services are being used after initial acquisition (FSCA, 2021:6). Usage can therefore be defined according to the degree to which the financial services and products are used (Arun & Kamath, 2015:271).

ACET (2019:3), FSCA (2021:6), and Nkemjika (2021:10) add another factor of measuring financial inclusion, namely quality, which refers to the relevance of a financial service/product and impact, that is, the changes in the lives of clients attributable to the use of a financial device/product/service. Quality also refers to the consumer's experience, both when acquiring and during the use of financial services, and this includes experiences related to market conduct, the fair and equitable treatment of clients, as well as client awareness and financial literacy (FSCA, 2021:6).

In addition to the three measurement parameters mentioned of access, usage, and quality, financial inclusion is also measured based on bank account ownership, which is essentially a measure of adoption. Account ownership is defined as having an individual or jointly owned account either at a financial institution or through a mobile money provider (Demirgüc-Kunt *et al.,* 2018:18). An account makes it easy to store money and save for the future. It makes it easier to pay bills, access credit, make purchases, and send or receive remittances. Financial inclusion is measured in terms of an adult individual having access to the use of financial services and products, such as an active deposit or loan account with a bank, microfinance institution, cooperative or savings club, or mobile money service providers (Masiyandima *et al.,* 2017:13). However, simply opening a bank account without the advantages of basic banking services undermines the impact of financial inclusion measures; hence, collecting data on amount of credit disbursed, deposits kept in banks, remittances made, insurance coverage and other financial services accessed is more important (Singh & Roy, 2015:15).

In addition to account ownership, the World Bank (2017b) has developed comprehensive metrics related to access, usage, and quality. The metrics are based on the parameters of account ownership, digital payments made and received in the past year, the primary source of emergency funds, mobile money account ownership,

and reasons for not having an account or making deposits or withdrawals. The metrics are also based on utility bills paid, as well as government pension payments, digital payments, and domestic remittances received. Additionally, metrics include received payments for agricultural products, public sector wages, private sector wages, saved money, sent or received domestic remittances, internet access, and the use of mobile phones and the internet, among others.

Additionally, Ozili (2021d:5-12) proposes some specific financial inclusion indices and ratios to facilitate comparisons to rank the levels of financial inclusion and exclusion across countries. The proposed indices and ratios are detailed in Table 2.2.

TABLE 2.2: FINANCIAL INCLUSION INDICES AND RATIOS

Index/Ratio	Definition	Formula
Rate of Financial Inclusion Index (RFI)	Measures growth in financial inclusion by considering the size of the population and the size of the financial services industry, using a broad range of financial services industry size and population indicators.	Percentage change approach – RFI Index = (change in financial services industry size/population growth rate) ×100 Logarithmic growth rate approach – RFI = change in financial services industry size/logarithmic change in population size
Rural Financial Inclusion Rate (RFIR) Index	Measures the rural financial inclusion rate by considering the size of the rural population and the size of the financial services industry.	Percentage change approach – RFIR = change in financial services industry size/change in rural population size Logical growth rate approach – RFIR = change in financial services industry size/logarithmic change in rural population size
Urban Financial Inclusion Rate (UFIR) Index	Measures the urban financial inclusion rate by considering the size of the urban population and the size of the financial services industry.	Percentage change approach (UFIR) = change in financial services industry size/change in urban population size Logical growth rate approach (UFIR) = change in financial services industry size/logarithmic change in urban population size
The Financially Included Population	Measures the number of households and individuals that have access to, and use, basic financial services for consumption, education, healthcare expenditure, and savings.	Financially included population = current RFI × total population size

Index/Ratio	Definition	Formula
The Financially Excluded Population	Measures the number of people outside the formal financial services industry.	Financially excluded population (FEP) = total population size – financially included population
Voluntary Financial Exclusion Rate	Measures wilful and deliberate refusal to participate in the formal financial services industry by households and individuals.	Voluntary Financial Exclusion Ratio = number of closed formal accounts by account owners/total number of formal accounts in the financial services industry
Forced Financial Exclusion Ratio	Measures the number of formal accounts that were closed by the financial institutions in the financial services industry for legal and/or regulatory reasons relative to the total number of formal accounts in the financial services industry during a period.	FFER ratio = the number of forced closed accounts/total number of formal accounts in the financial services industry
Financial Access Ratio	Measures the extent to which households have access to account ownership in the banks or financial institutions nearest to them or in their immediate communities.	FAR = account ownership by households (log)/total number of available bank branches
Account Usage Ratio	Measures the frequency of formal account usage by households or individuals over a defined period, usually a year.	AUR = number of bank account activities/365 days
Account Inactivity Ratio	Measures the number of dormant or inactive formal accounts in the financial services industry relative to the total number of formal accounts in the financial services industry.	AIR = number of dormant formal accounts/total number of formal accounts

Source: Adapted from Ozili (2021d:5-12)

The ratios detailed in Table 2.2 provide a comprehensive index that measures the extent of financial inclusion or exclusion across countries, regions, or communities. Through comparison, the indices help identify the relevant factors that determine the level of financial inclusion at a particular point in time and for a specific group of individuals or households. Ozili (2021d) argues that using indices to measure the level of financial inclusion can help policymakers and other interested parties evaluate and communicate the positives and negatives in the progress towards financial inclusion in different contexts.

However, Ngo (2019:1371) quotes different measures of financial inclusion exist, such as the Index of Financial Inclusion (IFI) proposed by Sarma (2008). The determination and definition of the index involve different approaches and indicators, which may vary from one source to another, as shown in Table 2.3.

TABLE 2.3: FINANCIAL INCLUSION INDICATORS

Studies	Indicators
Sarma (2008) cited by Ngo (2019:1372)	Bank accounts (% of the total population) Number of bank branches/1,000 people The volume of credit and deposit (% of GDP)
Chakravarty and Pal (2010) cited by Ngo (2019:1372)	Number of bank branches/1,000 km^2 Number of bank branches/100,000 people Number of bank ATMs/1,000 km^2 Number of bank ATMs/100,000 people Number of loans/1,000 people Average size of loans to GDP per capita Number of deposits/1,000 people Average size of deposits to GDP per capita
Sarma (2012) cited by Ngo (2019:1372)	Deposit accounts/1,000 adults Number of (deposit) bank branches and ATMs/100,000 adults The total deposit and credit from deposit banks (% of GDP)
Amidžic *et al.* (2014)	Number of ATMs/1,000 km^2 Number of branches of Other Depository Corporations (ODCs)/1,000 km^2 Number of household depositors with ODCs/1,000 adults Number of household borrowers with ODCs/1,000 adults
Cámara and Tuesta (2014) cited by Ngo (2019:1372)	Number of people using at least one formal financial service Distance, lack of the necessary documentation, affordability, and lack of trust Number of ATMs/100,000 adults Number of commercial bank branches/100,000 adults Number of ATMs/1,000 km^2 Number of commercial bank branches/1,000 km^2
Park and Mercado (2015) cited by Ngo (2019:1372)	Number of ATMs/100,000 adults Number of commercial bank branches/100,000 adults Borrowers from commercial banks/1,000 adults Depositors with commercial banks/1,000 adults Domestic credit-to-GDP ratio

Studies	Indicators
Sarma (2016) cited by Ngo (2019:1372)	Deposit accounts/1,000 adults from commercial banks, credit unions, cooperative banks, microfinance institutions Number of registered mobile money accounts/1,000 adults Number of bank branches, registered mobile money service providers, and ATMs/100,000 adults Volume of credit to the private sector Deposits mobilised from the private sector (% of GDP)
Park and Mercado (2018) cited by Ngo (2019:1372)	The percentage of the adult population with financial accounts of the total population The percentage of the adult population with credit and debit cards Number of commercial bank branches/100,000 adults Number of ATMs/100,000 adults The share of the adult population who have borrowed and saved from a financial institution The domestic credit-to-GDP ratio

Source: Ngo (2019:1372)

Table 2.3 indicates that financial inclusion measurements have been proposed by different authors using different methodologies. Various sources, such as Amidžic *et al.* (2014) and Cámara and Tuesta (2014), Chakravarty and Pal (2010), Sarma (2012), as well as Park and Mercado (2018), all cited in Ngo (2019:1372), propose measuring financial inclusion mainly based on access, usage, and quality metrics. However, some indicators use different terms and perspectives that also measure specific aspects of access, usage, quality, and the impact of financial services. Other such indices are intended to facilitate country comparisons of financial inclusion situations and levels.

Having assessed the measurement of financial inclusion using different indicators from different sources, it is also important to understand the inhibiting factors, that is, the barriers to achieving financial inclusion. These barriers must be understood because overcoming them is necessary to achieve the objectives of financial inclusion.

2.7 BARRIERS TO FINANCIAL INCLUSION

Barriers to financial inclusion are those factors that hinder the success of financial inclusion efforts. These are factors that, when present, make achieving the goal of financial inclusion difficult. Yoshino and Morgan (2016:28) argue that barriers to

financial inclusion can be demand- or supply-driven. Demand-side factors cited across literature sources relate to the limitations of consumers (users and potential users) of financial services (Atkinson & Messy, 2013), including poverty, lack of trust, cultural barriers, and financial illiteracy. Supply-side factors are those that relate to the financial services industry's lack of capacity or willingness to extend services to individuals and firms, and mainly regard market factors, regulatory factors, and infrastructure limitations (Yoshino & Morgan, 2016:28). Supply-side factors also include lack of documentation and other 'know-your customer' (KYC) requirements, lack of collateral, regulatory requirements, institutional and system barriers, distance to the nearest access point, information asymmetries, and affordability of services (Yoshino & Morgan, 2016:28).

2.7.1 Demand-side barriers to financial inclusion

Poverty affects financial inclusion. Levels of financial inclusion are generally low, especially in developing countries, because of high poverty and low-income levels (David-West, 2015:256; RBZ, 2015:22-23). Difficult personal circumstances prompt individuals to resort to informal products, such as moneylenders, whose services effectively tie individuals into more poverty, thus potentially increasing their vulnerability (Atkinson & Messy, 2013:17).

Lack of trust in formal financial services systems by potential beneficiaries may affect financial inclusion (UNCTAD, 2021:10). This lack of trust can be a significant problem in achieving financial inclusion, especially where consumer protection, regulatory oversight, and supervision of FSPs provide little disclosure regarding regulation of loan collection procedures and procedures for dispute resolution (Yoshino & Morgan, 2016:28).

Cultural factors can also be a barrier to financial inclusion (Anyangwe, Vanroose & Fanta, 2022:21). Culture driven preferences, religious beliefs and linguistic barriers can limit the appeal of financial products and services to specific individuals (Atkinson & Messy, 2013:18). An example of such religious and cultural driven preferences is the prohibition of payment of interest on loans or receiving interest on deposits for a specific period, which is part of Islamic banking principles (Narayana & Shagishna, 2020:48). This affects the use of financial services by the Muslim community, as their

religion precludes them from accessing loans at an interest, or saving to earn interest. Cultural barriers have also been identified as a hindrance to financial inclusion, particularly for women who face barriers to owning and inheriting property and other collateral due to social norms, especially in the developing world (ACET, 2019:9; AFI, 2021a:15; Burjorjee, El-Zoghbi, Meyers & Heilman, 2017:1).

According to Cabeza-García *et al.* (2019:4), gender differences affect opportunities in areas such as labour, education, and democracy. This gender-based inequality is also reflected within the financial services industry, primarily when referring to financial inclusion in emerging and non-emerging countries where men are more financially included than women (Cabeza-García *et al.,* 2019:4). Women also face barriers regarding digital and financial illiteracy, lower mobile penetration, and ownership rates due to household power structures (ACET, 2019:9). The household power structures result in women lagging behind men in terms of access to financial inclusion opportunities.

Financial illiteracy can be a barrier to achieving financial inclusion. In fact, financial illiteracy is considered one of the biggest hindrances in the way of achieving financial inclusion (AFI, 2021a:15; Atkinson & Messy, 2013:18; David-West, 2015:256; Sofi & Zamir, 2019:101; Yoshino & Morgan, 2016:28). Financial inclusion has no meaning without financial literacy, because stakeholders cannot grasp the benefits and risks associated with it (Sofi & Zamir, 2019:101). Financial illiteracy may result in a lack of product awareness, poor understanding of how products work, as well as low awareness of mechanisms to increase trust and consumer protection (Atkinson & Messy, 2013:18).

General lack of development and high illiteracy levels owing to low levels of education in developing economies may prevent a large section of the population from benefitting from financial inclusion efforts due to poor awareness and understanding of financial services (Atkinson & Messy, 2013:148; Nkemjika, 2021:4). In established markets, products and services may be widely available, but access is hampered by confusing, complicated terms, and limited transparency, which adversely affects comprehension of the products and services (Patwardhan *et al.,* 2018:11-12).

2.7.2 Supply-side barriers to financial inclusion

Lack of required documentation and other KYC requirements by FSPs are also a hindrance to financial inclusion, especially for women, youth, people living in rural areas, informal workers, and migrants (ACET, 2019:9; AFI, 2021a:15; David-West, 2015:256; UNCTAD, 2021:9; Yoshino & Morgan, 2016:28). Stringent account opening requirements by FSPs require citizens to submit formal documentation, such as identity documents, proof of residence, next of kin details, and other details which are important to monitor for possible money laundering and terrorist financing activities (ACET, 2019:9; RBZ, 2015:22-23). The intended financial inclusion beneficiaries may not readily have the required documentation because of the lack of universal identification systems (AFI, 2021:15; Yoshino & Morgan, 2016:28).

Collateral requirements by FSPs can also hinder the achievement of financial inclusion. Collateral requirements for borrowing from FSPs, such as the need to pledge immovable property, may pose a challenge to achieving financial inclusion. Most potential beneficiaries of loans lack the required assets to use as collateral (ACET, 2019:9; AFI, 2021a:15) and will therefore not qualify for loans. As a result, their borrowing needs are not met, and financial inclusion is not achieved.

Regulatory requirements also affect financial inclusion. Some regulatory imperatives for FSPs, such as capital adequacy and supervisory rules may limit the attractiveness of small deposits, loans, and other financial offerings, especially in outlying areas where the costs of offering the services can be difficult to justify (Yoshino & Morgan, 2016:28). In some cases, regulation benefits the already banked while further excluding the unbanked, especially where rules make it difficult for potential users to access financial services (Atkinson & Messy, 2013:18).

Institutional and system barriers to financial inclusion also exist. These include physical and digital infrastructure, which are underdeveloped and not supportive of an inclusive financial system (ACET, 2019:9; AFI, 2021a:15; David-West, 2015:256; RBZ, 2015:22-23). Some specific infrastructure related barriers relate to the lack of reliable and secure payment systems, unavailability of telephone communications services and unavailability of transport to bank branches and ATMS (Yoshino & Morgan, 2016:28). Other challenges may include the unavailability of electricity, limited

hardware and networks and unreliable services owing to network outages and insufficient security (Atkinson & Messi, 2013:18). According to ACET (2019:9), additional institutional and system barriers include inappropriate and mass market product offerings that fail to consider the needs of targeted segments, and this is also called 'product-market fit' where available financial products and services do not address the needs of larger segments of consumer demographics due to product design, and pricing which may be high or inflexible (Patwardhan *et al.,* 2018:11-12). Other institutional and system barriers to financial inclusion include a lack of capacity for advanced analytics of demographic and other client data by FSPs. Such a lack of capacity to make maximum use of available data hinders the development of targeted strategies, resulting in underdeveloped financial services provider systems and prohibitively high minimum capital requirements for establishing financial services firms (ACET, 2019:9).

Distance to the nearest access point and availability of services in specific areas can pose challenges to achieving financial inclusion especially in rural areas (RBZ, 2015:22-23; UNCTAD, 2021:9). According to Atkinson and Messy (2013:17) as well as Patwardhan *et al.* (2018:11-12), availability of financial services can also be limited by fundamental access problems, for example, where the services are only distributed through bank branches that are not available in rural areas.

The AFI (2021:15) also identified information asymmetry, mainly in the form of limited credit information and risk aversion, as a barrier to financial inclusion. This means that FSPs may provide limited information about credit conditions. Due to limited information, borrowers will hesitate to borrow, and as a result, they will generally remain financially excluded. Additionally, according to Patwardhan *et al.* (2018:11-12), the prices of financial services must be sufficiently low so that they can be offered at a profit, despite limited revenues, to those financially excluded. If providers are unable to generate profits, they have no ability or incentive to scale the services.

The demand and supply side barriers must be overcome if financial inclusion objectives are to be met. Patwardhan *et al.* (2018:16) identify key financial product and service categories that are essential for achieving financial inclusion. In addition to identifying the product and service categories, the authors propose solutions for

how products and services can be improved to address barriers to financial inclusion, as summarised in Table 2.4.

TABLE 2.4: PRODUCTS/SERVICES SOLUTIONS TO ADDRESS FINANCIAL INCLUSION BARRIERS

Product/Service	Solutions
Payments	Reduce transaction costs to build networks that are widely used by all parts of the population.
	Different consumer segments have different financial needs; hence, unbundling services can allow for better targeted products.
Lending and related services	Use data analysis and new data processing technologies to leverage existing and alternative data sources to expand access to the financially excluded.
	Different consumer segments have different financial needs; hence, use technology to enable transparency and choice through the tailoring of products for different segments.
Savings and financial planning	Digital identity and product innovation help streamline the onerous account opening process and support financial well-being.
	Reducing information asymmetries to promote better financial health even without product innovation. For example, by running digital marketplaces that provide clients access to product comparisons across multiple FSPs, many fintech firms are helping clients make more informed choices.
Insurance	Technology can replace traditional broker networks or be used to complement traditional distribution channels, delivering products tailored for the financially excluded.
	Technology can enable the design and delivery of new products tailored for consumer segments depending on their needs, for example, specialised products for insuring automobiles, electronics, crops, and other products, coupled with a specialised pool of risk and predictive modelling to result in better alignment between product, consumer needs, and business objectives.

Source: Adapted from Patwardhan *et al.* (2018:16-29)

As evident from Table 2.4, payments, lending, savings, and insurance remain the key financial services for which improvements in access, usage, and quality will result in the achievement of financial inclusion. Overcoming barriers related to these products and services by using the provided solutions will result in an increase in financial inclusion levels.

Despite the general barriers, financial inclusion situations may also differ depending on context. A discussion of financial inclusion in the world, Africa, and in the specific

contexts of South Africa and Zimbabwe is presented next to understand how contexts affect financial inclusion.

2.8 FINANCIAL INCLUSION IN DIFFERENT CONTEXTS

Financial inclusion differs from one context to another. Barajas *et al.* (2020:8) argue that differences in financial inclusion across countries, regions, and income levels are mainly due to different structural conditions within their economies. Some of the structural conditions include income levels, population size, population density, and demographic factors, all of which are likely to influence the efficiency of providing financial services to clients and firms. In addition, a country's financial structure is influenced and shaped by non-financial developments; hence, changes in the business fields of telecommunications, computers, non-financial policies, and economic growth itself influence the structure of a financial system (Mehrotra *et al.,* 2009:x).

2.8.1 A broader view of financial inclusion

Financial inclusion worldwide needs to be interpreted in a relative dimension, that is, with particular reference to each country's specific circumstances, because it differs depending on a country's stage of development. For example, non-payment of utility bills through banks can be considered financial exclusion in a developed country, while the same may not be considered as financial exclusion in an underdeveloped nation, as the financial system is not yet developed to provide such sophisticated services (Mehrotra *et al.,* 2009:14).

According to Rasheed *et al.* (2016:331), financial inclusion is a policy priority for governments worldwide, including in countries with 'well-developed' financial systems. World financial systems are generally not inclusive of all clients, hence many poor people worldwide rely on cash, which can be unsafe and difficult to manage (World Bank, 2019:17). Financial inclusion in different countries is mainly entrenched through charters of codes of practice by financial institutions, directives issued by central banks, and national vision statements underpinned by government legislation (Abel *et al.,* 2018:1).

According to Patwardhan *et al.* (2018:9), there are more than two billion unbanked adults in the world, representing 38% of all adults globally. The World Bank (2017:18-19) shows that globally, 69% of adults have a bank account (hereafter referred to as an account). The majority (94%) of adults in high-income economies have an account compared to 63% in developing economies. Of the 69% global account owners, 64% have a financial institution account only, 3% have both a financial institution and mobile money account, and 1% have only a mobile account (World Bank, 2017b:18-19). However, 57% of global adults have basic accounts but lack access to key services, such as investment and savings options, low-cost payment ecosystems, insurance services, and credit facilities (Patwardhan *et al.,* 2018:9).

The World Bank (2021:18-19) notes that globally, 76% of adults have a bank account. Poorer adults worldwide are less likely to have an account than wealthier ones. Seventy-four per cent (74%) of adults in the richest 60% of households have an account, while among those in the poorest 40% of households, 61% have an account. Developing economies also tend to have a significant gap in account ownership between richer and poorer adults. Brazil, China, India, Russia, South Africa, and Turkey have relatively high account ownership rates among both richer and poorer adults. In contrast, Bangladesh, Egypt, Ethiopia, Indonesia, Mexico, Nigeria, the Philippines, and Vietnam are rated as having relatively low account ownership between richer and poorer adults (Demirgüc-Kunt *et al.,* 2018:26-27).

In terms of the gender gap, women are globally less likely than men to have an account, as reported by the World Bank (2017). It is further reported that globally, 72% of men and 65% of women have an account, representing a 7% gender gap. While the gender gap varies between economies, in a few developing economies, such as Argentina, Indonesia, and the Philippines, women are more likely than men to have an account. Worldwide, the proliferation of mobile money accounts has created new opportunities to serve women, people living in poverty, and other groups traditionally excluded from the formal financial system better (Demirgüc-Kunt *et al.,* 2018:23).

In relation to age, account ownership is high among more mature adults than less mature adults, with 72% of adults aged above 25 having an account, and only 56% of those aged between 15 and 24 having an account (Demirgüc-Kunt t *et al.,* 2018:29).

On the aspect of education, account ownership is higher among educated adults than less educated ones. Fifty-six per cent (56%) of adults with primary education or less have an account compared with 76% who have completed secondary school, and 92% who have a higher education (Demirgüc-Kunt t *et al.,* 2018:30).

As for employment status, adults who are active in the labour force (either employed or seeking work) are more likely to have an account than those who are out of the labour force. Working adults have many needs for financial services, including receiving wages and saving their earnings. Globally, 74% of adults active in the labour force have an account, while only 59% of those not in the labour force have one, hence a gap of 15% (Demirgüc-Kunt *et al.,* 2018:30).

At a global level, account ownership is also lower in rural areas than in urban areas. However, quantification has been difficult due to cross-country distinctions between urban and rural, that is, disparities in definitions of ‘rural’ and ‘urban’ in different countries (Demirgüc-Kunt *et al.,* 2018:31-32).

The World Bank (2017) also reports that 1.7 billion, that is, 31% of adults worldwide, remain unbanked, and in 2014, that number was 2 billion. Demirgüc-Kunt *et al.* (2018:23) mention that women (56%) are overrepresented among the unbanked (980 million), while a quarter of the unbanked live in the poorest 20% of households. The same database shows that twice as many unbanked adults live in the poorest households in their economy as in the richest ones. In addition, according to the database, unbanked adults are proportionately young, with 30% of them being aged between 15 and 24 years old. The database further shows that unbanked adults also tend to have one educational attainment, with 62% of the unbanked having a primary education or less, compared to half of adults overall in developing countries. Another statistic from the same database shows that a slight majority of unbanked adults (53%) are either unemployed or seeking work, while almost half (43%) of the unbanked are out of the labour force. Among unbanked adults who are economically active, self-employment is the most common form of work, with a quarter of all unbanked adults reporting being self-employed, and less than a fifth reporting working for wages (Demirgüc-Kunt *et al.,* 2018:36-39). The most common barrier to account ownership is a lack of money. Other cited reasons for not owning a bank account include not

needing an account (30%), the account being too expensive, having a family member who already has an account, the financial institution being too far away, lacking the necessary documentation, lacking trust in financial institutions, and religious reasons (Demirgüc-Kunt *et al.,* 2018:40).

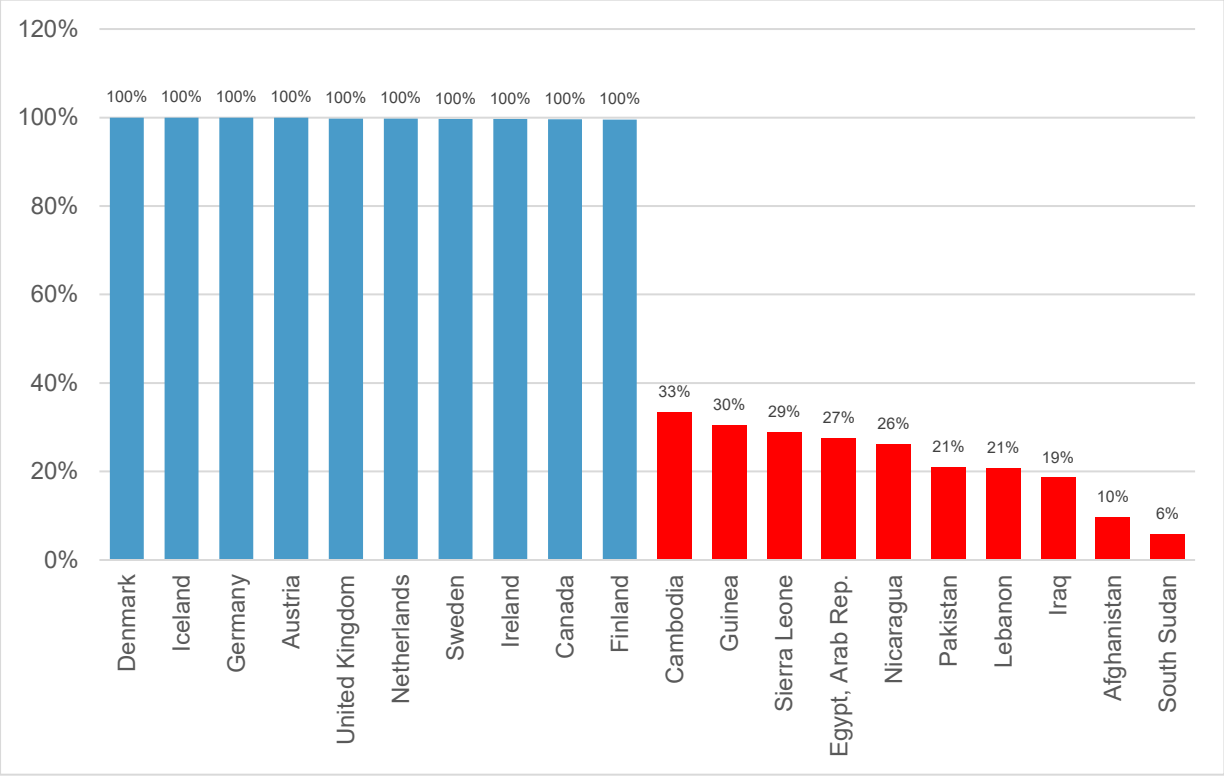
According to Demirgüc-Kunt *et al. (*2018:43), payments are an important financial service that contributes to ensuring financial inclusion, as most people make payments, such as for utility bills and domestic remittances, and most people receive payments, including remittances, wages, other payments for work, or government transfers. Globally, the World Bank (2017) reports that 23% of adults have received at least one payment from the government in the past year in the form of public sector wages, pensions, or government transfers. The same source indicates that globally, 28% of adults reported receiving at least one wage payment from a private sector employer in the past year (46% of adults in high-income economies and 24% in developing ones). Statistics from the same source also indicate that approximately 15% in developing economies reported receiving payments for the sale of agricultural products in the past 12 months. In terms of payments from individuals to firms, the database indicates that 57% of world adults reported making regular payments for water, electricity, or trash collection. In high-income countries, 77% reported making such payments, while only 28% did so in sub-Saharan Africa. In developing economies, on average, 27% of adults reported using domestic remittances in the past 12 months, and this is particularly significant in sub-Saharan Africa, where, on average, 45% reported having sent or received such payments (Demirgüc-Kunt t *et al.,* 2018:43).

In 2017, 48% of adults worldwide reported having saved or set aside money in the past 12 months. The proportion is higher in high-income countries (71%) than in developing economies (43%) (Demirgüc-Kunt *et al.,* 2018:69). Saving for starting, operating, or expanding a business is common in sub-Saharan African economies; in Ethiopia, Kenya, Liberia, Nigeria, Uganda, and Zambia, 29% of adults reported having saved for business, twice the global average (Demirgüc-Kunt *et al.,* 2018:75). The same source further shows that in terms of borrowing, globally, 47% of adults reported having borrowed money in the past 12 months including the use of a credit card. The share of adults with new credit, formal or informal, averaged 64% across high-income

economies and 44% across developing economies. Common reasons for borrowing funds include buying land or a home (Demirgüc-Kunt *et al.,* 2018:76-79).

Mobile phones and the internet have given rise to a new generation of financial services, while smartphone technology is increasingly being used to make transactions via financial institutions' accounts in some economies. However, mobile phones and the internet can drive financial inclusion only if underpinned by the necessary infrastructure, such as reliable electricity and mobile networks. (Demirgüc-Kunt *et al.,* 2018:89). In terms of usage of mobile money specifically, the World Bank (2017) reveals that 12% of adults in sub-Saharan Africa and 2% globally have a mobile money account. Sub-Saharan Africa is the leader in the use of mobile money, with 21% of adults in the region having a mobile account. Mobile money is particularly widespread in Kenya (73% of adults), as well as Uganda and Zimbabwe (50% of adults) (Demirgüc-Kunt *et al.,* 2018:20). Figure 2.2 depicts the countries with the highest and lowest levels of financial inclusion globally.

FIGURE 2.2: GLOBAL FINANCIAL INCUSION LEVELS



Source: World Bank (2021:18-19)

As is evident from Figure 2.2, countries with 100% financial inclusion are Denmark, Iceland, Germany, Austria, the United Kingdom, the Netherlands, Sweden, Ireland, Canada, and Finland, meaning that all citizens in these countries are financially included. South Sudan has the lowest level of financial inclusion globally, at 6%. Countries with the lowest levels of financial inclusion include Afghanistan, Iraq, Lebanon, Pakistan, Nicaragua, Egypt, Sierra Leone, Guinea and Cambodia in that order.

Overall, the World Bank (2021:76) notes that further advances in financial inclusion in the world will depend on the ability to leverage innovative technologies (including digital banking) that drive financial services. The next section presents an assessment of financial inclusion in Africa.

2.8.2 Financial inclusion in Africa

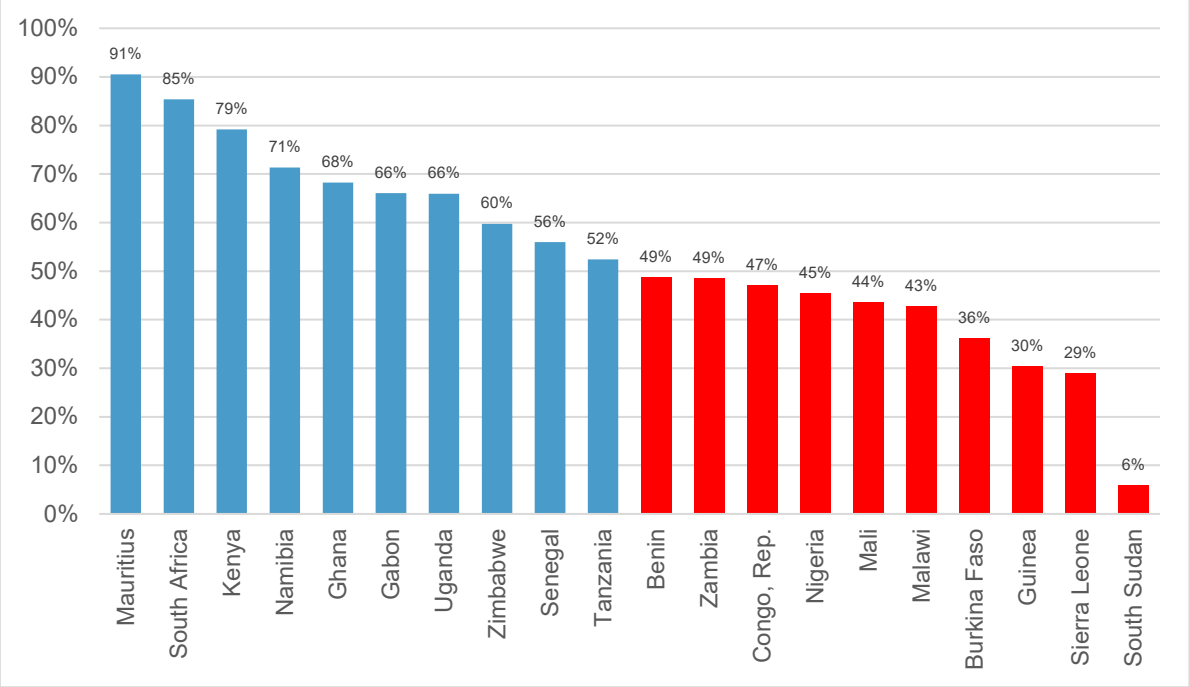
Financial inclusion in Africa lags behind the rest of the world (Zins & Weill, 2016:56). The lower rate of financial inclusion in Africa partly explains why, despite the continent offering higher returns on investments, growth in the continent remains low, while poverty and income inequalities remain relatively high (Masiyandima *et al.,* 2017:2).

Ozili (2021d) outlines the following facts about financial inclusion in Africa:

- The majority of the financial inclusion gains in Africa are due to the expansion of digital financial services, notably in countries such as South Africa, Egypt, Nigeria, Rwanda, Kenya, and Mauritius.
- Financial technology has helped to increase the level of financial inclusion.
- Using innovative financial services can help mitigate the structural and infrastructural problems affecting the continent.
- Women and those experiencing poverty are at a disadvantage in terms of financial inclusion.
- Africa has the lowest level of financial inclusion globally.
- Low financial literacy and a lack of financial education are problems contributing to financial exclusion.
- Lobbying to politicise the financial inclusion agenda is common in Africa.
- Pandemics reveal the actual levels of financial exclusion in Africa.

Financial inclusion in Africa is very low across countries, and no African country has yet recorded 100% financial inclusion. Figure 2.3 depicts countries with the highest and lowest levels of financial inclusion in Africa.

FIGURE 2.3: FINANCIAL INCLUSION LEVELS IN AFRICA



Source: World Bank (2021:18-19)

Considering Figure 2.3, Mauritius has the highest levels of financial inclusion at 912%. South Africa ranks second in Africa, with a financial inclusion index of 85%, while Zimbabwe ranks eighth, with a score of 60%. Other African countries, such as South Sudan (6%), Sierra Leone (29%), Guinea (30%), Burkina Faso (36%), Malawi (43%), Mali (44%), Nigeria (45%), Congo Republic (47), Zambia (49%) and Benin (49%), have the lowest levels of financial inclusion on the continent. It is clear that there is an opportunity for improvement in terms of the financial inclusion levels of both South Africa and Zimbabwe. In addition, it is pertinent to consider financial inclusion among women and youth in these two countries.

2.8.3 Financial inclusion in South Africa and Zimbabwe

It is important to provide a discussion of the general financial inclusion situation in South Africa and Zimbabwe, as this will provide contextualisation to aid the intended comparison between the two countries. The comparison aligns with the primary

objective of the study, which is to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe. Therefore, this chapter provides a comparison of the two countries, based on two broad aspects: first, financial inclusion policy frameworks, and second, financial inclusion indicators.

2.8.3.1 Financial inclusion policy frameworks in South Africa and Zimbabwe

South Africa, like many other countries, has made significant efforts to improve financial inclusion (Simatele, 2015:44). However, the country does not yet have a formalised financial inclusion vision document. The country developed the Draft National Financial Inclusion Policy in 2020 which serves as a policy framework for financial inclusion and its implementation (South African Treasury, 2020:1). The South African policy document identifies three pillars and 16 priorities, as detailed in Table 2.5.

TABLE 2.5: DRAFT NATIONAL FINANCIAL INCLUSION STRATEGY PILLARS AND PRIORITIES FOR SOUTH AFRICA

Pillar	Priorities
Deepening financial inclusion for individuals	Promote beneficial use of transactional accounts. Develop appropriate payment options to drive usage. Position remittances as a springboard for further financial inclusion. Support increased formal savings for low-income earners. Promote appropriate credit for assets and investment over consumption. Promote appropriate, affordable, and quality insurance. Increase the financial inclusion impact of social grant distribution. Improve efficiencies in client onboarding for financial services.
Extending access to financial services for SMMEs	Improve access to credit by developing credit infrastructure for small firms. Broaden the range of financial instruments available to SMMEs. Use of transaction accounts and payment services by SMMEs. Suitable insurance for SMMEs.
Leveraging a more diversified provider and distribution base	Strengthening financial cooperatives and the developmental microfinance sector. Examine the role of the state in supporting sustainable financial inclusion. Enable a broad base of agents to provide financial services. Leverage fintech disruptors to promote and support financial inclusion.

Source: South African Treasury (2020:2-7)

It is clear from Table 2.5 that South Africa has set clear policies focusing on individuals, SMMEs, and a broader distribution base to ensure the goal of financial inclusion. The clear priorities provide a sense of focus on tackling the problem of financial exclusion. The South African Draft National Financial Inclusion Strategy, published by the South African Treasury (2020:13), further identifies the following five product categories to meet South Africa's basic financial needs:

- Transactional accounts – appropriate, affordable, and usable
- Remittances – accessible and interoperable
- Savings – appropriate and accessible
- Insurance – appropriate, accessible, and usable
- Credit – appropriate and aiding wealth creation

The identification and definition of desired product characteristics are aimed at meeting the financial needs of South Africans. This provides clarity and a sense of focus on the financial products that will enable the achievement of financial inclusion. Additionally, the policy document, as summarised in Table 2.6, provides details regarding the strategies to promote financial inclusion and the measurement bases of financial inclusion that each pillar affects.

TABLE 2.6: SOUTH AFRICAN FINANCIAL INCLUSION FOCAL AREAS

Strategic focal areas to promote financial inclusion	Measurement bases
Demand side	
Promote financial inclusion through financial education.	Usage
Collect and monitor data on financial inclusion to monitor progress.	Usage, Access, Quality
Supply side	
Support technological innovation that enables financial inclusion.	Access, Usage
Support small FSPs who typically serve lower-income clients with simple and affordable products.	Access, Usage
Promote the supply of appropriate financial products and services to SMMEs.	Usage, Access, Quality
Regulatory environment	
Create a regulatory and supervisory framework that promotes financial inclusion.	Usage, Access, Quality
Effectively cooperate with other stakeholders and participate in broader financial inclusion initiatives.	Usage, Access, Quality

Source: FSCA (2021:19)

Based on Table 2.6, financial inclusion in South Africa is anchored on identified product categories and on enhancing the access, usage, and quality of financial services. Since this study also focuses on Zimbabwe, a review of the Zimbabwe financial inclusion policy framework is also important.

Zimbabwe has fully embraced the concept of financial inclusion through the commitments in the Maya Declaration to assert financial inclusion targets and timelines, the implementation of policy changes, and sharing of regular updates (Abel *et al.,* 2018:2). For Zimbabwe, the RBZ (2016-2020) identifies core enablers of financial inclusion as financial innovation, financial capability, financial consumer protection, and microfinance (RBZ, 2015:17). According to the RBZ (2015:17-19), definitions of the four pillars are provided; of these, financial innovation is defined as seeking to improve access to financial services by leveraging on advancements in information technology and developing suitable financial products for varied financial clients. According to Frame and White (2002:3), a financial innovation represents something new that reduces costs, reduces risks, or provides an improved

product/service/instrument that better satisfies the demands of clients. Financial capability is defined as financial literacy programmes that enable clients of financial services to acquire knowledge, skills, attitudes, and behaviours that promote awareness of financial opportunities, thereby facilitating informed choices in line with clients' circumstances (RBZ, 2015:17-19; Sherraden, 2013:1). Financial consumer protection is defined as the promotion of clients' trust and confidence in the financial system including stimulating healthy competition, responsible pricing, better products, pricing transparency, and minimal exploitation by FSPs (RBZ, 2015:17-19). The concept of consumer protection is therefore related to laws and regulations that ensure fair interaction between FSPs and clients (Ardic, Ibrahim & Mylenko, 2011:2). Microfinance is defined as financing that is targeted at low-income households and MSMEs (bottom of the pyramid) (RBZ, 2015:17-19).

Financial inclusion is also identified in the Zimbabwean Government's strategic plan, the National Development Strategy 1 (2021–2025), as a critical catalyst in promoting inclusive economic growth and achieving the country's vision of a prosperous and empowered upper-middle-income society by 2030 (Zimbabwe Government, 2020: iv). The Reserve Bank of Zimbabwe published the Financial Inclusion Journey (2016-2020) report to review the National Financial Inclusion Strategy (2016-2020), while the second phase of this strategy (NFIS2) is currently at the drafting stage with stakeholder engagement underway (RBZ, 2021).

The Zimbabwe fintech ecosystem study (FSD Africa, 2020) highlights opportunities for financial inclusion in remittances and international money transfers, MSME lending, data analytics and credit scoring, digital savings, small-ticket lending, agricultural and smallholder finance, alternative financing models for lending to women, stablecoins, capital markets, and technology regulation. Product innovation was identified as central to financial inclusion in Zimbabwe, as it is the tangible benefit or product that clients enjoy. Therefore, FSPs need to redesign their products to enhance uptake, especially among low-income groups and currently underserved communities (RBZ, 2015:17-18).

Having discussed the financial inclusion policy frameworks of the two countries, a comparison of South Africa and Zimbabwe on some key financial inclusion indicators is presented next.

2.8.3.2 Key financial inclusion indicators in South Africa and Zimbabwe

A comparison of South Africa's and Zimbabwe's key financial inclusion indicators is presented to provide a platform for further comparison of the two countries. Table 2.7 details some key indicators.

TABLE 2.7: A COMPARISON OF SOUTH AFRICA AND ZIMBABWE ON OVERALL FINANCIAL INCLUSION INDICATORS

Indicator/Measure	South Arica	Zimbabwe
Banked population (%)	77	30
Other formal inclusion (non-bank) (%)	12	39
Informal inclusion (%)	3	8
Excluded (%)	8	23
Uptake of mobile money (%)	26	47

Source: Compiled from the Finmark Trust report (Finmark Trust, 2018)

Table 2.7, showing statistics from the Finmark Trust report (Finmark Trust, 2018), depicts that South Africa's financial inclusion index in terms of the banked population is 77%, which is significantly higher than that of Zimbabwe (30%). If non-bank formal inclusion is taken into consideration, South Africa has a higher financial inclusion index of 89% compared to Zimbabwe's 69%. This indicates that a larger proportion of Zimbabwe's population (39%) is included through non-bank formal means compared to South Africa's 12%. A higher proportion of Zimbabweans (8%) is included in the informal sector compared to South Africa (3%). Zimbabwe also surpasses South Africa in terms of mobile money uptake, with 47% compared to South Africa's 26%.

Selected statistical data on measuring financial inclusion were accessed from the World Bank Statistical DataBank (World Bank, 2017b), as discussed in Section 2.6, and are used in this section to provide a summarised comparison between South Africa and Zimbabwe. The comparison is by and large based on a single source, the

Global Findex 2017 report, as this report is the most comprehensive tool available to measure progress in terms of financial inclusion, and is the only source of data to support country comparisons at international and regional levels (Carballo, 2017:3). Based on available data from the Global Findex 2017 report, South Africa and Zimbabwe compare as follows regarding financial inclusion aspects:

- **Account ownership:** South Africa ranks more favourably than Zimbabwe on all indicators related to account ownership. With a 69.2% account ownership rate among adults aged 15 and older, South Africa outperforms Zimbabwe, which has a rate of 55.3%. Although ranked lower than South Africa (71.2%) on overall account ownership, Zimbabwe (65.2%) scores higher than South Africa on account ownership among adults who have at least a secondary education. South Africa's lowest score among measured parameters of account ownership is 62.6% for account ownership among the poorest 40% of the population, while Zimbabwe ranks even lower at 42.3% on the same parameter. However, according to Finmark Trust statistics (Finmark Trust, 2018), South Africa has a total banked population of 77%, compared to Zimbabwe's 30%.
- **Debit card ownership:** South Africa, with an overall debit card ownership among adults aged 15 and above of 34.1%, ranks better than Zimbabwe (21.9%) on all financial inclusion measures related to debit card ownership. Of parameters measured under account ownership, both South Africa (39.9%) and Zimbabwe (31%) score highest in the aspect of debit card ownership among the wealthiest 60% of the population aged 15 years and above.
- **Using a debit card:** South Africa overall performs better than Zimbabwe on measured parameters related to having used a debit card to access an account, and in terms of having used the internet to pay bills or buy something online, thus implying that South Africa's citizens are more active regarding online payments and e-commerce activities. However, Zimbabwe performs better than South Africa in terms of financial inclusion related to having used a mobile phone or the internet to access an account.
- **Financial institution account ownership:** Zimbabwe (70.1%) performs better than South Africa (67.8%) in terms of deposits made in the past year to a financial institution account by individuals aged 15 years and above. However,

South Africa performs better than Zimbabwe on all other parameters of financial institution account ownership, such as financial institution account ownership among the poorest 45% of the population aged 15 years and above, where South Africa has 61.2% inclusion against Zimbabwe's 13.2%.

- **Digital payments:** Zimbabwe (49.2%) performs better than South Africa (43.1%) in terms of digital payments made by individuals aged 15 years and above in the past year. Overall, Zimbabwe scores better than South Africa in digital payments. However, South Africa (42.1%) marginally performs better than Zimbabwe (41.5%) in only one aspect, that is, having made digital payments in the past year among rural individuals aged 15 years and above.
- **Main source of emergency funds:** The main source of emergency funds for South Africans is funds from financial institutions, whereas for Zimbabweans, it is largely funds from work and other sources of income. This suggests that South Africa has a more functional financial system, which citizens and businesses rely on in emergencies.
- **Ownership of a mobile account:** Zimbabwe performs better than South Africa in all aspects related to ownership of a mobile money account. Overall ownership of a mobile money account among individuals aged 15 years and above was 48.6% for Zimbabwe and 19% for South Africa in 2017. Ownership of a mobile money account is lowest for South Africa, at 8.7% among those aged 15 years and above, and those who are out of the labour force, while it is 40.2% Zimbabwe.
- **Reasons for not having an account:** There are mixed financial inclusion ratings between Zimbabwe and South Africa on aspects related to reasons for not having an account, as well as the absence of any deposit or withdrawal in the past year. South Africa, however, is rated highly on most parameters, indicating that the majority of South Africans have reasons for not having an account, or not making a deposit or a withdrawal in the past year of measurement.
- **Payment of utility bills:** Overall, South Africa scores 46.6% and Zimbabwe 26.9% on payment of utility bills in the past year by citizens aged 15 years and above. South Africa performs better on most measures related to payment of

utility bills, especially via financial institutions and cash. However, Zimbabwe surpasses South Africa in all financial inclusion related to paying utility bills using a mobile phone. The proportion of females aged 15 and above who have paid utility bills in both Zimbabwe and South Africa, at 44.7% and 25.8% respectively, is lower than that of their male counterparts, at 48.6% and 28.2%, respectively.

- **Receiving a public sector pension:** South Africa performs better than Zimbabwe on all inclusion aspects related to receiving a public sector pension in the past year. As expected, the proportion of the wealthy 60% of the population who received a pension in South Africa was 17.7%, which is lower than the 21.6% proportion of the 40% poorest citizens who did.
- **Receiving digital payments:** South Africa performs better than Zimbabwe on all measured parameters regarding the receiving of digital payments. Overall, South Africa scores 48.8% on receiving digital payments in the past year among citizens aged 15 years and above. In South Africa, receiving digital payments is higher among females (52.7%) than males aged 15 years and above (44.6%), while the opposite is true for Zimbabwe, with an inclusion rating of 36.3% for females and 42.3% for males. Receiving digital payments in the past year among the youth aged 15 to 24 was higher in South Africa (44.7%) than in Zimbabwe (32.6%).
- **Receiving domestic remittances:** Overall, Zimbabwe (45.7%) scores higher than South Africa (38.3%) in terms of received domestic remittances in the past year. Zimbabwe scores higher than South Africa on most measured parameters, with the highest score for Zimbabwe (76.2%) being on received remittances through mobile phones among recipients aged 15 years and above, compared to South Africa's 39.6%. South Africa, however, performs better than Zimbabwe in other aspects, such as receiving domestic remittances in the past year through a financial institution, with 56% compared to Zimbabwe's 16.3%.
- **Sending or receiving domestic remittances:** On parameters related to sending or receiving domestic remittances, Zimbabwe scores higher than South Africa at 32.6% against 29.8% inclusion. However, there are mixed ratings

among the two countries on the different parameters measured, with South Africa emerging stronger on a few of those parameters related to having sent or received domestic remittances through a financial institution or a money transfer service.

- **Receiving government payments:** South African citizens are generally more included than Zimbabwean citizens in parameters related to receiving government payments. Overall, 36.1% of South Africans aged 15 years and above have received some government payment in the past year, compared to Zimbabwe's 15.1%. However, Zimbabwe (16.2%) scores higher than South Africa (12.8%) on received government transfers through a mobile phone for citizens aged 15 years and above, as well as on a few other parameters.
- **Receiving payments for agricultural products:** In terms of receiving payments for agricultural products, Zimbabwe scores higher than South Africa on all measured parameters. The overall score for Zimbabwe on received payments for agricultural products in the past year for citizens aged 15 years and above is 18.8%, compared to South Africa's 2.9%.
- **Receiving payments from self-employment:** Zimbabwe performs better than South Africa on most parameters related to receiving payments from self-employment. However, South Africa performs better than Zimbabwe on a few parameters, including having received payments from self-employment into an account.
- **Receiving wages:** Generally, South Africa scores much better than Zimbabwe on parameters related to receiving wages. Zimbabwe outperforms South Africa in only a few parameters, mainly related to receiving private sector and public sector wages in cash and via mobile phones.
- **Saving money:** Overall, South Africa (59.3%) scores better than Zimbabwe (53.6%) in terms of citizens having saved some money in the past year among those aged 15 years and above. South Africa outperforms Zimbabwe on all parameters related to having saved money in general, and having saved using a savings club or a person outside the family. However, Zimbabwe overall performs better than South Africa in all aspects related to having saved to start, operate, or expand a farm or business.

Based on the previous discussion, South Africa overall performs better than Zimbabwe in terms of financial inclusion. South Africa is specifically rated better than Zimbabwe on financial inclusion parameters related to account ownership, debit card ownership, debit card use, payment of utility bills, receipt of public sector pension, receiving digital payments, receiving government payments, receiving wages, and saving money. Zimbabwe was rated better than South Africa on financial inclusion indicators related to account ownership at a financial institution, digital payments, ownership of mobile accounts, receiving domestic remittances, receiving payments for agricultural products, and receiving payments for self-employment.

2.9 FINANCIAL INCLUSION OF WOMEN AND YOUTH

In addition to the statistics provided in the preceding sections regarding the financial inclusion of women and youth, it is important to examine their specifics, as these groups were the focus of this study. Women generally continue to have poorer access to financial services than men, and the gender gap in accessing formal financial services is significant, especially in developing economies (Anyangwe *et al.,* 2022:6; Cabeza-García *et al.,* 2019:1). The environment, including culture and social norms, needs to be conducive for women's access and control over resources, as improving their ability to access financial products and services could enhance women's financial inclusion (ACET, 2019:5). Generally, when women participate in the financial system, the inequality gap decreases, thereby enabling higher economic development, thus increasing general societal well-being (Cabeza-García *et al.,* 2019:1).

Young people, regardless of their socioeconomic, demographic, or geographical situations, face some degree of difficulty or uncertainty as they grow into adulthood. However, the situation for those in developing countries is most difficult and particularly grave for adolescent girls and young women (UNCDF, 2020:1). The AIDS pandemic has also worsened the situation for youth in sub-Saharan Africa as it has orphaned a significant proportion of this age group (UNCDF, 2020:1). In Africa, generally, governments have failed to craft reforms to bolster youth financial capabilities and help them with income generating activities and gain access to the capital they need to succeed (ACET, 2019:2). Women and youth face an array of challenges and barriers in accessing financial services. Table 2.8 summarises the key issues causing the financial exclusion of women and youth.

TABLE 2.8: KEY ISSUES LEADING TO FINANCIAL EXCLUSION AMONG WOMEN AND YOUTH

	Women issues	Youth issues
1	Cultural barriers to owning and inheriting property and other collateral	Lack of steady, stable income
2	Reduced mobility due to social norms	Negative stereotypes about financial ability and discipline
3	Digital and financial illiteracy	Low financial capacity
4	Lower mobile penetration and ownership rates due to household power structures	Cost of ownership of mobile devices
5		High transaction costs
Issues affecting both women and youth		
1	Stringent account opening requirements that require formal identification.	
2	Lack of assets for collateral.	
3	Inappropriate and mass market product offerings that fail to consider their needs.	
4	Physical and digital infrastructure are underdeveloped and do not support an inclusive financial system.	
5	A poor culture of disaggregating gender and age category data constrains the development of targeted strategies.	
6	Underdeveloped provider systems and processes.	
7	Prohibitively high minimum capital requirements for establishing financial services businesses.	
8	Barriers to obtaining formal identification.	

Source: ACET (2019:9)

Researchers, policymakers, and development practitioners agree that failing to address the financial exclusion of women and youth represents a loss of output and potential, as well as specifically undermines young people's lifetime productivity and earnings, thereby exposing them to poverty (ACET, 2019:2).

2.10 CHAPTER SUMMARY

Prior literature has been published on the topic of financial inclusion. This chapter has put into perspective the literature related to the definition of financial inclusion, theories of financial inclusion, and the importance of financial inclusion to different

stakeholders. The determinants of financial inclusion were also discussed. The different measurement bases for financial inclusion were presented. Finally, the financial inclusion contexts globally and in Africa were discussed. The chapter concluded with an in-depth comparison of South Africa and Zimbabwe on the various measurable parameters of financial inclusion.

As discussed herein, the concept of financial inclusion is generally related to aspects of access, usage, and quality of financial services. Financial inclusion has been recognised as imperative for achieving national and international development objectives. It is also of benefit to economies, consumers, firms, governments, and regulators. It has been noted that specific ratios, metrics, or indicators related to access, usage, quality, and the impact of financial services have been developed to measure financial inclusion. Such measures can be used to consider financial inclusion situations or as part of country comparisons in terms of financial inclusion levels. Demand- and supply-side barriers to financial inclusion need to be overcome if financial inclusion objectives are to be met. Overall, levels of financial exclusion remain high in the world and in Africa. South Africa performs better than Zimbabwe in most aspects of financial inclusion measurement, thereby implying that financial inclusion is higher in South Africa than in Zimbabwe. However, gaps in financial inclusion still exist, particularly among the two groups that are the focus of this study, namely women and youth, hence the need to explore ways to reduce these gaps.

Although this chapter explored the concept of financial inclusion, it is important to recap the primary objective of this study, which was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe. Specifically, one of the secondary objectives (SO_1) was to conduct a detailed review of the literature related to digital banking and financial inclusion in general, as well as specifically in South Africa and Zimbabwe, to identify possible aspects influencing financial inclusion. To fulfil this objective, and having done an in-depth review of the concept of financial inclusion, the focus now turns to discussing the concept of digital banking; therefore, Chapter 3 comprises a literature review related to the concept of digital banking.

CHAPTER THREE

AN OVERVIEW OF DIGITAL BANKING

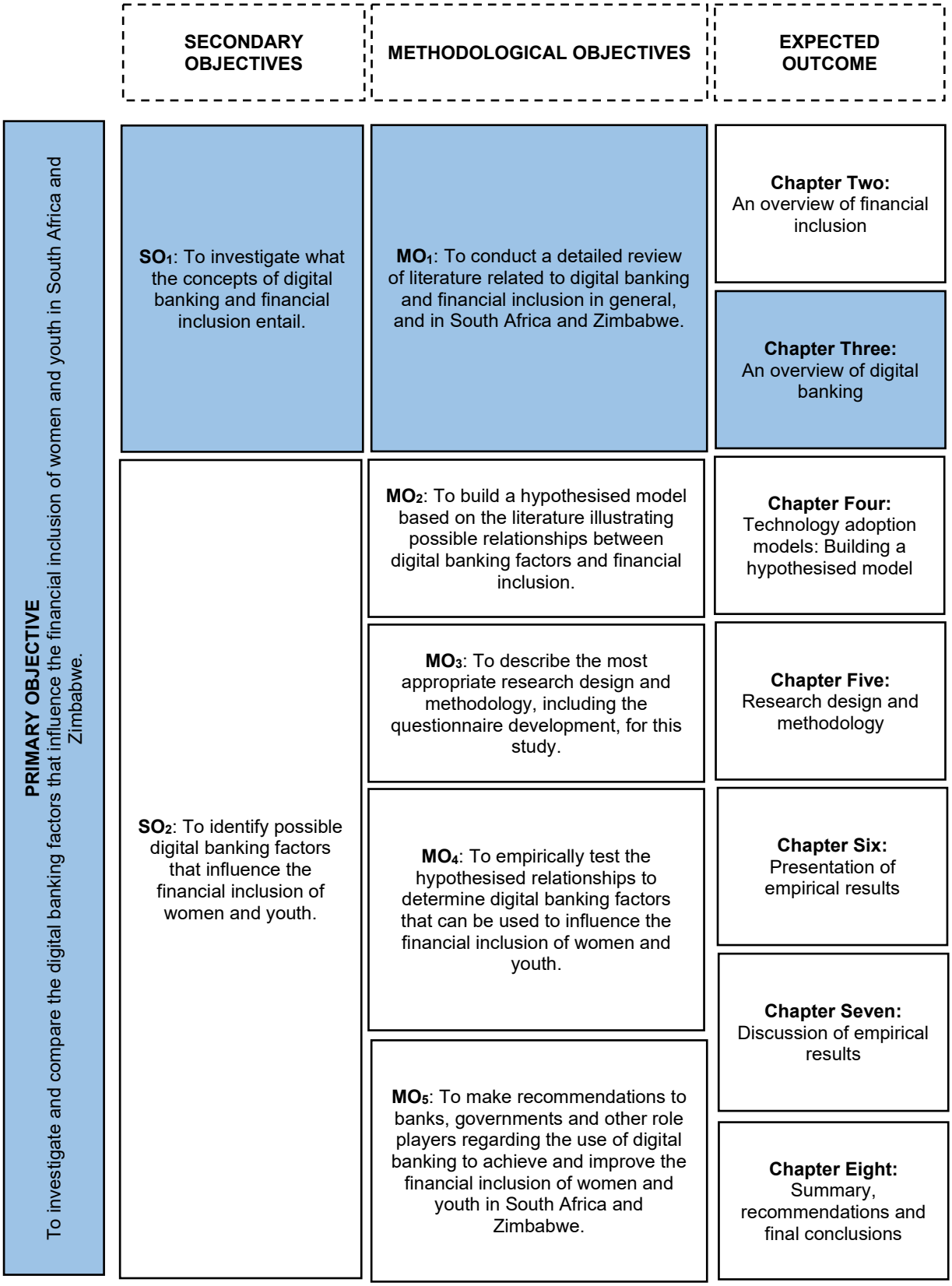
3.1 INTRODUCTION

The study focused on financial inclusion and digital banking. In particular, the primary objective of the study was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe. Chapter 2 partly addressed the first secondary objective (SO_1) by elaborating what financial inclusion entails. It also partly addressed the first methodological objective (MO_1) through a detailed review of the literature on the concept of financial inclusion. This entailed a discussion on theories of financial inclusion, the importance of financial inclusion, determinants of financial inclusion, measuring financial inclusion, and barriers to financial inclusion. The chapter also discussed financial inclusion in the global and African contexts before comparing South Africa's and Zimbabwe's focus on financial inclusion.

Having discussed financial inclusion in Chapter 2, Chapter 3 aims to complete the attainment of SO_1, that is, to identify what the concept of digital banking entails. It also fully answers MO_1 of the study by conducting a detailed review of the literature concerning digital banking. The chapter provides a literature review starting with the definition and scope of digital banking. Further, the chapter discusses digital banking channels, digital disruption in the banking industry, and the benefits and challenges associated with digital banking. The chapter also discusses the digital banking situation in South Africa and Zimbabwe before concluding with a summary of the chapter.

Figure 3.1 places Chapter 3 within the overall framework for this study.

FIGURE 3.1: CHAPTER 3 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

3.2 DEFINITION AND SCOPE OF DIGITAL BANKING

The use of technology in business is generally increasing. With the rapid technological advances and the rise in digitalisation of business processes in both financial and non-financial services industries, the physical and digital environments are fast converging. This increased use of digital technologies has led to the development of more digitised business models, creating numerous innovative products and services, also in the financial services industry (Jünger & Mietzner, 2019:2; Sardana & Singhania, 2018:28).

Overall, banking institutions have been compelled to integrate technology into their operations to ensure financial stability and gain a competitive advantage (Afshan & Sharif, 2016:370; Oliveira, Thomas & Espadanal, 2014:497, 507). The inclusion of digital technology into the banking sector has brought about a paradigm shift in banking, thereby creating what is known as digital banking (Sardana & Singhania, 2018:28).

Digital financial services encompass a broad range of financial services accessed and delivered through digital channels, including payments, credit, savings, remittances, and insurance, as well as those accessible via online and mobile methods (AFI, 2016:3). Digital banking is a key component of digital financial services. In a broad sense, digital banking refers to the use of technology to conduct banking transactions (Sardana & Singhania, 2018:28). Digital banking can also be defined as the delivery of banking products and services to clients through electronic channels (AFI, 2018:3; Rajan & Saranya, 2018:306). According to Dubey and Sharma (2022:504), digital banking is a synonym for the commonly used term ‘e-banking’ and refers to a system that enables banking transactions, such as payments, deposits, and withdrawals of cash virtually via the internet rather than physically visiting the bank (Dubey & Sharma, 2022:504).

Digital banking, also known as electronic banking, cyber banking, home banking, or virtual banking, includes various banking activities that can be conducted remotely from anywhere (Rajan & Saranya, 2018:306). It includes the provision of banking products and services, such as payments through electronic channels (AFI, 2016:3). Although definitions are broad, digital banking involves offering banking services via

the internet using digital technology platforms, also referred to as alternative delivery channels, which include mobile devices like smartphones and tablets. These alternative delivery channels denote a broader range of options that enable clients, FSPs' employees, and other role players to access banking services using technology solutions (O'Keeffe, Bachman & Oyier, 2015:12).

Most banks have invested in digital products and channels, such as ATMs, POS devices, mobile banking applications (apps), and stand-alone agent networks (Denyes, 2019:3; Durai & Stella, 2019:122,127). Additional financial services role players, called fintechs, are topical in the digital banking sphere. This refers to the use of technology and innovative business models in the provision of financial services, where non-bank institutions provide disruptive financial services that can boost financial inclusion (AFI, 2018:3).

As mentioned, digital banking is often used interchangeably with other terms, such as branchless banking, electronic banking, cyber banking, home banking, virtual banking, online banking, and remote electronic banking (Driga & Isac, 2014:51; Fatima, 2017:1; O'Keeffe *et al.,* 2015:12; Rajan & Saranye, 2018:306). According to Driga and Isac (2014:51), digital banking refers to several types of banking services through which clients can request information or execute transactions via technology platforms or channels.

Digital banking is a component of digital financial services. Digital channels are therefore at the core of the definition of digital banking. According to Rudakova and Markova (2020:21), there is a growing demand from bank clients for remote services through mobile devices, personal computers (PCs), and other means, which leads to digital banking increasing in importance. For this study, digital banking is defined as the delivery of banking products and services to clients using technology channels, such as ATMs, mobile phones, and the internet, through other devices. It is therefore important to discuss digital banking channels further.

3.3 DIGITAL BANKING CHANNELS

Digital banking occurs through what are referred to as channels. This section provides an overview of digital banking channels, followed by an in-depth discussion of the

various types of channels, and ends with an overview of the digital banking technology architecture.

3.3.1 Overview of digital banking channels

Digital banking is possible using various digital banking platforms or channels. Digital banking channels refers to consumer access points to a financial services provider (FSP), where the client interacts to access financial services (Koblanck, 2015:12). A bank branch is termed a traditional or conventional channel where clients access services at a physical location (Driga & Isac, 2014: 50; Kitsios, Giatsidis & Kamariotou, 2021:2; Koblanck, 2015:12). Traditional banking channels include operating expensive brick and mortar networks, maintaining outdated core technologies, and relying on costly and time-consuming human and paper processes (Pazarbasioglu *et al.,* 2020:4). These processes are costly, which make small transactions and maintaining small balances unprofitable for banks. The physical banking branch as a channel has been threatened by the advancement of technology, where alternative channels now exist to provide a broader range of options through which clients can access financial services without the need to visit a bank branch (Driga & Isac, 2014:50; Fatima, 2017:1-2; Koblanck, 2015:12). As a result, the importance of brick-and-mortar facilities for banks has significantly decreased (Sanmath, 2018:173).

Alternative channels can now be used for banking purposes, such as the internet, via mobile phones, ATMs, POS machines, NFC-enabled devices, electronic chips, electronically enabled cards, biometric devices, tablets, phablets, and other digital systems (AFI, 2016:3; Fatima, 2017:2; Lesjak, 2019:111). The various digital banking channels can be accessed through different devices, technology applications, communication modes, and by using different technical authentication modes to perform banking functionalities. The various digital banking channels are part of alternative delivery channels, which denote a broader range of options that enable clients, bank employees and agents to access banking services through technology solutions that are built either on web or mobile channels (O'Keeffe *et al.,* 2015:12). The technology solutions are connected to a core banking system of an FSP (Koblanck, 2015:12).

From a technology perspective, a digital banking channel is the aggregation of four components, which are a physical device, an application running on the device, a communication channel used to exchange data between the device and the FSP's host system, and an authentication mode used to confirm the identity of the user of the channel (Koblanck, 2015:16).

3.3.2 Types of digital banking channels

Digital banking channels include ATMs, telephone banking, personal computer (PC) banking, internet banking, mobile banking, and POS machines. ATMs were the first known machines to provide electronic access for bank clients (Sardana & Singhania, 2018:29) and are defined as bank machines in public spaces that enable clients to access banking services without the need for a bank employee (Nazaritehrani & Mashali, 2020:6). Basic ATMs allow clients to perform services, such as withdrawals, balance inquiry, while more complex ATMs also allow for bank passbook printing, cash deposits, and credit applications (Sardana & Singhania, 2018:29).

Telephone banking, also sometimes called home banking, refers to the practice of using phone calls, client passwords, and personal codes to conduct banking transactions from home rather than branch locations (Driga & Isac, 2014:52). This channel allows bank clients to accomplish some transactions via telephone (Nazaritehrani & Mashali, 2020:6), thereby allowing bank clients to conduct different transactions through a dial-up modem connection to a phone network (Driga & Isac, 2014:53; Sardana & Singhania, 2018:29). Such a channel however involves complex installation procedures and maintenance obligations (Sardana & Singhania, 2018:29).

Driga and Isac (2014:53) define PC banking as a form of banking that enables clients to perform financial transactions using a software program on a computer and via a modem. Internet banking is another digital banking channel, and according to Nazaritehrani and Mashali (2020:6), it is the acquisition of banking services via the internet or the World Wide Web as the delivery channel (Driga & Isac, 2014:53). Internet banking is also referred to as online banking, web banking, or virtual banking and is a development and improvement of PC banking (Sardana & Singhania, 2018:28). Services that can be offered through internet banking include, but are not limited to, providing information about products and services, communicating with

clients regarding loan balances and applications, making bill payments, and transferring funds (Driga & Isac, 2014:53; Sardana & Singhania, 2018:29).

Mobile banking is also a digital banking channel and refers to a service provided by FSPs where clients use mobile phone devices to communicate with and give instructions to the bank (Sardana & Singhania, 2018:29). A significant number of transactions are conducted via mobile devices (Kitsios *et al.,* 2021:2). Through mobile devices, bank clients can perform bank transactions, such as transferring funds, paying bills, balance inquiries, locate ATMs, or receive information about account activity (Nazaritehrani & Mashali, 2020:6; Sardana & Singhania, 2018:29).

Another digital banking channel relates to the banking cards of consumers. Most bank clients use plastic cards issued by a FSP, and this can be in the form of a credit card, debit card, or smart card (Sardana & Singhania, 2018:29). The cards make it possible for bank clients to make payments on POS machines, provide easy access to credit, among other possible uses (Sardana & Singhania, 2018:29). POS machines have become important for providing access to bank accounts through merchants. Having discussed digital banking channels, it is also vital to explore the devices relevant to digital banking activities.

3.3.3 Digital banking technology architecture

The architecture of digital banking channels relates to components named devices, applications, communications, and authentication. Digital banking devices are the physical objects through which a user interacts with a bank and its services, such as a mobile phone, computer, laptop, tablet, or POS machine (Koblanck, 2015:16-17). According to Lauer and Lyman (2015:2), the device used can be digital, such as a mobile phone, which means it can transmit data and information, or an instrument, such as a payment card that connects to a digital device, such as a POS terminal or ATM. The most used digital banking device is the mobile phone. According to Koblanck (2015:16), a phone can be specifically classified as a basic, feature, or smart phone. Basic phones may do voice, short message services (SMS), and sometimes unstructured supplementary service data (USSD) capabilities, but it has no data and GPRS capabilities, while a feature phone has additional data capabilities. Smartphones have a capacity nearing that of a computer and are suitable for complex

applications or smart apps. Mobile phones, as well as tablets, laptops, and computers generally use different operating systems, with the most widely used being Android (Google), Windows (Microsoft), and iOS (Apple) (Koblanck, 2015:16).

In terms of applications, digital banking solutions can be built on web or mobile channels, which are connected to the core banking system of a FSP (Koblanck, 2015:12). The technical application layer of digital banking channels typically consists of front-end applications and back-office administration modules which are then integrated with core banking systems (Koblanck, 2015:16). Front-end applications include ATM screens, internet banking web portal interfaces, USSD menus, mobile applications (also called mobile apps) and POS applications (Koblanck, 2015:12).

Exchange of financial or non-financial information between an FSP and the client typically occurs over communication channels connecting a device and the back-office component of the channel. Communication channels, applicable to digital banking, identified by Koblanck (2015:16), as well as Driga and Isac (2014:51), are local area network (LAN), wide area network (WAN), internet portals, mobile data, USSD, SMS, interactive voice response (IVR), and NFC.

According to Koblanck (2015:21-23), authentication is also an important component of digital banking channels, addressing one of the most apparent risks of fraud arising from the authentication of clients' or other users' identities. While traditional transactions in branches rely on well-trained employees whose judgement is used to verify clients' identities, transactions initiated on digital channels often require enhanced means of verification. The three most used factors to verify identity are knowledge, possession, and inheritance (Koblanck, 2015:21-23). Knowledge relates to what a client knows, such as a password, pin pattern, secret question, or image, which can be used to authenticate a digital banking user. Possession refers to what a client owns or has, such as a bank card, mobile phone, one-time password (OTP), transaction authentication number (TAN), or physical identity document (ID). Inheritance includes biometrics, such as fingerprints and iris (eye) scans, to verify a client's identity, which is then used to authenticate the client before allowing them to use a digital banking channel.

The various components of digital banking channels are important for them to serve the purpose of delivering banking services to clients. While digital banking channels exist, technology improvements that change the banking landscape are gaining prominence. Therefore, a discussion of digital disruption in the financial services industry follows to provide an understanding of the changes in the industry.

3.4 DIGITAL DISRUPTION IN FINANCIAL SERVICES

Traditional FSPs face disruption as technology firms leverage digital solutions to bring changes to the established financial services industry (Deloitte, 2017:5). Traditional banking relying on brick-and-mortar and old, usually called 'legacy' systems, are changing because of new competitors, hence banks are investing in digitising their services to distinguish themselves from other players entering the banking industry (Wewege, Lee & Thomsett, 2020:17). Digital disruption can be categorised as taking place due to demand-side and supply-side factors (OECD, 2020:9). Demand-side factors are mainly related to changes in consumer expectations, while the supply-side factors influencing digital disruption include technological developments (OECD, 2020:9).

3.4.1 Demand-side disruption

Consumer demands have propelled banking institutions to innovate and provide products and services that meet the ever-changing needs.

3.4.1.1 Greater service expectations

Concerning the demand-side of digital banking disruption, clients using digital banking have greater service expectations, such as real time transactional capabilities, around the clock availability, greater speed and convenience, user friendliness, and general fulfilment of unmet needs (Cuesta, Ruesta, Tuesta & Urbiola, 2015:2; OCD, 2020:9). In a study on customer convenience, Prabhavathi, Dinesh, Ravi and Rao (2021:530:537) highlight that customer behaviours influence technological improvements in banking. The study highlighted the need to achieve customer convenience as a cause for technological changes in the banking sector.

3.4.1.2 Requirements of younger generations

Digital disruption is mainly driven by an intensive use of new technologies, such as digital banking, by the generation born between 1977 and 1994 who are considered technologically knowledgeable due to having been exposed to technology since early childhood (Cuesta *et al.,* 2015:10). According to Pazarbasioglu *et al.* (2020:2), mobile-enabled customers, especially the younger generation, are increasingly demanding more convenient financial services through digital channels. The generation born in the mid-90s to the 2000s is accustomed to an online environment and way of life (Dasho, Meka, Sharko & Baholli, 2016:2). These generations are characterised by a heavy reliance on smartphones and apps, enjoying popular online content, adapting quickly to new changes, and continuously seeking information on the internet and social networks (Dasho *et al.,* 2016:2). Consequently, they expect banks to be responsive to their needs by providing fast, safe, and simple banking products and services.

3.4.1.3 More connected clients

Sunith (2019:22) argues that technology can be used to address the problems faced by customers to make their lives simpler and enhance productivity, allowing them to enjoy the privileges and features offered by digital banking channels. According to KPMG (2019:20), the imperatives for banks are to embed banking within clients' everyday needs, lifestyles, and life stages, which is key to providing and creating financial services that meet clients' instant gratification demands.

Owing to the high penetration of the internet and mobile phones in people's lives, there has been a transformation in clients' habits and preferences as they become accustomed to using digital banking channels (Cuesta *et al.,* 2015:3). This results in demand-side digital disruption. As a result of digital banking, the customer relationship has changed to become more digitised and one-to-one between an FSP and its clients (Skinner, 2014:3).

3.4.1.4 Pandemics and demographics changing banking needs

According to Pazarbasioglu *et al.* (2020: v), the COVID-19 pandemic amplified the benefits of expanding digital financial services. This is because a need arose for a

secure way to do banking remotely at a time when transportation and movement around the world were limited or unsafe. Genesis Analytics and the Financial Sector Conduct Authority (2022:26) and Kreger (2023:1) note how the pandemic intensified the need for accelerated digitisation by banks, given the accelerated adoption of digital financial services amongst bank clients. Kreger (2023:1) cites a survey by McKinsey, in which 71% of clients indicated that the pandemic was an opportunity for businesses to review and upgrade their operations.

People experiencing poverty also require affordable, low-value services that allow them to deal with their meagre incomes with lower margins and fixed costs. Digital banking can be easily delivered and allow for transaction-based pricing, which is suitable for low-income clients (Pazarbasioglu *et al.,* 2020:2).

3.4.2 Supply-side disruption

Most digital banking disruption developments are on the supply side. This supply-side disruption involves technology firms and start-ups rapidly expanding their activities into financial services (Dasho *et al.,* 2016:2). The technology firms expand their activities through continuous innovation, competition, or collaboration with banks in various segments, such as e-commerce, that do not require a banking licence. Notable supply-side technological developments that have disrupted the banking industry include fintechs, Big Tech firms, and platform ecosystems, open application programming interfaces (APIs), cloud computing, artificial intelligence (AI), machine learning, blockchain, cryptocurrencies, digital IDs and biometrics, chatbots and robotics, 5G and the Internet of Things (Dasho *et al.,* 2016:2).

3.4.2.1 Fintechs

New firms, known as fintechs, have emerged in the digital banking sector. Fintech is a contraction of the term ‘financial technology’. It is defined as the use of technology and innovative business models in the provision of financial services, where non-bank institutions provide financial services (AFI, 2018:3). According to Cuesta *et al.* (2015:2) and Pazarbasioglu *et al.* (2020:1), a fintech business is a new kind of entrant in the financial services industry that unbundles the value chain of FSPs by specialising in different components, such as payments, foreign exchange, lending, access to capital markets, and financial advisory services.

Fintechs have the potential to accelerate the provision of completely redefined business models, such as crowd funding platforms and virtual currencies, which have eliminated the need for bank intermediation (Cuesta *et al.*, 2015:2). The success of Fintechs is mainly attributed to their high flexibility, swift incorporation of change, and their generally low-cost structure compared to traditional banks (Cuesta *et al.*, 2015:2). Additionally, digital-only banks have also emerged since 2011 (BPC & Fincog, 2021:2). Digital-only banks offer banking services exclusively on digital channels; approximately 450 such banks exist worldwide, with this number rapidly increasing (BPC & Fincog, 2021:2).

3.4.2.2 Big Tech firms and platform ecosystems

'Big Tech' firms are large firms with established technology platforms and user bases (Pazarbasioglu, 2020:1). The possibility of a Big Tech firm entering the banking industry on a more sizeable scale has raised some alarm among existing players given the repository of data that such large tech firms hold (Goga, 2020:18). According to Goga (2020:16), the international technology firms, commonly referred to as 'big tech', are entering the financial services industry because of a combination of demand-side factors, such as customer preferences (see previous section) and other factors, such as technological sophistication, access to large data sets, access to funding, lack of regulation, and limited competition.

Platform ecosystems exist where big tech firms in social media, e-commerce and vehicle rental services have enabled business models and offer digital financial services by leveraging large user bases and scalable economies (Pazarbasioglu *et.al.* 2020:2; World Bank, 2022:17). In this light, major internet firms, such as Apple, Google, Amazon, and Alibaba have thus made inroads into the financial service industry by offering services mainly in the areas of payments and lending (Cuesta *et al.,* 2015:3). Such big tech entrants into the financial services industry include firms with brands and applications, such as Alibaba's Alipay, Tencent's range of financial services, Apple's Apple Pay, Facebook's Facebook Pay, Google's Google Pay, and Amazon's partnership with Synchrony Bank to offer financial services. These firms leverage the connectivity of individuals and firms, and the ability to quickly collaborate on technology platforms, discover technology counterparties, and deliver services to clients (World Bank, 2022:17). Boot, Hoffmann, Laeven and Ratnovski (2020:11)

argue that big tech firms have the informational capacity to compete, and possibly even outperform banks in financial services provision.

3.4.2.3 Open application programming interfaces

Open application programming interfaces (APIs) allow for different systems to exchange consumer data and instructions (Pazarbasioglu *et al.,* 2020:2). APIs have become a standard for data sharing in open banking applications, allowing third parties to access client data with the client's consent (Accenture, 2019:20; OECD, 2020:9). In the financial services industry, open APIs have simplified innovation in digital banking, making it convenient and cost-effective by encouraging partnerships between banks and other technology firms (Mothibi & Rahulani, 2021:6).

Open APIs allow third parties to develop new and complementary services to the core banking applications. Open APIs can complement core banking applications with application store-based services that allow third parties to offer services directly to FSPs' clients (Gasser, Gassman, Hens, Leifer, Puschmann & Zhao, 2017:13). APIs enable software applications to share data and functionality, thereby reducing switching costs through readily available, technology-driven financial services that help clients compare product and service offers (OECD, 2020:9). APIs, however, if not securely managed, also give rise to risks, such as data breaches and compromised networks, which can endanger the stability of financial markets (OECD, 2020:9).

3.4.2.4 Cloud computing

Digital banking has also been positively impacted by ubiquitous connectivity and scalable computing, thereby enabling the development of what is called cloud computing (World Bank, 2022:17). According to OECD (2020:9), cloud computing refers to the practice of using a network of remote servers, typically accessed over the internet, for the provision of information technology services and for the storage and sharing of data. The benefits of cloud computing mainly relate to speed and the ability to innovate (Accenture, 2019:21). The ability of banks to source information technology infrastructure through cloud services significantly lowers the barriers to entry for new FSPs, in addition to lowering information technology costs for existing players (Accenture, 2019:21; Boot *et al.,* 2020:13). As a result of the perceived benefits of cloud services, firms across all sectors, including the financial services

industry, are no longer asking if they should “move to the cloud” but rather now focus on “how they should get there” (Accenture, 2019:21), in other words, deciding on which cloud computing network they should use. FSPs are compelled to move to cloud computing mainly because of the ability to quickly introduce new services in an agile and cost-efficient manner, thereby enhancing efficiencies and profitability (Deutsche Bundesbank, 2021:51).

By leveraging cloud services, the consumer data generated on digital banking channels has enabled innovations for credit, insurance, and savings that can be accessed through a ‘super-app’ (OECD, 2020:9). Using new cloud services, e-commerce providers, such as Amazon, Alibaba, and Mercado Libre provide credit to firms selling on their channels based on an analysis of merchant cashflows, inventories, and compliance ratings (Pazarbasioglu *et al.,* 2020:2).

The practice of cloud computing, therefore, is a catalyst for the digital transformation of banks and a game changer for how banks operate, deploy products, and serve clients (Mothibi & Rahulani, 2021:6). Going forward, cloud computing will remove the hardware burden of data storage and processing, thereby allowing FSPs to provide clients with improved data processing capabilities accessible from any internet-enabled device. Cloud computing, however, can pose cyber-related risks, such as data security breaches, hence the need for frameworks and standards for its use (OECD, 2020:9).

3.4.2.5 Artificial intelligence (AI)

Among some of the developments aiding disruption, the payment and transactional aspects of banking, which rely on information processing, have been affected by tools available to process the information (OECD, 2020:9). Such tools include AI, using mainly ‘Big Data’ (OECD, 2020:9). AI refers to the use of computer systems to perform tasks traditionally requiring human intelligence, such as via machine-learning focused on replicating human intelligence in decision-making processes through machines, computers, or other such devices (Deutsche Bundesbank, 2021:57). Digital banks are combining robotic process automation (RPA) and AI technologies to drive rapid end-to-end business process automation, personalise customer experiences, and accelerate digital transformation (Mothibi & Rahulani, 2021:6). AI is capable of

automating tasks that require human intelligence, thereby resulting in the transformation of customer service, analysis of voluminous data, and enhancing security of digital banking channels (KPMG, 2019:10). Additionally, what is called quantum computing, which is technology that enables processing of vast volumes of data, is thereby supporting AI and machine learning (ML) efforts to achieve the goal of automating previously manual banking tasks (KPMG, 2019:10).

Chatbots and robot advisory services have also gained prominence in the digital banking space. Chatbots are software that use natural language processing and ML to learn uninterruptedly from human interactions (Sanmath, 2018:173). Banking institutions are leveraging chatbots to drive sales and resolve customer queries efficiently (Mothibi & Rahulani, 2021:6). FSPs deploy chatbots to serve clients without the need for physical human interventions to perform functionalities, such as handling queries, directing interactions to relevant departments, providing relevant banking advice, and scanning customer emails for trading instructions (Sanmath, 2018:173). Chatbots assist banks in improving customer satisfaction, reducing transactional costs and freeing bank service employees to focus on other tasks that add value (Sanmath, 2018:173).

AI can be deployed in the financial services industry in both front- and back-office settings, where these technologies can replace the systems used to assess and rate risks (Deutsche Bundesbank, 2021:57). Most banks aim to identify fraudulent transactions using a combination of software that generates alerts coupled with human investigations. Challenges, such as increased sophistication, the possibility of data loss, and diminishing client confidence, have led to the adoption of data aggregation. AI-driven process automation has resulted in new efficiencies, enabling FSPs to address challenges (Sanmath, 2018:173). AI can also leverage historical records to determine patterns and predict the possibility of fraud before it occurs (Sanmath, 2018:173).

3.4.2.6 Blockchain and cryptocurrencies

Blockchain technology is one of the most significant innovations of the 21st century, with ripple effects on manufacturing, education, financial services, and other industries (Goundar, 2020: xiii). Blockchain is a type of distributed ledger technology and refers

to the recording, decentralising, and sharing of data across multiple data stores, called ledgers (Houben & Snyers, 2018:15; KPMG, 2019:10). Each ledger has the same data records, which are collectively maintained and controlled by a distributed network of computer servers, called nodes (Houben & Snyers, 2018:15; KPMG, 2019:10). Blockchain is therefore a 'distributed database' where additions are initiated by one of the members (network nodes) who create a 'block' of data which contains information. Transactions are signed with digital signatures using private keys (Houben & Snyers, 2018:16). Additionally, blockchain allows transactions to be settled immediately, with everyone involved being able to see the transaction on the distributed ledger (Gasser *et al.,* 2017:13). This has disrupted the financial service industry as new conveniences, transparency, and efficiency capabilities are realised by FSPs when using blockchain technology.

According to Houben and Snyers (2018:20), cryptocurrencies, such as Bitcoin, are a virtual currency or digital money used and accepted among members of a virtual community. Cryptocurrencies are created using blockchain technology. Cryptocurrencies do not exist physically but can be converted to any popular physical currency (Goundar, 2020:x11). The advent of cryptocurrencies has disrupted the financial services industry, which has traditionally relied on physical currencies.

According to Goundar (2020:ix), blockchain technology is claimed to be as disruptive as the internet itself. Blockchain technology has the potential to provide a fast, cost-effective, error-free, and highly reliable alternative to traditional databases in the financial services industry (Deloitte, 2017:5; Sanmath, 2018:174). Additionally, blockchain technology has the capability to ensure that historic transactions cannot be altered, thereby forcing transparency across all firms that serve clients (World Bank, 2017a:1, 2). Blockchain is deemed to offer the highest potential as a disruptive force in the financial services industry, where information and ledgers are a key part of the business kept under stringent controlled conditions (Sanmath, 2018:174; World Bank, 2017a:1, 5). Blockchain technology can be used to capitalise on untapped potential to add value to financial institutions by revolutionising how information in the ledgers is captured, stored, accessed, modified, and validated (Accenture, 2019:21).

Digital currencies, such as Bitcoin, have also disrupted traditional payment systems and banking, resulting in the reduced use of cash. However, the inherent drawbacks of this technology are the time and cost of transactions, and regulatory uncertainty due to potential for criminal activity and money laundering, which make it a speculative investment instead of a store of monetary value or a means to transact (Deloitte, 2017:5).

3.4.2.7 Digital identity and biometric solutions

Digital identity and biometric solutions have also become topical in the field of digital banking. Through biometric functions, such as fingerprint, face, voice, and iris recognition, banks can offer simple, one-touch banking in a secure and fraud-free manner (Mothibi & Rahulani, 2021:6; Sanmath, 2018:173). As a result of the use of biometrics, the future of digital banking points to passwords ceasing to exist (KPMG, 2019:10). Passwords and signatures are being replaced by biometric solutions that enable real-time user validation and advanced consumer behaviour profiling (Koblanck, 2015:23; KPMG, 2019:10). Biometrics and digital ID facilities have allowed FSPs to enrol clients efficiently and in a way that is compliant with money laundering and KYC requirements by FSPs. Biometrics is enabled by capturing clients' biometric identities as a unique identifier, which is impossible to replicate or forge (Pazarbasioglu *et al.,* 2020:v). Biometrics is difficult to falsify (Koblanck, 2015:3). In addition to validation, biometrics can also enable FSPs to conduct checks which enable detection and elimination of the risk of duplication, such as blocking a customer from registering twice for a service (Koblanck, 2015:23). Additionally, the use of biometrics promotes usability of banking services by clients through avoiding the frustration that comes with remembering multiple passwords (Sanmath, 2018:174).

3.4.2.8 5G networks

Digital banking is also propelled by the proliferation of 5G networks, which come with super-fast internet and the potential to reach one gigabyte per second downloads (KPMG, 2019:10). This kind of technology allows for improved customer experience and real-time delivery of digital services, which has catapulted digital banking to improved levels of service excellence. Mobile devices, including smartphones, feature phones, and tablets, that are compatible with high-speed 5G networks, have also

become an integral part of clients' daily lives, increasing availability and enabling client interfaces to allow functions such as payments, money transfers, and online shopping (OECD, 2020:9).

3.4.2.9 The Internet of Things

Due to digital developments, it is envisaged that most everyday objects, beyond smart speakers and smart wearables (such as smartwatches), will gain the ability to connect to the internet and generate data. This will enable products and services to be highly personalised, thereby integrating with most aspects of clients' lives (KPMG, 2019:10). The Internet of Things, therefore, allows for the connection of people through various gadgets used in everyday life.

According to Boot *et al.* (2020:15), innovations in information and communication technology pose challenges for banks as they allow players in the banking space to compete directly for access to bank clients. KPMG (2019:9) asserts that traditional boundaries within the financial services industry will disappear by 2030, with a move towards 'platformication', which allows clients of banks' services to select services personalised for their needs from a range of providers, while banks will become an orchestrator of alliances and capabilities owned by themselves or other firms. Banking institutions that embrace digital disruption are well-positioned to become leaders in the industry and will be able to unlock new markets and improve their margins (Deloitte, 2017:5). Digital disruption comes with numerous opportunities, and embracing digitalisation comes with benefits to both FSPs and their clients.

3.5 BENEFITS OF DIGITAL BANKING

Digital banking has become part of people's lifestyle and way of doing banking. For clients, the 21st-century bank account is just a utility brought through technology and slowly becoming part of people's lifestyles, which has changed the way people live (Golubić, 2019:85; King, 2018:262-263). As a result, King (2018:262-263) asserts that "banking is no longer somewhere you go, but it is something you do." It is important to explore some of the benefits of digital banking, given its integral role for FSPs and clients.

3.5.1 Digital banking benefits to financial services providers

Digital banking provides benefits for FSPs, such as value creation capabilities, lower costs, enhanced financial performance, and business continuity.

3.5.1.1 Value creation capabilities

Digital banking brings about additional value capabilities that traditional (physical branch) banking does not offer. Digital banking can help automate each step of the financial service or banking life cycle, including account opening, customer due diligence, transaction authentication, and transaction automation for product specific processes, such as credit assessments (World Bank, 2022:10). Additionally, digital banking provides for services that include customised financial advice, an ATM locator, a branch locator, cardless withdrawals, financial planning tools, budgeting tools, loan calculators, investment analysis tools, and equity trading channels from remote areas (Dubey & Sharma, 2022:508-509; Fatima, 2017:4; Sardana & Singhania, 2018:30). These new digital banking features enable banks to meet the ever-changing needs of clients through providing a more seamless end-to-end experience (PwC, 2011:8; Wang, Ma, Dai, Imran and Wang, 2020:815).

Digital banking improves banks' access, distribution, and value propositions offered to clients. As a result, banks gain more clients, understand clients better using analytics, and build loyalty around the usage of digital channels (Cuesta *et al.,* 2015:7). Through the deployment of digital channels to serve clients, banks also enhance their capacity to collect and use data, for example to assess the creditworthiness of borrowers (Sardana & Singhania, 2018:30). From a distribution point of view, digital banking therefore allows banks to expand their services where traditionally they had to open physical branches, which meant incurring high start-up and maintenance costs (Shah & Clarke, 2009:5).

The financial services industry is highly competitive (Driga & Isac, 2014:51), and banks are compelled to adjust their strategies in response to changing client needs and technological developments, such as digital banking, which provide these capabilities (Driga & Isac, 2014:51-52). As a result, digital banking contributes to an enhanced image for a firm, allowing it to be perceived by the market and its stakeholders as focused and innovative (Shah & Clarke, 2009:5).

Overall, digital banking enables banks to offer innovative and attractive services, thereby boosting service quality, delivery, and efficiency. As a result, the use of digital banking often leads to banks attracting high-value clients with higher average incomes and education levels, which helps increase the banks' revenue streams and overall financial performance (Shah & Clarke, 2009:4).

3.5.1.2 Lower costs for financial services providers

The use of digital banking results in lower costs for FSPs because it reduces the costs for clients to access services (Cook, 2017; Fatima, 2017:5; Pazarbasioglu *et al.,* 2020:3; Sadiku, Tembely, Musa & Momoh, 2017:75; Sardana & Singhania, 2018:30). In the area of global remittances, the average global cost of sending funds in cash was 6.8% while a fully digital transaction reduces the cost to 3.3% (Pazarbasioglu *et al.,* 2020:v). The use of digital banking enables clients to manage their funds remotely by providing access to account information without the need to visit the bank in person, thereby reducing the workload and traffic for FSPs (Sardana & Singhania, 2018:30).

For banks, physical branch banking requires expensive buildings and human resources (Shah & Clarke, 2009:6). The use of digital banking comes with a cost advantage to banks (Fatima, 2017:5; Pazarbasioglu *et al.,* 2020:3). The cost advantage is realised because provision of banking digital services helps reduce operating costs by cutting down branch operations, reducing back-office operations, minimising errors, and reducing the number of staff needed to provide banking services (Sardana & Singhania, 2018:30). As a result, the cost per transaction for digital banking falls more rapidly compared to branch banking once a critical mass of clients is reached. Such a critical mass is realised because the fixed costs of digital banking are greater than the variable costs, hence the larger the customer base, the lower the cost of transactions will be (Shah & Clarke, 2009:6).

3.5.1.3 Enhanced financial performance

It is evident from the discussions in the previous two subsections that digital banking can enhance the performance of FSPs (Sardana & Singhania, 2018:30). Moreover, the use of digital banking can result in increased revenue due to improved delivery channels and functionalities for which FSPs charge their clients. Furthermore, with expanded channels and an increased range of services, a bank can realise more

revenues, attract new clients, retain existing clients, and cross sell products and services (Sardana & Singhania, 2018:30). However, a study by Patwardhan *et al.* (2018:11) reveals that financial solutions offered digitally have not evolved as quickly desired, hence there are opportunities for innovation in this regard.

Additionally, digital banking also allows for ease of cross-border selling of products and services, thereby expanding the market reach for FSPs (Lesjak, 2019:118). The potential for growth of financial institutions in this regard can be enhanced through consistent levels of regulation and supervision of consumer legislation across jurisdictions.

3.5.1.4 Business continuity

Digital banking allows FSPs to keep offering services where it appears physically impossible to do so. An example is the role digital banking played in providing solutions during the COVID-19 pandemic in 2020 and 2021 (and continues to do so since then) by enabling remote payments and transactions, thereby facilitating the social distancing recommended to reduce the spread of the disease. Digital banking reduced the need for physical contact between clients and FSPs, thereby helping to address the concerns of health authorities and citizens during the pandemic (Pazarbasioglu *et al.,* 2020:v). Pazarbasioglu *et al.* (2020:v) further assert that, through digital banking services, firms were able to address liquidity issues during the pandemic through digital drawdowns on credit facilities and enabling payments without the need for physical contact. Overall, digital banking allows banks the flexibility to continue offering services during periods, such as pandemics, thereby contributing to the continuity of banks' processes.

3.5.2 Digital banking benefits to clients

Digital banking is important to financial institutions and their clients, with ripple effects on economies as well. For citizens and clients, digital banking has the potential to improve access to and usage of formal banking services, thereby improving beneficiaries' income and welfare levels (López & Winkler, 2019:118). Digital banking is generally more cost-effective to use and provides both convenience and an improved customer experience (Pazarbasioglu *et al.,* 2020:3-4; PwC, 2011:3-8). The use of digital banking also brings additional benefits to clients, including better

information and record-keeping capabilities, lower costs, safety assurances, convenience, speed, value for money, and the ability to address financial access barriers.

3.5.2.1 Information and record-keeping capabilities

Digital banking channels allow for easy access to customer information and record-keeping. With digital banking, clients can download their transaction history, have a view of different accounts and do 'what-if 'analysis on their own before proceeding with any intended transactions (Fatima, 2017:5). The use of digital banking gives clients control of their banking activity as it allows them to self-serve and oversee activities on their bank accounts (Dubey & Sharma, 2022:209). Digital banking channels reduce information asymmetry through digital processes that generate data which can be used to better understand clients, improve products, manage risks, and promote regulatory compliance (Sardana & Singhania, 2018:30; World Bank, 2022:10). Other such functionalities as alerts, notifications, and reports provided by digital banking channels also enhance bank clients' fund management capabilities (Sardana & Singhania, 2018:30).

3.5.2.2 Lower costs and safety assurances for clients

The use of digital banking ensures better rates for clients because it results in the decline of client costs when accessing services (Fatima, 2017:5; Pazarbasioglu *et al.,* 2020:3; Sadiku *et al.,* 2017:75; Sardana & Singhania, 2018:30). The use of digital banking allows clients the ability to manage funds remotely by allowing them to access account information without the need to physically visit a bank branch (Sardana & Singhania, 2018:30). According to Fatima (2017:5), through using digital banking channels, clients can access and utilise their funds, such as viewing transactions, paying bills, doing online purchases, and applying for loans, among others. The use of digital banking results in a proportion of savings accrued by banks being passed on to clients by paying them higher interest on deposits and charging them lower rates on loans. Overall, FSPs' cost savings can be turned into benefits for clients through favourable commercial terms and pricing for services (Fatima, 2017:5). Digital banking allows for transparency in transactions and activity, which assures clients of their safety. This is achieved through the generation of transaction trails, which are useful

to both FSPs and their clients (Pazarbasioglu *et al.,* 2020:2). This means that clients can always be informed of activities on their accounts and be able to take immediate action where possible anomalies exist.

3.5.2.3 Convenience

One of the significant benefits of digital banking is the convenience brought about by the 'anytime, anywhere' availability aspect of digital banking (Dubey & Sharma, 2022:508; Pazarbasioglu *et al.*, 2020:3; Sardana & Singhania, 2018:30). This refers to the ability for clients to make transactions, payments, and access other services without the need to step into a physical facility (Fatima, 2017:5; Sardana & Singhania 218:30). Digital banking therefore gives clients options and increases convenience, for example, being able to check account activity remotely at any time of the day is more convenient than having to visit a bank to do the same during stipulated hours (Shah & Clarke, 2009:4). The mobility of digital banking channels, such as mobile banking allows for clients to do transactions even while on the move (Dubey & Sharma, 2022:508; Fatima, 2017:5; Lesjak, 2019:111; Sardana & Singhania, 2018:30). Using digital banking is also deemed safer than using cash to transact (Dubey & Sharma, 2022:508). As a result of the use of digital banking, bank clients no longer struggle with long queues and waiting times to conduct banking transactions (Sanmath, 2018:173).

Digital banking also has speed advantages in terms of the instant nature with which transactions can be done. Digital banking is quick and allows both clients and FSPs easy access to information by the click of a button (Fatima, 2017:5; Lesjak, 2019:111; Pazarbasioglu *et al.*, 2020:3). The use of digital banking, therefore, saves time for both clients and firms that use financial services. Using digital banking channels, bank clients, for example, can process multiple transactions at the click of a button, while the transaction processing times are almost instant (Fatima, 2017:5).

3.5.2.4 Addressing barriers to access

Digital banking addresses the demand-side barriers to accessing financial services, which include the problems of lack of ID, formality, and geographical barriers (IMF & World Bank, 2019:3; Pazarbasioglu *et al.,* 2020: v). Digital financial services address the lack of an ID by leveraging alternative data sources, such as social media, e-

commerce platforms, and transaction data for authentication, initiation, and customer due diligence (IMF & World Bank, 2019:3 Pazarbasioglu *et al.,* 2020: v). This can be done to compensate for a lack of adequate history, financial statements, and collateral, which preclude those experiencing poverty from accessing financial services. Geographical barriers to accessing financial services are also addressed by digital banking through mobile technologies and agent networks, thereby reducing the need to travel long distances to financial services centres.

Digital banking responds to access barriers to financial services, such as volatile and meagre incomes, which compel those in poverty to require affordable, low-value financial services that allow them to manage their limited incomes (Pazarbasioglu *et al.,* 2020:4). The barriers are addressed through special accounts and prepaid electronic money products that do not carry huge fees or minimum balances. With lower marginal and fixed costs, which enable cheaper delivery and transaction-based pricing, digital banking is more suitable for low-income groups.

3.5.2.5 Improved overall user experiences

According to Jeník, Flaming and Salman (2020:12), digital interfaces in financial services are changing customer engagement for the better. According to the IFC (2017:1), digital technology has made immediacy and personalisation of financial services the norm, allowing clients the chance to do banking remotely while also receiving tailored recommendations and customised offerings.

Digital banking features have led to improvements in user experience design through interactive client interfaces and advances in mobile devices and networks (PwC, 2011:8). This has enabled the provision of new services, such as enhanced digital security and the ability to access the internet for banking purposes from anywhere.

There is a significant relationship between digital banking and customer satisfaction regarding the benefits to clients, which include lower costs, convenience, and value for money, among others (Fatima, 2017:6). Overall, digital banking brings many benefits to both FSPs and bank clients. However, in using digital banking channels, clients and firms face challenges that FSPs, regulators, and other industry players need to address to derive the maximum benefit from digital banking.

3.6 CHALLENGES OF DIGITAL BANKING

The use of digital banking comes with its own challenges for banks and their clients. Operational, legal, and relationship challenges also exist for FSPs because of the use of digital banking channels. For bank clients, specific challenges exist that hinder the adoption and usage of digital banking, such as literacy, security, privacy, and risk concerns (Sadiku *et al.,* 2017:75). A discussion of the challenges to FSPs is provided next.

3.6.1 Digital banking challenges to financial services providers

FSPs face challenges in implementing digital banking, including regulatory concerns, as well as legal, operational, security, relationship, and reputational challenges.

3.6.1.1 Regulatory and legal challenges

FSPs face regulatory challenges in implementing digital banking. According to Bahl (2012:3), one of the main regulatory challenges is that, as banks provide services remotely through digital banking, they may perform activities not easily detectable by regulators and supervisors. According to Pazarbasioglu *et al.* (2020:7), digital banking raises concerns about financial integrity and regulatory arbitrage, as services, such as crowdfunding platforms, electronic money, prepaid cards, and crypto assets, can be used by clients for illicit financial activities. Such illicit activities result from gaps in customer due diligence and KYC frameworks for such services. Some digital banking services are also offered through unregulated entities, such as peer-to-peer platforms and large tech companies that fall outside existing regulatory frameworks (Pazarbasioglu *et al.,* 2020:8).

Digital banking channels through third parties also raise concerns about financial crime, including fraud, errors by third parties, poor data handling, and the handling of records that may violate client privacy concerns (Pazarbasioglu *et al.,* 2020:8-9). Additionally, a failure to comply with anti-money laundering and combating the financing of terrorism (AML/CFT) rules, which relate to customer due diligence and the reporting of suspicious transactions, is a further risk. Regulators, therefore, also face the challenge of ensuring control over FSPs' digital activities.

Legal challenges also arise due to the use of digital banking channels. Whereas digital channels enable banks to expand their geographical scope of services easily, they may not be fully conversant with local laws and regulations and may find it difficult to keep abreast of regulatory changes (Bahl, 2012:4) when providing services in other areas. As a result, banks operating solely on digital channels may inadvertently violate customer protection laws, including those related to data protection, privacy, and soliciting. The collection of personal information may also pose challenges once a client begins to use an account if the bank does not follow the local information collection and use laws, which may apply in certain jurisdictions. This may pose challenges in areas where clients reserve rights to the collection and use of their personal information, as banks require such information to open accounts or process loans (Bahl, 2012:4).

3.6.1.2 Operational challenges

Operational challenges have also been noted as arising from the deployment of digital banking. Operational risks which result from the use of digital channels by banks are linked to data confidentiality, systems integrity, and the capacity to handle higher volume transactions (Bahl, 2012:4). This implies that in the implementation of digital channels, banks must maintain the confidentiality of the data they keep, the integrity of technology systems they deploy, and must achieve efficiencies in the face of voluminous data. Concerns are also raised regarding the interoperability between applications due to the lack of common standards, for example, mobile banking, as different applications exist for the various smartphones, such as Android, iOS, and Windows (Sadiku *et al.,* 2017:76). The quality and integrity of digital banking technologies lead to risks of service disruption as well as lost data and banking instructions, for example, through what are called dropped messages, which are messages that have failed to transmit, thereby rendering transactions as failed (Lauer & Lyman, 2015:2).

3.6.1.3 Security concerns

The increase in use of digital banking technologies has come an increase in crime, which has shifted from the physical to the online world as cyber criminals find new ways to penetrate system vulnerabilities (Accenture, 2019:11). Digital banking

channels collect and store important data from clients and their banking activity, hence concerns over their privacy and security exist (Bahl, 2012:4). Such risk is magnified because of the involvement of third parties, such as agents that handle clients' transactional, demographic, and other data (Lauer & Lyman, 2015:3). Although sophisticated encryption software and security provisions exist, scope always remains for hacking attacks, phishing, malware, and other criminal activity that are reported on digital channels (Driga & Isac, 2014:53; Fatima, 2017:6; Lesjak, 2019:111). Other forms of attacks on digital banking channels include unauthorised use, eavesdropping, pin recovery attacks, information loss and interference (Sadiku *et al.,* 2017:76). Security threats can come from inside or outside the business, hence systems and data integrity issues are important in digital banking (Bahl, 2012:4). As a result of security concerns, acceptance of digital banking channels can be affected especially for bank clients, such as the elderly, who may lack trust in the security of the channels (Lauer & Lyman, 2015:3; Sardana & Singhania, 2018:30).

Some clients generally lack trust, mainly emanating from perceptions of the security risk and lack of privacy of digital banking channels (Sadiku *et al.,* 2017:75). According to Pazarbasioglu *et al.* (2020:7), huge trails of data emanating from digital banking activities can expose clients to unauthorised disclosure, misuse of personal data, and discrimination. This is because digital banking thrives on collecting, storing, processing, and exchanging consumer data with various players, such as technology partners, agents, and other players in the ecosystem (Deutsche Bundesbank, 2021:49, 53, 59). As a result, the risk related to data governance and privacy needs to be addressed through comprehensive consumer data protection frameworks (Pazarbasioglu *et al.,* 2020:7). Digital banking may also rely on data infrastructures which are vulnerable to cyber-attacks, system downtime, and overreliance on third parties providing services, such as cloud storage, analytics, and data provision (Pazarbasioglu *et al.,* 2020:7). Bottlenecks related to the use of such vulnerable infrastructures include lack of control which may compromise business continuity, financial stability, and data governance requirements (Deutsche Bundesbank, 2021:53; Pazarbasioglu *et al.,* 2020:7).

3.6.1.4 Relationship and reputational challenges

Digital banking solutions also affect relationships between banks and their clients. The use of digital banking eliminates the traditional in-person (face-to-face) contact or connection that banks previously had with clients (Fatima, 2017:6; Sardana & Singhania, 2018:30). As a result, customer satisfaction may be affected in the absence of in-person interactions. In-person interactions allow for personal engagement between banks and their clients, such as in situations where clients require detailed explanations of complex products and services. Digital banking channels pose reputational risks in cases where disruptions or malfunctions of systems occur, which can affect confidence in a bank or the whole financial services industry (Bahl, 2012:4). System downtime and malfunctioning systems may therefore negatively affect the reputation of an FSP.

3.6.2 Digital banking challenges to clients

The use of digital banking is not without its concerns and disadvantages to clients of financial services, who are mainly bank clients. Challenges include the absence of human contact, complex transactions, negative security perceptions, literacy concerns, technology anxiety, and frustrating functionalities and services. These challenges are discussed next.

3.6.2.1 Absence of human contact and complex transactions

A review of literature by Gargouri (2023:11) reveals that the absence of human contact can be a challenge for clients when using digital banking. This is because the physical branch is necessary to provide personal contact for aspects, such as signing contracts, the need for one-on-one advice, and interrogation of issues between the banker and client. Consequently, digital banking can result in customer experiences that lack emotion, thereby eroding trust and widening the disconnect between banks and their clients (Barrett & Hola, 2023:13). Therefore, human interaction is an important determinant of overall satisfaction with the services offered by banks (Haytco & Simmers, 2009:350). Solutions to addressing the need for human contact in the face of digitisation lie in developing delivery capabilities across channels, trying to inject more emotional input into conversations with clients, and developing a multiskilled workforce that can solve customer problems across products and channels (Barrett &

Hola, 2023:13). It is also important for banks to work on integration of personalised experiences that invoke emotional connections (Kreger, 2023:7).

Complex transactions may also be difficult to execute over digital banking channels. Financial service processes, such as notarisation or capturing a client's original signature, are difficult to accomplish on digital channels (Fatima, 2017:6; Lesjak, 2019:111). The handling of physical cheques and deposits can also pose challenges when attempting to use digital channels for these banking activities (Bahl, 2012:4). As a result, clients often resort to traditional methods for notarising and signing documents, processing cheques, and depositing cash in the bank.

3.6.2.2 Negative security perceptions and technology anxiety

Negative security perceptions of digital banking are a challenge. Gargouri (2023:11) reviewed the literature, concluding that the prevalence of stories and evidence of phishing, hacker attacks, malware, and other unauthorised activities is common on the internet, and many clients are hesitant to use digital banking services due to security concerns. Cybersecurity concerns, such as digital theft and electronic fraud, pose a problem for bank customers (Regi, 2017:6; Velev & Zahariev, 2022:84). Additionally, Regi (2017:6) concludes that most customers are reluctant to use technological banking services due to a fear of forgetting their password.

Technology anxiety also exists where usage of self-service technologies prevents clients from mastering them (Sadiku *et al.,* 2017:75). In other instances, clients often struggle to understand some of the innovative services, which could expose them to loss from fraudulent activities; for example, clients might be lured to fake online shopping platforms which may 'steal' personal data and other sensitive transactional data (Lesjak, 2019:118).

Clients who are not computer literate can also find digital banking to be complex, and therefore not suitable for their needs; such customers will resort to using the physical branch services (Gargouri, 2023:11). Additionally, clients can be affected by their lack of financial and economic knowledge, which negatively affect understanding and adaptation to technology tools and services offered by FSPs (Lesjak, 2019:117). Illiteracy challenges or bottlenecks that affect clients' uptake of digital banking

channels also include situations where non-literate populations find it challenging to interact with complex devices, such as smartphones and to navigate graphical interfaces for online transactions (Sadiku *et al.,* 2017:75).

3.6.2.3 Annoying functionalities and services

Digital banking functionality challenges can annoy clients who use digital banking. Gargouri (2023:12) also reviewed the literature, noting that unnecessary digital notifications and slow connections can also be a source of annoyance for clients who use digital banking. Velev and Zahariev (2022:83) also highlight that problems with mobile applications can relate to the low functionality of the applications, especially at times when there is a problem, such as when versions of a mobile application do not work on newer versions of operating systems like iOS and Android. In a study of problems affecting clients in Bulgaria, Velev and Zahariev (2022:84) note that some bank customers are dissatisfied with the slow processing of inquiries related to digital banking services, which negatively impacts the overall customer experience and trust in digital banking solutions.

Having discussed the challenges of digital banking for FSPs and clients, the ensuing section discusses the digital banking situations in South Africa and Zimbabwe.

3.7 DIGITAL BANKING IN SOUTH AFRICA AND ZIMBABWE

This section discusses digital banking in South Africa and Zimbabwe, providing a deeper appreciation of the current digital banking situation in the two countries.

3.7.1 The digital banking landscape in South Africa

Digitisation and the move to customer self-service have been a strategic focus for South African banks (Genesis Analytics and FSCA, 2022:26). According to BPC and Fincog (2021:12), South Africa is home to seven of the 21 digital banks, and in Africa, it is second only to Nigeria, which has 10 digital banks. New and increasing competition has been witnessed in the South African banking industry, with new high-profile digital institutions, such as Bank Zero, TymeBank, and Discovery Bank. These digital banks were launched with the intentions of greater agility and responsiveness to clients, which are bound to change financial services industry dynamics (Accenture,

2019:12). In response to rapid digital disruption in South Africa, the big four banking institutions (Absa, FirstRand, Nedbank and Standard Bank) have continued to pursue large scale digital transformation programmes aimed at improving customer experience, establishing new ways of working, and aiming towards enterprise-wide cost reduction (PwC, 2018:3).

Table 3.1 presents statistics regarding the usage of digital banking in South Africa. The table shows the proportion of bank users who had used digital channels during the period under review.

TABLE 3.1: USAGE OF DIGITAL BANKING CHANNELS IN SOUTH AFRICA (2022)

Payment stream/channel	Usage (2021)
POS – Retail Store	35%
ATMs	76%
Mobile (USSD)	23%
Banking App	12%
Internet	5%

Source: Genesis Analytics and FSCA (2022.29)

Most (76%) bank users use the ATM services in South Africa, followed by transactions made in retail shops to purchase goods and services (35%). Mobile is also commonly used (23%), whereas internet banking is the least used channel (5%).

According to PwC (2018:1), the South African banking industry is increasingly moving towards a marketplace without boundaries, shaped by new players' driving innovation. According to a study by Genesis Analytics and the Financial Sector Conduct Authority (2022:29), in terms of digital channels, South African banks have introduced banking applications, new digital payment options, and next-generation ATMs that provide a wider range of services with the intention of reducing reliance on bank branches.

A classic example of the digital banking success stories in South Africa is that of TymeBank of South Africa. TymeBank is a digital bank that was founded in 2018 and already had four million clients by 2021 (BPC & Fincog, 2021:13). The bank's

strengths are leveraging technology to offer simple products, such as checking accounts, savings accounts, and debit cards (Jeník, Flaming & Salman, 2020:1). The bank has fast and automated onboarding processes, which leverage retail partnerships. It also has a national payment system and a capable technology system (Jeník *et al*., 2020:12). Overall, TymeBank's model results in cost savings for its clients, who typically only pay 60% of what clients pay at the second most affordable bank in South Africa (Jeník *et al*., 2020:11). Another study shows that the monthly bank fee that clients pay for all transactions is about 65% of the fee paid by clients of the fourth most affordable bank, Capitec Bank (Jeník *et al.*, 2020:11).

According to the Centre of Excellence in Financial Services (CEOFS 2017:9), South Africa has an active and growing Fintech industry. Johannesburg and Cape Town exist as two major Fintech hubs, as they both host several Fintech incubators. Cape Town is emerging as a technology hub with a collection of software development and engineering skills, thereby attracting large technology firms, such as Amazon, which has established a development centre in the city (CEOFS, 2017:9).

According to Shipalana (2019:22), South Africa has benefitted immensely from digitising the social grant system, starting with the SASSA MasterCard that was launched in 2012, which was replaced by the SASSA-SAPO card in 2018, thus resulting in a third of the banked population owning the card. South Africa has a national ID system with biometric capabilities that is digitised and accessible to all adults, and this has also been integrated with the SASSA-SAPO card. The card has biometric capabilities and can be used as a debit card for making purchases, airtime purchases, paying bills, such as utilities, and accessing cash, including from ATMS. The card also has other banking functionalities. Although the cards have been associated with controversies, such as reported corruption, the central nature of technology and the capabilities of the cards are not in dispute (Shipalana, 2019:23).

From a regulatory perspective, South Africa has generally not been seen to enable Fintech development mainly because of the lack of a regulatory framework that is fair, balanced, and that promotes innovation (Shipalana, 2019:30). The South African regulatory environment has adopted an open-door policy towards addressing the digital innovation requirements, as evidenced by the South African Reserve Bank (SARB), to explore the applicability of distributed ledger technology, payments

modernisation though the real-time gross settlement of payments, and the creation of research and development platforms to test new technologies (CEOFS, 2017:112; PwC, 2018:2-3). The SARB also established a working group on Fintech, and another on virtual currencies and distributed ledger technologies, the results of which have been a collaboration and progress, resulting in widely accepted recommendations on Fintech and virtual currencies (CEOFS, 2017:112). Overall, the South African regulatory landscape has been moving from being risk-averse and rules-based to being open, progressive, and inclusive (Accenture, 2019:10).

Despite South Africa being recognised as having the most advanced and sophisticated financial services industry in Africa, local financial institutions' use of digital technologies has had little positive impact on the intended outcomes, such as development, employment, and economic growth (Accenture, 2019:8). According to Accenture (2019:8), owing to cultural behaviours, as well as access and cost barriers, the use of cash has persisted, hence, 58% of the country's GDP is cash.

3.7.2 The digital banking landscape in Zimbabwe

Zimbabwe's government recognises the centrality of information and communications technology. However, prolonged macroeconomic woes have provided both a challenge for the development of technologies and an opportunity for innovation (World Bank, 2021:33). Zimbabwe has a well-developed payment system, where 96% of all transactions in the country go through digital means (World Bank, 2021:80). The county has a well-developed mobile banking system, with currently 7.1 million mobile financial account holders among a population of 15 million (World Bank, 2021:81).

Table 3.2 presents statistics related to digital banking usage in Zimbabwe. This table shows the value and volume of transactions conducted through the real-time gross settlement system (RTGS), POS, ATMs, mobile, and internet banking channels.

TABLE 3.2: USAGE OF DIGITAL BANKING CHANNELS IN ZIMBABWE (2022)

Payment stream/channel	Value (Zimbabwe $)	Proportion	Volume	Proportion
RTGS	3 783 billion	64.57%	3 476 844	1.17%
POS	334 billion	5.71%	47 280 850	15.92%
ATMs	40 billion	0.70%	1 409 898	0.47%
Mobile	320 billion	5.47%	239 109 443	80.53%
Internet	1 380 billion	23.56%	5 643 947	1.90%
	5 860 billion	100%	296 920 982	100%

Source: RBZ (2022a; 2022b)

As indicated in Table 3.2, most digital transactions in Zimbabwe happen through the mobile banking channel, which contributes to 80.53% of all transactions. ATM usage in the country is very low, mainly due to cash shortages. The World Bank (2021:80), in a country's diagnostics report, also notes, as indicated in Table 3.2, that digital financial services in Zimbabwe are mainly driven by card-based, mobile, and electronic fund payments. The report additionally notes that although internet usage for digital banking has remained low and concentrated among the elite, 11% of bank account holders use the internet to transact. Overall, the key enabler of digital payments in the country has been the exclusive use of digital banking services by the government, in the form of the RTGS, which accounts for 64.57% of transaction value.

In terms of infrastructure, Zimbabwe has a well-developed fibre network covering major cities and urban areas (World Bank, 2021:46). However, large areas remain uncovered in rural areas, hence market failure in those areas where most people reside, which is further exacerbated by the low electrification rate in rural areas in the country. The infrastructure challenges hinder access to certain services for most citizens who live in rural areas. Mobile networks, therefore, remain the only option for carrying retail data traffic in the country (World Bank, 2021:xx), meaning that mobile banking appears to be the most feasible option for offering digital banking in Zimbabwe.

Zimbabwe has a robust payment system supported by modern legislation (World Bank, 2021:80). The Reserve Bank of Zimbabwe constituted a Fintech Working Group

with the National Payment Systems Department involving all key stakeholders (RBZ, 2021:111). The National Fintech Steering Committee was also established to provide policy direction to public and private players (RBZ, 2021:111).

Challenges include the low levels of systems integration among operators, the high cost of transactions, and limited internet coverage in rural areas (World Bank, 2021:86). Another challenge is that international debit cards, such as Visa and Mastercard cards, have restrictions on use due to limited foreign currency liquidity.

3.7.3 Comparison between South Africa and Zimbabwe in digital banking statistics

Having discussed the digital banking landscape in South Africa and Zimbabwe, a comparison of the two countries on some of the key metrics is provided to gain an understanding of the situation in both countries. Table 3.3 presents some of the digital banking-related statistics in South Africa and Zimbabwe, as derived from the World Bank online statistical database.

TABLE 3.3: COMPARING SOUTH AFRICA AND ZIMBABWE: CURRENT DIGITAL BANKING STATISTICS

	2017	2018	2019	2020
Mobile subscriptions (per 100)				
South Africa	155.23	159.93	165.60	161.80
Zimbabwe	98.99	89.40	90.10	88.76
Individuals using the internet (% of population)				
South Africa	56.17	62.40	68.20	70.00
Zimbabwe	24.40	25.00	25.10	29.30
Number of ATMs per 100,000 adults				
South Africa	67.74	66.93	65.31	58.59
Zimbabwe	6.89	6.63	6.40	6.16

Source: World Bank (2022)

Table 3.3 shows that overall, South Africa has a better mobile subscription, with 161.80 out of every 100 citizens subscribed to a mobile network. This statistic implies that most South Africans own more than one mobile SIM card. Zimbabwe records 88.76 subscriptions per 100 citizens, thereby implying the existence of some citizens who currently do not have a mobile phone subscription. In terms of mobile internet penetration, sub-Saharan Africa records 26%. South Africa and Mauritius are the leading countries in terms of mobile penetration in sub-Saharan Africa, with 61% and 63%, respectively, in 2019 (BPC & Fincog, 2021:10).

The World Bank statistical database (World Bank, 2022) shows that South Africa has a high internet usage rate, with 70% of the population using the internet as of 2021. This is much higher than the 29.30% of the population who use the internet in Zimbabwe, thereby implying that South Africa is more advanced and better placed to develop digital banking than Zimbabwe. In terms of ATMs, South Africa boasts a higher ratio of 58.9 ATMs per 100,000 citizens, while Zimbabwe has only 6.16 ATMs per 100,000 citizens, showing that South Africa is more advanced in terms of ATM infrastructure, which clients can use to conduct banking transactions (World Bank, 2022).

Despite the differences in the two countries, generally, the sub-Saharan Africa region, where South Africa and Zimbabwe are located, has become a leader in the delivery of financial services driven by digital means, mainly mobile money (IMF & World Bank, 2019:14). However, as Chapter 2 has shown, there is still room for improvement in financial inclusion in these countries. Therefore, the link between digital banking and financial inclusion should be investigated.

3.8 CHAPTER SUMMARY

Digital banking channels, such as ATMs, telephone banking, PC banking, internet banking, mobile banking, and POS machines, exist and have taken over some of the functions of physical bank branches. Digital banking has transformed the lives and businesses of users of banking services. The proliferation of digital banking is changing the way banking is carried out and has resulted in digital disruption, that is, there have been technology-driven changes in the way banking is delivered. The digital disruptions discussed in this chapter include Fintech, big techs, open APIs, and

cloud computing. Other additional disruptions include AI and ML, blockchain and cryptocurrencies, digital identity and biometrics, chatbots and robotics, and 5G and the Internet of Things.

As discussed in this chapter, the use of digital banking also comes with significant benefits, such as cost, convenience, value addition, and speed, among others. However, it was also noted in this chapter that risks and risk perceptions exist with digital banking, and some of the challenges include security, trust, illiteracy, operational challenges, and reputational concerns. The chapter further presented an assessment of digital banking situations in South Africa and Zimbabwe, noting that South Africa is more advanced than Zimbabwe in terms of infrastructure, access, and use of digital banking services.

Having unpacked and gained a deeper understanding of the concept of digital banking in this chapter, Chapter 4 starts with an assessment of the various factors likely to influence the adoption of digital banking, as derived from the literature, theories, frameworks, models, and empirical studies. As a result of an assessment of those factors, the chapter further discusses the selection of variables for use in the development of a hypothesised model for the study.

CHAPTER FOUR

TECHNOLOGY ADOPTION MODELS: BUILDING A HYPOTHESISED MODEL

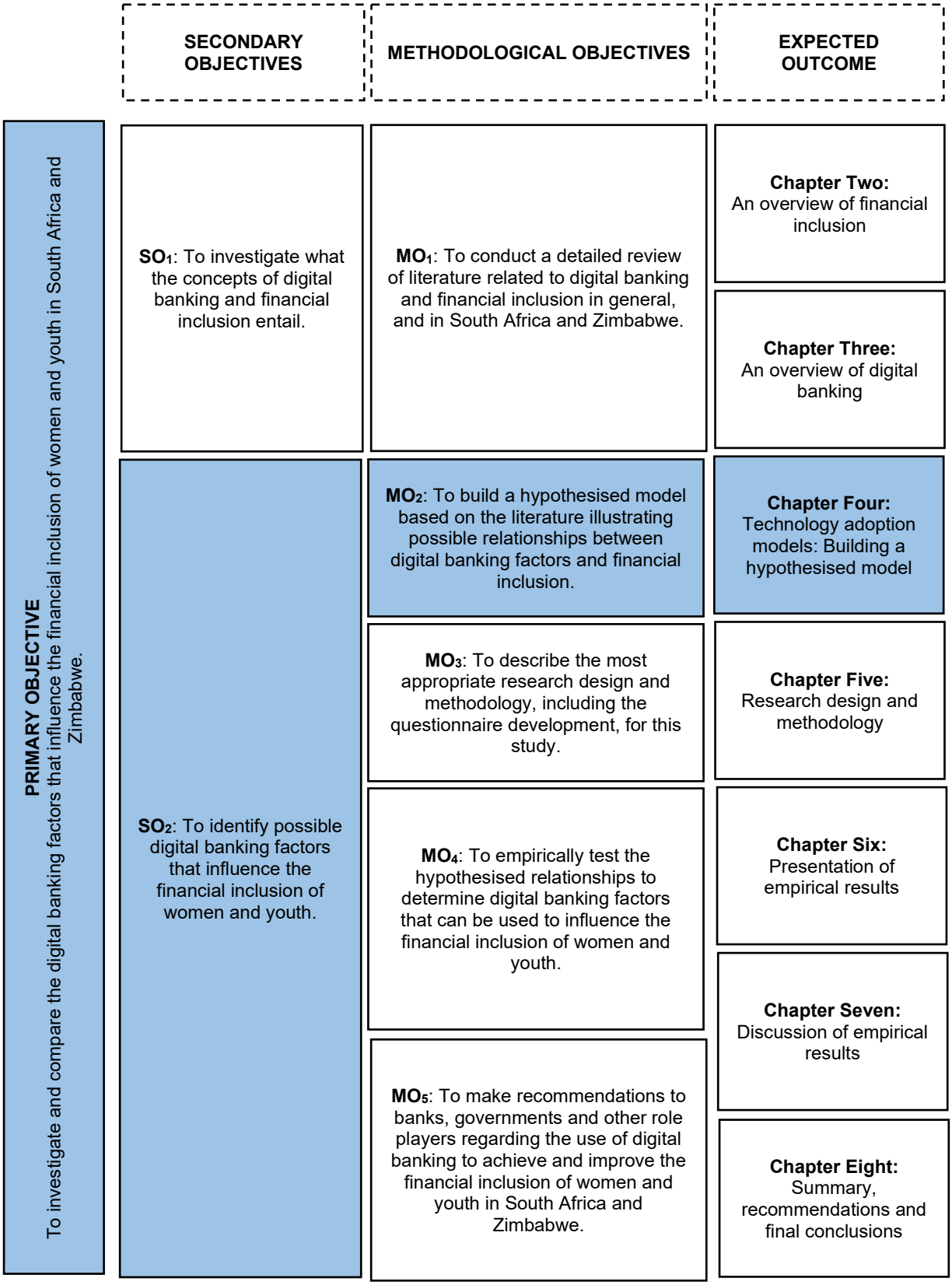
4.1 INTRODUCTION

The previous chapter entailed a detailed discussion focusing on the concept of digital banking to partly address, and therefore complete, the attainment of SO_1 and MO_1 of the study. Chapter 3 was relevant to provide an understanding of digital banking, before factors possibly influencing digital banking, and the adoption thereof, are discussed. A discussion of the factors that influence digital banking adoption is relevant since the primary objective of the study was to investigate and compare digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe.

Chapter 4 partly addresses SO_2 by identifying possible digital banking factors that influence the financial inclusion of women and youth. The chapter also addresses MO_2 of the study, that is, to build a hypothesised model based on the literature illustrating possible relationships between digital banking factors and financial inclusion. A discussion of factors that affect the adoption of technology, hence digital banking, is presented. The factors derived from existing technology adoption models are discussed. The technology adoption factors were used to construct a hypothesised model depicting possible relationships between aspects that influence the adoption of digital banking (independent variables) and the dependent variable, financial inclusion. A discussion of the proposed hypotheses of the study, as depicted in the hypothesised model, is presented before concluding with a summary of the chapter.

Figure 4.1 places Chapter 4 in the overall framework of this study.

FIGURE 4.1: CHAPTER 4 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

4.2 TECHNOLOGY ADOPTION THEORIES AND MODELS

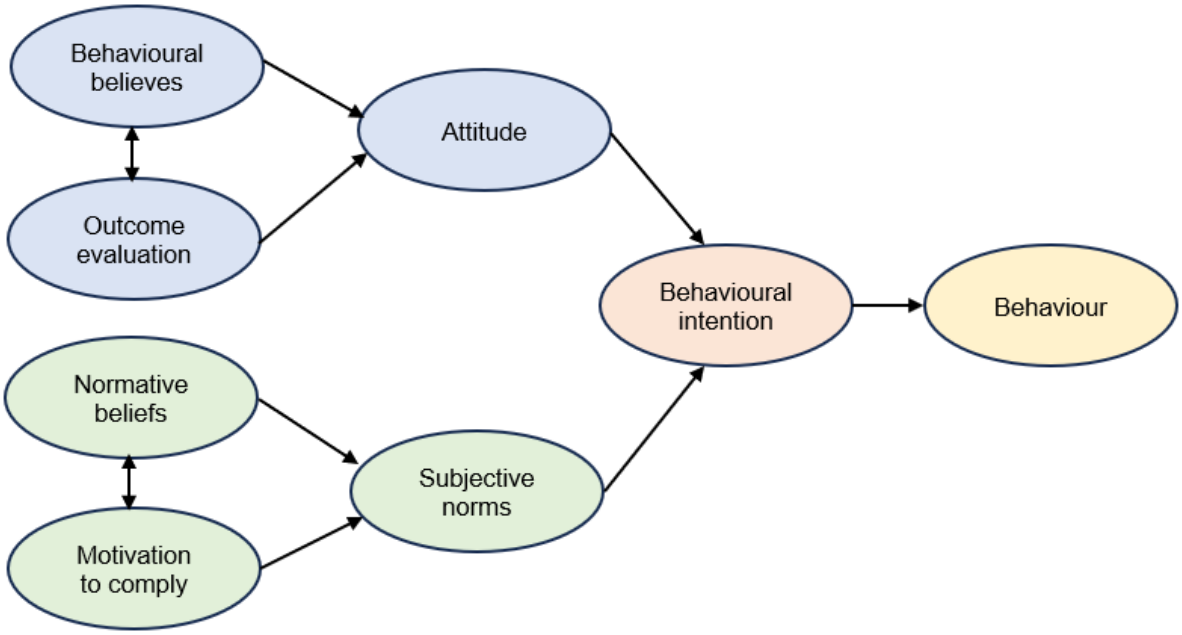
Clients' adoption of digital banking channels is important for banks to increase their clientele base. As digital banking is powered by technologies, an analysis of technology adoption models is pertinent and applicable to this study. The adoption of technology, in general, and specifically the adoption of digital banking channels, depends on various aspects related to individuals and their situational environments.

A discussion of the theory of reasoned action (TRA), theory of planned behaviour (TPB), technology acceptance model (TAM), as well as the unified theory for the acceptance and use of information technology (UTAUT), is presented to identify key aspects that could influence the adoption of technology, in this case, the adoption of digital banking. Taylor and Todd (1995:145) assert that an understanding of the technology adoption factors could generally help to ensure effective deployment of information technology resources in a firm.

4.2.1 The theory of reasoned action (TRA)

Developed by Fishbein and Ajzen in 1975, the theory of reasoned action (TRA) is one of the most popular theories used, as it presents the factors that determine a consumer's behavioural intention based on their attitude toward that behaviour (Lai, 2017:24-25). The basis of the theory is that human beings are introspectively aware of the thoughts and feelings that lead up to their decisions (Ajzen, 2012:439). Behaviour is therefore neither mysterious nor outside conscious awareness, hence behaviours follow reasonable and behaviour-relevant information available to human beings (Ajzen, 2012:440). The TRA is shown in Figure 4.2.

FIGURE 4.2: THEORY OF REASONED ACTION



Source: Al-Suqri and Al-Kharusi (2015)

It is evident from Figure 4.2 that the key variables of the TRA model include motivation to accept technology and normative beliefs, which influence subjective norms regarding technology adoption, as well as behavioural beliefs and outcome evaluation, which influence attitude toward technology adoption. Attitude and subjective norms influence the behavioural intention to use technology, which in turn influences one's actual behaviour to use the technology. For this study, a client's attitude and subjective norms influence their behavioural intention towards digital banking, which in turn affects the actual behaviour of adopting digital banking. Behavioural beliefs regarding digital banking and a client's outcome evaluation of using the digital banking also influence a client's attitude toward digital banking.

Attitude is the individual's evaluation of an object. Attitude is effective and based upon a set of beliefs about the object of behaviour, hence it refers to the negative or positive way an individual evaluates the performance or effect of a given behaviour (Alwahaishi & Snasel, 2013:29). People generally hold behavioural beliefs in relation to any given behaviour and each of these beliefs links the behaviour to an outcome which has a specific subjective value. In TRA, these behavioural beliefs and outcome evaluations are combined to produce an overall positive or negative attitude towards the behaviour (Ajzen, 2012:441). Essentially, the subjective value of the evaluation of each outcome

contributes to the attitude in direct proportion to the person's subjective probability that the behaviour produces the expected outcome (Ajzen, 2012:441).

Carranza, Díaz, Sánchez-Camacho and Martín-Consuegra (2021:3) assert that research shows attitude to be an essential determinant of behavioural intention and a relevant antecedent of actual behaviour. They conclude that attitude is a critical element in determining the intention to use technology. This result suggests that when individuals have a positive attitude towards using digital banking, they are more likely to have a greater intention to use the technology.

Subjective norms refer to an individual's perception of their immediate community's attitude to certain behaviours. According to Ajzen (2012:443), the effect of normative beliefs on subjective norms is moderated by the motivation to comply. The belief that an important social referent wants one to perform a particular behaviour increases perceived pressure to do so, only to the extent that one is motivated to comply with the referent in question. According to Alwahaishi and Snasel (2013:29), subjective norms refer to an individual's perception of how others will view their performance of a given behaviour. Therefore, a client's perception of how important social referents view their use of technology, such as digital banking channels, determines their likelihood to use these channels.

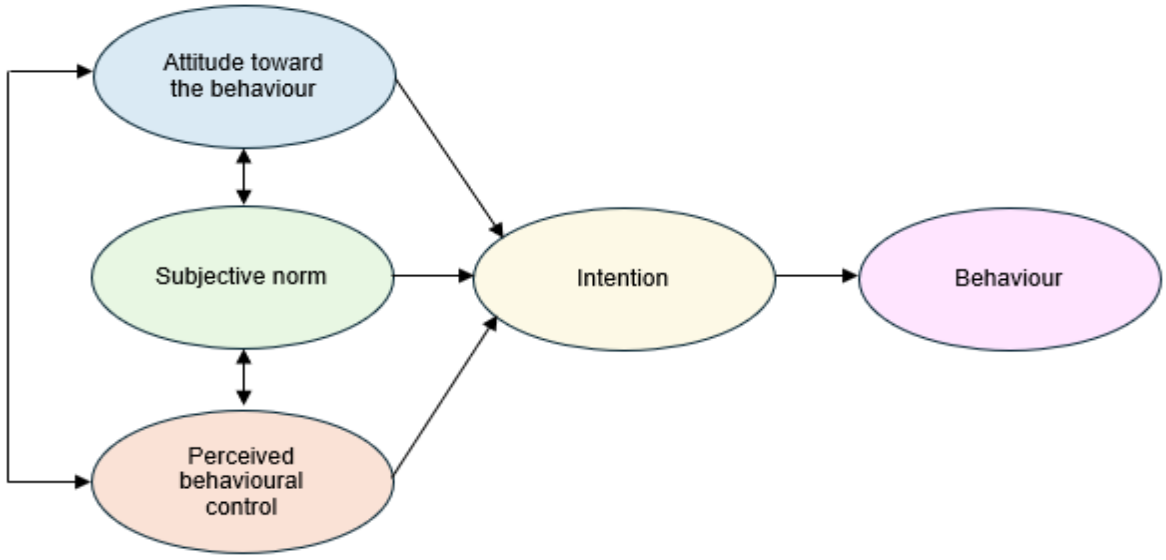
The outcomes under the TRA are the behavioural intention to use the technology (digital banking) and the actual behaviour, which represents the actual usage of the digital banking channels. The TRA is confined to behaviours over which people have control. However, Ajzen (2012:445) found that many behaviours could pose challenges to their execution because, for some behaviours, people have limited control, hence the development of the theory of planned behaviour (TPB).

4.2.2 The theory of planned behaviour (TPB)

Ajzen (1991:181,183) developed the theory of planned behaviour (TPB) to predict and explain human behaviour in specific contexts, and it is an improvement of the TRA. It was made necessary by the TRA's limitation in dealing with behaviours over which people have incomplete volitional control (Ajzen 1991:181). The TPB, which differs

from the TRA through its addition of 'perceived behavioural control', is depicted in Figure 4.3

FIGURE 4.3: THE THEORY OF PLANNED BEHAVIOUR



Source: Ajzen (1991)

According to the TPB, intentions and behaviour are guided by the expected consequences of performing the behaviour, by perceived normative pressures, and by anticipated difficulties (Ajzen, 2012:451). The first two factors **(attitude and subjective norms)** are the same as in the TRA, while a third factor (**perceived behavioural control**) is introduced.

While the importance of actual behavioural control is evident, the resources and opportunities available to a person to some extent dictate the likelihood of behavioural achievement (Ajzen, 2012:183). Therefore, **perceived behavioural control** is the extent to which people believe they can perform a given behaviour if they are inclined to do so; hence, it is a function of whether people believe that they are capable or have control over performing a given behaviour (Ajzen, 2012:447-447). Alwahaishi and Snasel (2013:29) define perceived behavioural control as the perceptions an individual has regarding the absence or presence of the resources required or requisite opportunities to perform the target behaviour.

Of greater interest than actual control is the perception of behavioural control and its impact on intentions and actions. According to Lai (2017:25), perceived behavioural

control refers to the control which users perceive may limit their behaviour, and the model suggests that this may also influence a person's intention and behaviour in terms of technology adoption.

According to Ajzen (2012:446), perceived behavioural control focuses on the extent to which people believe they are capable of, or have control over, performing a given behaviour. Perceived behavioural control is like Bandura's (1997:3) conception of perceived self-efficacy, which refers to beliefs in one's capabilities and organisation to execute the courses of action required to produce a given outcome (Ajzen, 2012:446). Perceived self-efficacy describes how a person sees himself or herself as having the capability to make good use of the advantages of modern technology (Kitsios *et al.,* 2021:5). It refers to someone's firm belief that they can use the new technology, for example, digital banking channels. Overall, perceived behavioural control can influence behavioural performance indirectly because of its effects on intentions to engage in the behaviour and on commitment that arises in the face of difficulties in executing the behaviour (Ajzen, 2012:447). Therefore, the extent to which clients believe they are capable of, and hence, have control over, using digital banking channels can influence their ultimate intentions to use these channels.

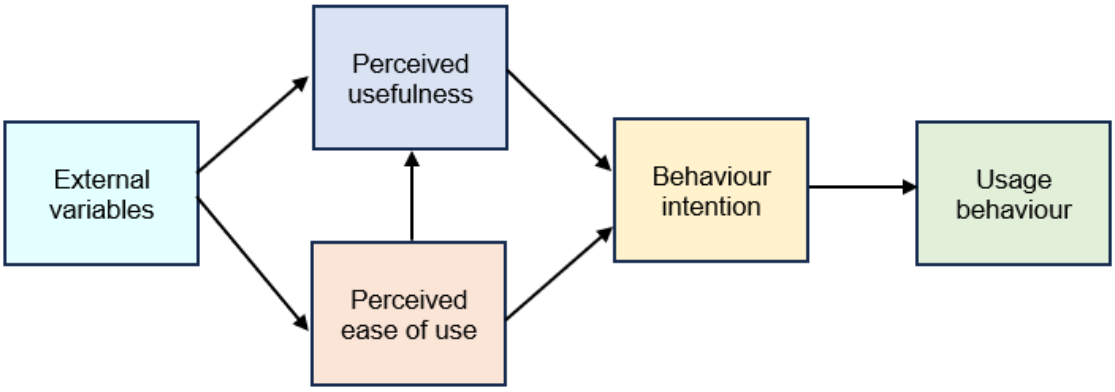
As in the original TRA, a central factor in the TPB is the **'intention'** to perform a given behaviour, that is, **behavioural intention**. The underlying assumption is that intentions guide behaviour, and hence, a strong relation between intentions and behaviour exists. However, this relationship can be moderated by the degree of control over the performance of the behaviour (Ajzen, 2012:449). Intentions are assumed to capture motivational factors that influence a behaviour; therefore, these motivational factors are an indication of the extent to which people are willing to try, or how much effort they are planning to exert, in performing a behaviour (Ajzen, 1991:181). The stronger the intention to engage in a behaviour, such as using digital banking channels, the more likely it is that the use of digital banking channels will be achieved.

4.2.3 Technology acceptance model (TAM)

The technology acceptance model (TAM) was introduced by Fred Davis in 1986, and it is an adaptation of the theory of reasoned action. It is tailored for modelling users' acceptance of information systems or technologies (Lai, 2017:26). The TAM has

subsequently been used to assess the drivers of user behaviour across various technology platforms (Ogrezeanu, 2015:58). Figure 4.4 depicts the TAM and its various components.

FIGURE 4.4: TECHNOLOGY ACCEPTANCE MODEL (TAM)



Source: Lai (2017:27)

The first version of TAM was developed by Davis in 1989. It included and tested two specific beliefs, namely that **perceived usefulness** (PU) and **perceived ease of use** (PEU) influence users' attitude towards using technology, which links to the intention to use technology, and ultimately, the use of technology (Lai, 2017:27). The first modified version of TAM, by Davis, Bogozzi and Warshaw in 1989, added **external variables** as a factor, which relates to other factors that might be relevant in influencing the belief of a person towards a system (Lai, 2017:28). The final version of TAM (presented in Figure 4.4), as developed by Venkatesh and Davis in 1996, posits that both PU and PEU have a direct influence on **behavioural intention**, thus eliminating the need for the attitude construct (Lai, 2017:28). The TAM has become a widely used theoretical model in the study of technology adoption and acceptance (Ogrezeanu, 2015:58):

PU describes the level at which an individual believes that using a given technology will increase their task performance. PU is also referred to as 'perceived utility' by Kitsios *et al.* (2021:5), who describe it as the degree to which the emerging technology can assist users in completing a mission. Factors influencing PU are ease of use, the pace with which the technology is used to improve a function, its users, the technology's importance to the task to be performed, and the quality of the output, mainly in terms of satisfaction (Kitsios *et al.,* 2021:5). In a study to analyse factors

which influence clients' adoption of e-banking based on the TAM model, Carranza *et al.* (2021) conclude that a significant relationship exists between clients' PU and adoption of e-banking.

PEU describes the level at which an individual believes that using a given technology will require less effort. PEU is defined by Kitsios *et al.* (2021:4) as the degree to which clients comprehend the new technology; in this case, branchless banking. In essence, it relates to the degree of comprehension of, for example, digital banking channels by intended users. Carranza *et al.* (2021:7) conclude that a significant relationship exists between clients' PEU and adoption of e-banking.

Taylor and Todd (1995:148) assert that the easier the technology is to use (PEU), the more useful it is perceived to be (PU), and the more positive one's attitude and intention towards using the technology. This can also apply to the use of digital channels, as seen with a bank client navigating a mobile banking channel on a mobile device. The easier a mobile banking channel is to use, the more useful a bank client will perceive it to be. They will create a positive attitude towards the channel and ultimately are likely to use it on an ongoing basis.

Alwahaishi and Snasel (2013:28), citing Davis (1989), report that the relationship between PU and technology adoption is significantly stronger than that of PEU and technology adoption. The result of this conclusion is that PEU might even precede PU, thereby suggesting the existence of a causal relationship instead of the independence of the determinants. In essence, while users of digital banking technologies tend to consider the usefulness of a technology before deciding to use it, the easier the technology is perceived to be, the more useful it becomes in the minds of the people, thus improving the overall perception and leading to increased usage. Taylor and Todd (1995:145) add that PEU also influences the work of system and technology platform designers as they endeavour to make their designs easy to use by clients.

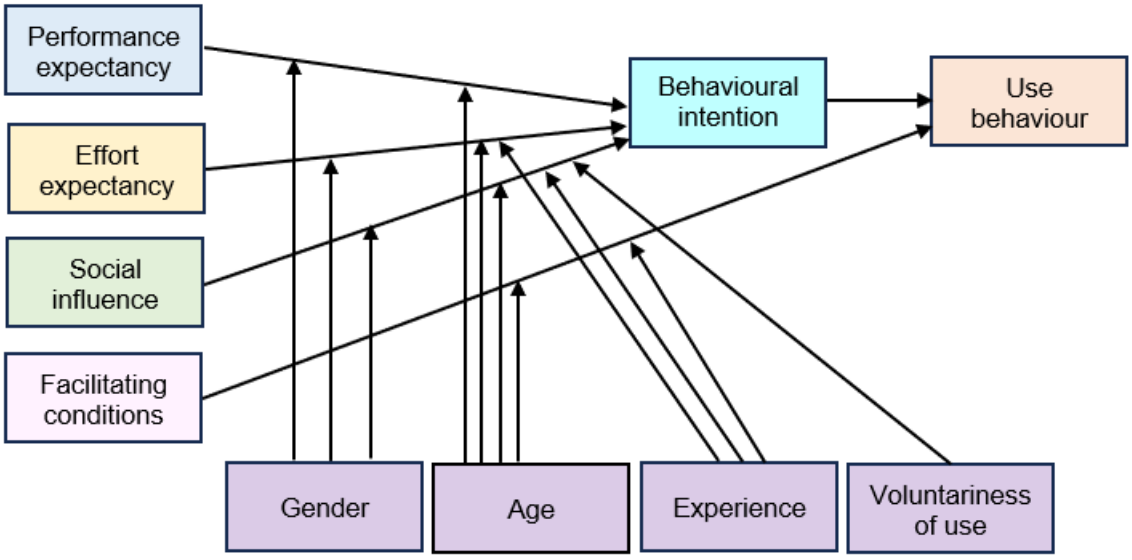
According to Alshammari and Rosli (2020:13), TAM claims that both PEU and PU affect the attitudes of individuals towards the use of technology. When users perceive a specific technology as easy to use and helpful, they can formulate a positive **behavioural intention** towards the use of that specific technology. Eventually, this positive behavioural intention (BI) of users towards a given technology defines the real

use of said technology, known as actual usage. **Actual usage (AU)** refers to the degree of usage of a specific technology in terms of frequency (how often) and the measured volume (how much). Therefore, if users have a positive intention towards a given technology, they are likely to use it in their daily lives, implying that if users of digital banking have a positive intention towards it, they are likely to use it on an ongoing basis.

4.2.4 Unified theory of acceptance and use of technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT), presented in Figure 4.5, was developed by Venkatesh, Morris, Davis and Davis in 2003. The model is aimed at predicting user adoption of information technology (Alwahaishi & Snasel, 2013:30).

FIGURE 4.5: UNIFIED THEORY OF ACCEPTANCE AND USE OF INFORMATION TECHNOLOGY (UTAUT)



Source: Venkatesh *et al.* (2003:447)

Using an empirical analysis, Venkatesh *et al.* (2003:447) found that performance expectancy (similar to PU), effort expectancy (similar to PEU), social influence (similar to subjective norm) and facilitating conditions, are the main factors determining user adoption of technology (Alwahaishi & Snasel, 2013:30). The key variables in the UTAUT, that is, performance expectancy, effort expectancy, social influence and facilitating conditions and their constructs are described next.

Performance expectancy refers to the degree to which an individual believes that using a system will help them attain gains in job performance. According to Alwahaishi and Snasel (2013:30), **performance expectancy** is similar to **PU** and **relative advantage**. Key constructs of performance expectancy, as indicated by Venkatesh *et al.* (2003:447-448), are PU, extrinsic motivation, job fit, relative advantage, and outcome expectations. An example of performance expectancy is reflected in the utility associated with using mobile internet, as mobile intern*et* allows users to acquire information or services from anywhere without limitations. This improves the user's living and working performance and efficiencies; hence, performance expectancy affects behavioural intention (Alwahaishi & Snasel, 2013:33). When an individual expects that digital banking will improve their lives, this affects their intention to use the technology, and ultimately leads to them using it.

Effort expectancy refers to the degree of ease associated with the use of the system. Effort expectancy can also be viewed as PEU regarding the complexity of a technology (Alwahaishi & Snasel, 2013:30). Key constructs relate to PEU, complexity, and ease of use (Venkatesh *et al.,* 2003:447-448). In the case of mobile banking, effort expectancy is the perceived difficulty of using the mobile internet, such as a complex user interface, which might be difficult to use. In addition, users may discontinue using mobile internet (and other digital banking channels for that matter) if service providers do not present an easy-to-use facility (Alwahaishi & Snasel, 2013:35).

Social influence refers to the degree to which an individual perceives that others who are important to them believe that they should use the new system. According to Alwahaishi and Snasel (2013:30), social influence is similar to subjective norm. It reflects the effect of the referents' opinion on individual user behaviour, and its constructs include subjective norms, social factors, and social image (Zhou, 2011). When others who are important to a person recommend the use of mobile internet, the person is more likely to follow that recommendation (Alwahaishi & Snasel, 2013:34). This also applies to other digital banking channels.

Facilitating conditions refer to the resources and knowledge available to allow users to adopt technology platforms (Alwahaishi & Snasel, 2013:34). Facilitating conditions also refer to the degree to which an individual believes technical infrastructure exists

to enable them to use a system. Venkatesh *et al.* (2003:447-448) note that the key constructs of facilitating conditions include perceived behavioural control, environment support, and compatibility. Users need to have the necessary resources, such as fees and knowledge, to use digital banking, and they must be equipped with the necessary know-how to navigate digital banking.

4.2.5 Use of technology adoption models in previous research

Technology adoption models have been used in previous research and continue to be used for studies focusing on the use of different technologies. Some of the previous research is summarised as follows:

- In a study of why users accept or reject information technology with specific focus on TRA, TPB, and TAM, Silva and Dias (2007) conclude that these models are not only valuable for foreseeing, but also for describing, situations in a way that researchers and professionals may identify reasons why potential users are not accepting a technology, and therefore attempt to implement corrective actions. Barat and Mohammadi (2009) researched factors that affect the acceptance of mobile banking, concluding that PEU, demographic characteristics, facilitating conditions, social and cultural factors, and innovative resistance can potentially positively affect the success of mobile banking and should be considered by banks when promoting the adoption of mobile technology.
- Kitsios *et al.* (2021:9) conducted a study to examine the acceptance rate of digital transformation in the banking sector in Greece, using a multivariate regression analysis to analyse TAM. The study, focusing on perceptions of bank employees, concludes that PU, PEU, and perceived self-efficacy have a positive and significant effect on an individual's intention to use and usage of new banking technologies. In a separate study, Alwahaishi and Snasel (2013) undertook research to identify the factors affecting the acceptance and use of mobile internet as an ICT application in a consumer context. They conclude that performance expectancy, effort expectancy, facilitating conditions, social influences, perceived value, perceived playfulness, attention focus, and behavioural intention influence behavioural to use technology.

- Maduku (2014:78) conducted a study on customers' adoption of e-banking services from a South African perspective. The study employed the TAM constructs of PU and PEU, and then added the constructs of trust in the banking system, customer awareness of e-banking channels, and perceived self-efficacy to improve understanding of predictors of internet and mobile banking adoption in South Africa.
- Ahmad (2014:1, 4-8) conducted a review of the literature related to the validation and development of the UTAUT over time. The study recognises the UTAUT as an attempt to unify the terminology of variables of different models and theories of technology acceptance. The study highlights the significant use of the UTAUT in research since its development. Three major trends were identified, namely, suggestions of new constructs, suggestions of moderating factors, as well as theory extensions and integration with other theories and models.
- Alkhwaldi and Kamala (2017:7962, 7968) conducted a study titled *Why users accept innovative technologies?* In an effort to understand the determinants of users' acceptance decisions and behaviour, 10 competing models were assessed: TRA, SCT, TAM, TPB, MPUC, DOI, MM, the model combining TAM and TPB (C-TAM-TPB), as well as UTAUT, and the extended version of UTAUT, called UTAUT2. The study uncovered the origins, developments, constructs, and limitations of each model, thus enabling future researchers to identify the common constructs and significant relationships. The study concludes that UTAUT2 is the most recent model of technology acceptance, and considers cultural, social, technological, and other pertinent behavioural predictors that help in better understanding technology acceptance.
- Malatji, Van Eck and Zuva (2020:113) conducted a study to understand the usage, modifications, limitations, and criticisms of TAM (Malatji *et al.* 2020:113). The study concludes that modifications to the model have been mostly through the addition or removal of variables, and in some cases, the addition of moderators and mediators. The model has its own limitations, such as the problem of reliably quantifying behaviour as an observed investigation. Malatji *et al. (*2020:113) also note criticisms of TAM, such as the model's inability to

account for other issues, such as cost and structural imperatives, which affect the adoption of TAM.

- Byamukama, Kalibwani and Mbabazi (2022:42) published an article that summarises the literature by reviewing concepts and applications of technology adoption models with a focus on the prospective application of novel technologies. The theories reviewed include DIT, TRA, TPB, TAM, TAM2, TAM3, UTAUT and UTAUT2. The study establishes a basis for current and future applications of technology adoption and agricultural information dissemination by smallholder rural farmers.
- Agrawal, Ahmad, Kumar and Pandey (2024:1) conducted a study on the adoption of AI technologies in the SME sector using technology adoption theories, such as DOI theory and TAM. The study concludes that many factors, including technological, organisational, and environmental factors, influence SMEs' adoption and use of AI.

Having discussed technology adoption models and highlighted studies that have employed the models before, a discussion of the hypothetical model constructed for this study follows. The variables adopted to build the hypothesised model are, for the most part, derived from the technology adoption models.

4.3 HYPOTHESISED MODEL AND HYPOTHESES

One of the secondary objectives of this study was to develop a hypothesised model based on the possible relationships between digital banking factors and financial inclusion. In this section, the selected variables, hypothesised model, and hypotheses for this study are presented. A hypothesised model represents a researcher's beliefs on how particular phenomena (variables or concepts) are related to each other (a model), and an explanation of why the researcher believes the variables are associated with each other (a theory) (Sekaran & Bougie, 2016:72).

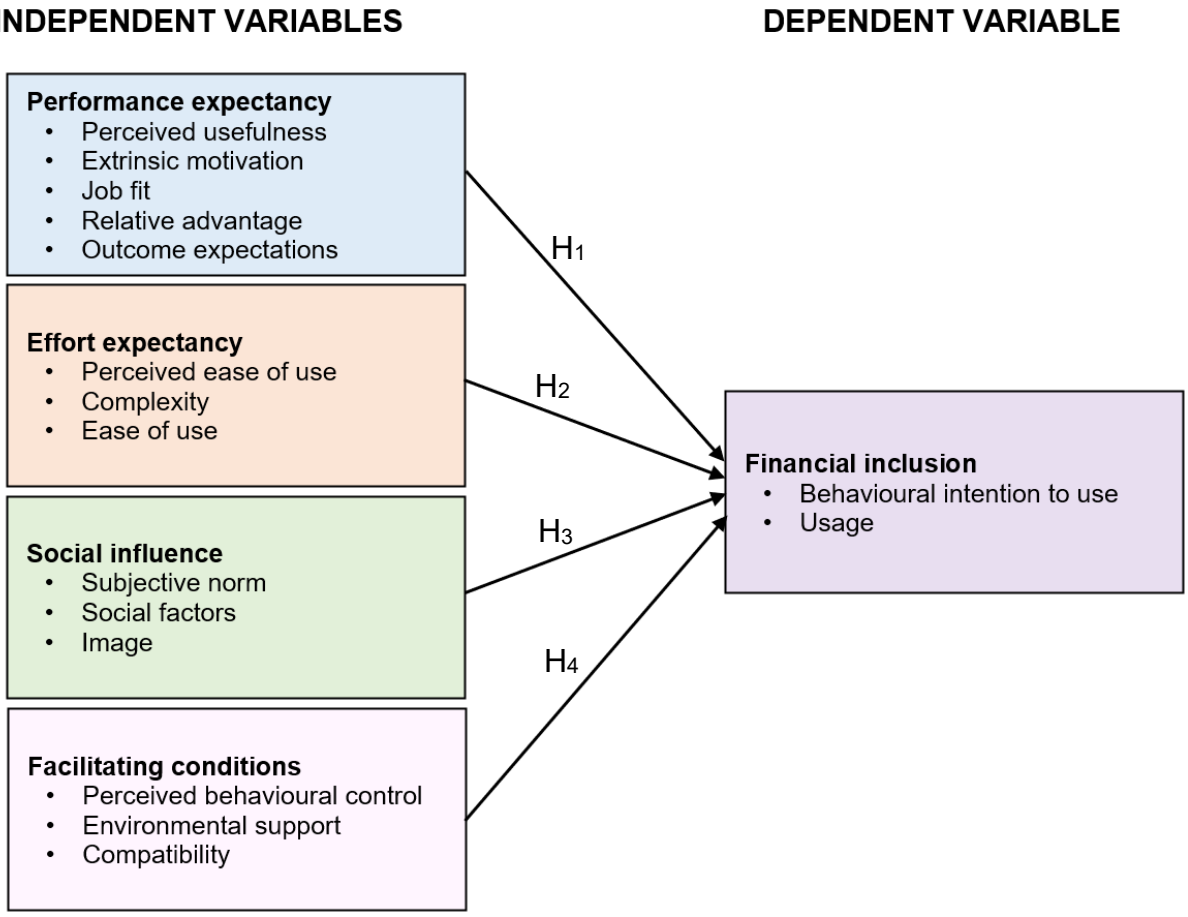
By definition, a hypothesis is a tentative, yet-testable statement, which predicts what the researcher expects to find in empirical data, and depicts possible relationships between two or more variables expressed in the form of testable statements (Sekaran & Bougie, 2016:83). The development of hypotheses is therefore about the formulation

of testable statements which depict some logical reasoning of existing relationships (Sekaran & Bougie, 2016:83). In other words, a hypothesis is meant to help find a solution to the research problem (Singh, 2006:54). Having hypotheses is important to the researcher as it acts as their way of seeking answers, helps focus the research, enables goal clarification, links together related facts, and prevents uninformed research (Singh, 2006:58).

4.3.1 Hypothesised model

The hypothesised model tested as part of this study is presented in Figure 4.6. The novelty of the proposed hypothesised model is two-fold. Firstly, the model shows a combination of variables drawn from various models and theories, however these variables have not been jointly presented in one model before. Secondly, the uniqueness of the model lies in the fact that it will be tested in two sub-Saharan countries for comparative purposes. The model represents possible relationships between digital banking factors and financial inclusion, depicting how digital banking factors (performance expectancy, effort expectancy, social influence, and facilitating conditions) can be used to promote or increase financial inclusion, that is, the behavioural intention and actual usage of financial services. The digital banking factors are extracted from the UTUAT model which incorporates variables from eight other models: the TRA, TPB, TAM, the motivational model (MM), a model combining the TAM and TPB (C-TAM-TPB), the model of PC utilisation, the innovation diffusion theory (IDT), and the social cognitive theory (SCT) (Ahmad, 2021:2). Of the eight models, the TRA, TPB and TAM can be classified as technology adoption models, while the other five are from different fields. Figure 4.6 presents the proposed hypothesised model for the study.

FIGURE 4.6: PROPOSED HYPOTHESISED MODEL



Source: Researcher's own construct based on UTAUT (Venkatesh *et al.,* 2003:447)

4.3.2 Hypotheses

The following hypotheses were derived from the hypothesised model and subjected to testing as part of this research study:

H_1: Performance expectancy has a statistically significant relationship with financial inclusion.

H_2: Effort expectancy has a statistically significant relationship with financial inclusion.

H_3: Social influence has a statistically significant relationship with financial inclusion.

H_4: Facilitating conditions have a statistically significant relationship with financial inclusion.

The above hypotheses are presented as statements which provide the anticipated relationships between digital banking factors and financial inclusion.

4.3.3 Study variables

A variable can be defined as anything that can take on differing or varying values at various times for the same object or person, or at the same time for different objects or persons (Sekaran & Bougie, 2016:72). The independent variables and the dependent variable for this study are discussed next.

4.3.3.1 Independent variables

Independent variables, also known as stimulus variables (Singh, 2006:63), are defined as those variables which are antecedent to the dependent variable and the effect of these variables on the outcome is to be tested as part of the research (Pandey & Pandey, 2015:29). According to Sekaran and Borgie (2016:74), the independent variable is one that either a positively or negatively influences the dependent variable, hence the variance in the dependent variable is accounted for by the independent variable. Saunders *et al.* (2023:191) explain that an independent variable is the one that is being manipulated or changed to measure its impact on the dependent variable.

Alwahaishi and Snasel (2013:30) note that, despite criticisms, Venkatesh *et al.* (2003:407) have confirmed that, conceptually, UTAUT, as discussed in Section 4.2.6, can represent the majority of the eight separate models that form the basis for UTAUT. As depicted in the proposed model, this study explored the possibility of relationships between various independent variables, that is, specific aspects of digital banking derived from the UTAUT (*performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*), and the dependent variable (*financial inclusion*). The selected independent variables of this study, their constructs, and the models from which each stemmed, are summarised in Table 4.1.

TABLE 4.1: INDEPENDENT VARIABLES AND SOURCES

Variables and constructs	Models from which the variables were derived
Performance expectancy	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.,* 2003)
PU	Technology acceptance model (Davis, 1989) The motivation model (Davis *et al.*, 1992) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Extrinsic motivation	The motivation model (Davis *et al.*, 1992) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Job fit	The model of PC utilisation (Thompson *et al.*, 1991)
Relative advantage	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Outcome expectations	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Effort expectancy	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
PEU	Technology acceptance model (Davis, 1989) The motivation model (Davis *et al.*, 1992) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Complexity	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Ease of use	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Social influence	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003)
Subjective norm	Theory of planned behaviour (Ajzen, 1985) Theory of reasoned action (Ajzen & Fishbein, 1975) The motivation model (Davis *et al*., 1992) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)
Social factors	The model of PC utilisation (Thompson *et al*., 1991)
Image	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)

Variables and constructs	Models from which the variables were derived
Facilitating conditions	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)
Perceived behavioural control	The model of PC utilisation (Thompson *et al*., 1991) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)
Environmental support	Theory of planned behaviour (Ajzen, 1985) Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)
Compatibility	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003)

Source: Venkatesh *et al.* (2003:447-448)

The study focused on key variables extracted from the UTAUT, specifically, *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*, as well as their respective constructs. The variables and constructs are hereby defined and summarised, for ease of reference.

Performance expectancy refers to the degree to which an individual believes that using the system will help them attain gains in job performance. Key constructs of performance expectancy are defined by Venkatesh *et al.* (2003:447-448) as:

- **PU:** The degree to which an individual believes that using a particular system would enhance their job performance.
- **Extrinsic motivation:** The perception that users will want to perform an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions.
- **Job fit:** How the capabilities of a system enhance an individual's job performance.
- **Relative advantage:** The degree to which using an innovation is perceived as being better than using its precursor.
- **Outcome expectations:** The consequences of the behaviour, that is, performance expectations and personal expectations.

For this study, performance expectancy refers to the degree to which financial services clients believe that using digital banking channels will help them in attaining their financial and life goals.

Effort expectancy refers to the degree of ease associated with using the system. Key constructs as defined by Venkatesh *et al.* (2003:447-448) are:

- **PEU:** The degree to which an individual believes that using a system will be free of effort.
- **Complexity:** The degree to which a system is perceived to be difficult to understand and use.
- **Ease of use:** The degree to which an innovation is regarded as being easy or difficult to use.

For this study, effort expectancy refers to the ease of use that clients associate with digital banking channels.

Social influence refers to the degree to which an individual perceives that others who are important to them believe that they should use the new system. It reflects the effect of referents' opinions on individual user behaviour. Its constructs are defined by Venkatesh *et al.* (2003:447-448) as follows:

- **Subjective norm:** An individual's perception that most people who are important to them think they should or should not perform the behaviour in question.
- **Social factors:** An individual's internalisation of the reference group's subjective culture and specific interpersonal agreements that they have made with others in specific social situations.
- **Image:** The degree to which use of an innovation is perceived to enhance an individual's image or status in one's social system.

For this study, social influence is the degree to which an individual perceives that other important persons in their lives believe that they should use digital banking channels. This reflects the effect of the referents' opinions on clients' behaviour to use digital banking channels.

Facilitating conditions refer to the resources and knowledge available to allow users to adopt technology platforms (Alwahaishi & Snasel, 2013:34). Facilitating conditions also refer to the degree to which an individual believes technical infrastructure exists to enable them to use a system. Key constructs of facilitating conditions are defined by Venkatesh *et al.* (2003:447-448) as follows:

- **Perceived behavioural control:** This reflects perceptions of internal and external constraints on behaviour and encompasses self-efficacy, resource facilitating conditions, and technology facilitating conditions.
- **Environmental support:** This refers to objective factors in the environment that observers agree make an act easy to do, including the provision of computer support.
- **Compatibility:** The degree to which an innovation is perceived as being consistent with the existing values, needs, and experiences of potential adopters.

For this study, facilitating conditions refer to the degree to which the resources and knowledge are available to allow financial services clients to adopt digital banking channels. This also applies to the degree to which a financial services client believes that technology infrastructure, such as connectivity and devices, is available for the usage of digital banking channels.

The independent variables are the digital banking factors that are likely to influence financial inclusion and, hence, were investigated as single constructs in this study. Having discussed the independent variables and their constructs, a discussion of the dependent variable follows next.

4.3.3.2 Dependent variable

A dependent variable is of primary interest to the researcher, as their goal is to understand and describe this variable (Sekaran & Bougie, 2016:73). It is also called a response variable or output variable (Singh, 2006:63). According to Pandey and Pandey (2015:29), if one variable depends on, or is a consequence of another, it is termed a dependent variable, and forms the basis on which the independent variables are studied. Therefore, the dependent variable is the primary variable that lends itself

to investigation through the analysis of what variables influence it. Through such an analysis, it is then possible to find answers or solutions to the research problem (Sekaran & Bougie, 2016:73). Overall, the dependent variable is the one that may change in response to changes in the other independent variables, observed outcomes, or as a result of manipulating other variables (Saunders *et al.,* 2023:191; Singh, 2006:64).

The dependent variable for this study was ***financial inclusion****,* which refers to citizens' access to appropriate, low-cost, fair, and safe financial products, and services from mainstream FSPs (Varghese & Viswanathan, 2018:2). In addition, financial inclusion can also be defined as the access and use of quality, sustainable, and safe financial services by all individuals and institutions of the population (Cabeza-García *et al.,* 2019:3). As discussed in Chapter 2, financial inclusion is important to economies as it aids growth and employment by providing input into industry growth, reducing poverty and inequality, and promoting local savings. Financial inclusion also brings benefits to clients through formalising financial activities, provides greater access to resources to meet financial needs, promotes savings, reduces poverty, provides for value and convenience, and increases entrepreneurial capabilities of low-income groups (Barajas *et al.,* 2020:22; Manyika *et al.,* 2016:2; OECD, 2018:9; World Bank, 2019:17). Additionally, businesses also benefit from financial inclusion as it enhances profitability, provides access to useful technology, increases productivity and growth, allows for innovation by FSPs, and generally leads to greater development of the financial services industry (Abel *et al.,* 2018:2; Mehrotra *et al.,* 2009:x; Ozili, 2020a:4-5).

Financial inclusion goes beyond the behavioural intention to use financial services, as it has to do with the actual usage of financial services. Fishbein and Ajzen's TRA first introduced the concept of behavioural intention, which refers to the intention that a person has prior to an actual behaviour (actual usage); thus, it is a measure of one's intention to perform the (actual) behaviour (Chutter, 2009:3). Behavioural intention and actual behaviour are also components of the UTAUT. Therefore, for this study, financial inclusion refers to a situation where most individuals in the population of a country have access to and use of quality, relevant, and affordable financial services that sustainably address their needs. This study tested the possible influence of digital

banking factors on financial inclusion (as a single construct), as perceived by women and youth in both South Africa and Zimbabwe.

Studies have been done in different contexts and from different perspectives on the concept of financial inclusion, and some of these studies are summarised below:

- Chitokwindo, Mago and Hofisi (2014:415) conducted an overview study of financial inclusion in Zimbabwe. The study concludes that financial exclusion is responsible for poverty and inequality in Zimbabwe, and that the most 'unbanked' are rural dwellers, who remain on the lowest level of the development ladder. Financial inclusion can be enhanced through the development of rural banks to promote savings and investments, thus developing rural businesses and reducing poverty.
- Yap, Lee and Liew (2024) studied the role of insurance and banking services on financial inclusion. The study provides a comprehensive assessment of how bank-driven and insurance-driven financial inclusion differ and assist in overcoming the various barriers to financial inclusion, and compares the levels of different markets to identify the favourable insurance and banking practices to achieve the overall goal of financial inclusion. Yap et al. (2024:1,3) assert that the re-evaluation of financial inclusion strategies worldwide is necessary.
- Singh and Roy (2015:12,16) conducted a critical assessment of the concepts and measurement of financial inclusion. The study concluded that most of the definitional aspects of financial exclusions revolve around a lack of access for sections of the consumers, whether voluntary or involuntary, to low-cost, safe and fair financial products that provide financial stability to the excluded and act as a catalyst to their economic growth. The study concludes that exclusion occurs for reasons such as inconvenient products, unaffordable products, client ignorance, a lack of financial literacy, high transaction costs, and low outreach by banks.
- Lyons and Kass-Hanna (2019:32) used the 2024 Global Findex, along with macro-economic indicators, to investigate financial inclusion in the Middle East and North Africa regions. The study found that economically vulnerable populations are significantly less likely to be financially included. The study also

found that the impacts of financial literacy, infrastructure, and other socioeconomic macro factors do not relate to all individuals in the Middle East and North Africa region equally, as vulnerable groups tend to be more responsive to the impacts of financial literacy, compared to less vulnerable groups.

- Sofi and Zamir (2019:97, 101) studied the impact of financial inclusion on the economic growth of India through an empirical analysis of economic growth over 10 years (2006 to 2016). The study's regression results confirm a positive and significant impact of financial inclusion on GDP, except for one variable of financial inclusion (credit-deposit ratio), which shows a positive but statistically insignificant impact on GDP.
- Bathula and Gupta (2021) conducted a study on determinants of financial inclusion and digital financial inclusion in India, where a comparative analysis of the individual determinants for a few leading indicators of access and usage was based on binary probit regression analysis using the World Bank's 2017 Global Findex Database. The study concluded that education and workforce participation are positively associated with access to financial services and digital financial services, while the probability of using mobile banking was lower among women and those experiencing poverty.
- Nkemjika (2021:2,39) conducted a case study of the influence of financial inclusion on deposit mobilisation in Nigeria with a focus on commercial banks in that market. The study concludes that financial inclusion has a positive effect on deposit mobilisation and recommends that, since deposits are the primary source of funds to commercial banks, banks should give due emphasis to savings mobilisation and improve deposit rates to mobilise deposits from rural areas. At the same time, loans to rural areas and small enterprises should also receive attention.
- Nwome, Egwu and Ikoh (2024) studied the effects of financial innovations on financial inclusion in Nigeria using an ex post facto research design. The results of the study show that financial innovations, such as agency banking, POS, mobile banking, and internet banking, have major positive and significant effects on financial inclusion in Nigeria.

- Amnas, Selvam and Paratiyam (2024:1) studied the potential of financial technology to promote financial inclusion, and the results reveal that trust, service quality, and perceived security are essential in promoting the utilisation of fintech services. The research also notes that perceived regulatory support has a significant moderating influence on the relationship between fintech and financial inclusion, and the overall results of the study offer practical advice for policymakers and fintech companies to achieve the goal of financial inclusion.

Various studies have found that financial inclusion can be enhanced through the promotion of financial services in rural areas. Studies have also covered good banking and insurance practices to achieve financial inclusion, reasons for financial exclusion, factors impacting financial inclusion, and the role of financial innovations in financial inclusion. For this study, examining digital banking and financial inclusion in South Africa and Zimbabwe was pertinent.

The development of the hypothesised model was explained and justified in this chapter. The study variables were also explained, with some of the research done on technology adoption and financial inclusion also discussed.

4.4 CHAPTER SUMMARY

The focus of this chapter started with a review of technology adoption models with a view to determining possible factors that influence the adoption of technology, hence digital banking in this study's context. It was noted that, whereas numerous theories, frameworks, and previous research have identified various factors, the UTAUT was identified to be used as a basis for the development of the hypothetical model for this study. This is because the UTAUT is inclusive of many other theories, and it is comprehensive because of its interconnected nature. The independent variables derived from the UTAUT are performance expectancy, effort expectancy, social influence, and facilitating conditions (as digital banking factors), and their possible influence on the dependent variable (financial inclusion) was measured.

Research activities are oriented towards hypothesis verification; hence, the developed model was tested using statistical analysis as part of this study. Therefore, it is pertinent to discuss the research methodology employed in this study to aid in the

testing of the hypotheses. The upcoming chapter, Chapter 5, therefore addresses the research design and methodology adopted for this study.

CHAPTER FIVE

RESEARCH DESIGN AND METHODOLOGY

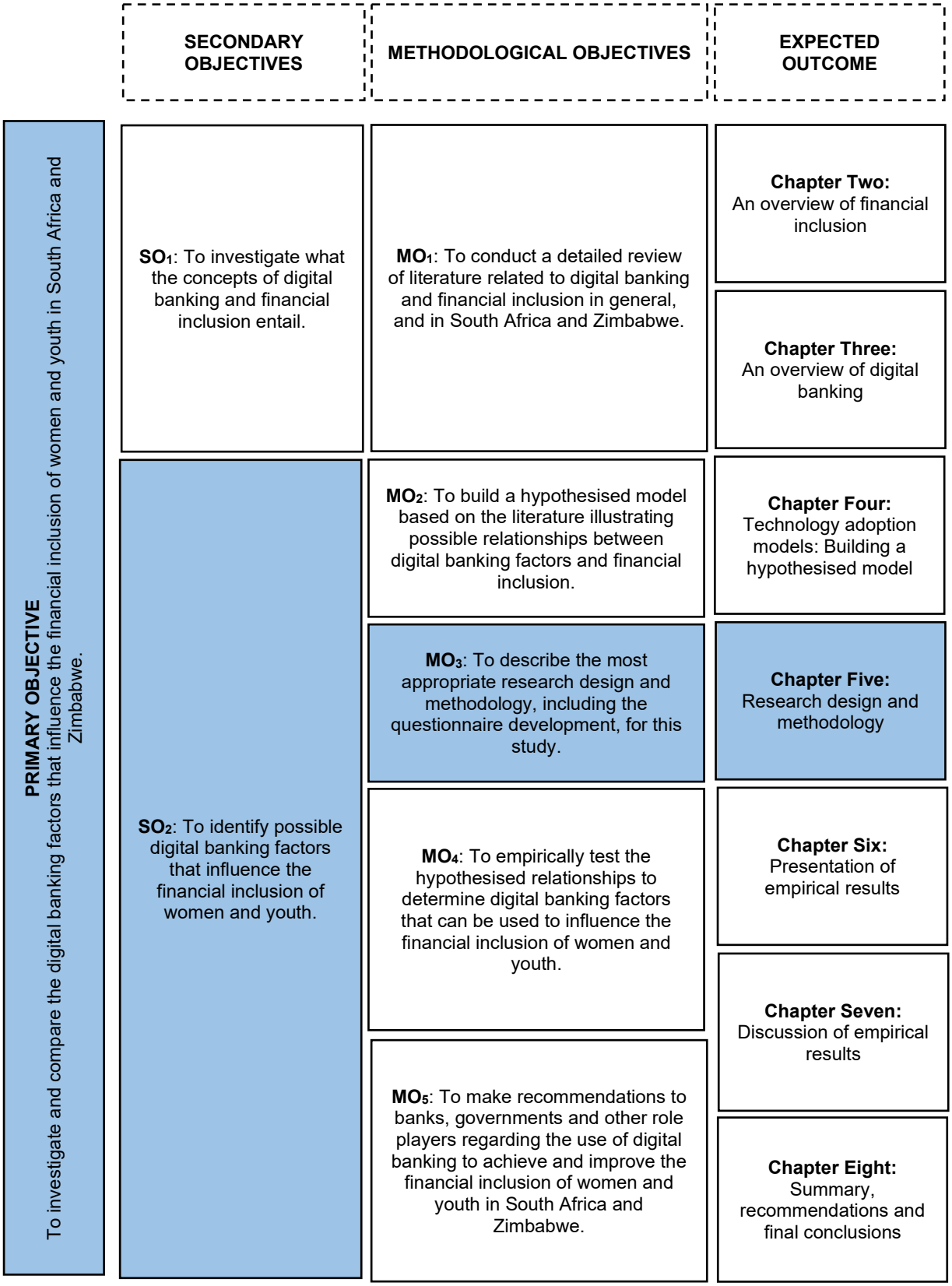
5.1 INTRODUCTION

The primary objective of this study was to investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe. Following a detailed literature review on financial inclusion and digital banking in Chapters 2 and 3, respectively, a hypothesised model showing possible relationships between digital banking factors and financial inclusion was proposed in Chapter 4. Since what digital banking and financial inclusion entail has been explained and the literature relevant to the study has been covered (SO_1 and MO_1), and the hypothesised model has been presented (SO_2 and MO_2), the focus of this chapter is a discussion of the research methodology followed during the study, which assists in partly attaining secondary objective 2 (SO_2) and the full attainment of methodological objective 3 (MO_3) of this study.

This chapter identifies the appropriate research design and methodology to address the research objectives. This chapter covers aspects of the research philosophy, approach to theory development, methodological choice, research strategy, and the time horizon of the study. The chapter also discusses data collection techniques, population selection, and sampling techniques. As part of the chapter, the development and administration of questionnaires are presented. A discussion of the selected items considered to measure the study's variables during the questionnaire development is provided. The chapter subsequently discusses the procedures used for the data analysis and concludes with the ethical considerations applicable to this study.

Figure 5.1 shows how Chapter 5 is placed in the overall research framework for this study.

FIGURE 5.1: CHAPTER 5 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS

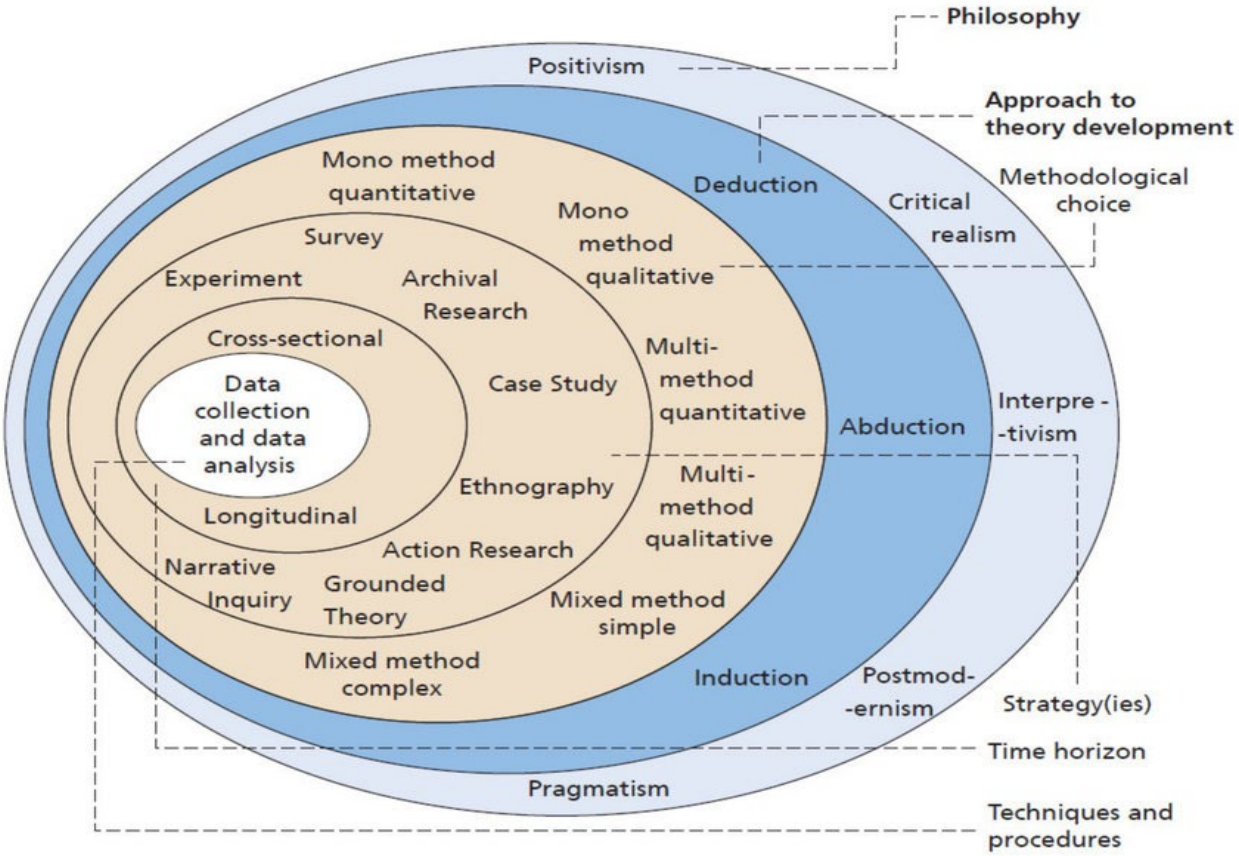


Source: Researcher's own construction

5.2 RESEARCH METHODOLOGY

According to Igwenagu (2016:4), the research methodology regards the systematic and theoretical analysis methods applied to a study. Sekaran and Bougie (2016:50) define research methodology as a logical method for the collection and interpretation of data followed by an analysis of results or findings. This study's research design and methodology are explained by means of the research onion presented by Saunders *et al.* (2023:131), as depicted in Figure 5.2.

FIGURE 5.2: THE RESEARCH ONION



Source: Saunders *et al.* (2023:131)

The research onion consists of six layers: research philosophy, approach to theory development, methodological choice, research strategies, time horizon, and techniques for data collection and analysis. The subsections to follow focus on analysing each layer before discussing the selection and justification of the most appropriate choice for this study.

5.2.1 Research philosophy

Research philosophy is a system of beliefs and assumptions about the development of knowledge (Saunders *et al.,* 2023:133). There are three assumptions associated with research philosophies, which are ontology, epistemology, and axiology. Ontology relates to assumptions about the nature of reality, that is, beliefs about the world, while epistemology highlights the assumptions about knowledge, that is, what constitutes acceptable knowledge and how one comes to aquire it (Saunders *et al.,* 2023:133-134; Sekaran & Bougie, 2016:28). Axiology relates to the role of values and ethics in the research process (Saunders *et al*., 2023:134-135). Ontology, epistemology and axiology are distinguished mainly based on their position on a continuum of objectivism and subjectivism (Saunders *et al.,* 2023:133).

Five major philosophies exist in business and management, and these are positivism, critical realism, interpretivism, postmodernism, and pragmatism (Bryman & Bell, 2011:15; Saunders *et al.,* 2023:147-148). According to Sekaran and Bougie (2016:28), a positivist view of the world presupposes that scientific research is the means to uncover the truth required to help understand the world well enough to predict and control it. Positivism presupposes that truth is tangible, and its meaning can be recognised and measured using objective natural science approaches (Bryman & Bell, 2011:15; Saunders *et al.,* 2023:146). Positivism is concerned with the rigour and replicability of research, as well as the reliability and generalisability of the research results (Saunders *et al.,* 2023:146; Sekaran & Bougie, 2016:28).

Additionally, a positivist philosophy strictly emphasises empiricist methods designed to yield pure data and facts, free from human interpretation or bias (Saunders *et al.,* 2023:147). However, positivists also remain objective, neutral, and detached from the research and data to avoid influencing the results (Saunders *et al.,* 2023: 148). Typical methods for positivist research include deductive, highly structured approaches that facilitate replication (Saunders *et al.,* 2023:147; Sekaran & Bougie, 2016:28). The emphasis is on verifiable observations that lend themselves to statistical analysis (Saunders *et al.,* 2023:147). Large samples are used, and measurement is typically performed using quantitative analysis methods; however, a range of data can be analysed (Saunders *et al.,* 2023:146). According to Sekaran and Bougie (2016:28), the primary approach used by positivists is experimentation, which enables them to

evaluate cause-and-effect relationships through manipulation and observation of variables.

Critical realism is a combination of the objective truth proposed by positivists with the existence of observations, which are always subject to interpretation (Sekaran & Bougie, 2016:29). The critical realist is critical of the ability to understand the world with certainty and believes that measures of phenomena, such as emotions, feelings, and attitudes are often subjective, hence research is inherently biased (Sekaran & Bougie, 2016:29). According to Saunders *et al.* (2023:149-150), critical realism therefore focuses on explaining what one sees and experiences, in terms of the underlying structures of reality that constitute observable reality. A critical realist researcher needs to be aware of the ways in which the researcher's sociocultural background and experiences might influence research, and strive to minimise bias to be as objective as possible (Saunders *et al.,* 2023:150).

Interpretivism was developed as a critique of positivism from a subjective perspective. It emphasises that humans are different from physical phenomena because they create meaning and interpret those meanings (Saunders *et al.,* 2023:150). The purpose of interpretivist research is to create new, richer understandings and interpretations of social worlds and contexts; in business research, this implies considering issues from the perspectives of different groups of people (Saunders *et al.,* 2023:150). According to Saunders *et al.* (2023:151), interpretations of what may appear to be the same thing on the surface can be different between historical and geographical contexts. Interpretivism addresses this complexity by only focusing on what is meaningful to the researcher (Saunders *et al.,* 2023:151).

Postmodernism is another research philosophy that emphasises the role of language and the power of relations, and it seeks to question accepted ways of thinking and to give a voice to alternative marginalised views (Saunders *et al.,* 2023:152). Postmodernism rejects the objectivist, realist ontology of things and seeks to expose and question power relations that sustain dominant realities through 'deconstructing' those realities. Postmodernists strive to make what has been left out or excluded more visible (Saunders *et al.,* 2023:152).

Pragmatism strives to reconcile both objectivism and subjectivism, facts and values, accurate and rigorous knowledge, and different contextual experiences by considering theories, concepts, ideas, hypotheses, and research findings in terms of the roles they play as instruments through an action, and in terms of the practical consequences in specific contexts (Saunders *et al.,* 2023:153). According to Sekaran and Bougie (2016:29), pragmatists avoid taking a position on what makes good research and feel that both objective, observable phenomena and subjective meanings can produce beneficial knowledge depending on the research questions. Pragmatists emphasise the socially constructed nature of research and believe that different researchers may have different views about and explanations of what is happening, and that these different viewpoints, ideas, and theories assist in gaining an understanding of what is happening (Sekaran & Bougie, 2016:28). For pragmatists, theory is derived from practice, which is then applied back to practice to achieve intelligent practice. For a pragmatist, the value of research lies in its practical relevance, and the purpose of theory is to inform practice (Sekaran & Bougie, 2016:29). Research methods used by pragmatists are mixed, multiple, qualitative, or quantitative because pragmatists believe that if a research problem does not suggest that one method should be adopted, a combination of methods are often appropriate (Saunders *et al.,* 2023:153).

The study applied a positivist research paradigm to achieve its objectives and empirically test the postulated hypothesised relationships. Positivism was appropriate for the study as it allowed for identifying the real-world relationships between digital banking factors and the financial inclusion of women and youth in both South Africa and Zimbabwe, and how the two countries compare in that regard. In addition, this study also sought to assess the adoption of digital banking by different demographic groups and the influence that it has on the financial inclusion of women and youth in both South Africa and Zimbabwe.

Positivism also entails remaining neutral and detached from the research and data to avoid influencing the results (Saunders *et al.,* 2023:146). This study applied ethical, scientific, and statistically justified rules to eliminate bias at the data collection and analysis stages.

5.2.2 Approach to theory development

The next layer of the research onion focuses on the approach to theory development. The approach to theory development considers the extent to which the research study is concerned with theory testing or theory building, which has an impact on the design of the research (Saunders *et al.,* 2023:155). According to Saunders *et al.* (2023:155), the three main approaches to theory development are deduction, abduction, and induction.

A deductive approach starts with a theory, often derived from a literature review, followed by designing a research study to test the theory (Saunders *et al.,* 2023:157; Sekaran & Bougie, 2016:26). Deductive reasoning therefore moves from the more general theory to the specific (Sekaran & Bougie, 2016:26). Deduction is dominant in natural sciences where laws present the basis for explanation, allowing the anticipation of phenomena, predicting occurrences of the phenomena, and permitting the phenomena to be controlled (Saunders *et al.,* 2023:157). According to Saunders *et al.* (2023:157), deduction has three main characteristics. The first is the search to explain relationships between concepts and variables. The second is that deduction supposes that concepts need to be operationalised in a way that enables them to be measured, often quantitatively. Lastly, the third is that deduction is characterised by generalisation, and to generalise results, the sample selection must be carefully done. Due to its scientific nature that emphasises structure, quantification, generalisability, and testing hypotheses, the deductive approach is most likely to be underpinned by the positivist research philosophy (Saunders *et al.,* 2023:157).

An abductive approach involves collecting data to explore a phenomenon and identify themes and patterns to generate a new or modify an existing theory, which is subsequently tested through additional data collection (Saunders *et al.,* 2023:153). Due to its flexibility, the abductive approach can be used from within several different research philosophies. In addition, a well-developed abductive approach is most likely underpinned by pragmatism or postmodernism and can be underpinned by critical realism (Saunders *et al.,* 2023:157).

The last approach to theory development is induction, which starts by collecting data to explore a phenomenon and generates or builds a theory, often in the form of a

conceptual framework (Saunders *et al.,* 2023:158). Induction therefore involves observing specific phenomena, and based on these observations, arrive at general conclusions, hence moving from the more specific to the more general (Sekaran & Bougie, 2016:26). Induction criticises deduction for the critical reasoning approach that enables a cause-and-effect link to be made between variables without an understanding of human interpretation of the world, and because of the tendency to construct rigid methodology that does not permit explanations of what is happening (Saunders *et al.,* 2023:158). Induction addresses the criticism of deduction by developing an understanding of how humans interpret the social world and focusing on the context and emphasis of subjective interpretations. Due to its connection to the humanities and emphasis on subjective interpretations, induction is most likely informed by the interpretivist philosophy (Saunders *et al.,* 2023:156).

This study employed a deductive approach. This approach was preferred over the inductive approach because it takes a general theory and subjects it to rigorous testing to make conclusions (Saunders *et al.,* 2023:157). The deductive approach posits that when the premises are true, the conclusion is also true, and that there is generalisability from the general to the specific. Data collection is used to evaluate propositions or hypotheses related to existing theory, and it is concerned with theory falsification or verification (Saunders *et al.,* 2023:156). The deductive approach was deemed relevant to the study as it sought to investigate variables emanating from theories of technology adoption, relevant to digital banking, being mainly the UTAUT, and the variables' possible relationships with financial inclusion. The variables were presented in a hypothesised model, which was tested, and conclusions on possible relationships were made in line with the deductive approach.

5.2.3 Methodological choice

The next layer of the research onion relates to the methodological choice of the study. The methodological choice regards whether the study will follow a quantitative method (mono-method and multi-method), a qualitative method (mono-method and multi-method), or a mixed-method research approach, which incorporates both quantitative and qualitative research (Saunders *et al.,* 2023:174).

5.2.3.1 Quantitative research

Quantitative research is based on the aspect of quantity or extent and can be expressed in terms of something that can be counted (Mishra & Alok, 2017:3). Quantitative research involves data presentations, such as graphs and statistics that generate or use numerical data (Saunders *et al.,* 2023:175). Quantitative research is generally associated with positivism, especially when used with highly structured data collection techniques (Saunders *et al.,* 2023:176).

In terms of the approach to theory development, quantitative research is usually associated with a deductive approach involving data collection and analysis to test theory, although it can also incorporate an inductive approach where data are used to develop theory (Saunders *et al.,* 2023:176). Quantitative research is characterised by examining relationships between variables, which are measured numerically and analysed using a range of statistical and graphical techniques (Saunders *et al.,* 2023:177). It is an experimental design incorporating controls to ensure the validity of data. According to Saunders *et al.* (2023:178), quantitative research may use a single data collection technique, such as a questionnaire; therefore, it is referred to as mono-method quantitative research. Alternatively, a researcher may use more than one quantitative data collection technique, which is then referred to as multi-method quantitative research.

5.2.3.2 Qualitative research

Qualitative research generates or uses non-numerical data, such as words, images, audio recordings, video clips, and other materials (Saunders *et al.,* 2023:176). Due to the nature of qualitative research, it is associated with an interpretive philosophy, as researchers need to make sense of the subjective and socially constructed meanings expressed about the phenomenon being studied (Saunders *et al.,* 2023:179). In terms of approach to theory development, most qualitative research employs an abductive approach, where inductive references are developed, and deductive references are tested iteratively throughout the research (Saunders *et al.,* 2023:180).

Qualitative research is characterised by studying participants' meanings and relationships, hence it is interested in gaining cognitive access to their data. Meanings are derived from words and images, and since words and images can convey a great

deal, it is often necessary to clarify them with participants using both structured and unstructured methods that allow for flexibility that is natural and interactive (Saunders *et al.,* 2023:180). Qualitative research may involve a single data collection procedure, such as semi-structured interviews, and is referred to as mono-method qualitative research, or it can involve the use of more than one data collection method, such as a combination of in-depth interviews and diary accounts, which is then referred to as multi-method qualitative research (Saunders *et al.,* 2023:180). Typical data collection techniques used in qualitative research include observation and in-depth interviews (Saunders *et al.,* 2023:182).

5.2.3.3 Mixed-method research

Mixed-method research is the branch of multi-method research that focuses on collecting, analysing, and mixing both quantitative and qualitative data collection techniques and analytical procedures in the same research study (Saunders *et al.,* 2023:181; Sekaran & Bougie, 2016:107). Mixed-methods research is associated with pragmatism and critical realism (Saunders *et al.,* 2023:181). According to Saunders *et al.* (2023:182), researchers who use mixed-method research prefer a pluralist view of research, which involves flexibility in the selection and use of both quantitative and qualitative research methods. In terms of approach to theory development, mixed-methods research may use a deductive, inductive, or abductive approach to theory development (Saunders *et al.,* 2023:183).

5.2.3.4 Choice of methodology

This study employed quantitative mono-method research, meaning that a single data collection technique using a questionnaire was applied. Quantitative research involves the systematic analysis of observable phenomena using statistical, mathematical, or computational techniques (Mishra & Alok, 2017:3), allowing for a systematic analysis of numerical data to explain the relationships between the digital banking factors and financial inclusion variables under study. Quantitative research is also aligned with the deductive approach, where data are collected and analysed to test theories, as well as with the positivist philosophy when used with predetermined and structured data collection techniques (Saunders *et al.,* 2023:177), as was done in this study.

5.2.4 Research strategy

The research strategies layer of the research onion encompasses different strategy options, namely experiment, survey, archival research, case study, ethnography, action research, grounded theory, and narrative inquiry.

An experiment is a form of research based on natural sciences where the purpose is to study causal relationships, that is, the probability of a change in an independent variable causing a change in a dependant variable (Saunders *et al.,* 2023:190; Sekaran & Bougie, 2016:97). Experimental research is purely quantitative in nature (Pandey & Pandey, 2015:12). Two types of hypotheses are formulated in experimental research, namely a null hypothesis, explaining that there is no difference or relationship between variables, and the alternative hypothesis, explaining that there is a difference or relationship between the variables (Saunders *et al.,* 2023:191).

A survey strategy, using a questionnaire, allows for data collection that can be analysed quantitatively using descriptive and inferential statistics. The analysed data can be used to suggest possible relationships between variables and produce models for the relationships (Saunders *et al.,* 2023:194; Pandey & Pandey, 2015:12). A survey strategy is usually used for exploratory or descriptive research using questionnaires to collect standardised data from large number of respondents about people, events, or situations in an economical way (Saunders *et al.,* 2023:194; Sekaran & Bougie, 2016:97).

Archival and documentary research involves the creation of a repository for textual, audio, and visual representations (Saunders *et al.,* 2023:196). Visual and audio documents include advertising posters, artefacts, audio recordings, audiovisual corporate communications, digital recordings, DVDs, films, photographs, products, promotional advertisements and recordings, television and radio programmes, and web images (Saunders *et al.,* 2023:195).

A case study is another research strategy. According to Sekaran and Bougie (2016:98) as well as Kapur (2018:16), case study research focuses on the collection of information regarding a specific object, event, or activity to obtain a clearer picture of a specific object, event, or activity. With case study research, the researcher needs to

examine the situation from different perspectives using multiple methods of data collection. A case study involves an in-depth inquiry into a topic within its real-life setting and context, and it has the capacity to generate insights leading to rich, empirical descriptions and theory development (Saunders *et al.,* 2023:197). A single case study can be employed, which represents a critical, extreme, or unique case, while a study of multiple cases is meant to determine whether findings can be replicated across cases, thereby producing more evidence (Saunders *et al.,* 2023:199-200).

Ethnography refers to written accounts of people or groups and is used to study the culture and social group of people, with its roots being in anthropology (Saunders *et al.,* 2023:199; Sekaran & Bougie, 2016:97). It takes place in the uninterrupted natural setting of the environment to which the subjects belong (Kapur, 2018:31). Realistic, interpretive, and clinical ethnography exist, and involves a researcher who believes in objective and factual reporting identifying true meanings. Interpretive ethnography emphasises the researcher's belief in the likelihood of multiple meanings rather than being able to identify a single, true meaning (Saunders *et al.,* 2023:200). Critical ethnography intends to explore and explain the consequences of power, privilege, and authority on those who are marginalised or subjected to the influences of such (Saunders *et al.,* 2023:200).

Action research involves dealing with a precise problem found in a particular situation (Kapur, 2018:31). According to Saunders *et al.* (2023:202), as well as Sekaran and Bougie (2016:98), action research is used to initiate change in organisations through promoting organisational learning to produce practical outcomes by identifying issues, planning action, acting, and then evaluating that action. Action research commences within a specific context; however, it follows several stages and iterations, and the focus of the question may be altered as the research develops (Saunders *et al.,* 2023:204). Participation is also an important component of action research where the researcher works with members of an organisation as a facilitator and teacher to improve the situation for the participants and their organisation (Saunders *et al.,* 2023:204; Sekaran & Bougie, 2016:98).

Grounded theory refers to the data collection techniques and analytical procedures it uses and refers to a theory that is grounded in or developed inductively from a set of data (Saunders *et al.,* 2023:204). Important tools used in grounded theory include theoretical sampling, coding, and constant comparison (Sekaran & Bougie, 2016:98).

The strategy of narrative inquiry takes the form of a qualitative research interview involving a participant in storytelling, where the participant provides a personal account that interprets an event or sequence of events (Saunders *et al.,* 2023:209). It provides chronological connections and explanations, and the narrator provides an interpretation of these events, allowing the narrative researcher to analyse the meanings that the narrator attributes to them (Saunders *et al.,* 2023:209). It is typically associated with small samples, as it is time-consuming and likely to generate large amounts of data (Saunders *et al.,* 2023:210).

This study adopted a survey strategy. According to Saunders *et al.* (2023:179), the selected quantitative mono-method research is associated with experimental and survey strategies; in this study, a survey using questionnaires was used. The survey technique was deemed appropriate as it allows for the collection of a large amount of data from a sizeable population in an economical way, allows easy analysis of data, is perceived as authoritative by people, and is easy to explain and to understand (Mishra & Alok, 2017:8). In addition, data collected using a survey strategy can be used to suggest possible relationships between variables and produce models of these relationships (Kapur, 2018:31; Saunders *et al.,* 2023:194-195), which is relevant to this study because it aimed to determine relationships between digital banking factors and financial inclusion to resolve the challenge of financial exclusion of women and youth and achieve higher levels of financial inclusion for both groups in both South Africa and Zimbabwe.

5.2.5 Time horizon of the study

In designing research, it is important to determine if the research is a snapshot taken at a particular time or whether a series of snapshots representing events over a given period is required (Saunders *et al.,* 2023:176). The time horizon of a study will determine whether it is a cross-sectional study or a longitudinal study. Cross-sectional studies involve studying phenomena at a particular time and can be undertaken by

gathering data once or over a short period of time and are also referred to as 'one-shot studies' (Saunders *et al.,* 2023:213; Sekaran & Bougie, 2016:104). This type of study seeks to describe the incidence of a phenomenon or explain how factors are related in different organisations. Cross-sectional studies generally can use one or a mix of research strategies (Saunders *et al.,* 2023:213).

Compared to cross-sectional studies, longitudinal studies have the capacity to study change and development (Saunders *et al.,* 2023:213), which is done by gathering data at two or more points in time to answer a research question (Sekaran & Bougie, 2016:105).

As discussed, cross-sectional studies involve the study of phenomena or phenomena at a particular point in time (Saunders *et al.,* 2023:213). This study adopted a cross-sectional time horizon, entailing collecting data at a particular point in time and identifying respondents' perceptions. The cross-sectional time horizon was considered appropriate for investigating digital banking factors that can influence financial inclusion in South Africa and Zimbabwe at this current time, given the need to address financial inclusion issues.

5.2.6 Data collection

This study collected both secondary and primary data to address the research questions.

5.2.6.1 Secondary data collection

Secondary data collection involves the collection of data from studies that other researchers have conducted (Dawson, 2007:43; Sekaran & Bougie, 2016:37). For this study, secondary data were collected from various sources, including textbooks, online scholarly articles, national reports, survey data, institutional publications, national policy literature, banks' annual reports, and other credible official statistics and publications. The secondary data informed the literature review of this study, as detailed in Chapters 2 and 3, which led to the development of a hypothesised model, as presented in Chapter 4.

The secondary data revolved around topics such as the definition of financial inclusion, theories of financial inclusion, the importance of financial inclusion, determinants of financial inclusion, measurements of financial inclusion, barriers to financial inclusion and a view of financial inclusion from different contexts. The discussion of the literature review on digital banking included the definition and scope of digital banking, digital banking channels, digital disruption in the financial services industry, benefits of digital banking, challenges of digital banking, and a discussion of digital banking in South Africa and Zimbabwe. A discussion of technology adoption models was also provided. Nelson Mandela University databases, including Emerald, JSTOR and SAGE, were also employed in the literature review.

5.2.6.2 Primary data collection

Primary research data collection involves gathering data for a specific purpose, mainly from other people (Dawson, 2007:41; Sekaran & Bougie, 2016:38). Methods of primary data collection include interviews, observations, administering questionnaires, and experiments (Sekaran & Bougie, 2016:38). This study adopted collecting data specifically through soliciting responses from the targeted respondents. Primary data were therefore collected using structured questionnaires, where respondents' views and perceptions were gathered as part of the empirical study.

a. Study population

Study population, also known as the universe, refers to the entire group of people, events, or things that the researcher wishes to investigate (Pandey & Pandey, 2015:40; Sekaran & Bougie, 2016:236). The study was conducted in all provinces of South Africa and Zimbabwe, and the target population was women and youth (both male and female) in the two countries. Youth is defined, as per the United Nations' UNDESA (2021), as those persons between the ages of 15 and 24 years, without prejudice to other definitions by member states. However, only youth aged between 18 and 24 years were considered for participation in the study because of their legal capacity to provide consent as individuals. This study's units of analysis were individual women and youth bank clients and individual non-banked women and youth clients. For this study, 'women' were all respondents identifying as females between

the ages of 25 and 60. For this study, females between 18 and 25 were not included under ‘women’, and instead were included under ‘youth’.

b. Sampling

A sample is a given number of subjects from a defined population that are representative of that population (Pandey & Pandey, 2015: 41). A sampling unit is the element or set of elements that is available for selection in the sampling process, while a sample is the subset of the population comprising members of the population selected to be part of the study (Sekaran & Bougie, 2016:237). The demarcation for this study was the provinces of South Africa and Zimbabwe, from which respondents were selected. The sampling unit was women and youth in South Africa and Zimbabwe, regardless of whether they were currently bank clients or not. The sample size for the study was the total number of respondents, as determined using the chosen sampling technique. Research can use probability sampling techniques or non-probability sampling techniques (Saunders *et al.,* 2023:212; Sekaran & Bougie, 2016:240). A multistage sampling technique also exists, where successive stages of probability and non-probability techniques, or both, are employed (Saunders *et al.,* 2023:325).

Probability sampling is also called representative sampling and is associated with studies where the researcher needs to make statistical inferences from the sample about a population to address the research questions (Saunders *et al.,* 2023:296). With probability sampling, the chance (or probability) of each unit being selected from the target population is known (Kapur, 2018:43; Saunders *et al.,* 2023:296; Sekaran & Bougie, 2016:240). Probability sampling is used when the representativeness of the sample is important to the study in the interest of the generalisability of the results (Sekaran & Bougie, 2016:220). Some probability sampling techniques include simple random sampling, systematic random sampling, stratified random sampling and cluster sampling.

With non-probability sampling, also referred to by Mishra and Alok (2017:9) as deliberate sampling, the probability of each unit being selected in the target population is unknown, and it is impossible to answer research questions or to address objectives that require making statistical inferences about the characteristics of the population

(Saunders *et al.,* 2023:296), meaning that results from the study of the sample cannot be confidently generalised to the population (Sekaran & Bougie, 2016:247).

This study employed non-probability sampling, as the chance of each unit being selected from the targeted national population of South Africa and Zimbabwe was not known. Non-probability sampling techniques include quota sampling, convenience sampling, purposive sampling, volunteer sampling, snowball sampling, and haphazard sampling. Quota sampling is a form of proportionate stratified sampling in which a predetermined proportion of respondents is sampled from different groups on a convenience basis (Pandey & Pandey, 2015:55; Sekaran & Bougie, 2016:249). It involves dividing the population into specific groups and calculating a quota for each group based on relevant and available data (Saunders *et al.,* 2023:317). Quota sampling is entirely non-random and is often used in place of probability sampling for internet- and interviewer-completed questionnaires as part of a survey strategy (Saunders *et al.,* 2023:317). Convenience sampling involves selecting units that are readily available for the sample, which saves time, money, and effort (Mujere, 2016:115; Sekaran & Bougie, 2016:247).

Purposive sampling, also known as judgemental or judgement sampling, uses judgement in selecting participants that will best enable answering the research questions because they have the required information, or they conform to some set criteria (Mishra & Alok, 2017:9; Saunders *et al.,* 2023:321; Sekaran & Bougie, 2016:28). Purposive sampling is appropriate when a study emphasises the control of certain specific variables (Pandey & Pandey, 2015:54). Volunteer sampling involves two methods, namely self-selection and snowball sampling. Self-selection sampling occurs when each case is allowed to express their desire to take part in the research and data is collected from those who express interest (Kapur, 2018:45). Snowball sampling, also called chain sampling, is used when it is difficult to identify members of the required population, hence the need to contact current respondents to ask them to identify more cases, and then stop when no new cases or the desired sample size has been reached (Kapur, 2018:46; Saunders *et al.,* 2023:323). Haphazard sampling occurs when sample selection is done with no principles of organisation. The most common method is convenience or availability sampling, which involves selecting

readily available cases, implying those who are easily accessible or convenient to approach (Kapur, 2018:45; Saunders *et al.,* 2023:323).

The study used non-probability sampling techniques, namely quota, convenience, and snowball sampling. In this study, quota sampling was employed based on the women and youth populations of both South Africa and Zimbabwe. Women and youth were the primary focus of this study, comprising specific quotas; that is, a deliberate portion of the sample consisted of women, and another of youth. Convenience sampling was relevant for this study, as the researcher had limited resources, necessitating the selection of easily obtainable sample units. Given the academic nature of this research, the need to save time, money, and effort was achieved by selecting women and youths who are readily available in South Africa and Zimbabwe; hence, convenience sampling was employed. Snowball sampling refers to a technique where respondents assist in identifying other potential respondents. This approach was employed in this study (Saunders *et al.,* 2023:323), where respondents who participated willingly through convenience sampling were asked to share the link to the questionnaire with other potential respondents. Table 5.1 is a summary of the population and sample statistics for this study.

TABLE 5.1: POPULATION STATISTICS FOR SOUTH AFRICA AND ZIMBABWE

	Population size	Population proportion	Women	Proportion	Youth	Proportion
South Africa population	59.6 million	100%	30.4 million	51%	9.5 million	16%
South Africa total sample	950		722	76%	228	24%
Zimbabwe population	15.7 million	100%	7.7 million	49%	2.7 million	17%
Zimbabwe total sample	250		74	185	65	26%

Source: Stats SA (2020); Zimbabwe National Statistics Agency (2015)

Based on the population statistics in Table 5.1, a total sample size of 1 200 was proposed for this study (950 for South Africa and 250 for Zimbabwe). The sample was further divided based on the proportional ratio of women and youth, resulting in a total sample size of 1 200. Whereas a minimum sample of 30 respondents was deemed

representative for research using statistical inference, this study deliberately selected a higher proportion of respondents. A minimum of 1 000 were to be observed, because, provided there is no bias, samples of larger absolute sizes are more likely to be representative of the target population from which they are derived than small samples, according to the law of averages (Saunders *et al.,* 2023:300).

The youth sample included both males and females aged 18 to 24 years, which is in line with the United Nations definition prescribing youth as individuals aged 15 to 24 years (UNDESA, 2021:2); the study excluded youth between the ages of 15 and 18 years due to the need to exclude minors below 18 years for ethical reasons, as minors require parental consent to participate in research. Therefore, all youth respondents were between 18 and 24 years of age. Women who fell within the youth sample were counted as part of the women sample, but were instead counted as part of the youth sample. For that reason, the sample of women included those aged 25 to 65 years.

5.2.7 Questionnaire development and operationalisation

As detailed previously, this study employed a questionnaire for the primary data collection for the empirical investigation. A questionnaire is a pre-formulated set of questions to which respondents' answers are recorded, usually within closely defined options (Sekaran & Bougie, 2016:142). A questionnaire can also be defined as a systematic compilation of questions through a form prepared and distributed to secure responses to specific questions (Pandey & Pandey, 2015:58). A questionnaire was deemed appropriate for this study because it is more cost effective and quicker to administer, guarantees absence of interviewer effects, allows for interviewer variability, and is convenient for respondents (Bryman & Bell, 2011:232-233).

The questionnaire consisted of structured statements, for which respondents could indicate their level of agreement from a set of predetermined options (Malhotra, 2006:183). The questionnaire consists of two sections, where Section A gathered data regarding respondents' perceptions of the independent variables (*performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*) and the dependent variable, *financial inclusion*. The section used a 5-point Likert scale with the following options: 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1 = Strongly Disagree. Likert scales are designed to examine the extent to which

respondents agree or disagree with statements posed to them (Malhotra, 2006:185; Saunders *et al.,* 2023:523-524; Sekaran & Bougie, 2016:215). A 5-point Likert scale is preferred over a 7-point or 9-point scale because it is easier, simpler, and reduces possible frustration among respondents (Malhotra, 2006:186). Section B of the questionnaire used a nominal scale to collect biographic and demographic data from respondents, namely age, gender, location, network availability, and access to and use of digital banking channels.

5.2.7.1 Questionnaire items

Section A of the questionnaire consists of items to measure the independent variables, that is, *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*. Additional items used to measure *financial inclusion* were derived from the determinants of financial inclusion identified in the literature review and were self-constructed. The study's variables are defined next, based on the items used to measure each variable. An indication of the sources of the items, as derived from the literature review, is also included in this section. For the purpose of this study, some sources' items were adapted to include specific reference to digital banking and its channels, ensure elaborative enquiry or to ensure that wording fits the sub-constructs.

a. Performance expectancy

Performance expectancy refers to the extent to which financial services clients believe that using digital banking channels will help them in attaining their financial and life objectives. In the original study to validate the original UTAUT, Venkatesh *et al.* (2003) used a post-training data pool across studies to estimate a measurement model of the direct determinants for *intention to use technology*. All measured variables, including *performance expectancy*, were modelled using reflective indicators, and all internal consistency reliabilities were greater than 0.70. Specifically, the variable of *performance expectancy* returned a Cronbach's alpha of 0.91. In a study to measure the factors influencing the adoption of mobile banking by bank customers in Jordan, Alalwan *et al.* (2017:104) assessed the reliability of *performance expectancy* as a factor using a 4-item scale, which returned an acceptable Cronbach's alpha value of 0.83. All considered items had a minimum factor loading of 0.54, surpassing the factor loading cut-off point of 0.5.

Additionally, Lin (2019:29) also measured the factor of *performance expectancy* to determine the factors affecting eBooks in China, using a 3-point scale, which returned a Cronbach's alpha value of 0.87. Factor loadings were above 0.54, exceeding the minimum set at 0.5, thereby indicating the strong validity of the measuring instrument. Kitsios *et al.* (2021:7) measured the sub-construct of *PU* and returned a Cronbach's alpha of 0.86, which was above the set cut-off of 0.7. Maduku (2014:83) conducted a study and reported factor loadings for the scale items used to measure dimensions in the study, ranging from 0.822 to 0.965 and 0.836 to 0.950 for internet banking and cell phone banking, respectively. The reliability of the scales used was measured, returning Cronbach's alpha values ranging from 0.932 to 0.958 for items used in the study.

This study adopted a 27-item scale, contextualised to measure *performance expectancy* as a variable that can influence financial inclusion. The 27 items with a Cronbach's alpha above 0.80 were selected from a study by Venkatesh *et al.* (2003:460), with additional scholarly support from previous research for some of the items. As mentioned, the items were adapted as necessary for the questionnaire used. The items used to measure performance expectancy are detailed in Table 5.2.

TABLE 5.2: ITEMS FOR MEASURING PERFORMANCE EXPECTANCY

Items		**Source**
PU		
1	I find digital banking useful in my banking activities.	Alalwan *et al.* (2017:104) Lin (2019:20) Maduku (2014:83) Venkatesh *et al.* (2003:460)
2	Using digital banking enhances my effectiveness in using banking services.	Lin (2019:29) Venkatesh *et al.* (2003:460)
3	Using digital banking makes life easier for me.	Alalwan *et al.* (2017:109) Lin (2019:29) Venkatesh *et al.* (2003:460)
4	Using digital banking is useful to me.	Venkatesh *et al.* (2003:460)

Items		Source
5	Using digital banking enables me to accomplish my banking tasks more quickly.	Alalwan *et al.* (2017:109) Kitsios *et al.* (2021:6) Maduku (2014:83) Venkatesh *et al.* (2003:460)
6	Using digital banking improves the quality of the banking that I do.	Venkatesh *et al.* (2003:460)
Extrinsic motivation		
7	I find digital banking useful in my banking activities.	Alalwan *et al.* (2017:104) Lin (2019:20) Maduku (2014:83) Venkatesh *et al.* (2003:460)
8	Using digital banking enhances my effectiveness in using banking services.	Lin (2019:29) Venkatesh *et al.* (2003:460)
9	Using digital banking makes life easier for me.	Alalwan *et al.* (2017:109) Lin (2019:29) Venkatesh *et al.* (2003:460)
10	Using digital banking is useful to me.	Venkatesh *et al.* (2003:460)
11	Using digital banking enables me to accomplish my banking tasks more quickly.	Alalwan *et al.* (2017:109) Kitsios *et al.* (2021:6) Maduku (2014:83) Venkatesh *et al.* (2003:460)
Job fit		
12	Using digital banking decreases the time needed for my banking activities.	Venkatesh *et al.* (2003:460)
13	Using digital banking increases the quality of my banking activities.	Venkatesh *et al.* (2003:460)
14	Using digital banking increases my effectiveness in performing banking activities.	Lin (2019:29) Venkatesh *et al.* (2003:460)
15	Using digital banking can increase my banking satisfaction for the same amount of effort.	Venkatesh *et al.* (2003:460)
16	The use of digital banking could improve my day-to-day life.	Kitsios *et al.* (2021:6) Lin (2019:21) Maduku (2014:83) Venkatesh *et al.* (2003:460)

Items		Source
17	Using digital banking increases my chances of accomplishing my banking goals.	Venkatesh *et al.* (2003:460)
Relative advantage		
18	Using digital banking enables me to accomplish tasks more quickly.	Venkatesh *et al.* (2003:460)
19	Using digital banking improves the quality of the banking that I do.	Venkatesh *et al.* (2003:460)
20	Using digital banking makes it easier to do my banking.	Venkatesh *et al.* (2003:460)
Outcome expectations		
21	Using digital banking enhances my effectiveness in doing banking.	Venkatesh *et al.* (2003:460)
22	Using digital banking increases my banking convenience.	Venkatesh *et al.* (2003:460)
23	If I use digital banking, I spend less time on my banking.	Venkatesh *et al.* (2003:460)
24	If I use digital banking, I will increase my satisfaction with my banking.	Venkatesh *et al.* (2003:460)
25	If I use digital banking, my peers will perceive me as advanced.	Venkatesh *et al.* (2003:460)
26	If I use digital banking, I will have a better life.	Venkatesh *et al.* (2003:460)
27	It will be to my financial benefit if I use digital banking.	Venkatesh *et al.* (2003:460)

Source: Researcher's compilation from the literature review

b. Effort expectancy

For this study, effort expectancy refers to the ease of use associated with digital banking channels for financial services clients. In their original study to develop a unified view of user acceptance of information technology, Venkatesh *et al.* (2003:460) measured the effort expectancy factor, which returned a Cronbach's alpha value of 0.91 for internal consistency reliability. Masukujjaman (2022:72) also measured the reliability of 'easiest to use' as an item, which returned a Cronbach's alpha value of 0.77.

Additionally, Alalwan *et al.* (2017: 104) recorded a Cronbach's alpha value of 0.83 for the variable effort expectancy using a 4-item scale in their study of factors influencing the adoption of mobile banking by Jordanian customers. All considered items recorded

minimum factor loadings of 0.54, which was above the factor loading cut-off of 0.5. In addition, Lin (2019:29), in a study aimed at understanding the factors affecting the use of eBooks in China, also measured the factor of *effort expectancy* using a 2-point scale, which returned an acceptable Cronbach's alpha value of 0.81. Using the Kaiser-Meyer-Olkin measure of sampling adequacy to assess the validity of the scale, Lin (2019:30) obtained a value of 0.945, above the minimum cut-off of 0.5, indicating the high validity of the measuring instrument.

This study developed 14 items to measure *effort expectancy* as a variable that is likely to influence financial inclusion. Fourteen of the items were derived from Venkatesh *et al.* (2003:460) and were corroborated by other sources, as detailed in Table 5.3. Overall, Table 5.3 details the items used to measure *effort expectancy*.

TABLE 5.3: ITEMS FOR MEASURING EFFORT EXPECTANCY

Items		Sources
PEU		
1	It is easy to understand digital banking.	Alalwan *et al*. (2017:104) Venkatesh *et al*. (2003:460)
2	I find it easy to use digital banking.	Venkatesh *et al*. (2003:460)
3	I find digital banking flexible.	Venkatesh *et al*. (2003:460)
4	I am skillful in using digital banking.	Lin (2019:21) Maduku (2014:83) Venkatesh *et al*. (2003:460)
5	I find digital banking easy to use.	Masukujjaman (2022:72) Venkatesh *et al*. (2003:460)
Complexity		
6	Using digital banking does not take too much time from my normal activities.	Venkatesh *et al*. (2003:460)
7	Using digital banking is not complicated.	Venkatesh *et al*. (2003:460)
8	It is not difficult to understand digital banking.	Alalwan *et al*. (2017:104) Venkatesh *et al*. (2003:460)
9	Using digital banking involves too much time to do physical banking.	Venkatesh *et al*. (2003:460)
10	It does not take too long to learn how to use digital banking.	Venkatesh *et al*. (2003:460)
Ease of use		
11	I find digital banking easy to use.	Alalwan *et al*. (2017:104) Venkatesh *et al*. (2003:460)
12	I can easily adapt to digital banking.	Lin (2019:21)
13	It is easy to learn how to operate digital banking.	Alalwan *et al*. (2017:104) Maduku (2014:83) Venkatesh *et al*. (2003:460)
14	Overall, I believe digital banking is easy to use.	Venkatesh *et al*. (2003:460)

Source: Researcher's compilation from the literature review

c. Social influence

In this study, social influence refers to the degree to which an individual perceives that other important people in their life believe they must use digital banking channels. Venkatesh *et al.* (2003:460) measured the factor using four items, noting the reliability of the scale by recording a Cronbach's alpha of 0.91 for the measure of *social influence* as a factor influencing the acceptance and use of technology. The reliability of social influence as a factor that influences the adoption of mobile banking in Jordan was also measured by Alalwan *et al.* (2017:104) using a scale of three items, which returned an acceptable Cronbach's alpha value of 0.77, while factor loadings were as low as 0.54 above the set cut-off of 0.5.

Additionally, Lin (2019:29) measured the factor of *social influence* in a study assessing factors affecting eBook usage in China, where a 2-point scale was used, which returned a Cronbach's alpha value of 0.75. Lin (2019:30) used the Kaiser-Meyer-Olkin measure of sampling adequacy to assess the validity of the scale, reporting a value of 0.945, which exceeded the minimum cut-off of 0.5, thus indicating the high validity of the measuring instrument.

This study measured social influence using a combination of items from Venkatesh *et al.* (2003), where nine items were extracted from that particular study, which developed the original UTAUT. Six of the selected nine items have also been used by other researchers. While items adopted from the study refer to different 'technologies', they were adapted slightly to refer to digital banking channels. The items used to measure social influence are presented in Table 5.4.

TABLE 5.4: ITEMS FOR MEASURING SOCIAL INFLUENCE

Items		Sources
Subjective norm		
1	People who influence my behaviour think that I should use digital banking.	Alalwan *et al.* (2017:104) Venkatesh *et al.* (2003:460)
2	People who are important to me think that I should use digital banking.	Alalwan *et al.* (2017:104) Venkatesh *et al.* (2003:460)
Social factors		
3	I use digital banking because my peers and relatives use digital banking.	Lin (2019:29) Venkatesh *et al.* (2003:460)
4	My family supports the use of digital banking in my day-to-day life.	Lin (2019:29) Venkatesh *et al.* (2003:460)
5	My elders and leaders support the use of digital banking.	Lin (2019:29) Venkatesh *et al.* (2003:460)
6	In general, society supports the use of digital banking.	Alalwan *et al.* (2017:104) Venkatesh *et al.* (2003:460)
Image		
7	People in my community who use digital banking have more prestige than those who do not.	Venkatesh *et al.* (2003:460)
8	People in my community who use digital banking have a high profile.	Venkatesh *et al.* (2003:460)
9	Using digital banking is a status symbol in my community.	Venkatesh *et al.* (2003:460)

Source: Researcher's compilation from the literature review

d. Facilitating conditions

For this study, facilitating conditions refer to the degree to which resources, such as infrastructure, devices, facilities, and knowledge, are available to allow financial services clients to adopt digital banking channels. In the original UTAT, Venkatesh *et al.* (2003:460) measured *facilitating conditions* as a factor using a 4-item scale, which returned a Cronbach's alpha value of 0.91. Additionally, Alalwan *et al.* (2017:104) used a 4-item scale in their study on factors influencing the adoption of mobile banking by Jordanian customers to measure the variable of *facilitating conditions*, recording a Cronbach's alpha value of 0.77. The validity of the items was measured with factor

loadings as low as 0.54, which exceeded the minimum required value of 0.5. Lin (2019:29) used a 3-point scale to measure the factor of *facilitating conditions*, which returned a Cronbach's alpha value of 0.89.

This study used a 12-item scale to collect data on facilitating conditions as a factor likely to influence financial inclusion. Ten items were extracted from Venkatesh *et al.* (2003:460), while one item each was derived from Maduku (2014:83) and Lin (2019:26). The items were reworded to suit the purpose of this study of digital banking usage by clients in the target markets of South Africa and Zimbabwe. The variable, *facilitating conditions,* was measured using the items detailed in Table 5.5.

TABLE 5.5: ITEMS FOR MEASURING FACILITATING CONDITIONS

Items		**Sources**
Perceived behavioural control		
1	I have the resources to use digital banking.	Alalwan *et al*. (2017:104) Masukujjaman (2022:72) Venkatesh *et al*. (2003:460)
2	I have the knowledge to use digital banking.	Alalwan *et al*. (2017:104) Venkatesh *et al*. (2003:460)
3	Given the resources, opportunities, and knowledge it takes to use digital banking, it would be easy for me to use digital banking.	Venkatesh *et al*. (2003:460)
4	The technology systems and other devices I use are compatible with digital banking.	Alalwan et al. (2017:104) Venkatesh et al. (2003:460)
Environmental support		
5	A specific person (or group) is available to guide me in the selection of the digital banking system to use.	Lin (2019:22) Venkatesh *et al*. (2003:460)
6	There are specialised digital banking instructions available to me.	Lin (2019:22) Venkatesh *et al*. (2003:460
7	A specific person (or group) is available when I need assistance with digital banking.	Venkatesh *et al*. (2003:460)
8	I know about the benefits of using digital banking.	Maduku (2014:83)
9	I can get guidance and help from a user guide on how to use digital banking.	Alalwan *et al*. (2017: 104) Lin (2019:26)

Items		Sources
Compatibility		
10	Using digital banking is compatible with all aspects of my life.	Venkatesh *et al*. (2003:460)
11	Using digital banking fits well with the life I want to lead.	Venkatesh *et al.* (2003:460)
12	Using digital banking fits into my lifestyle.	Venkatesh *et al*. (2003:460)

Source: Researcher's compilation from the literature review

e. Financial inclusion

For this study, financial inclusion is defined as a situation where most individuals in a country's population have access to and use quality, relevant and affordable financial services that sustainably address their needs. A study by Khamis, Isa and Yusuff (2021:117) on constructing indicators for Islamic financial inclusion identified 20 items which can significantly measure financial inclusion. The items were measured based on the dimensions of quality (nine items), access (five items) and usage (three items). A Cronbach's alpha of 0.901 was returned for the factor using 20 items. Fifteen items were selected from this study for the current study, with five items regarding the quality dimension being excluded, as they were not relevant to the current study. Vaid, Singh and Sethl (2020: 98) also investigated the determinants of financial inclusion in low rural populations, using items that recorded a Cronbach's alpha coefficient of above 0.8; these were included in the current study, as detailed in Table 5.6. Wijaya, Hartini and Leon (2019:454) conducted a study on financial inclusion and financial self-efficacy in Indonesia, using a Likert scale with 12 items to measure financial inclusion, of which six of the items were incorporated into the current study, which aligns with the other items derived from other sources that were also included.

Overall, the selected items from the indicated sources, which are supported by the literature on financial inclusion, were adopted and included in the measurement scale. The dependent variable of *financial inclusion* was measured using the items detailed in Table 5.6.

TABLE 5.6: ITEMS FOR MEASURING FINANCIAL INCLUSION

Items		Sources
Intention to use financial services		
1	Products and services offered by financial services providers, including banks, suit my needs.	Khamis *et al.* (2021:117) Vaid *et al.* (2020:98)
2	Financial services providers, including banks, have convenient operating hours.	Khamis *et al.* (2021:117)
3	Products and services offered by financial services providers, including banks, improve my livelihood.	Hannig and Jansen (2010:3-4) Khamis *et al.* (2021:117)
4	I am aware of the financial products and services available to me.	Khamis *et al.* (2021:117)
5	The products and services offered by FSPs can improve my access to essential services.	Khamis *et al.* (2021:117)
6	The products and services offered by FSPs can improve my access to amenities such as electricity and water.	Khamis *et al.* (2021:117)
8	Services offered by financial services providers, including banks, are available less than 5 km from my home.	Abel *et al.,* 2018:6 Khamis *et al.* (2021:117) Vaid *et al.* (2020:98)
9	There are many financial services providers, including banks, located in my area.	ACET (2019:3) Khamis *et al.* (2021:117)
10	It is easy to access services offered by financial services providers, including banks, due to the availability of digital banking.	Khamis *et al.* (2021:117) Vaid *et al.* (2020:98)
Usage of financial services		
7	I use financial services such as savings and credit.	Khamis *et al.* (2021:117)
11	I use financial products and services for investment purposes.	Khamis *et al.* (2021:117)
12	I use financial products and services for insurance/protection against risk.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019: 545)
13	I use financial products for saving.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)
14	I use financial products and services to make payments.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)
15	I have used financial products and services to receive funds/remittances.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)
16	I use financial products and services for remittances or transfers.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019: 545)

Items		Sources
17	I use banks to make deposits.	Vaid *et al.* (2020:98)
18	I use banks to take loans/advances.	Vaid *et al.* (2020:98) Wijaya *et al.* (2019: 545)
19	Due to my income, I have access to and use financial products and services.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)
20	Due to my education, I have access to and use financial products and services.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)
21	I have the technology and devices that enable me to use digital banking.	Khamis *et al.* (2021:117) Wijaya *et al. (*2019:545)
22	Financial services providers, including banks, have innovative products and services.	Khamis *et al.* (2021:117) Wijaya *et al.* (2019:545)

Source: Researcher's compilation from the literature review

5.2.7.2 Administration of questionnaires

Questionnaires can be administered personally or electronically. Personally administered questionnaires involve individuals personally handing the questionnaire to the respondents, whereas questionnaires administered electronically or online use email, links, websites, or online social media platforms to allow respondents to access and complete the questionnaire (Sekaran & Bougie, 2016:143).

This study questionnaire was distributed electronically using Google Forms. The questionnaire link was distributed via email and on social media platforms (Facebook, X (previously called Twitter), LinkedIn, WhatsApp, and Instagram). An invitation, in the form of an introduction, was distributed to inform respondents about what the study is about, why it is important for them to participate, and the benefits that the study is expected to provide to the greater community. Respondents were asked to indicate whether they fell in the women (ages 25 to 65) or youth (ages 18 to 24, regardless of gender) category. If the answer was neither, they were thanked and informed that they would not be able to continue with participation in the study. Only respondents indicating "Yes" to either of the options proceed to the next section.

The invitation also explained the respondents' rights, namely voluntary participation, anonymity, confidentiality, and the option to withdraw from the study. The invitation letter included details, such as the ethics number for the research and the contact

details of the researcher and supervisors. Respondents were asked to share the link to the questionnaire as widely as possible through email and on social media platforms (to encourage snowball sampling). Electronic administration also assisted in accessing the vast, geographically separated areas of South Africa and Zimbabwe. Once the respondent clicked on the link, they had to provide explicit consent for voluntary participation by clicking the button provided. The respondents could only access the questionnaire once they had provided their explicit consent to participate in the study.

5.2.8 Data analysis

Data analysis is a process that involves screening and statistical testing of data to explain the characteristics and relationships of the study's variables. Data from the online questionnaires were downloaded into Microsoft Excel, and Statistica software Version 14.0 was used to perform the statistical data analyses. All data were coded using numerical codes to eliminate errors and facilitate the recoding of the data. However, no data capturing was required as all data were automatically captured and processed electronically. Data checking and cleaning were performed, which involved downloading the data and verifying that filter questions were followed and answered in accordance with the instructions (Saunders *et al.,* 2023:323).

Following the data cleaning, the data were subjected to both descriptive and inferential statistical analysis. Descriptive statistics, such as means and frequency distributions, were used to summarise the respondents' biographic and demographic data, while means and standard deviations were used to summarise the variables under investigation. In terms of inferential statistics, EFA, Cronbach's alpha coefficients, Pearson's product-moment correlation coefficients, and multiple regression analysis were conducted, as well as *t*-test and ANOVA tests.

A discussion of the descriptive statistics follows to provide an understanding of the essence and importance of this activity within the study.

5.2.8.1 Descriptive statistics

A summary of the demographic profile of respondents is provided in this section. Descriptive statistics, such as means, standard deviations, and frequency

distributions, were used to summarise the respondents' biographic and demographic data (Pandey & Pandey, 2015:72; Saunders *et al.,* 2023:599). According to Saunders *et al.* (2023:600), the mean, called the 'average' in daily language, is the building block for many of the statistical tests used to explore relationships. The mean is a measure of central tendency that provides a general overview of the data without focusing on each response (Sekaran & Bougie, 2016:282). Standard deviations were also calculated to measure the spread or variability of the distribution in the data (Sekaran & Bougie, 2016:284). Frequency distributions refer to the number of times various subcategories of data occur, and from this, a percentage and a cumulative percentage of occurrence can be calculated (Sekaran & Bougie, 2016:279).

It is also important to note that, in research, the internal validity and reliability of the data collected, as well as the response rates achieved, depend to a large extent on the design of questions, the structure of the questionnaire, and the rigour of the pilot testing done (Saunders *et al.,* 2023:517). The validity of the measuring instrument is discussed in the section to follow.

5.2.8.2 Validity of the measuring instrument

According to Heale and Twycross (2015:66), validity refers to the extent to which a concept is accurately measured in a quantitative study, implying that it provides data that accurately measures the concepts of interest to the researcher (Pandey & Pandey, 2015:21; Saunders *et al.,* 2023:517). A measuring instrument is therefore considered valid when it measures what it is supposed to measure (Kapur, 2018:24). There are many forms of validity, such as internal validity, criterion-related validity, and convergent validity (Saunders *et al.,* 2023:517; Sekaran & Bougie, 2016:292).

Internal validity refers to the ability of a questionnaire to measure what is intended, while content validity refers to the extent to which the measurement device provides adequate coverage of the questions (Saunders *et al.,* 2023:518). Criterion-related validity is concerned with the ability of the questions to make accurate predictions, while construct validity is concerned with the extent to which a set of questions measures the presence of the construct intended to be measured (Saunders *et al.,* 2023:518). Convergent validity is concerned with the overlap or correlation between two different scales that have been used to measure the same construct (Saunders *et*

al., 2023:800). Where different scales are used to measure theoretically distinct constructs, an absence of correlation between the scales means they are distinctive and have discriminant validity (Saunders *et al.,* 2023:518).

Before the commencement of data collection for the main study, face and content validity were ensured by requesting experts in the field to consider the questionnaire and by conducting a pilot study among 20 respondents (five women and five youth from both South Africa and Zimbabwe) to test the measuring instrument. The questionnaire was shared with experts in the fields of management, banking, and finance to solicit their input on its structure and content.

EFA with a minimum factor loading of 0.5 was applied (Watkins, 2018:219-220). Costello and Osborne (2005:5) also indicate that items with loadings of 0.5 or higher are desirable, indicating a strong factor. This helps assess construct validity, which is the extent to which a questionnaire's items accurately measure the presence of the constructs intended to be measured (Saunders *et al.,* 2023:518).

5.2.8.3 Reliability of the measuring instrument

Reliability measures the accuracy of a study's measuring instrument in relation to the extent to which it consistently produces the same results when repeated in the same situation on other occasions (Heale & Twycross, 2015:66; Kapur, 2018:24; Pandey & Pandey, 2015:21; Saunders *et al.,* 2023:517). According to Saunders *et al.* (2023:519), three approaches to assessing reliability exist: test-retest, internal consistency, and alternative form. Test-retest involves estimating reliability by correlating data collected from the same questionnaire that has been completed by the same respondents at two different points in time. Internal consistency involves correlating the responses in the questionnaire with each other to measure the consistency of responses across a subgroup of the questions. Alternative form is an approach to testing reliability by comparing responses to alternative forms of the same question or group of questions.

Cronbach's alpha coefficients, with a cut-off of 0.70, were used to measure the reliability of the questionnaire by assessing the consistency of responses to a subset of scale items combined as a scale to measure a particular construct (Saunders *et al.,*

2023:519). Cronbach's alpha coefficient has a value between 0 and 1, and values of 0.7 or above indicate that the items combined in the scale are internally consistent in their measurement. The measure determines the internal consistency of a questionnaire and is a popular test for inter-item consistency (Sekaran & Bougie, 2016:290). Therefore, for the study, all items with Cronbach's alpha coefficients less than 0.7 were discarded from further analysis, as well as all constructs with fewer than two items.

5.2.8.4 Correlation analysis

A correlation analysis is a measure of the testability of a research association and indicates whether a study's hypotheses are substantiated or not (Sekaran & Bougie, 2016:20). A correlation coefficient is usually used to quantify the link between two ranked numerical variables, and it can take any value between +1 and -1 (Saunders *et al.,* 2023:615). A value of +1 shows a perfect positive correlation, meaning that the two variables are precisely related, and that as values of one variable increase, values of the other variable also increase. In contrast, a value of -1 represents a perfect negative correlation, implying that if a value of one variable increases, those of the other one decrease (Saunders *et al.,* 2023:615). Moreover, Pearson's product-moment correlation coefficient was calculated during the correlation analysis for the study (Saunders *et al.,* 2023:615-616). The study conducted a correlation analysis to identify the direction and strength of the relationships between variables. The study used Pearson's product-moment correlation analysis to determine the strength of the linear relationships among the variables being assessed.

5.2.8.5 Multiple regression analysis

Multiple regression analysis is done to assess the strength of a cause-and-effect relationship between two or more independent variables and a dependent variable (Saunders *et al.,* 2023:617-618; Sekaran & Bougie, 2016:314). Multiple regression analysis is used to identify the statistical significance of relationships between variables (Hair *et al.,* 2014:115). With regression analysis, the relative importance of each of the independent variables in the prediction of the dependent variable is determined, and ultimately, the regression analysis is used to accept or reject the study's hypotheses (Sekaran & Bougie, 2016:314).

Prior to carrying out the multiple regression analysis in the study, multicollinearity was tested. Multicollinearity occurs when the multiple regression analysis includes several variables that are significantly correlated, not only with the dependent variable, but also to each other (Daoud, 2017:1; Saunders *et al.,* 2023:621; Shrestha, 2020:39). When two or more independent variables are highly correlated, the relationship between the independent variables and dependent variable is distorted by the very strong relationship between the independent variables (Daoud, 2017:5). An indicator called VIF is used to diagnose multicollinearity, which is used to measure and quantify how much the variance is inflated (Daoud, 2017:4; Saunders *et al.,* 2023:621). Multicollinearity is detected by examining the tolerance for each independent variable, that is, the amount of variability in one independent variable that is not explained by the other independent variables (Daoud, 2017:5). VIF levels with values greater than 10 and tolerance values less than 0.1 indicate high collinearity (Saunders *et al.,* 2023:621). All the independent variables are required to be free from multicollinearity.

In this study, multiple regression analysis resulted in regression coefficients that indicate the relative importance of each of the independent variables (*performance expectancy*, *effort expectancy*, *social influence,* and *facilitating conditions*) in relation to the dependent variable (*financial inclusion*). When these variables are jointly regressed against *financial inclusion* to explain its variance, the sizes of the individual regression coefficients indicate how much an increase in one unit in the independent variable (one of *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*) would affect financial inclusion, assuming the other independent variables remain unchanged (Sekaran & Bougie, 2016:314).

For the study, regression analysis was used to test the level of the total sample to accept or reject the formulated hypotheses. Multiple regression was also assessed for the country levels (South Africa versus Zimbabwe samples), South African women and Zimbabwean women samples, as well as the South African youth and Zimbabwean youth samples. Based on the above discussion, multiple regression analysis was preferred over structural equation modelling (SEM). Multiple regression analysis aims to perform mean comparisons for a comparative study while SEM is used for model testing, which was not the aim of this study (Hair *et al*. 2022).

5.2.8.6 T-tests

If a numerical variable can be divided into two distinct groups using a descriptive variable, an assessment of the likelihood of these groups being different can be done using an independent groups *t*-test, which compares the means of the two groups using the spread of the scores as a measure (Saunders *et al.,* 2023:613; Sekaran & Bougie, 2016:305). The *t*-test is used to determine the likelihood that the values of numerical data available for two independent groups differ (Saunders *et al.,* 2023:805). The test assesses the likelihood of any difference between these two groups (Saunders *et al.,* 2023:805). The extent of the differences is measured using Cohen's *d*, which is a statistic used to determine the practical significance, that is, the extent of any differences, where they exist (Alwahaibi, Alhadabi & Alkharusi, 2020:251). The criterion is interpreted at three levels: small if the index is less than 0.5, medium if it is between 0.5 and 0.8, and large if it is 0.8 and above.

For this study, *t*-tests were conducted to assess the differences in responses from different groups, such as different demographic and geographic groups (differences between responses from South African and Zimbabwean respondents and between the responses from women and youth from the two countries). This was crucial for achieving the desired comparative analysis of the influence of digital banking factors on the financial inclusion of women and youth in South Africa and Zimbabwe.

5.3 ETHICAL CONSIDERATIONS

Ethics clearance was applied for and granted through the Mandela Ethics Online System (MEOS), with ethics number 0152. See Annexure A for the approval letter. For the Zimbabwean component, the Research Council of Zimbabwe (RCZ) granted approval to conduct the research study in Zimbabwe: REF SC/9/22. See Annexure B for the approval letter.

5.4 CHAPTER SUMMARY

The chapter provided a discussion of the aspects related to the research methodology adopted for this study. The chapter began with an introduction to the concept of research methodology and an overview of research methodology in the context of the research onion, followed by a discussion of research philosophies. A positivist

research philosophy was deemed suitable for this study as it aimed to identify the real-world relationships between digital banking factors and the financial inclusion of women and youth.

The chapter continued with a discussion of the approach to theory development, noting that the study used a deductive approach to scientific research. This was followed by a discussion of the research strategy, which involved conducting a survey using questionnaires. The chapter also discussed the time horizons for the study. A cross-sectional time horizon was adopted for this study, entailing the collection of data at a particular point in time and identifying respondents' perceptions.

Data collection techniques were also discussed in this chapter, where it was noted that secondary data for this study were collected from various sources, including national reports, survey data, institutional publications, national policy literature, banks' annual reports, and other credible official statistics and publications. Primary data collection techniques were also selected, and the data were collected using structured questionnaires where the views and perceptions of respondents were gathered as part of the empirical study.

The chapter continues with a discussion of the study population, noting that the population consisted of women and youth in South Africa and Zimbabwe. This was followed by a determination of the most suitable sampling techniques, and non-probability sampling techniques, mainly convenience, snowball, and quota sampling were selected for this study. A discussion of the survey instrument to be used (structured questionnaire) in terms of structure, overall scales, and operationalisation was done in this chapter.

A discussion of the validity of the measuring instrument was provided, and EFA was used. Reliability of the measuring instrument was also discussed, and Cronbach's alpha coefficients were used to measure this. Correlation analysis was also done to identify the direction and strength of the relationships between digital banking factors and financial inclusion, while multiple regression analysis was used to assess the strength of a cause-and-effect relationship between two or more independent variables and the dependent variable. Additionally, *t*-tests were used to test differences in perceptions of respondents from different groups to achieve the desired

comparative analysis of the influence of digital banking factors on the financial inclusion of women and youth in South Africa and Zimbabwe.

Overall, the study methodology discussed in this chapter formed the basis for the research to aid data gathering and analysis before reporting was done. The ensuing chapters, therefore, focus on the presentation and reporting of the study results.

CHAPTER SIX

PRESENTATION OF EMPIRICAL RESULTS

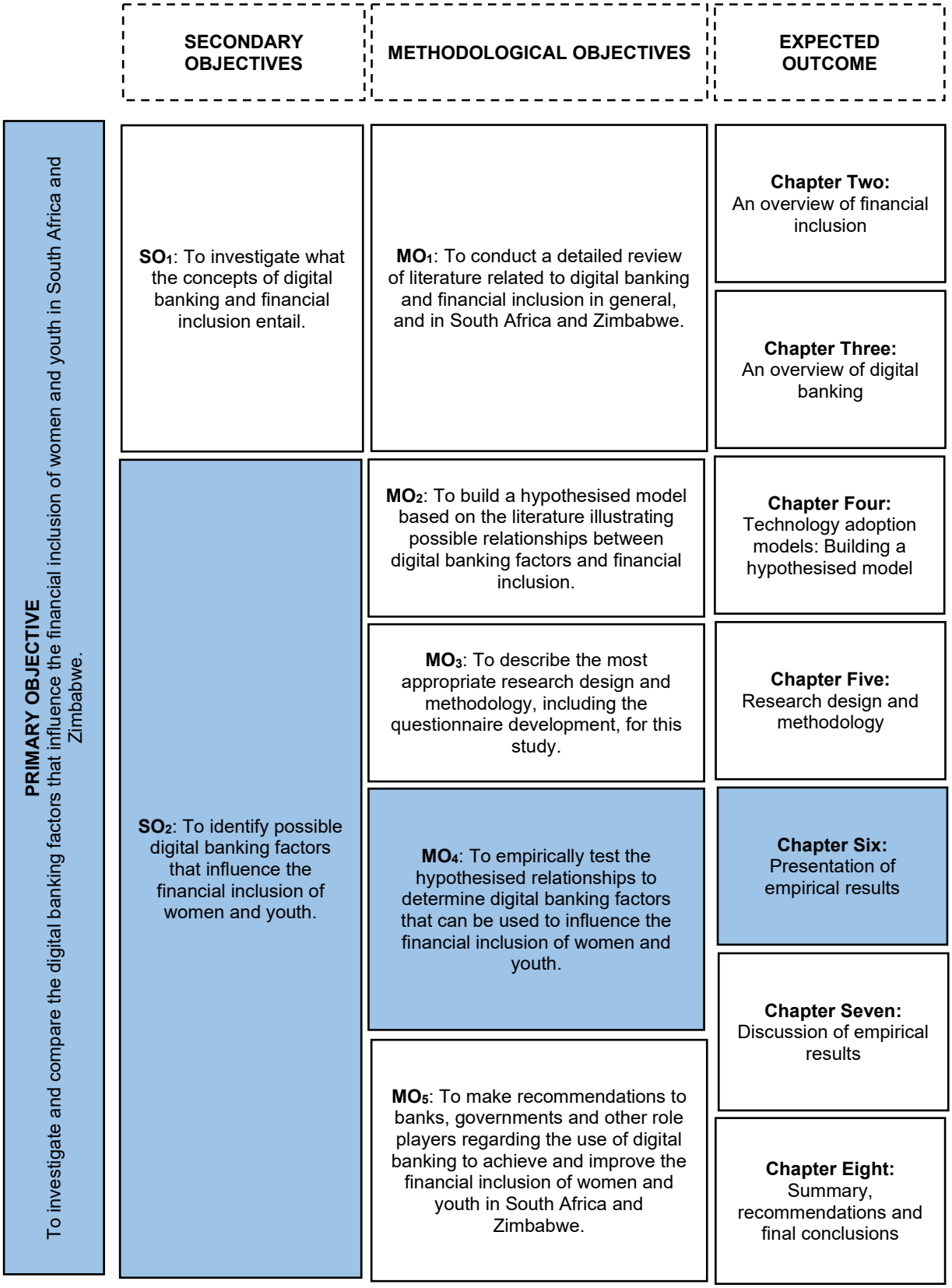
6.1 INTRODUCTION

Chapter 5 focused on detailing the research design and methodology to address the study's research objectives. The chapter covered the study's research philosophy, approach to theory development, methodological choice, research strategy, and time horizon. The study's data collection techniques, population, and sampling techniques were also addressed in Chapter 5. The questionnaire development was discussed, including the items constituting the questionnaire. The chapter also laid out the data analysis techniques applied in this study.

Chapter 6 focuses on presenting the results of the empirical study. The chapter starts with summaries of the response rate and the demographic profile of the respondents. This is followed by an analysis of the validity and reliability of the questionnaire used in the study through factor analysis and Cronbach's alpha results, respectively. This is followed by a revision of the hypothesised model presented in Chapter 4. Following this, the analysis of the descriptive statistics on variables is presented. The relationships between variables through various inferential statistical analyses, that is, correlation analysis, multiple regression analysis and *t*-tests, are also presented. Overall, Chapter 6 further contributes to the attainment of the secondary objective 2 (SO_2) in identifying digital banking factors that influence financial inclusion. The chapter also partly addresses methodological objective 4 (MO_4) by testing the hypotheses to determine digital banking factors that have a relationship with the financial inclusion of women and youth.

Figure 6.1 shows Chapter 6 in the overall research framework.

FIGURE 6.1: CHAPTER 6 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

6.2 RESPONSE RATE

Section B of the measurement instrument solicited the demographic data of the respondents. Overall, 1 023 respondents consented to participate in the study. A total of 191 responses were excluded from further analysis because of missing data or failure to meet the inclusion criteria. Therefore, 832 respondents participated in the study, as their completed questionnaires were valid and usable for statistical analysis, resulting in an 81.33% response rate.

6.3 DEMOGRAPHIC PROFILE OF RESPONDENTS

Table 6.1 summarises the study respondents' demographic details by group (women and youth) and by country (South Africa and Zimbabwe).

TABLE 6.1: COMPOSITION OF SAMPLE

		Total	South Africa	Zimbabwe
Women sample[1]		**323**	**207**	**116**
Youth sample[2]	Male	85	20	65
	Female	424	382	42
	Total	**509**	**402**	**107**
Total sample		**832**	**609**	**223**

[1] Female respondents in the 26 to 65 age group

[2] Male and female respondents in the 18 to 25 age group

Source: Researcher's own construction from analysed data

Of the 832 respondents who consented to participate and completed questionnaires, 323 were female and 509 were youth. A total of 609 respondents (207 women and 402 youth) were from South Africa, while Zimbabwe accounted for 223 respondents (116 women and 107 youth). Of the 402 respondents from the South African youth sample, 382 were female and 20 were male. Of the 107 from the Zimbabwean youth sample, 42 were female and 65 were male. Table 6.2 presents a summary of the respondents' location (rural or urban) within South Africa or Zimbabwe.

TABLE 6.2: LOCATION OF RESPONDENTS

Location	Total Freq	Total %	SA Freq	SA %	Zim Freq	Zim %
Rural	126	15.14	123	20.20	3	1.35
Urban	687	82.57	475	78.00	212	95.07
Missing	19	2.28	11	1.81	8	3.59
TOTAL	832	100.00*	609	100.00*	223	100.00*

*Do not add to 100% due to rounding

Source: Researcher's own construction from analysed data

Evident from Table 6.2, of the 832 total respondents, 687 (82.57%) were from urban areas, 15.14% were from rural areas, while 2.28% did not indicate their location. Of the South African respondents, 78.00% were from urban areas, 20.20% from rural areas, while 1.81% did not include their location. A total of 95.07% of the Zimbabwean respondents were from urban areas, 1.35% from rural areas, while 3.59% did not indicate their location. The frequency rates of the responses related to the digital banking questions are presented in Table 6.3.

TABLE 6.3: FREQUENCY RATES FOR THE DIGITAL BANKING RESPONSES

Questionnaire items	Total sample (*n* = 832)		South Africa (*n* = 609)		Zimbabwe (*n* = 223)	
	Freq	% of Total	SA Freq	% of Total	Zim Freq	% of Total
Digital banking options available						
Mobile network	747	89.78%	527	86.54%	220	98.65%
Fibre network	517	62.14%	365	59.93%	152	68.16%
Satellite network	516	62.02%	387	63.55%	129	57.85%
Copper network	390	46.88%	288	47.29%	102	45.74%
Mobile applications	529	63.58%	367	60.26%	162	72.65%
Devices owned and used						
Desktop computer	506	60.82%	389	63.88%	117	52.47%
Smart phone	584	70.19%	405	66.50%	179	80.27%
Basic phone	679	81.61%	457	75.04%	222	99.55%

Questionnaire items	Total sample (*n* = 832)		South Africa (*n* = 609)		Zimbabwe (*n* = 223)	
	Freq	% of Total	SA Freq	% of Total	Zim Freq	% of Total
Tablet	452	54.33%	351	57.64%	101	45.29%
Bank card	466	56.01%	357	58.62%	109	48.88%
Digital channels access						
ATMs	660	79.33%	473	77.67%	187	83.86%
Personal computer banking	506	60.82%	369	60.59%	137	61.43%
Telephone banking	516	62.02%	383	62.89%	133	59.64%
Mobile banking	584	70.19%	377	61.90%	207	92.83%
Mobile application	543	65.26%	360	59.11%	183	82.06%
Mobile wallet services	583	70.07%	394	64.70%	189	84.75%
Internet/online banking	579	69.59%	395	64.86%	184	82.51%
Bank POS machines	482	57.93%	320	52.55%	162	72.65%
Not applicable	32	3.85%	25	4.11%	7	3.14%
Digital channels used						
ATMs	668	80.29%	490	80.46%	178	79.82%
Personal computer banking	498	59.86%	368	60.43%	130	58.30%
Telephone banking	504	60.58%	377	61.90%	127	56.95%
Mobile banking	577	69.35%	373	61.25%	204	91.48%
Mobile application	554	66.59%	377	61.90%	177	79.37%
Mobile wallet services	579	69.59%	390	64.04%	189	84.75%
Internet/online banking	571	68.63%	392	64.37%	179	80.27%
Bank POS machines	490	58.89%	331	54.35%	159	71.30%
Not applicable	16	1.92%	15	2.46%	1	0.45%

Source: Researcher's own construction from analysed data

The vast majority of all the respondents (89.78%) reported having the option to use a mobile network. However, the South African response rate regarding mobile network availability (86.54%) was lower than that for the Zimbabwean respondents (98.65%).

Mobile applications (63.58%), fibre networks (62.14%) and satellite networks (62.02%) were available to all respondents. The availability of mobile applications and fibre networks was higher in Zimbabwe (72.65% and 68.16%) than in South Africa (60.26% and 59.93%). However, more South African respondents (63.55%) than Zimbabwean respondents (57.85%) indicated the availability of satellite networks. The least available digital banking option was copper networks (46.88% of total respondents), with only 47.29% of the South African respondents and 45.74% of the Zimbabwean respondents having indicated copper networks as an available option.

In terms of devices owned and used, most respondents from both countries (81.61%) indicated using a basic phone, with a split of 75.04% for the South African respondents and 99.55% for the Zimbabwean respondents. A smartphone was indicated to be the next most popularly owned and used device by 70.19% of all respondents: 66.50% of South African respondents and 80.27% of Zimbabwean respondents. Of the South African respondents, 63.88% indicated owning and using a desktop computer, compared to 52.47% of the Zimbabwean respondents. A tablet (54.33%) and a bank card (56.01%) were found to be the least owned and used devices for both South African (57.64% and 58.62%, respectively) and Zimbabwean (45.29% and 48.88%, respectively) respondents.

The majority of South African respondents (77.67%) indicated having access to ATMs; however, an even higher percentage of the Zimbabwean respondents (83.86%) indicated having access to ATMs, while most Zimbabwean respondents (92.83%) had access to mobile banking, which was more than that of South African respondents (61.90%). Mobile wallet services were also more popular among Zimbabwean respondents (84.75%) than with South African respondents (64.70%). More Zimbabwean respondents (82.51%) had access to internet/online banking than South African respondents (64.86%), which is similar for mobile applications (Zimbabwean respondents – 82.06%; South African respondents – 59.11%). However, bank POS machines were found to be very popular among Zimbabweans (72.65%) but less so among South Africans (52.55%). The respondents of both South Africa (60.59%) and Zimbabwe (61.43%) had access to personal computer banking, while the opposite was found for telephone banking (South African respondents – 62.89%; Zimbabwean respondents – 59.64%). Among respondents without access to any of the channels,

4.11% of South African and 3.14% of Zimbabwean respondents indicated 'not applicable'. Therefore, the least accessed channels were bank POS machines by South Africans (52.55%) and telephone banking by Zimbabweans (59.64%).

Regarding the digital channels used, most Zimbabwean respondents reported using mobile banking (91.48%), compared to South African respondents (61.25%), while most South African respondents reported using ATMs (80.46%), compared to Zimbabwean respondents (79.82%). The other digital channels most used by the Zimbabwean respondents were mobile wallet services (84.75%), internet/online banking (80.27%), mobile applications (79.37%), and bank POS machines (71.30%); however, the use of these digital channels by the South African respondents was much lower, with 64.04%, 64.37%, 61.90%, and 54.35%, respectively, for each of the channels. Bank POS machines (54.35%), telephone banking (61.90%) and personal computer banking (60.43%) were the least used by both South African respondents, while for Zimbabwean respondents, telephone banking (56.95%), personal computer banking (58.30%) and bank POS machines (71.30%) were the least used. A total of 2.46% of South African respondents and 0.45% of Zimbabwean respondents indicated 'not applicable,' indicating they did not use any of the digital banking channel options provided.

A detailed summary of the demographic and digital banking channel usage statistics has been presented above. The following section presents the results of the validity and reliability of the measuring instrument.

6.4 VALIDITY AND RELIABILITY OF MEASURING INSTRUMENT

An overview of the validity and reliability of the independent and dependent variables, as tested through the analysis of the questionnaire responses, is presented in the subsections that follow. The section will conclude with the hypothesised model confirmed by the validity and reliability results.

6.4.1 Overview of the validity and reliability

Validity refers to the extent to which a concept is accurately measured, and a measuring instrument is said to be valid when it measures what it is supposed to measure (Heale & Twycross, 2015:66; Pandey & Pandey, 2015:21; Saunders *et al.,*

2023:516). Face validity was ensured, as the questionnaire was based on scales that had been previously validated in other studies. Experts in the field of management also reviewed the questionnaire. Content validity was also assured by conducting a pilot study amongst 20 respondents (five women and five youth from both South Africa and Zimbabwe) to test the measuring instrument. EFA was conducted to assess construct validity, which refers to the extent to which questionnaire items accurately measure the variables intended to be measured (Saunders *et al.,* 2023:517). The EFA generates factor loadings that represent correlations between each item and each factor. Costello and Osborne (2005:5) and Watkins (2018:219-220) highlight that items with loadings of 0.5 or higher are desirable and indicate a strong factor; therefore, this study used an EFA with a minimum factor loading of 0.5.

The reliability of the questionnaire was measured for each of the factors extracted by the EFA using Cronbach's alpha coefficient. Factors with a Cronbach's alpha coefficient greater than 0.70 were considered reliable, hence providing evidence of the measurement scales' reliability (Saunders *et al.,* 2023:518). All items with Cronbach's alpha coefficients less than 0.7 were discarded from further analysis. Before discussing the validity and reliability tests, the scales intended to measure the independent and dependent variables, that is, the items of the various variables and their corresponding reference code ranges, are presented below in Table 6.4 for ease of presentation of the results.

TABLE 6.4: ITEM CODES

Independent variable	**Item code**
Performance expectancy (PE)	PE01 – PE27
Effort expectancy (EE)	EE01 – EE14
Social influence (SI)	SI01 – SI09
Facilitating conditions (FC)	FC01 – FC12
Dependent variable	**Item code**
Financial inclusion (FI)	FI01 – FI22

Source: Researcher's own construction

6.4.2 Independent variables

The overall validity results for the study's independent variables based on the study's first EFA are shown in Table 6.5. All items that did not load on any factors, hence reported a factor loading less than 0.5, as well as items that cross-loaded onto more than one factor, were excluded from Table 6.5.

All factors with three or more items with factor loadings greater than 0.5 were used in further statistical analyses. Therefore, Factors 1 to 3, as presented in Table 6.5, were included in further statistical analyses; two of the accepted factors in Table 6.5 related to two originally developed variables. The naming of these factors, based on the item loadings, is further discussed in this section. The third accepted factor in Table 6.5 was not originally developed or expected as such; therefore, the factor was renamed according to the items that loaded, and this is further explained in this section. Factor 4 in Table 6.5 was excluded from further analysis owing to the limited (only two) items that loaded onto this factor.

The validity and reliability results for the three extracted factors, as well as the labelling of these factors, that is, *performance expectancy* (Factor 1), *social influence* (Factor 2) and *digital banking performance* (Factor 3), are hereby discussed.

Table 6.6 summarises the validity and reliability results for the *performance expectancy* factor.

TABLE 6.5: INDEPENDENT VARIABLE FACTOR ANALYSIS RESULTS

Items	Factor 1	Factor 2	Factor 3	Factor 4
PE10	0.5976	0.1880	0.2463	0.1934
FC04	0.5841	0.1429	0.2708	0.1571
PE14	0.5629	0.1631	0.3048	0.2399
FC01	0.5623	0.1659	0.3153	0.1549
PE08	0.5618	0.1803	0.2392	0.2250
PE22	0.5458	0.1610	0.3177	0.1480
PE04	0.5391	0.1640	0.2623	0.2609
EE02	0.5377	0.1980	0.2904	0.2594
EE01	0.5306	0.2039	0.2262	0.2030
FC08	0.5253	0.1287	0.2797	0.2733
FC10	0.5188	0.2711	0.2375	0.1494
PE09	0.5164	0.1507	0.2997	0.2752
PE20	0.5134	0.1323	0.2674	0.2115
SI09	0.1046	0.6673	0.1078	0.1153
SI08	0.1208	0.6507	0.1441	0.0970
SI03	0.2488	0.5632	0.0844	0.1057
FC07	0.2285	0.5064	0.1539	0.2456
SI07	0.1285	0.5004	0.3545	0.1167
EE06	0.3405	0.0779	0.5561	0.1697
PE06	0.2356	0.2445	0.5494	0.2320
PE26	0.2349	0.3002	0.5472	0.1824
PE12	0.3415	0.1387	0.5378	0.1497
EE14	0.2881	0.1682	0.5359	0.1329
FC03	0.3753	0.1228	0.5247	0.1466
EE03	0.2448	0.1427	0.3027	0.5440
EE07	0.2511	0.2245	0.2499	0.5139

Source: Researcher's own construction from analysed data

TABLE 6.6: VALIDITY AND RELIABILITY OF PERFORMANCE EXPECTANCY

Cronbach's alpha = 0.9136			
Code	**Item**	**Factor loading**	**Cronbach's alpha if deleted**
PE10	I find using digital banking useful in my life.	0.5976	0.9055
FC04	The technology systems and other devices I use are compatible with digital banking.	0.5841	0.9074
PE14	Using digital banking increases my effectiveness in performing banking activities.	0.5629	0.9059
FC01	I have the resources to use digital banking.	0.5623	0.9064
PE08	Using digital banking enhances my effectiveness in using banking services.	0.5618	0.9068
PE22	Using digital banking increases my banking convenience.	0.5458	0.9078
PE04	Using digital banking is useful to me.	0.5392	0.9065
EE02	I find it easy to use digital banking.	0.5377	0.9066
EE01	It is easy to understand digital banking.	0.5306	0.9077
FC08	I know about the benefits of using digital banking.	0.5256	0.9073
FC10	Using digital banking is compatible with all aspects of my life.	0.5188	0.9085
PE09	Using digital banking enhances my effectiveness in using banking services.	0.5164	0.9070
PE20	Using digital banking makes it easier to do my banking.	0.5133	0.9087

Source: Researcher's own construction from analysed data

Of the 27 items originally developed to measure *performance expectancy*, seven items (PE04, PE08, PE09, PE10, PE14, PE20 and PE22) loaded onto the first factor. The remaining 20 items either loaded onto another factor or did not load onto any factor. Two items originally intended to measure *effort expectancy* (EE01 and EE02) also loaded onto Factor 1. These two items relate to digital banking being easy to understand and are thus essential components for a client to determine performance expectancy (Alwahaishi & Snasel, 2013:33). Additionally, four items (FC01, FC04, FC08 and FC10), originally intended to measure *facilitating conditions,* also loaded onto Factor 1. These items refer to the compatibility of existing systems and devices

at a client's disposal, availability of resources, knowledge of digital banking benefits, and compatibility with one's lifestyle, which are expectations of what digital banking is expected to achieve and can, therefore, be regarded as aspects of *performance expectancy* (Alwahaishi & Snasel, 2013:33; Venkatesh *et al.,* 2003:447-448). In other words, the loading of the EE and FC items onto this factor was therefore explained. As all the items of this factor were related to expectations of digital banking performance, Factor 1 remained unchanged as *performance expectancy*.

Since the 13 items that loaded on Factor 1 all had factor loadings above 0.5, construct validity was confirmed for *performance expectancy,* as the factor loadings ranged from 0.5133 to 0.5976. Additionally, the Cronbach's alpha coefficients for the items ranged from 0.9055 to 0.9087, indicating a high level of reliability and internal consistency for the items measured. The overall Cronbach's alpha coefficient was 0.9136, showing a high level of reliability and internal consistency for the factor *performance expectancy*. Based on the EFA results, *performance expectancy* is operationalised as the notion that digital banking channels are easy to understand and to use with available resources, while assisting clients in attaining their lifestyle objectives.

Table 6.7 summarises the validity and reliability results for Factor 2, *social influence*.

TABLE 6.7: VALIDITY AND RELIABILITY OF SOCIAL INFLUENCE

Cronbach's alpha = 0.7749			
Code	**Item**	**Factor loading**	**Cronbach's alpha if deleted**
SI09	Using digital banking is a status symbol in my community.	0.6673	0.7063
SI08	People in my community who use digital banking have a high profile.	0.6507	0.7127
SI03	I use digital banking because my peers and relatives use digital banking.	0.5632	0.7565
FC07	A specific person (or group) is available when I need assistance with digital banking.	0.5064	0.7438
SI07	People in my community who use digital banking have more prestige than those who do not.	0.5004	0.7446

Source: Researcher's own construction from analysed data

Four of the originally intended nine items to measure *social influence* (SI03, SI07, SI08 and SI09) loaded onto Factor 2. The remaining five items did not load on any factor and were therefore excluded from further analysis. Additionally, one item intended to measure *facilitating conditions* (FC07) also loaded onto Factor 2. This item relates to the availability of a specific person or group to offer digital banking assistance. This item thus adequately fits into *social influence* because in addition to the envisaged availability of help from service providers, assistance can also come from those in one's social circle who are knowledgeable about digital banking (Alwahaishi & Snasel, 2013:34). Since all items that loaded on this factor related to the influence of other on a client's digital banking perceptions, Factor 2 remained unchanged as *social influence*.

The factor loadings for the five items ranged between 0.5004 and 0.6673, suggesting sufficient evidence of construct validity. In terms of internal consistency, the Cronbach's alpha coefficients, ranging from 0.7063 to 0.7565, indicate a high level of reliability for the items. The overall Cronbach's alpha coefficient of 0.7749 indicates a high level of reliability for the measuring instrument for the factor of *social influence.* Consequently, *social influence* is operationalised as the availability of influence, support, and assistance in using digital banking from important persons in clients' lives.

The validity and reliability of Factor 3, renamed to *digital banking performance*, are presented in Table 6.8.

TABLE 6.8: VALIDITY AND RELIABILITY OF DIGITAL BANKING PERFORMANCE

Cronbach's alpha = 0.8266			
Code	**Item**	**Factor loading**	**Cronbach's alpha if deleted**
EE06	Using digital banking does not take too much time from my normal activities.	0.5561	0.7969
PE06	Using digital banking improves the quality of the banking that I do.	0.5494	0.7983
PE26	If I use digital banking, I will have a better life.	0.5472	0.8007
PE12	Using digital banking decreases the time needed for my banking activities.	0.5378	0.7987
EE14	Overall, I believe digital banking is easy to use.	0.5359	0.8001
FC03	Given the resources, opportunities, and knowledge it takes to use digital banking, it would be easy for me to use digital banking.	0.5247	0.7991

Source: Researcher's own construction from analysed data

As can be seen in Table 6.8, a total of six items, namely three items (PE06, PE12 and PE26) originally intended to measure *performance expectancy*, two items (EE06 and EE14) originally intended to measure *effort expectancy*, and one item (FC03) originally intended to measure *facilitating conditions*, all loaded on Factor 3. Upon reflection, it is evident that all these items highlight the positive outcomes of digital banking that create trust and appeal, such as time savings, minimal effort required, an improved quality of life for the client, and an enabling environment for the use of digital banking. Therefore, the newly extracted Factor 3 has been named *digital banking performance*.

Sufficient evidence is provided for construct validity as all the factor loadings are greater than 0.5 (range from 0.5247 to 0.5561). The measurement items' Cronbach's alpha coefficients, ranging between 0.7969 and 0.8007, indicate a high level of reliability and internal consistency for the items. The factor's overall Cronbach's alpha of 0.8266 shows a high level of reliability and internal consistency. As a result, *digital banking performance* is operationalised as the existence of positive outcomes of digital banking, including superior client experience, security, functionalities, and efficiencies, such as speed and convenience, that make digital banking trustworthy and desirable.

6.4.3 Dependent variable

As part of the validity measurement, the study's second EFA results for the dependent variable, *financial inclusion*, are shown in Table 6.9.

TABLE 6.9: DEPENDENT VARIABLE FACTOR ANALYSIS RESULTS

Items	Factor 1
FI01	-0.6061
FI02	-0.4940
FI03	-0.6372
FI04	-0.6552
FI05	-0.6070
FI06	-0.6098
FI07	-0.5814
FI08	-0.5721
FI09	-0.6091
FI10	-0.6493
FI11	-0.5729
FI12	-0.5604
FI13	-0.5770
FI14	-0.5902
FI15	-0.6105
FI16	-0.6058
FI17	-0.5629
FI18	-0.5300
FI19	-0.6014
FI20	-0.6122
FI21	-0.5750
FI22	-0.6476
Explained variance (Eigen value)	7.7924
Proportion of total variance	0.3542

Source: Researcher's own construction from analysed data

The validity and reliability results for the dependent variable, *financial inclusion,* are summarised in Table 6.10.

TABLE 6.10: VALIDITY AND RELIABILITY OF FINANCIAL INCLUSION

Cronbach's alpha = 0.9207			
Code	**Item**	**Factor loading**	**Cronbach's alpha if deleted**
FI01	Products and services offered by financial services providers, including banks, suit my needs.	-0.6061	0.9168
FI03	Products and services offered by financial services providers, including banks, improve my livelihood.	-0.6372	0.9163
FI04	I am aware of the financial products and services available to me.	-0.6552	0.9160
FI05	The products and services offered by FSPs can improve my access to essential services	-0.6070	0.9168
FI06	The products and services offered by FSPs can improve my access to amenities such as electricity and water.	-0.6098	0.9168
FI07	I use financial services such as savings and credit.	-0.5814	0.9173
FI08	Services offered by financial services providers, including banks, are available less than 5 km from my home.	-0.5721	0.9176
FI09	There are many financial services providers, including banks, located in my area.	-0.6091	0.9169
FI10	It is easy to access services offered by financial services providers, including banks, due to the availability of digital banking.	-0.6493	0.9161
FI11	I use financial products and services for investment purposes.	-0.5729	0.9176
FI13	I use financial products and services for insurance/protection against risk.	-0.5604	0.9175
FI12	I use financial products for saving.	-0.5770	0.9177
FI14	I use financial products and services to make payments.	-0.5902	0.9171
FI17	I have used financial products and services to receive funds/remittances.	-0.6105	0.9176
FI15	I use financial products and services for remittances or transfers.	-0.6058	0.9168
FI16	I use banks to make deposits.	-0.5629	0.9169
FI18	I use banks to take loans/advances.	-0.5300	0.9189

Cronbach's alpha = 0.9207			
Code	**Item**	**Factor loading**	**Cronbach's alpha if deleted**
FI19	Due to my income, I have access to and use financial products and services.	-0.6014	0.9169
FI20	Due to my education, I have access to and use financial products and services.	-0.6122	0.9168
FI21	I have the technology and devices that enable me to use digital banking.	-0.5750	0.9175
FI22	Financial services providers, including banks, have innovative products and services.	-0.6476	0.9161

Source: Researcher's own construction from analysed data

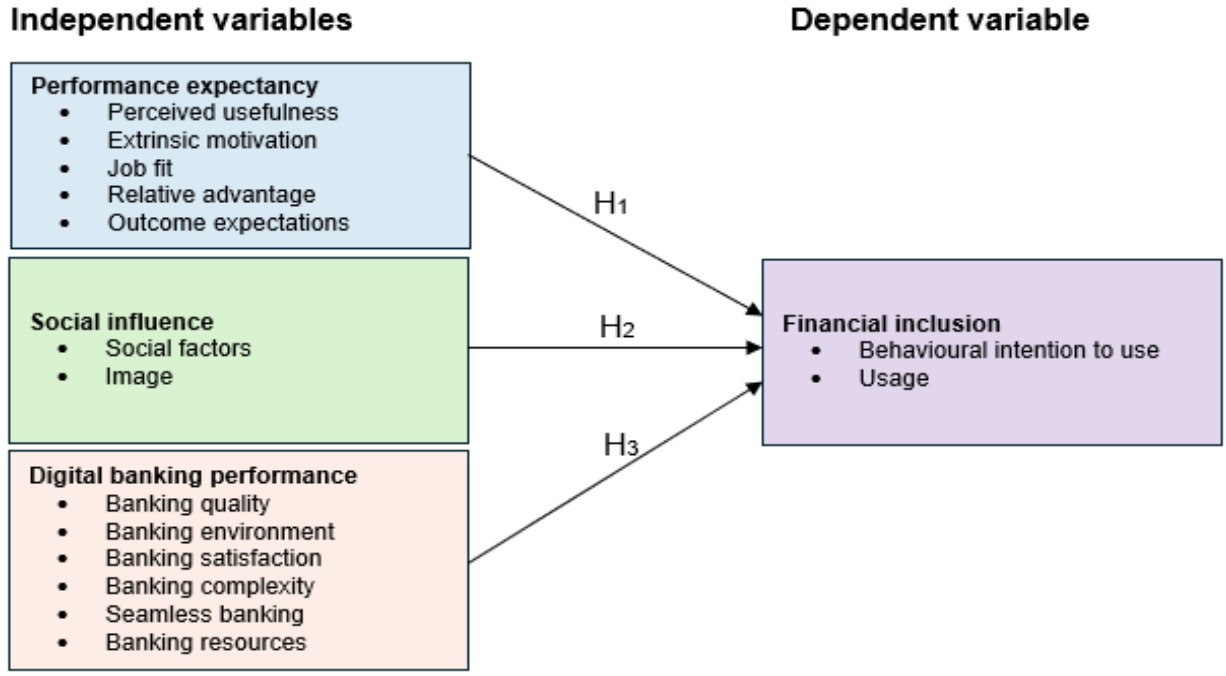
Evident from Table 6.10, *financial inclusion* was measured by 22 items, of which 21 loaded together onto the same factor; thus, the name remained unchanged as *financial inclusion*. Only one item (FI02) failed to load onto this factor, while all the remaining items (FI01, FI03–FI22) reported factor loadings between 0.5070 and 0.6237. As can be seen from Table 6.11, Cronbach's alpha coefficients for the items range between 0.9160 and 0.9189, which indicates a high level of reliability and internal consistency for the items measured. The overall Cronbach's alpha coefficient for the factor *financial inclusion* was 0.9207, hence implying high levels of reliability and internal consistency for the factor. Consequently, *financial inclusion* is operationalised as when individuals in the population of a country have access to and use quality and relevant financial services that sustainably address their needs.

6.4.4 Validity and reliability conclusion

Considering the two EFAs and Cronbach's alpha results, as presented and justified in Section 6.4.2, the study retained the original variable of *performance expectancy*. All *performance expectancy* sub-constructs were validated, that is, *perceived usefulness*, *extrinsic motivation*, *job fit*, *relative advantage*, and *outcome expectations*. The study also retained *social influence,* with two sub-constructs being validated, that is, *social factors* and *image*. The third independent variable, *digital banking performance,* comprising *banking quality*, *banking empowerment*, *banking satisfaction, banking complexity, seamless banking* and *banking resources,* was also validated.

The study's EFA also validated the dependent variable, *financial inclusion*, comprising the two sub-constructs, *behavioural intention to use* and *usage*. Resultantly, the original first two hypotheses remained unchanged, but the third hypothesis was reformulated, as presented in the revised hypothesised model (see Figure 6.2).

FIGURE 6.2: REVISED HYPOTHESISED MODEL



Source: Researcher's own construction

In line with the model presented in Figure 6.2, the hypotheses were therefore restated as follows:

H_1: Performance expectancy has a statistically significant relationship with financial inclusion.

H_2: Social influence has a statistically significant relationship with financial inclusion.

H_3: Digital banking performance has a statistically significant relationship with financial inclusion.

6.5 DESCRIPTIVE STATISTICS AND CORRELATION OF VARIABLES

The descriptive statistics related to the sample data and Pearson's product-moment correlation results are presented in Table 6.11.

TABLE 6.11: DESCRIPTIVE STATISTICS AND PEARSON'S CORRELATIONS

Variable	Means	Std.Dev	PE	SI	DBP	FI
Performance expectancy (PE)	4.0526	0.7081	1.0000			
Social influence (SI)	3.8077	0.8307	0.5226*	1.0000		
Digital banking performance (DBP)	4.0669	0.7910	0.7234*	0.4626*	1.0000	
Financial inclusion (FI)	3.9915	0.6572	0.8384*	0.6796*	0.7332*	1.0000

*$p < 0.05$

Source: Researcher's own construction from analysed data

The study's measuring instrument used a 5-point Likert scale, and the results in Table 6.11 show that the respondents mainly agreed or at least had a strong tendency towards agreement (with means close to 4), with the statements used to measure the study factors. The mean scores for *performance expectancy* (M = 4.0526) and *digital banking performance* (M = 4.0669) indicate that the respondents agreed with the items used to measure those independent variables. The mean score for *social influence* was 3.8077, which indicates that the respondents were inclined towards agreement with the items used to measure the variable. For the dependent variable, the respondents overall agreed with the statements used to measure *financial inclusion,* with a mean of 3.9915. The standard deviations, ranging from 0.6572 to 0.8307, indicate moderate variability in responses across the variables. *Social influence* had the highest standard deviation, indicating more diverse respondent opinions concerning this variable, while *financial inclusion* had the lowest standard deviation, thereby indicating the highest consistency of respondents' opinions regarding this variable.

As part of data analysis, Pearson's product-moment correlations were calculated to determine the strength of the linear relationships among the study variables, and the results are shown in Table 6.11. A correlation coefficient can take any value between +1 and -1, with a value of +1 representing a perfect positive relationship, while a value of -1 represents a perfect negative correlation. Coefficients between +1 and -1 represent weaker positive and negative correlations, respectively, with a value of 0

meaning the variables are perfectly independent (Saunders *et al.,* 2023:615). The following scale was therefore used for the interpretation of the correlations between the variables:

$\|r\| < 0.3$	Weak relationship
$0.3 < \|r\| < 0.5$	Moderate relationship
$\|r\| > 0.5$	Strong relationship

All variables exhibited significant correlations with one another, ranging from moderate to strong relationships. The strongest correlation of 0.8384 was between *performance expectancy* and *financial inclusion*. This implies that there is a link between how clients perceive how easy digital banking channels are to understand and use to attain their lifestyle objectives, and the clients' access to and usage of financial services that change their lives sustainably. Another strong correlation was found between *social influence* and *financial inclusion* (0.6796). This correlation shows that the views and support of others in clients' lives are linked to whether they have access to and use relevant financial services that can change their lives sustainably. A strong correlation of 0.7332 was also found between *digital banking performance* and *financial inclusion*, implying that the positive outcomes of digital banking are linked to clients' access to and usage of relevant financial services that can sustainably transform their lives. The implication is that improved digital banking performance leads to higher levels of financial inclusion.

A further strong correlation was found between *performance expectancy* and *digital banking performance* (0.7234), signifying strong correlations between the ease of understanding, use and attainment of life objectives using digital banking, and the anticipated positive outcomes that make digital banking trustworthy and desirable. Thus, if performance expectancy improves, then digital banking may also improve.

Performance expectancy and *social influence* exhibited a strong link (0.5226), implying that the influence and support of other people in one's life are correlated with whether financial services clients believe that digital banking channels are easy to understand and use to achieve life goals. Therefore, with an increase in the support of other people in a client's life, the performance expectancy of digital banking could be higher.

However, a moderate correlation was found between *social influence* and *digital banking performance*, implying that the views and support of those who have influence over a client are moderately linked to the anticipated positive outcomes of digital banking. Thus, the influence of other people in a client's life will have a moderate effect on the anticipated positive outcomes of using digital banking channels.

6.6 REGRESSION ANALYSIS WITH TOTAL SAMPLE

Prior to carrying out the MRAs, the assumptions regarding homoscedasticity and multicollinearity had to be tested. The assumption of homoscedasticity was satisfied as all the independent variables did not have standard deviations greater than 2. Multicollinearity is a situation of high correlation between two or more independent variables, which makes it difficult to determine the separate effects of individual variables, hence prompting skewed results (Saunders *et al.,* 2023:621; Shrestha, 2020:39). Table 6.12 summarises the multicollinearity results using the VIFs and tolerance levels, which were calculated. VIF levels with values greater than 10 and tolerance values less than 0.1 indicate high collinearity (Saunders *et al.,* 2023:621). All the VIFs are below 10, and the tolerance levels are all above 0.1; thus, the study's independent variables were free from multicollinearity.

TABLE 6.12: RESULTS FROM MULTICOLLINEARITY TESTING

Variable	VIF value	Tolerance levels
Performance expectancy	1.4770	0.6771
Social influence	1.0905	0.9170
Digital banking performance	1.3972	0.7157

Source: Researcher's own construction from analysed data

Various MRAs were done to identify statistically significant relationships between the study variables and ultimately test the study's hypotheses. Multiple regression uses statistical significance to set a cut-off value at the 95% confidence interval, indicating a significant relationship. In this study, MRA was used to assess whether the identified independent variables (*performance expectancy*, *social influence* and *digital banking performance*) exhibited statistically significant relationships with the dependent variable, *financial inclusion*.

Table 6.13 presents the MRA results for the total study sample comprising both groups (women and youth) of both countries (South Africa and Zimbabwe). An analysis of these results was used to accept or reject hypotheses for the total sample, including women and youth from both South Africa and Zimbabwe.

TABLE 6.13: MULTIPLE REGRESSION RESULTS – TOTAL SAMPLE

Dependent variable: Financial inclusion					R^2 = 0.8039	
	b*	**Std. Err.**	***b***	**Std. Err.**	***t* (219)**	***p*-value**
Intercept			0.3768	0.0629	5.9912	0.0000
Performance expectancy	0.5249	0.0234	0.4872	0.0217	22.4095	0.0000
Social influence	0.3076	0.0182	0.2434	0.0144	16.8659	0.0000
Digital banking performance	0.2112	0.0225	0.1755	0.0187	9.3755	0.0000

Source: Researcher's own construction from analysed data

The MRA results show that all relationships between the independent variables and the dependent variable were positive and statistically significant ($p < 0.05$). *Performance expectancy* ($b = 0.4872$, $p < 0.05$) had a positive, statistically significant relationship with *financial inclusion* for the total sample. This result suggests that if digital banking channels are perceived as easy to understand and use, and help clients to achieve their financial objectives, the chances of these clients being financially included increase. The stronger the *performance expectancy* of financial services clients, the greater the potential for achieving *financial inclusion*. The results align with those of prior studies by Nepal and Nepal (2023:29) and Chaundary, Ghimire, Adhikari and Shakya (2024:79), which found that *performance expectancy* plays a vital role in the adoption of digital technology, thereby facilitating financial inclusion. In addition, aspects of *performance expectancy*, such as PU and PEU, were also found to have a significant bearing on the behavioural intention to adopt digital banking, hence *financial inclusion* (Priya & Rao, 2024:2; Verma & Shome, 2025:66).

The regression results show that *social influence* ($b = 0.2434$; $p < 0.05$) had a statistically significant positive relationship with *financial inclusion* for the total sample, thereby implying that the social influence and support of friends, family and other important people have a significant influence on whether a client is financially included. Opoku-Okuampa (2024:123) reported that community practices and religious beliefs

positively impact savings behaviours, hence the financial inclusion of targeted respondents. Studies by Nepal and Nepal (2023:29), Chaundary *et al.* (2024:79), Priya and Rao (2024:3), as well as Verma and Shome (2025:66), also show that social influence has a positive and statistically significant impact on the adoption of technology services, hence corroborating the results of this study.

A statistically significant relationship was also found between *digital banking performance* and *financial inclusion* ($b = 0.1755$, $p < 0.05$), suggesting that the higher the positive outcomes and trust in digital banking channels, the higher the access to and usage of relevant financial services that sustainably address life needs. A prior study shows that habitual or repetitive use of digital banking has a positive relationship with adoption, hence improving infrastructure, making digital services more appealing and addressing technical problems can increase adoption (Nepal & Nepal, 2023:29). A study by Ayinaddis, Mirete and Getahun (2025:14) found that customer practices and the interaction between personalisation and past experiences have a significant influence on digital banking usage decisions.

According to Table 6.13, it is evident that the independent variables explain 80.39% of the total variance in the data. This implies that the three independent variables explain 80.39% of the variance in financial inclusion. Based on the MRA results, the strength of the relationships between the independent variables and the dependent variable differed. The strongest positive relationship was between *performance expectancy* and *financial inclusion* ($t = 22.4095$), followed by *social influence* and *financial inclusion* ($t = 16.8659$). The weakest relationship was between *digital banking performance* and *financial inclusion* ($t = 9.3755$). Therefore, clients' belief that digital banking is easy to understand and use, as well as that it will help them achieve their financial objectives in a sustainable manner, are the most critical drivers of *financial inclusion.*

The overall MRA results provide sufficient evidence of the existence of significant relationships between the study's identified variables. Table 6.14 provides a summary of the decisions related to the study's hypotheses.

TABLE 6.14: SUMMARY OF HYPOTHESES DECISIONS BASED ON MRA RESULTS FOR THE TOTAL SAMPLE

Hypothesis		Decision
H_1	Performance expectancy has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$
H_2	Social influence has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$
H_3	Digital banking performance has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$

Source: Researcher's own construction from analysed data

The acceptance of H_1 shows that when clients have a higher *performance expectancy* of digital banking, they are more likely to be financially included. The acceptance of H_2 highlights that when *social influence* is stronger, the likelihood of one being financially included is higher. Similarly, the acceptance of H_3 signifies that the higher the positive outcomes of using digital banking channels, the more individuals of the population will have access to and use suitable and sustainable financial services and thus be financially included.

The next section addresses further multiple regression results in line with the comparative nature of this study. MRA was also done for the total South African sample, total Zimbabwean sample, South African women sample, Zimbabwean women sample, South African youth sample and Zimbabwean youth sample to achieve the comparative analysis aspect of this study.

6.7 MULTIPLE REGRESSION ANALYSIS FOR COMPARATIVE PURPOSES

The multiple regression results are presented, after which specific comparisons are done for the South African and Zimbabwean samples, the South African women and Zimbabwean women samples, and the South African youth and Zimbabwean youth samples. The comparison is in relation to the level of significance of the identified relationships between the independent variables (*performance expectancy*, *social influence* and *digital banking performance*) and the dependent variable, *financial inclusion*.

6.7.1 Total South African versus total Zimbabwean sample

Table 6.15 presents the MRA results for the total sample (comprising both women and youth from both South Africa and Zimbabwe) for comparison purposes.

TABLE 6.15: MULTIPLE REGRESSION RESULTS – TOTAL SOUTH AFRICAN AND ZIMBABWEAN SAMPLES

Dependent variable: Financial inclusion						**SA R^2 = 0.8362 Zim R^2 = 0.7380**	
		b*	**Std. Err.**	***b***	**Std. Err.**	***t***	***p*-value**
Intercept	SA			0.3443	0.0670	5.1422	0.0000
	Zim			0.5440	0.1452	3.7457	0.0002
Performance expectancy	SA	0.4820	0.0256	0.4592	0.0244	18.8526	0.0000
	Zim	0.6811	0.0551	0.5972	0.0483	12.3683	0.0000
Social influence	SA	0.2973	0.0224	0.2513	0.0189	13.2821	0.0000
	Zim	0.2578	0.0369	0.1889	0.0270	6.9899	0.0000
Digital banking performance	SA	0.2550	0.0240	0.2084	0.0196	10.6381	0.0000
	Zim	0.0684	0.0538	0.0605	0.0476	1.2706	0.2052

Source: Researcher's own construction from analysed data

Evident from Table 6.15, *performance expectancy* was found to have a positive statistically significant relationship with *financial inclusion* for respondents from both South Africa (b = 0.4592, $p < 0.05$) and Zimbabwe (b = 0.5972, $p < 0.05$). This result suggests that clients who believe using digital banking channels will help them achieve their goals are more likely to be financially included.

Social influence had a positive, statistically significant relationship with *financial inclusion* for both country samples (b = 0.2513, $p < 0.05$ for South Africa and b = 0.1889, $p < 0.05$ for Zimbabwe). This implies that for both country groups, the views and support of other people in a client's life have a positive and statistically significant relationship with the client's financial inclusion. Therefore, if social influence is high, then higher levels of financial inclusion are likely to be achieved in both South Africa and Zimbabwe.

The MRA results show that *digital banking performance* was found to have a positive and statistically significant relationship with *financial inclusion* for the South African sample (b = 0.2084, p < 0.05). However, for the Zimbabwean sample, *digital banking performance* (b = 0.0605, p > 0.05) had a positive but not a statistically significant effect on *financial inclusion*. This means that digital banking performance significantly improves financial inclusion in South Africa, while its effect in Zimbabwe is not statistically significant.

Overall, for both countries, the strongest positive significant relationship was found between *performance expectancy* and *financial inclusion* (t = 18.8526 for South Africa, t = 12.3683 for Zimbabwe), while a moderately strong positive relationship was found between *social influence* and *financial inclusion* (t = 13.2821 for South Africa, t = 6.9899 for Zimbabwe). However, the weakest positive relationships for both countries were between *digital banking performance* and *financial inclusion,* with the South African sample showing a weak but positive statistically significant relationship (t = 1.2706), and the Zimbabwean sample showing a statistically insignificant relationship (p > 0.05).

In terms of the variance of data for the South African sample, 83.62% of the variation in the dependent variable, *financial inclusion*, is explained by the data; hence, most changes in *financial inclusion* were captured by the independent variables selected. For Zimbabwe, about 73.80% of the variation in the dependent variable, *financial inclusion*, is explained by the model, although it explains less variance compared to South Africa.

Table 6.16 summarises the hypotheses results for the two country samples.

TABLE 6.16: COMPARATIVE SUMMARY OF HYPOTHESES DECISIONS – TOTAL SOUTH AFRICAN AND TOTAL ZIMBABWEAN SAMPLES

Hypothesis		Decision	
		South Africa	Zimbabwe
H_1	*Performance expectancy* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_2	*Social influence* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_3	*Digital banking performance* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Rejected $p > 0.05$

Source: Researcher's own construction from analysed data

Based on the MRA results, H_1 and H_2 were accepted for both the total South African and total Zimbabwean samples. However, H_3 was only accepted for the total South African sample and rejected for the Zimbabwean sample.

6.7.2 South African women versus Zimbabwean women

Having done both an overall analysis and a comparative analysis of the MRA results for the country samples, Table 6.17 presents the MRA results for the South African women and Zimbabwean women samples, after which a discussion of the comparative analysis is presented.

TABLE 6.17: MULTIPLE REGRESSION RESULTS – SOUTH AFRICAN WOMEN AND ZIMBABWEAN WOMEN SAMPLES

Dependent variable: Financial inclusion						SA R^2 = 0.8154 Zim R^2 = 0.7248	
		b*	**Std. Err.**	***b***	**Std. Err.**	***t***	***p*-value**
Intercept	SA			0.3632	0.1210	3.0012	0.0030
	Zim			0.6828	0.2010	3.3970	0.0009
Performance expectancy	SA	0.6065	0.0487	0.5740	0.0461	12.4565	0.0000
	Zim	0.7212	0.0851	0.6078	0.0717	8.4745	0.0000
Social influence	SA	0.2540	0.0377	0.2172	0.0322	6.7364	0.0000
	Zim	0.2296	0.0525	0.1694	0.0388	4.3703	0.0000
Digital banking performance	SA	0.1519	0.0465	0.1211	0.0371	3.2671	0.0013
	Zim	0.0333	0.0828	0.0278	0.0691	0.4024	0.6881

Source: Researcher's own construction from analysed data

According to the multiple regression results presented in Table 6.17, *performance expectancy* was found to have a positive statistically significant relationship with *financial inclusion* for both the women samples of South Africa (b = 0.5740, $p < 0.05$) and Zimbabwe (b = 0.6078, $p < 0.05$). The *performance expectancy* relationship with *financial inclusion* is stronger for South African women (t = 12.465) than Zimbabwean women (t = 8.4745). The results suggest that women clients who believe that digital banking channels are easy to understand and use, as well as can help them achieve their financial objectives, are more likely to be financially included in both South Africa and Zimbabwe, with the likelihood being higher for South African women.

A positive and statistically significant relationship was found between *social influence* and *financial inclusion* for both the South African women group (b =0.2172, $p < 0.05$) and the Zimbabwean women group (b = 0.1694, $p < 0.05$). This means that the influence of other people in a client's life, such as family, friends, and community, is likely to positively influence the financial inclusion of both South African and Zimbabwean women. The relationship is marginally stronger for the South African women sample (t = 6.7364) than for the Zimbabwean women sample (t = 4.3703).

Therefore, social influence is likely to promote higher levels of financial inclusion, more so for South African women.

The MRA results also show that *digital banking performance* was found to have a positive and statistically significant relationship with *financial inclusion* for the South African women group (b = 0.1211, $p < 0.05$), while no significant effect was found for *financial inclusion* among the Zimbabwean women group (b = 0.0278, $p > 0.05$). This means that the positive outcomes of digital banking are strongly associated with higher *financial inclusion* for South African women, while this relationship is not evident for Zimbabwean women. Thus, if digital banking performance is improved, there is a higher likelihood of achieving financial inclusion for South African women; however, this does not appear to be relevant to Zimbabwean women.

For the South African women group, 81.54% of the variation in the dependent variable, *financial inclusion*, is explained by the data; hence, most changes in *financial inclusion* were captured by the independent variables selected, while for Zimbabwe women, 72.48% of the variation in the dependent variable, *financial inclusion*, is explained by the model.

The overall hypothesis results for the women's samples for the two countries are presented in Table 6.18.

TABLE 6.18: COMPARATIVE SUMMARY OF HYPOTHESES DECISIONS – SOUTH AFRICAN AND ZIMBABWEAN WOMEN SAMPLES

Hypothesis		**Decision**	
		South African women	**Zimbabwean women**
H_1	*Performance expectancy* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_2	*Social influence* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_3	*Digital banking performance* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Rejected $p > 0.05$

Source: Researcher's own construction from analysed data

Based on the MRA results as summarised in Table 6.18, H_1 and H_2 were accepted for both the total South African women and the total Zimbabwean women sample. However, H_3 was only accepted for the total South African women sample and rejected for the Zimbabwean women sample.

6.7.3 South African youth versus Zimbabwean youth

Table 6.19 presents the MRA results for the South African and Zimbabwean youth samples, followed by a detailed comparative analysis.

TABLE 6.19: MULTIPLE REGRESSION RESULTS – SOUTH AFRICAN YOUTH AND ZIMBABWEAN YOUTH SAMPLES

Dependent variable: Financial inclusion					**SA R^2 = 0.8486 Zim R^2 = 0.7563**		
		b*	**Std. Err.**	**b**	**Std. Err.**	***t* (398)**	***p*-value**
Intercept	SA			0.3201	0.0802	3.9892	0.0001
	Zim			0.5440	0.1452	3.7457	0.0002
Performance expectancy	SA	0.4327	0.0303	0.4117	0.0288	14.2913	0.0000
	Zim	0.6811	0.0551	0.5972	0.0483	12.3683	0.0000
Social influence	SA	0.3184	0.0280	0.2725	0.0239	11.3869	0.0000
	Zim	0.2578	0.0369	0.1889	0.0270	6.9899	0.0000
Digital banking performance	SA	0.2904	0.0278	0.2399	0.0230	10.4499	0.0000
	Zim	0.0684	0.0538	0.0605	0.0476	1.2706	0.2052

Source: Researcher's own construction from analysed data

The MRA results in Table 6.19 indicate that *performance expectancy* was found to have a positive and statistically significant relationship with *financial inclusion* for both the South African youth (b = 0.4117, $p < 0.05$) and Zimbabwean youth groups (b = 0.5972, $p < 0.05$). The effect of *performance expectancy* on *financial inclusion* was stronger for the South African youth group (t = 14.2913) than for the Zimbabwean youth group (t = 12.3683). This means that youth in both South Africa and Zimbabwe are likely to be financially included and perceive their financial needs as being

sustainably addressed when they believe that digital banking channels are easy to understand and to use, and that they will help them achieve their financial objectives.

The MRA results also show that *social influence* was found to have a positive and statistically significant relationship with *financial inclusion* for both the South African youth group ($b = 0.2725$, $p < 0.05$) and the Zimbabwean youth group ($b = 0.1889$, $p < 0.05$). This implies that the opinions of other important people in a client's life play an important role in promoting the use of financial services among the youth of both South Africa and Zimbabwe. The effect is greater in South Africa ($t = 11.3869$) than in Zimbabwe ($t = 6.9899$), indicating that social influence has a greater consequence in South Africa than in Zimbabwe.

Digital banking performance was found to have a positive and statistically significant relationship with *financial inclusion* for the South African youth group ($b = 0.2399$, $p < 0.05$). However, the same cannot be said for the Zimbabwean youth group, as the MRA results show no significant relationship between *digital banking performance* and *financial inclusion* ($b = 0.0605$, $p > 0.05$). This means that improved digital banking services with more positive outcomes drive financial inclusion among South African youth, while the same does not necessarily apply among Zimbabwean youth.

Overall, the results explain 84.86% of the variation in the data for the South African sample, while the model explains 75.63% of the variation in the data for the Zimbabwean sample. The hypotheses results related to the South African and Zimbabwean youth samples are presented in Table 6.20.

TABLE 6.20: COMPARATIVE SUMMARY OF HYPOTHESES DECISIONS – SOUTH AFRICAN AND ZIMBABWEAN YOUTH SAMPLES

Hypothesis		Decision	
		South African youth	Zimbabwean youth
H_1	*Performance expectancy* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_2	*Social influence* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Accepted $p < 0.05$
H_3	*Digital banking performance* has a statistically significant relationship with financial inclusion.	Accepted $p < 0.05$	Rejected $p > 0.05$

Based on the MRA results summarised in Table 6.20, H_1 and H_2 were accepted for both the South African and Zimbabwean women samples. However, H_3 was only accepted for the South African youth sample and rejected for the Zimbabwean youth sample.

The following section details the *t*-test results of this study. The analysis of the *t*-test results entailed a comparison of perceptions of variable items among the different groups in the study. The comparative analysis assisted in achieving the comparative analysis focus of this study.

6.8 *T*-TEST RESULTS

The *t*-test results were important for the achievement of the study's objectives related to determining differences or similarities in perceptions of variables between the key sample groups in the study. According to Alwahaibi *et al.* (2020:251), Cohen's *d* was developed by the statistical scientist Cohen in 1962 to interpret the values of the index of practical significance of statistical tests that look for differences between groups. The criterion consists of three levels: small if the index of the effect is less than 0.5, medium if it is between 0.5 and 0.8, and large if it is 0.8 and above. Cohen's *d* analysis is therefore used to determine the practical significance, that is, the extent, of any differences where they exist.

Comparisons were done for the following groups: total South African versus total Zimbabwean groups, South African women versus South African youth, Zimbabwean

women versus Zimbabwean youth, South African women versus Zimbabwean women and South African youth versus Zimbabwean youth. The comparisons are presented in relation to the existence of significant differences in terms of perceptions regarding the study variables.

6.8.1 Total South African versus Total Zimbabwean groups

This analysis sought to determine whether there was a significant difference in the means of variables between South African and Zimbabwean respondents. An independent *t*-test for the groups (total South African and total Zimbabwean groups) was conducted, and the results are presented in Table 6.21.

TABLE 6.21: *T*-TEST RESULTS BY COUNTRY OF RESIDENCE

Variable	Mean SA	Mean ZIM	*t*-value	*p*	*F*-ratio	Cohen's *d*
Performance expectancy	4.0174	4.1487	2.3746	0.0178	1.2003	0.19
Social influence	3.9172	3.5085	-6.4375	0.0000	1.3542	0.50
Digital banking performance	4.0183	4.1996	2.9402	0.0034	1.1553	0.23
Financial inclusion	4.0109	3.9383	-1.4133	0.1580	1.0166	-

Source: Researcher's own construction from analysed data

Regarding the respondents' perceptions of the variables, significant differences ($p < 0.05$) were found between South African respondents and Zimbabwean respondents for all the independent variables, as presented in Table 6.21, as evident from all *p*-values, which were below 0.05. However, no significant difference was found regarding perceptions on *financial inclusion* for the South African and Zimbabwean samples ($p > 0.05$).

Performance expectancy reported a p-value of 0.0178. The mean for the total South Africa group is 4.0174, while the mean for the total Zimbabwe group is 4.1487, indicating that respondents from Zimbabwe agreed slightly more with the items regarding *performance expectancy* than those from South Africa. The results suggest a significant difference ($p < 0.05$) in perceptions of *performance expectancy* between the South African and Zimbabwean respondents. However, the Cohen's *d* value of

0.19 indicates that the practical significance of the difference between the two groups is small.

Social influence reported a *p*-value of 0.0000. The mean shows that, overall, the respondents from South Africa exhibited a higher level of agreement with items measuring *social influence* (M = 3.9172) than those from Zimbabwe (M = 3.5085), with a mean difference of 0.3657. Thus, South African respondents agreed more with *social influence* items than their Zimbabwean counterparts. As the independent samples *t*-test indicates a significant difference ($p < 0.05$) in *social influence* perceptions between respondents from South Africa and Zimbabwe, the calculated Cohen's *d* score of 0.50 indicates that the practical significance of the difference is medium.

Digital banking performance reported a *p*-value of 0.0034. This analysis investigated whether there was a significant difference ($p < 0.05$) in *digital banking performance* perceptions between South African and Zimbabwean respondents. The mean for South Africa is 4.0183, while the mean for Zimbabwe is 4.1996, indicating that respondents from Zimbabwe had slightly higher levels of agreement regarding *digital banking performance* items than the South African respondents. The results show a significant difference in *digital banking performance* perceptions between South African and Zimbabwean respondents. However, Cohen's *d* statistic of 0.23 indicates that the difference is small and, therefore, of little practical significance.

For *financial inclusion*, the mean scores of 4.0109 and 3.9383 for South African and Zimbabwean respondent groups, respectively, show little difference between the *financial inclusion* perceptions of the two groups. The mean is, however, slightly higher for South Africa than for Zimbabwe. The difference in means between the two country groups is not statistically significant ($p > 0.05$).

6.8.2 South African women versus South African youth

This set of results aims to determine the existence of a significant difference in means of variables between South African women and South African youth respondents. An independent *t*-test for the groups was conducted, and the results are presented in Table 6.22.

TABLE 6.22: *T*-TEST RESULTS FOR SOUTH AFRICAN WOMEN VS SOUTH AFRICAN YOUTH

Variable	Mean SA women	Mean SA youth	*t*-value	*P*	*F*-ratio	Cohen's *d*
Performance expectancy	3.9773	4.0381	1.0323	0.3024	1.1158	-
Social influence	3.7266	4.0154	4.4212	0.0000	1.1265	0.38
Digital banking performance	3.9300	4.0638	1.9561	0.0509	1.0505	-
Financial inclusion	3.9319	4.0516	2.1419	0.0326	1.1277	0.18

Source: Researcher's own construction from analysed data

The *p*-values depicted in Table 6.22 show that there were no significant differences ($p > 0.05$) in the perceptions of South African women and South African youth for items of two of the four variables, *performance expectancy* ($p = 0.3024$) and *digital banking performance* ($p = 0.0326$). Significant differences, however, were found between South African women and South African youth regarding the perceptions of *social influence* ($p = 0.0000$) and *financial inclusion* ($p = 0.0326$).

Performance expectancy: The mean for South African women is 3.9773, while the mean for South African youth is 4.0381, showing that youth in South Africa agreed slightly more with *performance expectancy* items than the country's women, although the difference is not statistically significant.

Social influence: The means, with a mean difference of 0.2888, show that overall South African women exhibit a lower level of agreement in terms of *social influence* ($M = 3.7266$) than South African youth ($M = 4.0154$). The Cohen's *d* value of 0.38 shows that the difference is of medium practical significance.

Digital banking performance: South African women have a slightly lower mean of 3.9300 than South African youth, with a mean of 4.0183, indicating that youth respondents' perceptions had higher agreement levels in terms of *digital banking performance* than women from South Africa. The results, however, show that there is no statistically significant difference in the perceptions regarding *digital banking performance* between South African women and the country's youth.

Financial inclusion: South African women have a marginally lower mean (M = 3.9319) than that of the country's youth (M = 4.0516). Overall, however, although the p-value supports a statistically significant ($p < 0.05$) mean difference, the practical significance of the difference is small, evident from the Cohen's d value of 0.18.

6.8.3 Zimbabwean women versus Zimbabwean youth

An independent sample t-test was done to determine whether there was a significant difference in the perceptions of the Zimbabwean women and Zimbabwean youth respondents regarding the variables under investigation. The results are presented in Table 6.23.

TABLE 6.23: *T*-TEST RESULTS FOR ZIMBABWEAN WOMEN VERSUS ZIMBABWEAN YOUTH

Variable	Mean Zim Women	Mean Zim Youth	*t*-value	*p*	*F*-ratio	Cohen's *d*
Performance expectancy	4.1830	4.1114	-0.7079	0.4798	1.0563	-
Social influence	3.4724	3.5477	0.6214	0.5350	1.1482	-
Digital banking performance	4.1782	4.2227	0.4449	0.6568	1.1457	-
Financial inclusion	3.9298	3.9475	0.1992	0.8423	1.1187	-

Source: Researcher's own construction from analysed data

The results summarised in Table 6.23 show that there were no significant differences ($p > 0.05$) between Zimbabwean women and the country's youth for all four variables, evident from the p-values for *performance expectancy* (p = 0.4798), *social influence* (p = 0.5350), *digital banking performance* (p = 0.6568) and *financial inclusion* (p = 0.8423).

Performance expectancy: The means for Zimbabwean women and the country's youth group are almost similar at 4.1830 and 4.1114, respectively, suggesting that no significant difference ($p > 0.05$) between the *performance expectancy* perceptions of Zimbabwean women and Zimbabwean youth.

Social influence: Although marginal, Zimbabwean women have a lower average *digital banking performance* mean score of 3.4724 compared to that of 3.5477 for the

country's youth. However, this difference is not statistically significant ($p < 0.05$); thus, no significant difference was found to exist between the perceptions of *social influence* of the two groups.

Digital banking performance: The mean for the Zimbabwean women group was 4.1782, while that of the Zimbabwean youth group was 4.2227, hence showing marginally lower perceptions by Zimbabwean women than the country's youth. These *t*-test results, however, show no significant difference ($p > 0.05$) between the perceptions of *digital banking performance* by Zimbabwean women and Zimbabwean youth.

Financial inclusion: Zimbabwean women have a marginally lower mean of 3.9298 against that of the country's youth, with a mean of 3.9475. Overall, however, the marginal mean difference shows the existence of almost similar perceptions of *financial inclusion* for both Zimbabwean women and youth, with no statistically significant difference ($p > 0.05$) between the two groups.

6.8.4 South African women versus Zimbabwean women

A *t*-test was calculated to determine whether there was a significant difference in the means of variables between South African women and Zimbabwean women respondents. The results of the independent *t*-test for groups are presented in Table 6.24.

TABLE 6.24: *T*-TEST RESULTS FOR SOUTH AFRICAN WOMEN VERSUS ZIMBABWEAN WOMEN

Variable	Mean SA women	Mean ZIM women	*t*-value	*p*	*F*-ratio	Cohen's *d*
Performance expectancy	3.9773	4.1830	2.5299	0.0119	1.3292	0.29
Social influence	3.7266	3.4724	-2.7866	0.0056	1.4157	0.32
Digital banking performance	3.9300	4.1782	2.7384	0.0065	1.0412	0.32
Financial inclusion	3.9319	3.9298	-0.0286	0.9772	1.0538	-

Source: Researcher's own construction from analysed data

The results in Table 6.24 show significant differences (p < 0.05) in perceptions between South African women and Zimbabwean women for three of the four variables, as reflected by the p-values of *performance expectancy* (p = 0.0119), *social influence* (p = 0.0056) and *digital banking performance* (p = 0.0065). However, no significant difference (p > 0.05) was found between the perceptions of South African women and Zimbabwean women on *financial inclusion*, as shown by the p-value of 0.9772 (p > 0.05).

Performance expectancy: The mean for the South African women group (M = 3.9773) is marginally smaller than that of the Zimbabwean women sample (M = 4.1830), indicating a marginal, although significant difference (p < 0.05) in the perceptions of *performance expectancy* for the South African women and Zimbabwean women groups. The Cohen's d score of 0.29 also shows that the practical significance of the difference is small.

Social influence: The results show a higher mean for South African women (M = 3.7266) than for Zimbabwean women (M = 3.4724), implying that a small difference exists between the two groups' perceptions. Although the difference is statistically significant (p < 0.05), a Cohen's d statistic of 0.32 shows that the difference is small, and therefore of little practical significance.

Digital banking performance: The mean for South African women (M = 3.900) is marginally lower than that of Zimbabwean women (M = 4.1782), thereby showing a minimal, although statistically significant difference (p < 0.05) in the perceptions of *digital banking performance* for the two countries' women groups. The Cohen's d score of 0.32 shows that the differences between the South African women and Zimbabwean women groups are small, and therefore are of little practical significance.

Financial inclusion: The results show a difference between the mean of the South African women group (M = 3.9319) and the Zimbabwean women group (M = 3.9298). The t-test results also reveal no statistically significant difference (p > 0.05) between the two groups' perceptions of *financial inclusion* items.

6.8.5 South African youth versus Zimbabwean youth

Finally, as part of the comparative statistical analysis, an independent sample *t*-test was also done to determine whether there was a significant difference in means of variables between the South African youth and Zimbabwean youth respondents. The results are shown in Table 6.25.

TABLE 6.25: *T*-TEST RESULTS FOR SOUTH AFRICAN YOUTH VERSUS ZIMBABWEAN YOUTH

Variable	Mean SA youth	Mean ZIM youth	*t*-value	*P*	*F*-ratio	Cohen's *d*
Performance expectancy	4.0381	4.1114	0.9502	0.3424	1.1277	-
Social influence	4.0154	3.5477	-5.2829	0.0000	1.4430	0.58
Digital banking performance	4.0638	4.2227	1.8501	0.0649	1.2531	-
Financial inclusion	4.0516	3.9475	-1.4301	0.1533	1.0453	-

Source: Researcher's own construction from analysed data

The results in Table 6.25 show a significant difference between the South African youth and Zimbabwean youth groups, only in respect of one variable, *social influence*, with a *p*-value of 0.0000. For the other three variables, no significant differences ($p > 0.05$) were found between the perceptions of the youth groups from both South Africa and Zimbabwe regarding *performance expectancy* ($p = 0.3424$), *digital banking performance* ($p = 0.0649$) and *financial inclusion* ($p = 0.1533$).

Performance expectancy: The mean of 4.0381 for South African youth is marginally smaller than that of the Zimbabwean youth group ($M = 4.1114$), suggesting only a small difference between the perceptions regarding *performance expectancy* for both countries' youth groups, as no statistically significant difference ($p > 0.05$) was found.

Social influence: The difference in means of South African youth ($M = 3.5477$) and Zimbabwean youth ($M = 4.0154$) indicate a statistically significant difference ($p < 0.05$) between the perceptions of *social influence* for the two groups. The Cohen's *d* score of 0.58 shows that the practical significance of the difference between the South African youth and Zimbabwean youth groups is moderate (medium practical

significance), with the Zimbabwean youth group displaying a lower mean regarding this variable.

Digital banking performance: Overall, there is no significant difference ($p > 0.05$) between the South African youth and Zimbabwean youth groups in terms of perceptions of *digital banking performance*. The mean of 4.0638 for the South African youth group is marginally lower than that of the Zimbabwean youth group at 4.2227, although the difference is not statistically significant ($p > 0.05$).

Financial inclusion: The South African youth group reported a mean of 4.0516, while the Zimbabwe youth group reported a mean of 3.9475. This *t*-test reinforces that there is no statistically significant difference ($p > 0.05$) in the perceptions of *financial inclusion* between the South African youth and Zimbabwean youth groups.

6.8.6 Summary of the *t*-test results

Table 6.26 summarises the results of the various *t*-tests, highlighting where statistically significant differences were found.

TABLE 6.26: *T*-TEST RESULTS SUMMARY

Groups	Statistical significance	Practical significance
Total SA group vs total Zim group		
Performance expectancy	Yes	Small
Social influence	Yes	Medium
Digital banking performance	Yes	Small
Financial inclusion	No	n/a
SA women vs SA youth		
Performance expectancy	No	n/a
Social influence	Yes	Medium
Digital banking performance	No	n/a
Financial inclusion	Yes	Small
Zim women vs Zim youth		
Performance expectancy	No	n/a
Social influence	No	n/a
Digital banking performance	No	n/a
Financial inclusion	No	n/a
SA women vs Zim women		
Performance expectancy	Yes	Small
Social influence	Yes	Small
Digital banking performance	Yes	Small
Financial inclusion	No	n/a
SA youth vs Zim youth		
Performance expectancy	No	n/a
Social influence	Yes	Medium
Digital banking performance	No	n/a
Financial inclusion	No	n/a

Considering the summary of the *t*-test results in Table 6.26, the following summary of the statistically and practically significant differences between the various groups is presented:

- **Total South African versus Total Zimbabwean groups:** Respondents from Zimbabwe agreed slightly more with *performance expectancy* than those from South Africa, and the practical significance of the difference between the two groups is small. Considering *social influence,* respondents from South Africa exhibited a higher level of agreement with items measuring *social influence* than those from Zimbabwe, and the practical significance of the difference is medium. Regarding digital b*anking performance, r*espondents from Zimbabwe had slightly higher levels of agreement with *digital banking performance* items than those from South Africa, with the difference being of small practical significance.
- **South African women versus South African youth:** Regarding *social influence,* South African women exhibited a lower level of agreement than South African youth, with the difference being of medium practical significance. However, for *financial inclusion*, South African women had a marginally lower mean than that of the country's youth, with a medium practical significance in the differences between the two groups.
- **South African women versus Zimbabwean women:** Considering *performance expectancy*, a significant difference was found in the perceptions of the South African women and Zimbabwean women groups, although the practical significance of the difference is small. Similarly, a small difference was found between the two groups' perceptions of *social influence*, implying little practical significance. Regarding *digital banking performance*, small, practically significant differences were found between the South African women and the Zimbabwean women groups.
- **South African youth versus Zimbabwean youth:** Regarding *social influence*, statistically significant differences were found between the two groups, with these differences being of medium practical significance.

The detailed comparative analysis of the *t*-test results was done in line with the study's objectives.

6.9 CHAPTER SUMMARY

Chapter 6 presented a summary of the empirical results of this study. The chapter summarised the response rate (81.33%), followed by a presentation of the demographic profile of respondents (more youth than women for South Africa and more women than youth for Zimbabwe) in terms of age (most youth followed by females aged 31 to 40 years) and location (most in urban areas for both countries). An assessment of digital banking responses, that is, channel options available, devices currently used, digital banking channels respondents have access to, and the digital banking channels they currently use, was conducted.

The validity and reliability of the measurement instrument were assessed. Two EFA were done to help assess construct validity, while the reliability of the questionnaire was measured using the Cronbach's alpha coefficients for each of the factors following the two EFA. Following the assessment of the validity and reliability of the measuring instrument, three factors (*performance expectancy*, *social influence,* and *digital banking performance*) were identified as potentially influencing the dependent variable, *financial inclusion*, hence a revised hypothesised model was developed.

Descriptive statistics in the form of means were presented together with Pearson's product-moment correlations to determine the strength of the relationships among the study variables. All the associations were found to be strong, except for the association between social influence and digital banking performance, which was found to be moderate. Positive, statistically significant relationships were found between all the variables for all the sample groups. However, no significant relationships were found between *digital banking performance* and *financial inclusion* for the various Zimbabwean groups. *T*-tests were also done to facilitate the comparison of differences in perceptions among the various groups. Differences were found between the perceptions of all three independent variables for the South African versus Zimbabwean groups, as well as for the two women groups. Significant differences in perceptions of financial inclusion became evident when comparing the South African women and youth groups.

Chapter 7 provides a discussion of the empirical results. This entails interpretation and implications of the empirical results, and the deductions thereof. The chapter also provides a comparison of this study ‘s results with literature and prior studies.

CHAPTER SEVEN

DISCUSSION OF EMPIRICAL RESULTS

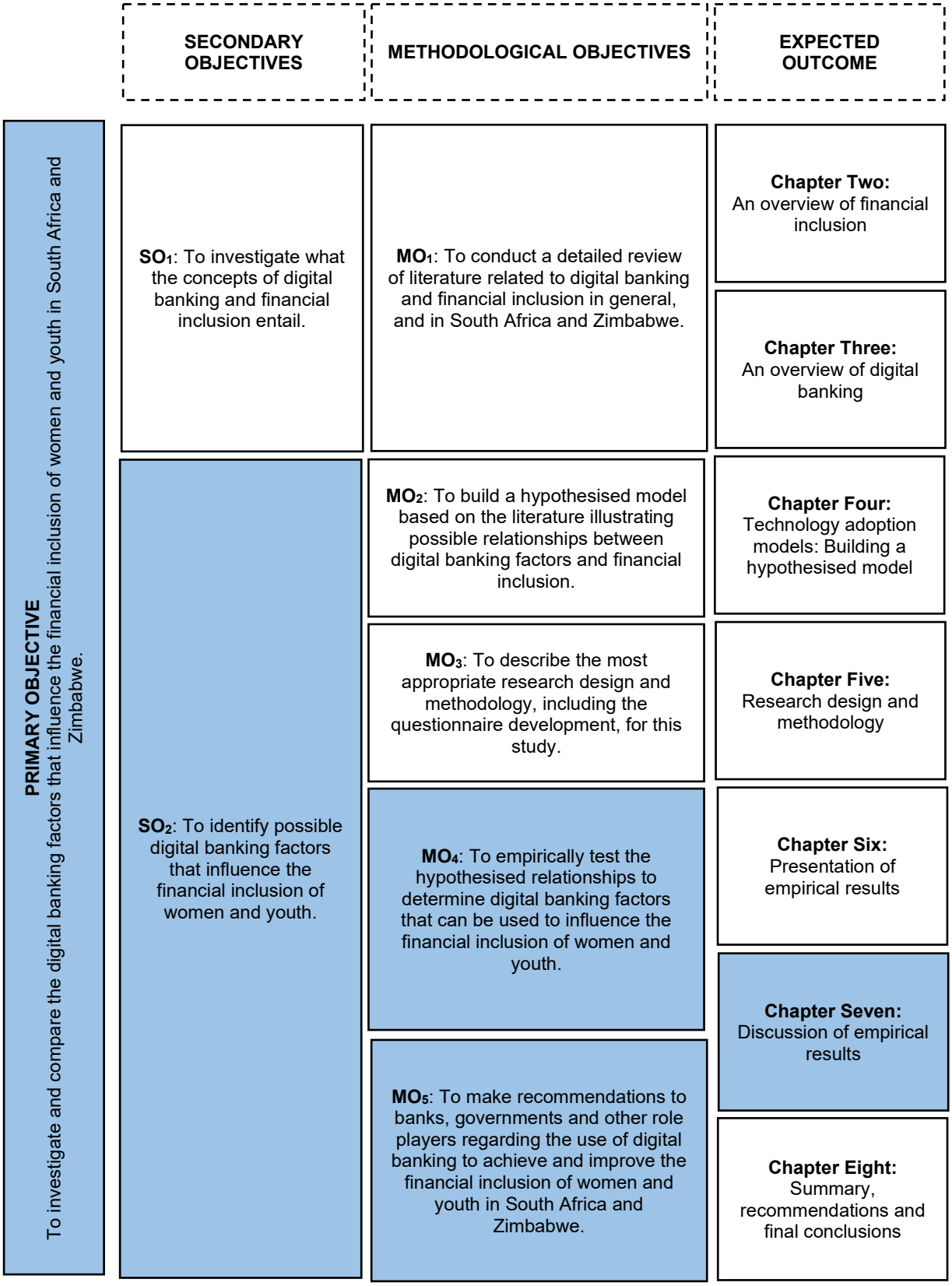
7.1 INTRODUCTION

Chapter 6 covered a full presentation of the empirical results of the study. The chapter started with summaries of the response rate and the demographic profile of the respondents, followed by an analysis of the validity and reliability of the questionnaire used in the study through factor analysis and Cronbach's alpha results, respectively. This was followed by a revision of the hypothesised model, analysis of the descriptive statistics on variables and presentation of relationships between the variables. The various inferential statistical analyses, that is, correlation analysis, multiple regression analysis and *t*-tests, were therefore presented.

In Chapter 7, a discussion of the study's empirical results is provided. The discussion entails an interpretation of the results based on the Pearson's product-moment correlations, the MRA of the total samples, and the *t*-test results. Inferences from the other MRA results, which facilitate group and country comparisons related to the variable relationships, are also made. The chapter also covers a discussion relating to implications of the interpretated results and comparison of the study results with literature. Chapter 7 addresses secondary objective 2 (SO_2) of the study, in identifying digital banking factors that influence financial inclusion. The chapter also partly addresses methodological objective 4 (MO_4) by empirically testing and explaining the hypothesised relationships to determine digital banking factors that can be used to influence the financial inclusion of women and youth. In addition, Chapter 7 partly covers the fifth methodological objective (MO_5), since the discussion of the empirical results assist with the formulation of recommendations to various role players.

Figure 7.1 shows Chapter 7 in the overall research framework.

FIGURE 7.1: CHAPTER 7 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

7.2 INTERPRETATIONS AND IMPLICATIONS OF EMPIRICAL RESULTS

A discussion of the interpretation and implications of the study's empirical results, focusing on identified significant relationships between the independent variables and financial inclusion, is hereby presented.

7.2.1 Relationship between performance expectancy and financial inclusion

Performance expectancy refers to the notion that digital banking channels are easy to understand and use, enabling clients to achieve their lifestyle objectives with the available resources. A strong correlation (0.8384) was found between *performance expectancy* and *financial inclusion*. This means that the degree to which financial services clients believe that digital banking channels are easy to understand and use with available resources to achieve life goals has a strong correlation with *financial inclusion*, that is, a situation where individuals in the population of a country have access to and use quality and relevant financial services that sustainably address their needs. This is supported by the regression results, which also show that *performance expectancy* (b = 0.5249, p < 0.05) was found to have a positive and statistically significant relationship with *financial* inclusion for the total South African and Zimbabwean samples, South African and Zimbabwean women samples, and the two countries' youth samples. Further comparative *t*-test results showed a stronger mean for *performance expectancy* for Zimbabwean respondents than for South African respondents for the overall country samples. The *performance expectancy* mean is also higher for the Zimbabwean women respondents than for the South African women samples.

The results also show that *performance expectancy* and *social influence* exhibited a strong link, with a Pearson's product-moment correlation of 0.5226. *Performance expectancy* can be enhanced through *social influence*; hence, the degree to which an individual perceives that support and help in using digital banking is available from other important people is related to *performance expectancy,* that is, the notion that digital banking channels are easy to understand and to use, with available resources to assist clients in attaining their lifestyle objectives. Stronger social influences have a link with stronger performance expectations by clients.

The following implications are pertinent:

a. The relationship between *performance expectancy* and *financial inclusion* shows the importance of understanding clients' behaviour when using digital financial services. If clients expect high performance, they are more likely to adopt and use digital banking, thereby increasing their financial inclusion.

b. Clients will seek access to digital banking channels that are readily available, convenient and can assist them in meeting their financial and life goals. Therefore, value benefits, such as cost efficiencies and loyalty rewards, must be embedded in digital banking solutions to promote usefulness as well as the attainment of clients' financial and other life-related objectives.

c. Digital banking channels that are complex to access, understand, and use will not be very appealing for clients. If clients perceive digital banking channels as difficult to access and understand, it can affect their adoption and, consequently, financial inclusion, even if services are available. Therefore, access barriers, such as physical presence, technological, or bureaucratic bottlenecks, must be addressed.

d. Improving resources, access and understanding of digital banking channel options, functionalities, and benefits is important for financial inclusion. The need to increase access for rural women and youth in the areas where they live, by providing low-cost, easy-to-use digital banking solutions, is important to increase accessibility to and the usage of digital banking.

The results show the importance of *performance expectancy* in achieving *financial inclusion*. It is essential to capitalise on performance expectancy by understanding clients' expectations of digital banking, incorporating client expectations into channel design, aiming for functional superiority of digital banking channels, and enhancing clients' understanding of the channels. Beyond immediate adoption effects, the strength of performance expectancy suggests that perceptions of digital banking functionality may shape long term financial behaviours. When clients consistently perceive digital banking to be efficient and reliable, thus leading to tangible improvements in utilising digital platforms, digital banking may gradually transition from being an optional channel to becoming an integral component of daily financial life.

The stronger performance expectancy observed among Zimbabwean respondents may also reflect contextual adaptation to economic constraints where digital solutions

are perceived not merely as convenient alternatives but essential financial tools. Performance expectancy can therefore be interpreted as context sensitive where digital banking may play a more central role in environments characterised by economic volatility or limited physical banking infrastructure. It is therefore important to consider country specific socio-economic dynamics when designing digital financial inclusion strategies.

7.2.2 Relationship between social influence and financial inclusion

Social influence refers to the availability of influence, support, and assistance in using digital banking from important persons in clients' lives. The regression results (b = 0.2434, $p < 0.05$) indicate that *social influence* has a positive, statistically significant relationship with *financial inclusion*, which is a situation where most individuals in an economy have access to and use of quality, relevant financial services that sustainably address their needs. Therefore, the stronger the *social influence*, the more *financial inclusion* can be achieved, meaning that if there is strong support and assistance from the people in one's life, then access to and usage of relevant financial services will increase. *Performance expectancy* and *social influence* were found to exhibit a strong relationship, with a Pearson's product-moment correlation of 0.5226. The independent samples *t*-test indicates a significant difference in *social influence* perceptions between the respondents from South Africa and Zimbabwe, with South Africa having a significantly higher mean than Zimbabwe. The *t*-test results also show statistically significant differences in perceptions between the South African women and the South African youth groups, between the South African women and the Zimbabwean women groups, and between the South African youth and the Zimbabwean youth groups in relation to *social influence*.

The following are the implications of these results:

a. The importance of family and friends in influencing access to and use of digital banking channels cannot be overemphasised if financial inclusion is to be achieved.
b. In promoting access to digital banking, using the views and opinions of clients' social circles is important to point clients successfully towards digital banking channels.

c. Digital banking can be complex, hence the need for potential clients to consult others to help in decision-making.

d. FSPs can partner with leaders and influencers in communities to promote digital banking channel usage.

e. It is important to focus on changing societal norms and practices that discourage the formal use of financial services.

f. Social influence can be more useful in the South African environment, mainly to the South African youth, more so than that of South African women, Zimbabwean women, and Zimbabwean youth. This means that the use of social influence to influence the financial inclusion of the youth can be more effective in the South African context.

Overall, the results highlight the significance of social influence in achieving financial inclusion. The importance of family and friends, capitalising on their views, the use of influencers and prominent people, as well as the incorporation of social norms, can be used to positively influence financial inclusion, especially in the South African context. Beyond its statistical significance, social influence functions as a mechanism through which trust is transferred from established interpersonal relationships to formal financial systems. This suggests that financial inclusion is not solely a product of technological availability or affordability, but also relational validation. In this case, digital banking becomes a socially legitimised behaviour rather than merely an individual economic decision, thus reinforcing the idea that financial inclusion is embedded within broad social structures.

7.2.3 Relationship between digital banking performance and financial inclusion

Digital banking performance refers to the existence of positive outcomes of digital banking, including superior client experience, security, functionalities, and efficiencies, such as speed and convenience, that make digital banking trustworthy and desirable. A positive statistically significant relationship was found between *digital banking performance* and *financial inclusion* ($b = 0.1755$, $p < 0.05$). This implies that the higher the positive outcomes of digital banking channels, the higher the access to and usage of relevant financial services that sustainably address clients' life needs. The MRA

results further indicate that *digital banking performance* has a positive, statistically significant relationship with *financial inclusion* for the South African sample, as well as the South African women and South African youth samples. However, the same cannot be said for the Zimbabwean sample, where *digital banking performance* was found to have a positive, but statistically insignificant, relationship with *financial inclusion* for the country, women, and youth samples. This may reflect differences in usage levels, infrastructure, and policy environments between the two countries, with South Africa faring better on these aspects.

The *t*-test results indicate a significant difference in perception of *digital banking performance* for the total country samples, with a higher mean for Zimbabwe. Further *t*-tests also show a significant difference in perceptions of *digital banking performance* between South African women and Zimbabwean women, with a higher mean for Zimbabwean women.

The implications of these results are that:

a. A digital banking channel associated with high positive outcomes increases clients' conviction about its value and benefits, thereby leading to increased usage and financial inclusion.
b. Clients with an experience of the positive attributes and performance of digital banking channels that are seamless and empowering them, are most likely to use digital banking channels.
c. There is a need to focus on the digital experience of financial services to increase overall customer experiences and satisfaction, and hence usage of financial services.
d. The quick and efficient nature of digital banking channels can be leveraged to reduce barriers to financial inclusion.
e. Trust and confidence in digital banking platforms can be derived from positive experiences with the channels. As a result of positive digital banking channel performance experiences, increased accessibility will be guaranteed due to the positive appeal.

f. Clients with a positive perception of digital banking performance, that it improves their quality of life, are most likely to be interested in seeking the presence of digital banking channels.

g. Functional, tried and tested digital banking platforms can attract new clients because of low entry barriers guaranteed through trust.

h. Trust and confidence in digital banking channels that have a high reputation for performance can lead to trial and usage by previously sceptical individuals, hence increasing accessibility and usage of financial services.

i. Improving financial inclusion using digital banking performance can be leveraged more in the South African market than in the Zimbabwean market.

The importance of digital banking performance in improving financial inclusion has been aptly presented. The need to associate digital banking channels with positive outcomes, the positive attributes of banking channels, the importance of focusing on digital experiences, trust and confidence derived from positive experiences, functional superiority of channels, and trust and confidence in channel capabilities can all be leveraged to achieve financial inclusion.

The results show that high performing digital channels not only foster adoption through convenience but also shape broader patterns of engagement with formal financial systems, particularly in urban and peri-urban populations. FSPs can capitalise on these performance signals by designing incentive structures that reward usage, embedding intuitive functionalities that reduce cognitive and procedural barriers, and implementing real-time support systems that reinforce reliability. The overall aim is to transform digital banking from a transactional tool into a trusted gateway for sustained financial participation, especially for clients who were previously hesitant to try it.

To conclude this section, it is imperative to stress that the comparative results showed that the focus to improve financial inclusion, as per the context of this study, should be on women and youth in Zimbabwe. In particular, the significant, positive influence of digital banking performance on financial inclusion was seen among South African respondents, however this was not the case among Zimbabwean respondents. Thus, the positive outcomes of digital banking should be emphasised to women and youth

in Zimbabwe to ensure a higher uptake of digital banking by these groups to improve financial inclusion.

7.3 COMPARISON OF RESULTS WITH THE LITERATURE AND PREVIOUS STUDIES

This study identified digital banking factors, namely, *performance expectancy*, *social influence* and *digital banking performance,* which have positive and statistically significant relationships with *financial inclusion*. The study results align with findings of previous studies, as detailed in the paragraphs that follow.

Tariq, Maryam, and Shaheen (2024:1) conducted a study exploring cognitive factors that drive digital banking usage and found that *performance expectancy*, among other factors, is a significant predictor of digital banking usage, hence the financial inclusion of clients. Daka and Phiri (2019:43) also found that *performance expectancy* has a significant impact on the adoption of e-banking services, implying the financial inclusion of clients. In a study examining digital banking adoption and financial inclusion in Vietnam, Hoang and Phan (2024:6436) found that *performance expectancy* aspects, such as PU and PEU, significantly affect digital banking adoption, which has a direct positive influence on financial inclusion. Studies by Ali, Danish and Baig (2022:14) as well as Nguyen, Vu, Luu and Dang (2024:111), also identified *performance expectancy* as having a positive impact on clients' intention to use digital banking during the COVID-19 pandemic, while Kurniasari, Lestari and Tannady (2023:15) found similar results for small to medium enterprises during the COVID-19 pandemic. Therefore, these studies found that *performance expectancy* influences *financial inclusion*.

According to the results of studies by Hung, Tham, Azam and Khatibi (2019:87), Nepal and Nepal (2023:29), as well as Sengkalit, Chair and Abdullah (2025:330), *performance expectancy* was found to have a statistically significant influence on the adoption of technology. This finding is also corroborated by Kurniawan and Putra (2023:68) and Madzamba and Matorevhu (2023:24), who conclude that *performance expectancy* has a considerable influence on the behaviour to accept and use technology, that is, both access to and the usage thereof. *Performance expectancy* significantly influences the adoption of technology; thus, if users find that a technology

can help them achieve efficiencies, they will likely use it (Yin, Balakrishnan, Vasudevan, Ramachandran, Fan & Rululi, 2024:13). The link between *performance expectancy* and technology use, for example, digital banking, is thus clear from previous studies. Since digital banking informs financial inclusion, the link between *performance expectancy* and *financial inclusion* is supported.

Kurniasari *et al.* (2023:15) and Priya and Rao (2024:3) found that *social influence* has a positive effect on the adoption of fintech services. Verma and Shome (2025:66) conclude that peer influence has a moderating effect on the adoption of digital finance. A study by Hoang and Phan (2024:6450) also found that *social influence* significantly affects digital banking adoption intention, which in turn influences *financial inclusion*. Results of studies by Nepal and Nepal (2023:29) also found a strongly significant association between *social influence* and individual financial behaviour in terms of using digital banking. In support of the effect of *social influence*, Madzamba and Matorevhu (2023:24) conclude that colleagues' or associates' opinions on one's intention to use technology, that is, social influence, is a determining factor in the decision by lecturers to accept and use technology. Overall, *social influence* creates pressure on those who might be lagging behind in technology adoption. Opoku-Okuampa (2024:123) found that community practices and religious beliefs, which can be regarded as relevant to social influence, positively impact savings behaviours, which is an aspect of financial inclusion.

This study highlights the significance of *digital banking performance* in influencing *financial inclusion*. This result aligns with a study by Nepal and Nepal (2023:29) showing that repetitive use of digital banking has a significant relationship with *financial inclusion*. Therefore, making digital services more appealing and addressing technical problems can increase the adoption of digital banking. According to Priya and Rao (2024:3), trust, which often results from positive experiences with fintech services, has a positive impact on the adoption of fintech services, implying financial inclusion. This is supported by Hoang and Phan (2024:6446), who found that technological trust, an aspect of *digital banking performance*, significantly influences digital banking adoption intention, and ultimately, financial inclusion. The results, supported by the findings of previous studies, underscore the need to design user-

friendly digital banking interfaces and build technological trust to encourage digital banking adoption, therefore leading to improved financial inclusion.

Overall, this study highlights that digital banking factors may influence financial inclusion. These overall results align with a study by Timedjeghdine and Djarmouni (2025:17), which found that online payment systems (part of digital banking) have a positive and statistically significant relationship with *financial inclusion*. It is evident that technological innovation, particularly within digital banking, has a positive influence on *financial inclusion*; therefore, the importance of technological advancements in expanding access to financial services, especially among women (Gill & Chand, 2025:33).

Financial inclusion and fintech adoption significantly contribute to women's empowerment, highlighting the transformative potential of increasing access to financial services and promoting the adoption of financial technology in empowering women and fostering their socioeconomic advancement (Gill & Chand, 2025:34). Digital banking channels also have an important contribution to the promotion of financial inclusion among the youth, particularly those aged 18 to 24 years who are most engaged with, and benefit the most from, digital financial services (Sharma, Sharma & Kumra, 2024:1538). Therefore, as discussed, the results of this study regarding digital banking factors and financial inclusion align with previous studies.

7.4 CHAPTER SUMMARY

In Chapter 7, a discussion of the empirical results based on the Pearson's product-moment correlations, the MRA of the total samples, and the *t*-test results was provided. The discussion focused on making inferences from the MRA results to facilitate group and country comparisons related to the variable relationships under study. The chapter also discussed implications of the interpretated results, A comparison of the study results with literature was also done.

The results align with previous studies indicating that technological perceptions, social networks, and service performance are critical drivers of digital financial adoption and financial inclusion. Prior research supports the importance of performance expectancy, social influence, and digital banking performance in shaping adoption

behaviours and enhancing access to financial services, particularly among women and youth.

Overall, this chapter demonstrates that digital banking factors significantly influence financial inclusion. Performance expectancy, social influence, and digital banking performance collectively facilitate access to and usage of financial services. The results highlight that advancing financial inclusion requires a holistic approach, integrating technological design, social dynamics and client experience to ensure that digital financial services are accessible, trusted and effectively used across diverse customer groups.

Chapter 8 provides an overview of the study and highlights how the various objectives have been attained. Recommendations based on the study's results are provided. The contribution of the study, to the current body of knowledge on digital banking and financial inclusion, is highlighted from a theoretical and a practical perspective. The limitations of the study and areas for future research is addressed, before the conclusion of the study.

CHAPTER EIGHT

SUMMARY, RECOMMENDATIONS AND FINAL CONCLUSIONS

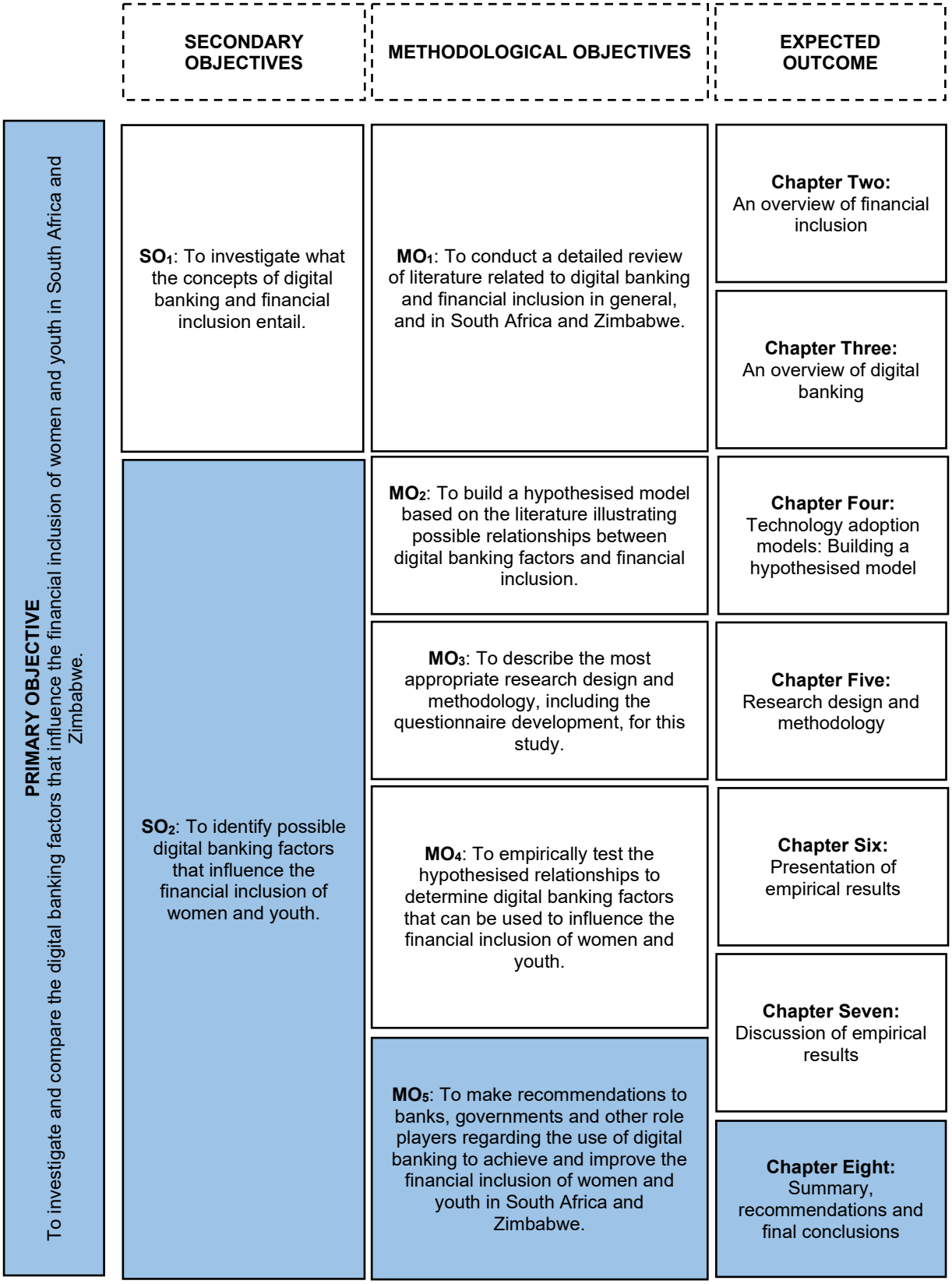
8.1 INTRODUCTION

Chapter 7 entailed a detailed discussion of the study's empirical results. An interpretation of results, followed by a comparison of the study results with literature, was also done in this chapter.

Chapter 8 provides an overview of the study. The attainment of the formulated study objectives is highlighted. The recommendations, based on the empirical results, are presented and is followed by a summary of the key recommendations. The study's theoretical and practical contributions to the current body of knowledge in the areas of digital banking and financial inclusion are also discussed. The chapter also covers a summary of the study's limitations and provides suggestions for future research areas. Ultimately, a conclusion to the study is provided. On completion of Chapter 8, secondary objective 2 (SO_2), to discuss possible digital banking factors that can influence the financial inclusion of women and youth, is finally fully. The chapter also attains methodological objective 5 (MO_5) to make recommendations to banks, governments and other role players regarding the use of digital banking to achieve and improve the financial inclusion of women and youth in South Africa and Zimbabwe.

Figure 8.1 places Chapter 8 in the overall framework of this study.

FIGURE 8.1: CHAPTER 8 AS PART OF THE FRAMEWORK OF THE RESEARCH PROCESS



Source: Researcher's own construction

8.2 OVERVIEW OF THE STUDY

Chapter 1 provided an overview of the study, articulating the problem statement: Which digital banking factors influence the financial inclusion of women and youth, and how do these compare between South Africa and Zimbabwe? The chapter also discussed the primary objective and secondary objectives of the study. The chapter also presented the research questions. Following this, an explanation of the study's proposed hypothesised model, followed by a high-level articulation of the proposed methodology, was provided. This was followed by an explanation of the ethical considerations for the study, demarcation of the study, clarification of concepts, and a presentation of the division of chapters for this thesis.

Chapter 2 partly addressed SO_1 to investigate what the concept of financial inclusion entails. The chapter also answered MO_1, that is, to conduct a detailed review of the literature related to financial inclusion in general, and specifically in South Africa and Zimbabwe. Various aspects related to financial inclusion were discussed. These included the definition of financial inclusion, theories of financial inclusion, the importance of financial inclusion, determinants of financial inclusion, measurement of financial inclusion, barriers to financial inclusion, and the perspectives of financial inclusion within global and African contexts. Financial inclusion in the global and African contexts was assessed before comparing South Africa and Zimbabwe regarding these countries' focus on financial inclusion.

Chapter 3 also answered part of SO_1: To investigate what the concept of digital banking entails. The chapter also addresses MO_1 through a detailed literature review of digital banking in general, as well as in South Africa and Zimbabwe specifically. The literature discussed in this chapter covered the definition and scope of digital banking, digital banking channels, digital disruption in the banking industry, the benefits of digital banking, and its associated challenges. The chapter also further covered an overview of digital banking with specific reference to South Africa and Zimbabwe.

Chapter 4 focused on developing a hypothesised model based on a review of technology adoption models and theories. The hypothesised model addressed SO_2: To identify possible digital banking factors that influence the financial inclusion of women and youth. The chapter also addressed MO_2: To build a hypothesised model

based on the literature, illustrating possible relationships between digital banking factors and financial inclusion. The chapter started with a discussion of factors that affect the adoption of technology, which also relates to digital banking. The technology adoption factors were used to develop a hypothesised model depicting possible relationships between digital banking aspects (independent variables) and financial inclusion (dependent variable). Finally, the chapter presented the proposed hypotheses, as depicted in the hypothesised model.

Chapter 5 also addressed SO_2 by identifying possible digital banking factors that can influence the financial inclusion of women and youth. The appropriate research design and methodology to address the research objectives were also articulated in this chapter, thereby answering MO_3. This chapter covered aspects of the research philosophy, the approach to theory development, the methodological choice, the research strategy, the time horizon, and the data collection techniques employed for the study. In particular, the chapter specified the population selection and sampling techniques. The development and administration of the selected items, which were considered to measure the study's variables through a questionnaire, were discussed. Additionally, the data analysis techniques and ethical considerations for the study were discussed.

Chapter 6 addressed SO_2 by identifying possible digital banking factors that can influence the financial inclusion of women and youth. The chapter also addressed MO_4 to empirically test the hypothesised relationships to determine digital banking factors that can be used to influence the financial inclusion of women and youth. The chapter presented the study's empirical results, beginning with the response rate and the respondents' demographics in terms of age, location, and digital banking responses. This was followed by a presentation of results related to the validity and reliability of the measuring instrument. Thereafter, MRA results were used to present a revised hypothesised model depicting digital banking factors that influence financial inclusion. A presentation of the descriptive statistics related to the variables, along with Pearson's product-moment correlations, was also provided.

Further MRAs were conducted for comparison purposes. Specifically, these MRAs revealed that two variables (*performance expectancy* and *social influence*) had a statistically significant relationship with *financial inclusion* for both the total South

African and Zimbabwean samples, hence the related hypotheses were accepted. However, while *digital banking performance* was found to have a statistically significant relationship with *financial inclusion,* it only supported acceptance of the related hypotheses for all the South African samples. The same cannot be said for the total Zimbabwe sample, the Zimbabwean women sample, and the Zimbabwean youth sample, for which the hypothesis that *digital banking performance* has a statistically significant relationship with *financial inclusion* was rejected. Finally, *t*-test results were presented to assess the extent of differences in perceptions of groups, related to each of the study's variables.

Chapter 7 discussed the results presented in the previous chapter. In addition, the interpretations and implications of the results were highlighted. The comparative results showed that to improve financial inclusion in the two sub-Saharan countries considered in this study namely South Africa and Zimbabwe, the focus should be on women and youth. Specifically, the positive influence of digital banking performance on financial inclusion should be stressed to Zimbabwean women and youth, to increase the use of digital banking to ultimately improve financial inclusion.

8.3 ATTAINMENT OF STUDY OBJECTIVES

The conclusion of this study resulted in the attainment of the objectives set out in Chapter 1. The study objectives attained were discussed in various chapters, as summarised in Table 8.1.

TABLE 8.1: ATTAINMENT OF STUDY OBJECTIVES AND QUESTIONS

Objectives	Chapter/s	Evidence
Primary objective		
To investigate and compare the digital banking factors that influence the financial inclusion of women and youth in South Africa and Zimbabwe.	1–8	This objective was attained by means of secondary and primary research conducted to investigate digital banking factors and financial inclusion in the two countries. The focus of the empirical study was on the women and youth of South Africa and Zimbabwe, and the comparison between these groups' views on both the factors and financial inclusion.
Secondary objectives		
SO_1: To investigate what the concepts of digital banking and financial inclusion entail.	2–3	This objective was attained since the concepts of digital banking and inclusion were defined and further elaborated on in the literature chapters.
SO_2: To identify possible digital banking aspects that influence the financial inclusion of women and youth.	4–8	This objective was attained through the literature chapter that covered the theories relevant to study, as relevant digital banking aspects to be tested further were identified. In addition, the empirical investigation conducted, by following the specified methodology, revealed that performance expectancy, social influence and digital banking performance influence the financial inclusion of women and youth. The full attainment of the objective occurred due to the presentation and discussion of results as well as the provision of conclusions based on the investigation.
Methodological objectives		
MO_1: To conduct a detailed review of literature related to digital banking and financial inclusion in general, and in South Africa and Zimbabwe.	2–3	This objective was attained with a thorough literature review covering both digital banking and financial inclusion in South African and Zimbabwe. The current status of these concepts in the two countries was detailed.
MO_2: To build a hypothesised model based on the literature illustrating possible relationships between digital banking factors and financial inclusion.	4	This objective was attained since a hypothesised model with four hypotheses was developed following the literature review. The variables considered in the model was motivated and it was suggested that the variable relationships are tested by considering and comparing views of South African and Zimbabwean respondents.
MO3: To describe the most appropriate research design and methodology, including the questionnaire development, for this study.	5	This objective was attained with a discussion and justification of the research design and methodology adopted in this study.

MO_4: To empirically test the hypothesised relationships to determine digital banking factors that can be used to influence the financial inclusion of women and youth.	6–7	This objective was attained through the empirical investigation, with the results showing variable relationships relevant to South African and Zimbabwean women and youth, that were different to the initial hypotheses. Performance expectancy, social influence and digital banking performance influence the financial inclusion of women and youth, but the results showed that, with regard to specific variables, the extent of agreement varied between the respondents from the different countries.
MO_5: To make recommendations to banks, governments, and other role players regarding the use of digital banking to achieve and improve the financial inclusion of women and youth in South Africa and Zimbabwe.	8	This objective was attained as recommendations on the use of digital banking and how to improve financial inclusion of women and youth in South Africa and Zimbabwe were provided. The study developed and consequently discussed recommendations relevant to financial services providers (e.g. banks), governments (e.g. regulatory authorities) and other role players (e.g. development-related institutions). Recommendations were presented according to the significant variable relationships.
Research questions		
RQ_1: What is the meaning of digital banking and financial inclusion, and how do they affect citizens and economies in South Africa and Zimbabwe?	2–3	This question was answered through the definitions of digital banking and financial inclusion as well as the discussions of the current status of financial inclusion or exclusion, and the effects thereof.
RQ_2: Which digital banking factors influence the financial inclusion of women and youth?	6–7	The question was answered by revealing that three digital banking factors, namely performance expectancy, social influence and digital banking performance significantly influence the financial inclusion of women and youth.
RQ_3: What similarities and differences exist between South Africa and Zimbabwe regarding the influence of digital banking factors on the financial inclusion of women and youth?	6–7	This question was answered by highlighting several similarities and differences between South Africa and Zimbabwe regarding the influence of digital banking factors on the financial inclusion of women and youth. Contrary to the South African samples, digital banking performance was not significantly influencing the financial inclusion of women and youth in Zimbabwe. Also, where South African women had different views regarding variables compared to South African youth, the two samples of Zimbabwe had similar views.
RQ_4: What recommendations can be made that are useful to financial institutions, governments, development institutions, and other role players, regarding the use of digital banking to achieve and improve the financial inclusion of women and youth in South Africa and Zimbabwe?	8	This question was answered through organised and practical recommendations provided to each group of role players, according to the variable relationships found in the study.

The attainment of the study's primary, secondary, and methodological objectives is summarised in Table 8.1. It is evident from the table that all the study's objectives have been met, as discussed in the chapters indicated.

8.4 RECOMMENDATIONS

In line with the objectives of this study, the following recommendations are made to FSPs, regulatory authorities, and other institutions that have financial inclusion-related goals. The same recommendations can be applied by other role players with an interest in achieving financial inclusion.

In terms of digital banking channels, it is recommended that more emphasis is placed on mobile banking and applications. In South Africa, there is high access to these, however just over 60% of the respondents currently use these. In addition, with percentages just below 80% of the respondents, mobile banking and applications are also not yet optimally used as digital banking channels in Zimbabwe.

8.4.1 Recommendations to financial services providers

Recommendations are hereby provided, which can be used by decision-makers for FSPs. These recommendations relate to how digital banking factors can be used to enhance financial inclusion, thereby ensuring higher uptake and usage of FSPs' products and services.

8.4.1.1 Recommendations related to the relationship between performance expectancy and financial inclusion

The following recommendations are relevant to FSPs to capitalise on the performance expectancy of digital banking to stimulate financial inclusion, through access to and usage of financial services by their clients:

a. Marketing and communication can be enhanced by using the performance expectations of digital banking to convince and attract clients. The marketing campaigns should emphasise the features, such as convenience, reliability, cost efficiencies and time savings, and should be used as key selling points.

b. The need to meet the performance expectations of clients means that FSPs need to focus on innovation and continuous improvement of products and services to satisfy clients' evolving needs.

c. It is important to ensure alignment between clients' expectations and the functional delivery of digital banking. Embedding customer goals into the evaluation of digital banking options is important. This includes defining goals relating to customer segments and translating them into criteria for evaluating and testing solutions before development and deployment.

d. Product customisation and personalisation, through enhanced features that promote ease of access and usage, can lead to better achievement of financial inclusion. Such features include customised screens on digital platforms and the use of local language options and voice features for visually impaired clients.

e. Make banking services more accessible through low-cost platforms, such as mobile wallets, and implement usage-based fees rather than flat fees for digital channels, while improving information availability to a broader audience. Customer education to create awareness and usage of cost platforms can help in this regard.

f. Provide low-cost, easy-to-access platforms, such as shared community infrastructure, for example, internet connectivity via community shared internet facilities to enhance access and usage hence improve financial inclusion.

g. Deliberately provide financial literacy and education programmes that bridge the access, understanding, and usage gaps related to digital banking. This can be done via different media platforms such as radio, social media and roadshows to educate members of the public on digital banking platforms.

h. The need to reduce customer frustration through easy and efficient processes and requirements, eliminating complex application forms, and reducing paper requirements is crucial for achieving accessibility, understanding, and usage of financial services by clients.

i. Providing live customer support through virtual branches, virtual assistants, AI chatbots, live chat platforms, and physical assistants, among others, can assure clients that support is available, thereby increasing access to and understanding of digital banking channels.

j. The use of agents designated locations and USSD banking on basic phones can reduce the performance expectancy barriers related to limited bank branches and the absence of the requisite connectivity infrastructure.

k. The comparison statistics showed higher *performance expectancy* means for the Zimbabwean respondents compared to the South African respondents, as well as higher means for the South African women compared to the Zimbabwean women respondents; hence, *performance expectancy* as a factor is likely to be more effective in the Zimbabwean market and among South African women.

Innovations in digital banking that positively impact the lives of women and youth are particularly pertinent. Cross-border collaboration between South Africa and Zimbabwe, including enhanced educational campaigns, can be considered in South Africa to improve the overall impact of digital financial services, particularly for women clients. Banks and other stakeholders in Zimbabwe need to be more innovative to achieve universal financial inclusion.

8.4.1.2 Recommendations related to the relationship between social influence and financial inclusion

The following recommendations relate to how FSPs can use social influence to promote the uptake, usage, and business performance of their products and services, and hence enhance financial inclusion:

a. Marketing communication and promotions can focus on the endorsement of digital banking by family, friends, peers, and influencers as a way of encouraging usage. Tailoring marketing and communication campaigns to emphasise how one's role models or social groups use digital banking channels can yield positive results.

b. Family and other group-specific product and service packages can encourage the usage of financial services. Referral promotions, that is, offering incentives to clients for referring family or friends to digital banking channels, can be used to increase usage of digital financial services.

c. In terms of marketing, the use of word-of-mouth can drive digital banking adoption through clients who have firsthand conviction of the benefits of digital banking.

d. Evidence-based proof, such as testimonials, endorsements, positive reviews, and brand ambassadors who promote digital banking services, can significantly contribute to the adoption and usage of digital banking by clients.

e. The use of social media, where family and peer endorsements are evident, can be leveraged by FSPs to effectively promote the usage of digital banking and financial services to clients.

f. The use of respected public figures, such as politicians, community leaders, and religious leaders, to endorse digital banking access, acceptance, and usage can have a positive impact on financial inclusion. Online platforms, such as social media, can be used by community leaders to share knowledge while communities share experiences of digital banking.

g. Financial inclusion can be fostered through positive feedback, reviews, and endorsements from respected and prominent figures in society who are financial services clients. This can be achieved through incentivising feedback and making respected and prominent figures brand ambassadors for FSPs.

h. It is important to remove social barriers by having prominent women, youth, people with disabilities, and other groups that are often excluded, who are financial services clients, testify on the benefits of using digital banking channels.

i. Social influence is expected to appeal more to South Africans, particularly to the youth, meaning that leveraging social dynamics to promote the usage of digital banking by clients can be more effective for South African FSPs than for those in Zimbabwe. FSPs should also use social influence as a factor in their marketing campaigns to target young people.

8.4.1.3 Recommendations related to the relationship between digital banking performance and financial inclusion

Recommendations are hereby given for how FSPs can capitalise on the trust and outcomes of digital banking channels, that is, *digital banking performance*, to promote access to and usage of financial services that sustainably address clients' life needs:

a. FSPs need to design digital products and services that offer direct benefits, such as speed, security, service options, local language options, convenience, user-

friendliness, and personalised features to increase the adoption of digital banking and thereby achieve financial inclusion.

b. FSPs can enhance digital banking channel performance through collaboration with fintechs that offer more efficient solutions that increase efficiencies, reduce costs, and improve revenue generation capacity.

c. It is important for FSPs to adopt new technologies and revise their operational models to create more efficient organisations and offer competitive services.

d. Regular gathering of customer feedback, customer-driven designs, and a general customer-centric business philosophy can enhance digital banking channels, thereby improving the usage of financial services.

e. Improving the performance and functionalities of digital banking channels that appeal to different vulnerable groups, such as the rural population, women and youth, can be used by FSPs to enhance accessibility, understanding, and usage of financial services by these groups.

f. FSPs can use services, such as mobile banking, together with features like tailored pricing, personalised services, and customised interfaces, to appeal to low-income clients and those in remote areas, thereby achieving financial inclusion.

g. To attract new users to the financial services industry, FSPs need to develop and implement digital banking channels that provide ease of entry/onboarding, along with readily available information and support.

h. FSPs must ensure that digital banking channels cater for the diverse design, functional, and financial needs of different customer segments, such as the youth, working class, uneducated clients, small businesses, and the rural population, as this will assist in aligning digital banking capabilities with customer needs, hence enhancing accessibility for new customers.

i. Since Zimbabwean women and youth are not entirely convinced about digital banking, as it does not significantly influence these groups' financial inclusion, the positive outcomes of digital banking should be marketed to these groups in particular. For example, market to women the possible improvement of work-life balance when they use digital banking channels, and market the use of technologically advanced digital banking channels to the youth.

8.4.2 Recommendations to regulatory authorities and development-related institutions

The set of recommendations that follows is intended for use by regulatory authorities and development institutions to achieve financial inclusion objectives through the use of digital banking factors.

8.4.2.1 Recommendations related to the relationship between performance expectancy and financial inclusion

The following recommendations relate to the use of *performance expectancy* by regulatory authorities and development institutions to achieve financial inclusion:

a. Policy makers can promote the adoption of intended digital technologies by pursuing regulations that guarantee the security, user-friendliness, low-cost features, and general accessibility and usage by the public.

b. Improved access to financial services can be achieved through policy incentives, such as on mobile devices, for example, smartphones, the internet, and related connectivity infrastructure. Such policy incentives can include tax rebates to local manufacturers or import duty waivers for the importation of the targeted devices, equipment, and infrastructure.

c. Governments can support investment in digital technologies through participation and policies aimed at incentivising the development of infrastructure, platforms, agents, and internet connectivity that most citizens can easily access, especially in rural areas. Enacting policies that encourage addressing access gaps in areas where financial exclusion is high will go a long way to achieve financial inclusion.

d. Enhancing knowledge and literacy on how to use digital banking channels is important. Promoting awareness of available channels through communication programmes and tools on how to use digital banking channels is pertinent if nations are to achieve higher levels of access to financial services.

e. Performance expectancy influences usage of financial services; therefore, financial literacy, client education, and awareness activities must focus on highlighting the key benefits of using digital banking channels. Activities such as product education sessions and webinars, security and fraud awareness campaigns, mass

campaigns, story telling and testimonials may help achieve financial literacy, client education and awareness.

f. Governments and policymakers can work on improving access to financial services by incentivising the expansion of banks through such initiatives as co funding infrastructure, credit guarantees, tax and subsidy incentives for investment in digital banking infrastructure. Governments also need to remove bureaucratic regulatory requirements for account opening, and regulating transaction costs for key transaction activities, such as opening an account.

8.4.2.2 Recommendations related to the relationship between social influence and financial inclusion

The following recommendations relate to how government and development institutions can use social influence to achieve financial inclusion:

a. The use of local leadership, such as politicians, celebrities, church leaders, and traditional leaders, to champion government and development programmes aimed at promoting the usage of financial services can result in higher financial inclusion.

b. Shared platforms, such as internet infrastructure in communities, can be used as effective programmes aimed at improving the usage of financial services in those communities.

8.4.2.3 Recommendations related to the relationship between digital banking performance and financial inclusion

Governments and development institutions can use the positive outcomes, such as the useful functionalities of digital banking, to drive financial inclusion, as detailed in the following recommendations:

a. Deliberate initiatives to promote high-performing digital channels in the market can enhance accessibility of financial services. Regulators can design policies and interventions that ensure that digital banking solutions are secure and meet minimum functional requirements and standards.

b. Undertake public education and literacy programmes aimed at informing the public on how they can capitalise on available digital banking options and how they can get good deals and protect themselves from bad ones.

c. Governments can collaborate with FSPs to accelerate the adoption of digital banking solutions, such as mobile money, digital wallets, and mobile applications, to facilitate the disbursement of funds, including grants to public groups. This includes deliberate use of digital technologies for social grant disbursements, government employee payments, and general government transactions.

8.4.3 Summary of key recommendations

Table 8.2 provides an overview of the study's recommendations to the identified stakeholders.

TABLE 8.2: SUMMARY OF KEY RECOMMENDATIONS

FINANCIAL INCLUSION			
	Performance expectancy	**Social influence**	**Digital banking performance**
Financial services providers	Enhanced marketing communications.	Endorsement of digital banking by the social circle.	Digital products and services that offer direct benefits.
	Innovation to satisfy clients' needs.	Family-specific product and service packages.	Collaboration with fintech.
	Align client expectations and functional delivery of digital banking.	Word of mouth, testimonials and endorsements.	Adoption of new technologies such as AI.
	Product customisation and personalisation.	Leverage social media to promote digital channels.	Customer-driven channel designs and business philosophies.
	Make services more accessible.	Use of respected figures in communities.	Products and services appeal to vulnerable groups.
	Financial literacy and education programmes.	Use incentives to encourage positive feedback.	Guarantee ease of onboarding, information, and support.
	Enhanced customer support solutions.	Remove social barriers for vulnerable groups.	Segment-specific digital banking products, services, and platform designs.

	Performance expectancy	Social influence	Digital banking performance
Regulatory authorities and development institutions	Enabling regulation for digital technologies.	Use politicians, celebrities, and other influencers.	Policies that influence digital banking security and functionalities.
	Policy incentives.	Public, shared digital platforms such as the internet infrastructure.	Financial literacy programmes that endorse positive outcomes.
	Government participation and enabling policies.		Use of digital banking solutions by the government.
	Promoting digital financial literacy.		
	Improving access to financial services.		

Source: Researcher's own construction from the interpretation of the research results

8.5 CONTRIBUTION OF THE STUDY

The study provides significant theoretical and practical contributions, and as such created new knowledge, to the areas of digital banking and the financial inclusion of women and youth.

8.5.1 Theoretical contributions

The study's theoretical contributions to the body of knowledge are hereby presented. The study developed a model that combines existing UTAUT factors with new factors to serve as a catalyst for the financial inclusion of women and youth, particularly those in South Africa and Zimbabwe. The study supports and extends existing financial inclusion and technology adoption models. From a methodological point of view, this quantitative study contributed by conducting comparisons among different respondent groups of developing countries.

Limited literature and models exist on the topic of financial inclusion within the context of this study; therefore, this study contributes to important literature in that field. Additionally, the study developed a comprehensive model that banks can use to achieve their commercial objectives related to the usage of digital banking channels to influence financial inclusion. This study also identified a new factor, *digital banking performance*, as important for improving access to financial services, as well as understanding and usage thereof, which is essential for enhancing *financial inclusion*.

Digital banking performance primarily refers to the positive outcomes of digital banking and the facilitating conditions that enable these outcomes. The convenience that digital banking brings and its ability to improve clients' lives are examples of such outcomes. Facilitating conditions include the environment, capabilities, and enablers that empower clients to conduct digital banking. These include the resources, ability, and knowledge that clients possess to engage in digital banking.

8.5.2 Practical contributions

The study's practical contributions are evident in its results. It is important to note that although financial inclusion is on the rise and digital banking channels develop continuously, financial inclusion levels are not at a maximum. This is true in South Africa and particularly Zimbabwe, and specifically among women and youth groups, especially when compared to other countries. Therefore, the need for and contribution of this study are clear.

The study offers practical solutions for expanding access to financial services, particularly through digital banking channels, to women, youth, and other excluded segments. It also provides insights into the efficacy of using the variables in the different contexts, with *digital banking performance* having been found to have a significant relationship with *financial inclusion* in South Africa, but not in the Zimbabwean context. While *social influence* can be applied in both countries' contexts, it is expected to be more effective in the South African context, given the higher means across the country, women, and youth samples. South African youth also have a higher mean for social influence than women, hence the aspect of *social influence* can be used more to achieve financial inclusion for the youth than the women segment.

The study provides practical strategies to FSPs on how to leverage the aspects of performance expectancy, social influence, and digital banking performance to enhance access to and the usage of financial services by women and youth, specifically through digital banking channels. The study contributes to increasing access to and the usage of financial services by women and youth, thereby contributing to universal access to financial services, that is, total financial inclusion in South Africa and Zimbabwe. Additionally, this study has developed a model that

governments and development partners can use to implement effective strategies to promote financial inclusion.

8.6 LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

The study had its limitations, which are noted so that they may be addressed in future research. The sampling method used can be critiqued. Non-probability sampling techniques, namely quota, convenience, and snowball sampling, were used for this study. These non-probability techniques have their own shortcomings, including difficulty in replication in other contexts, a high risk of selection bias, a lack of generalisability, and generally weak credibility of the methods. Additionally, the method used for online data collection may have excluded respondents who are illiterate or lack the requisite know-how to use the internet tools required to participate in the research. In future, a combination of online and face-to-face interviews can help address this issue.

While digital banking factors were explored, the exploration of each factor's sub-elements could further contribute to the enhancement of financial inclusion. Future research, inclusive of sub-elements and mediating factors of digital banking, such as security, trust, and personal circumstances of clients, may prove useful. Furthermore, research can be conducted to determine factors from other fields and non-digital areas, such as economic factors, social circumstances, individual factors, and country-specific factors, that can be used to explore additional digital banking factors that can influence financial inclusion. Further research can also be conducted to identify the reasons for the significant differences found among the various groups, which may also assist in increasing financial inclusion.

8.7 FINAL CONCLUSION

Financial inclusion can be achieved through digital banking factors that can drive the adoption of formal financial services by women and youth in South Africa and Zimbabwe. The stronger focus could be on women and youth in Zimbabwe by stressing digital banking performance to increase their financial inclusion. This study has provided practical recommendations that FSPs, regulatory authorities, and other

role players can adopt to increase access to and usage of financial services, specifically by using digital banking channels. This is particularly important for financially excluded groups, mainly women and youth.

The results of this study provide recommendations that can be used to achieve increased financial inclusion in South Africa and Zimbabwe using digital banking technologies. It is also hoped that this study will motivate researchers to further explore issues related to technology adoption, particularly for emerging technologies, as the goal and role of financial inclusion evolve.

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ANNEXURE A: ETHICS APPROVAL

NELSON MANDELA
UNIVERSITY

Chairperson: Dr Dalray Gradidge
Research Ethics Committee (Human)
dalray.gradidge@mandela.ac.za

NHREC registration nr: REC-042508-025

Ref: [0512 / Approval]
Ethics Approval: 11/03/2024 - 11/03/2025

11/03/2024

Dear Prof Rootman

A comparative analysis of digital banking and financial inclusion in South Africa and Zimbabwe.

PRP: Prof Rootman
PI : Mr Kupika

The above-entitled application served at the Research Ethics Committee (Human) for approval. The ethics clearance reference number for this study is [0512] and approval is subject to the following conditions:

1. Approval for data collection is for 1 calendar year as indicated above.
2. The submission of an annual progress report on the data collection activities of the study. This report must be submitted within one year of the date of this approval letter. At such time, an extension of data collection activities may be requested. Only two extensions may be permitted per application, thereafter a new application will need to be submitted for approval.
3. In the event of any changes made to the study (excluding extension of the study), an amendment request must be submitted PRIOR to the implementation of any such changes.
4. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
5. Immediate submission of a Study Closure Report to RECH upon expected or unexpected closure/termination of study.
6. Immediate submission of a Study Exception Report to RECH in the event of any study deviations, violations and/or exceptions.
7. Upload to the project of final gatekeeper permissions on receipt thereof.
8. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).

Please quote the ethics clearance reference number [0512] in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to MEOS@mandela.ac.za), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely

[redacted]

Dr Dalray Gradidge
Chairperson: Research Ethics Committee (Human)

ANNEXURE B: RESEARCH COUNCIL OF ZIMBABWE CLEARANCE

RESEARCH COUNCIL OF ZIMBABWE

Leadership, Innovation and Development

Cabinet Office
No 11 Stafford Road
Mt Pleasant, Harare
P.O. Box CY294, Causeway
Harare, Zimbabwe
Tel. 263-242-304733, 304787, 304861
Fax 263-242-304808
Email: secretary@rcz.ac.zw
Website: www.rcz.ac.zw

REF SC/9 122

05 March 2024

Mr Lawrence Munashe Kupika
Nelson Mandela University

Dear Sir,

Research Clearance: A Comparative Analysis of Digital Banking and Financial Inclusion in South Africa

The Research Council of Zimbabwe (RCZ) acknowledges receipt of your communication dated 01 March 2024 regarding the subject mentioned. As a student at Nelson Mandela University, you intend to conduct research in Zimbabwe as part of your Doctoral of Business Management degree.

After a thorough review of the submitted documents, RCZ notes that you are a Zimbabwean self-funding your studies at Nelson Mandela University. Consequently, you are excluded from regulations under Section 27 of the Research Act [*Chapter 10:22*]. In view of this, you can proceed with data collection. However, it is important to note that this does not exempt you from seeking permission from relevant Ministries, Departments, and Agencies that you may need to access during your research.

The Council recognizes the potential of your research in assisting both the Government and industrialists in understanding investor expectations. In this regard, you are encouraged to share the final research report with RCZ and upload a copy to the National Research Database of Zimbabwe. This step ensures that your findings are widely accessible and contribute to the advancement of knowledge in Zimbabwe.

Yours sincerely

[redacted]

For the Acting Executive Director

RESEARCH COUNCIL OF ZIMBABWE
CABINET OFFICE
05 MAR 2024
TECHNICAL OFFICE
P.O. BOX CY294 CAUSEWAY,
HARARE

ANNEXURE C: CONSENT FORM AND RESEARCH QUESTIONNAIRE

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH STUDY

Study title: A comparative analysis of digital banking and financial inclusion in South Africa and Zimbabwe.

The aim of the study is to investigate and compare the digital banking aspects that influence the financial inclusion of women and youth in South Africa and Zimbabwe. The aim will be achieved by gathering the perceptions of women and youth in the two countries. The results of the study will assist FSPs and other role players in improving digital banking to increase financial inclusion.

To ensure that the relevant respondents participate in this study, please answer the following questions:

1. 1) Are you a women/female (any age above 18 years) residing in South Africa or Zimbabwe?

YES	NO

2. 2) Are you between the ages of 18 and 25, and residing in South Africa or Zimbabwe?

YES	NO

If you answered “Yes” to ANY of these qualifying questions, please continue.

Please read the following and confirm if that you are aware of the study’s conditions (please tick appropriate blocks).

The research process, aim and process of the study have been explained to me (via written information)	
My participation in the study is voluntary	
My participation will be as a respondent to a questionnaire and its completion will take approximately 30 minutes	
My personal and any identifiable information will be kept private and confidential, and my responses will be anonymised in the final research report	
Only the researchers involved in this study will have access to the collected data	
The study’s repository (datasheet) of online completed questionnaires will be securely stored as a password protected document; this document will only be accessible by the research team and only used for research purposes	
The study’s repository (datasheet) of online completed questionnaires will be, together with all other data, destroyed after five years	

My responses will be reported in a statistical, summarised form and will be used for this current study only	
I understand there will be no direct benefits to me as a result of participating in the study	
I can withdraw my participation at any time by emailing the researcher directly (even after the questionnaire completion was concluded), without any consequences	
Should I withdraw, my responses will be destroyed immediately	
To the best of the researcher's knowledge, there are no foreseeable risks associated with this study	
I can request a copy of the summarised findings of this research project from the researcher	
I confirm that I am over the age of 18 years	

I hereby declare that I give my written informed consent to participate (take part in an interview) and am aware of the above conditions of the study titled ''A comparative analysis of digital banking and financial inclusion in South Africa and Zimbabwe''.

YES	NO

[Only if "yes" was indicated/"ticked", thus consent was given, will the respondent be able to continue with the online questionnaire]

Thank you for your participation!

Researcher: Lawrence Munashe Kupika

E-mail address: s224122886@mandela.ac.za

Ethics number:

If you have any questions, complaints or concerns about the study or the questionnaire, you can contact the researcher firstly, then REC-H at rd@mandela.ac.za.

ONLINE QUESTIONNAIRE

Dear respondent - Please answer the following questions. For each statement, select the option which best describes your perception. There are no correct or incorrect answers. All data are collected and used for statistical purposes only.

SECTION A: PERCEPTIONS OF DIGITAL BANKING CHANNELS

The statements in the following sections relate to your perceptions of digital banking and financial inclusion (for example your access to banking products/services). Please indicate the extent to which you agree or disagree with each statement. Click on the circle that reflects your response option to each of the questions. A number 1 response denotes strong disagreement with a statement, and at the other end of the scale, a number 5 response denotes strong agreement with the statement.

Item Code	**Item**	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
PE01	I find digital banking useful in my banking activities.	1	2	3	4	5
PE02	Using digital banking enhances my effectiveness in using banking services.	1	2	3	4	5
PE03	Using digital banking makes life easier for me.	1	2	3	4	5
PE04	Using digital banking is useful to me.	1	2	3	4	5
PE05	Using digital banking enables me to accomplish my banking tasks more quickly.	1	2	3	4	5
PE06	Using digital banking improves the quality of the banking that I do.	1	2	3	4	5
PE07	Using digital banking makes it easier for me to do my banking.	1	2	3	4	5
PE08	Using digital banking enhances my effectiveness in using banking services.	1	2	3	4	5
PE09	Using digital banking enhances my effectiveness in using banking services.	1	2	3	4	5
PE10	I find using digital banking useful in my life.	1	2	3	4	5
PE11	Using digital banking increases my productivity.	1	2	3	4	5
PE12	Using digital banking decrease the time needed for my banking activities.	1	2	3	4	5
PE13	Using digital banking increases the quality of my banking activities.	1	2	3	4	5
PE14	Using digital banking increases my effectiveness of performing banking activities.	1	2	3	4	5
PE15	Using digital banking can increase my banking satisfaction for the same amount of effort.	1	2	3	4	5

PE16	The use of digital banking could improve my day-to-day life.	1	2	3	4	5
PE17	Using digital banking increases my chances of accomplishing my banking goals.	1	2	3	4	5
PE18	Using digital banking enables me to accomplish tasks more quickly.	1	2	3	4	5
PE19	Using digital banking improves the quality of the banking that I do.	1	2	3	4	5
PE20	Using digital banking makes it easier to do my banking.	1	2	3	4	5
PE21	Using digital banking enhances my effectiveness of doing banking.	1	2	3	4	5
PE22	Using digital banking increases my banking convenience.	1	2	3	4	5
PE23	If I use digital banking, I spend less time on my banking.	1	2	3	4	5
PE24	If I use digital banking, I will increase the satisfaction with my banking.	1	2	3	4	5
PE25	If I use digital banking, my peers will perceive me as advanced.	1	2	3	4	5
PE26	If I use digital banking, I will have a better life.	1	2	3	4	5
PE27	It will be to my financial benefit if I use digital banking.	1	2	3	4	5
EE01	It is easy to understand digital banking.	1	2	3	4	5
EE02	I find it easy to use digital banking.	1	2	3	4	5
EE03	I find digital banking flexible.	1	2	3	4	5
EE04	I am skillful in using digital banking.	1	2	3	4	5
EE05	I find digital banking easy to use.	1	2	3	4	5
EE06	Using digital banking does NOT take too much time from my normal activities.	1	2	3	4	5
EE07	Using digital banking is NOT complicated.	1	2	3	4	5
EE08	It is NOT difficult to understand digital banking.	1	2	3	4	5

EE09	Using digital banking involves too much time to doing physical banking.	1	2	3	4	5
EE10	It does NOT take too long to learn how to use digital banking.	1	2	3	4	5
EE11	I find digital banking easy to use.	1	2	3	4	5
EE12	I can easily adapt to digital banking.	1	2	3	4	5
EE13	It is easy to learn how to operate digital banking.	1	2	3	4	5
EE14	Overall, I believe digital banking is easy to use.	1	2	3	4	5
SI01	People who influence my behaviour think that I should use digital banking.	1	2	3	4	5
SI02	People who are important to me think that I should use digital banking.	1	2	3	4	5
SI03	I use digital banking because of my peers and relatives using digital banking.	1	2	3	4	5
SI04	My family supports the use of digital banking in my day-to-day life.	1	2	3	4	5
SI05	My elders and leaders support the use of digital banking.	1	2	3	4	5
SI06	In general, society supports the use of digital banking.	1	2	3	4	5
SI07	People in my community who use digital banking have more prestige than those who do not.	1	2	3	4	5
SI08	People in my community who use digital banking have a high profile.	1	2	3	4	5
SI09	Using digital banking is s status symbol in my community.	1	2	3	4	5
FC01	I have the resources to use digital banking.	1	2	3	4	5
FC02	I have the knowledge to use digital banking.	1	2	3	4	5
FC03	Given the resources, opportunities, and knowledge it takes to use digital banking, it would be easy for me to use digital banking.	1	2	3	4	5

FC04	The technology systems and other devices I use are compatible with digital banking	1	2	3	4	5
FC05	A specific person (or group) is available to guide me in the selection of the digital banking system to use.	1	2	3	4	5
FC06	There are specialized digital banking instructions available to me.	1	2	3	4	5
FC07	A specific person (or group) is available when I need assistance with digital banking.	1	2	3	4	5
FC08	I know about the benefits of using digital banking.	1	2	3	4	5
FC09	I can get guidance and help from a user guide on how to use digital banking.	1	2	3	4	5
FC10	Using digital banking is compatible with all aspects of my life.	1	2	3	4	5
FC11	Using digital banking fits well with the life I want to lead.	1	2	3	4	5
FC12	Using digital banking fits into my lifestyle.	1	2	3	4	5
FI01	Products and services offered by financial services providers, including banks, suit my needs.	1	2	3	4	5
FI02	Financial services providers, including banks, have convenient operating hours.	1	2	3	4	5
FI03	Products and services offered by financial services providers, including banks, improve my livelihood.	1	2	3	4	5
FI04	I am aware of the financial products and services available to me.	1	2	3	4	5
FI05	The products and services offered by FSPs can improve my access to essential services.	1	2	3	4	5
FI06	The products and services offered by FSPs can improve my access to amenities such as electricity and water.	1	2	3	4	5
FI07	I use financial services such as savings and credit.	1	2	3	4	5

FI08	Services offered by financial services providers, including banks, are available less than 5km from my home.	1	2	3	4	5
FI09	There are many financial services providers, including banks, located in my area.	1	2	3	4	5
FI10	It is easy to access services offered by financial services providers, including banks, due to the availability of digital banking.	1	2	3	4	5
FI11	I use financial products and services for investment purposes.	1	2	3	4	5
FI12	I use financial products and services for insurance/protection against risk.	1	2	3	4	5
FI13	I use financial products for saving.	1	2	3	4	5
FI14	I use financial products and services to make payments.	1	2	3	4	5
FI15	I have used financial products and services to receive funds/remittances.	1	2	3	4	5
FI16	I use financial products and services for remittances or transfers.	1	2	3	4	5
FI17	I use banks to make deposits.	1	2	3	4	5
FI18	I use banks to take loans/advances.	1	2	3	4	5
FI19	Due to my income, I have access to and use financial products and services.	1	2	3	4	5
FI20	Due to my education, I have access to and use financial products and services.	1	2	3	4	5
FI21	I have the technology and devices that enables me to use digital banking.	1	2	3	4	5
FI22	Financial services providers, including banks, have innovative products and services.	1	2	3	4	5

SECTION B: DEMOGRAPHIC AND BIOGRAPHIC DATA

Please click on the circle that reflects your response option to each of the following questions.

2.1 Indicate your gender.

Male	1
Female	2

2.2 Indicate your age group.

18 – 25 years	1
26 – 30 years	2
31 – 35 years	3
36 – 40 years	4
41 – 50 years	5
51 – 60 years	6
60+years	7

2.3 Indicate the country you currently reside in.

South Africa	1	Zimbabwe	2

2.4 Indicate your province of residence.

South Africa		Zimbabwe	
Eastern Cape	1	Bulawayo	1
Free State	2	Harare	2
Gauteng	3	Manicaland	3
Kwazulu-Natal	4	Mashonaland South	4
Limpopo	5	Mashonaland Central	5
Mpumalanga	6	Mashonaland East	6
Northern Cape	7	Mashonaland West	7
North West	8	Masvingo	8
Western Cape	9	Matebeleland South	9
		Matebeleland North	10

2.5 Indicate your current location.

Rural	1	Urban	2

2.6 Indicate the option(s) available in the area you reside (you can tick more than one option).

Mobile network	1
Fibre network	2
Satellite network	3
Copper network	4
Mobile applications	5

2.7 Indicate the device(s) you currently use (you can tick more than one option).

Desktop computer	1
Laptop	2
Smart phone	3
Basic phone	4
Tablet	5

2.8 Indicate the digital banking channels you currently have **ACCESS** to (you can tick more than one option).

Automated Teller Machine (ATMs)	1
Personal Computer banking	2
Telephone banking	3
Mobile banking (USSD)	4
Mobile applications	5
Mobile wallet services	6
Internet/Online banking	7
Bank POS machines	8
None applicable (I have access to NONE of these)	9

2.9 Indicate the digital banking channels you currently **USE** (you can tick more than one option)

Automated Teller Machine (ATMs)	1
Personal Computer banking	2
Telephone banking	3
Mobile banking	4
Mobile applications	5
Mobile wallet services	6
Internet/Online banking	7
Bank POS machines	8
None applicable (I do NOT use any of these)	9

Thank you for your participation!

ANNEXURE D: LANGUAGE EDITING LETTER

ONE STOP SOLUTION
Professional Editing Services

Proofreading Certificate

It is hereby certified that this thesis has been proofread and edited for spelling, grammar and punctuation by a professional English language editor from www.OneStopSolution.co.za

Client

LAWRENCE MUNASHE KUPIKA

A COMPARATIVE ANALYSIS OF DIGITAL BANKING AND FINANCIAL INCLUSION IN SOUTH AFRICA AND ZIMBABWE

Editor

Matthew Harvey
Name

[redacted]
Signature

07 October 2025
Date

I cannot guarantee that the changes that I have suggested have been implemented nor do I take responsibility for any other changes or additions that may have been made subsequently. The track changes of the language editing will be available for inspection upon enquiry, for a period of one year.

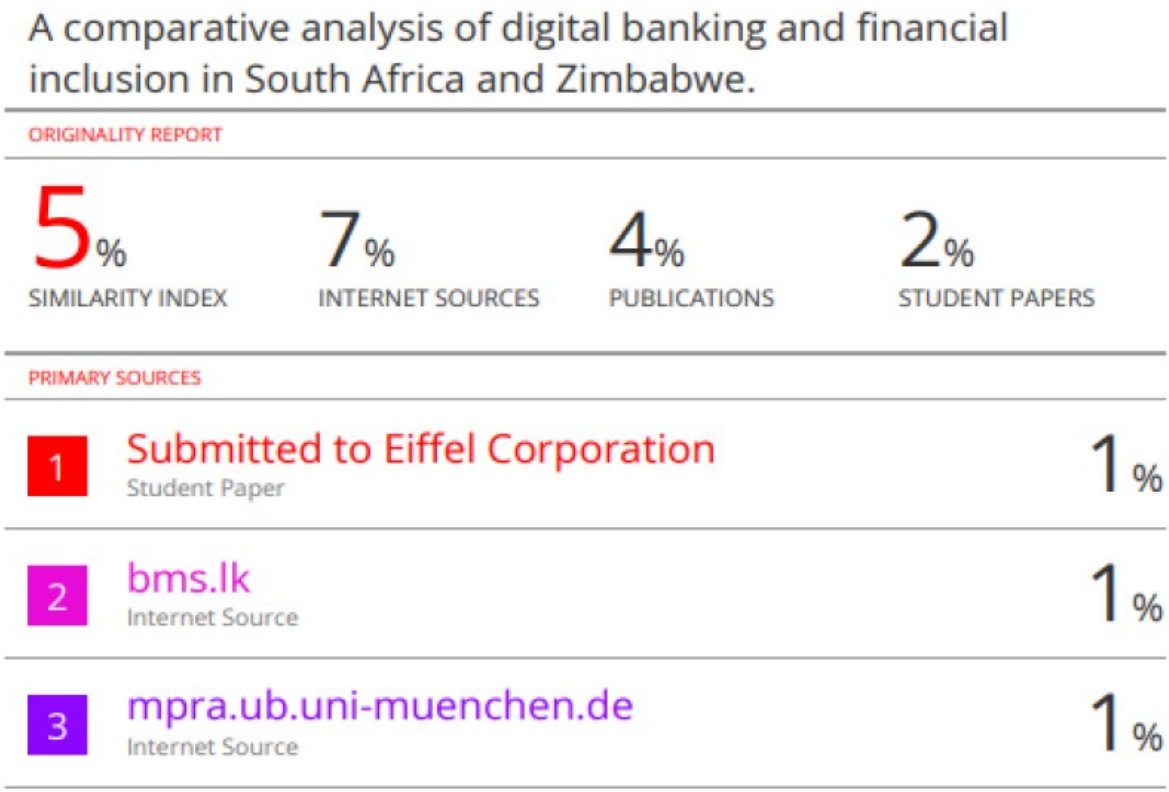
Contact

[redacted]

[redacted]

ANNEXURE E: TURNITIN SIMILARITY INDEX

I declare that this entire thesis was checked for originality by making use of the Turnitin @ service. The results of the plagiarism check are demonstrated below.


A comparative analysis of digital banking and financial inclusion in South Africa and Zimbabwe.

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