NELSON MANDELA UNIVERSITY

A BIBLIOMETRIC ANALYSIS OF ROBO-ADVISOR AND DIGITAL WEALTH MANAGEMENT RESEARCH IN AFRICA

BY

YONELA PETER

STUDENT NUMBER: 215134389

DATE OF REGISTRATION: 9 FEBRUARY 2023

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF COMMERCE HONOURS

IN THE

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

AT THE

NELSON MANDELA UNIVERSITY

STUDY LEADER: MISS S. SIDAT

SUBMISSION DATE: 31 OCTOBER 2023

DECLARATION BY CANDIDATE

NAME: YONELA PETER

STUDENT NUMBER: 215134389

QUALIFICATION: BACHELOR OF COMMERCE HONOURS

TITLE OF PROJECT: A BIBLIOMETRIC ANALYSIS OF ROBO-ADVISOR AND DIGITAL WEALTH MANAGEMENT RESEARCH IN AFRICA

DECLARATION:

In accordance with Rule G5.6.3, I hereby declare that the above-mentioned treatise/dissertation/thesis is my own work and that I have not previously been submitted to another University or for another qualification

……..

SIGNATURE

14 November 2023

DATE

DEDICATION

I dedicate this paper to myself. Through all the numerous hardships and challenges endured throughout the pursuit of this study, my resilience and unwavering determination in the face of adversities never ceased to amaze me. This dedication stands as a testament to the decisions made and sacrifices endured to represent the conscious choices to forego certain pursuits in favour of this paper. It commemorates the commitment and perseverance that underscored this research, marking my journey characterised by tenacity and steadfastness in academic pursuit.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the following persons in playing an instrumental role in their support, contribution and guidance towards the contents and completion of this study:

- The Department of Business Management for their invaluable support in making it possible for me to complete this study.
- My supervisor Miss S. Sidat for her, guidance, support and indispensable insights on robo-advisory and digital wealth management. Your patience and wisdom made this journey enjoyable and bearable.
- To my friends, Matena Schokori, Ibrahim Hattan, Nokuthula Shange and the rest, your love, uncommon kindness and understanding will never cease to amaze me.
- To my parents, brother and the rest of my family, your unwavering support has been monumental in the completion of this study.
- To God, this has been a very testing year, your grace proved to rise above all the adversities. I thank You for dreams answered.

ABSTRACT

Innovative investment approaches led to the rise of robo-advisors in the financial industry which became a cornerstone in furnishing financial advice in the West. Contrastingly, Africa hasn't embraced these innovations, and the quantity of available research serves as a testament. This study quantitatively studies and analyses robo-advisor and digital wealth management research conducted in Africa through a bibliometric analysis. The study determined and highlighted that research in Africa was still unsteadily evolving and that future scholars should investigate foundational topics and themes to better structure and guide future research in Africa as well as collaborate with and support future researchers.

KEYWORDS: robo-advisory, digital wealth management, Africa, FinTech, technology, bibliometric analysis, AI, financial planning

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

1.1 INTRODUCTION

Innovation is a driving force of societal and economic development of a country, resulting in transformation and reconstruction (Bhatia, Chandani, Divekar & Mehta, 2021:694). Innovation does not only promote productivity but also assists in devising the way consumers identify with a brand, their experiences, technological ease of use and reduction in costs (Bhatia *et al.*, 2021:694). Innovations in the financial sector have significantly transformed how individuals and businesses manage their finances, access capital, and conduct transactions. Most innovations are a result of new technology, which has transformed the way financial market's function and how assets are traded (Bhatia *et al.*, 2021:694). After the 2008 global financial crisis that resulted in clients' loss of trust even in well-established financial services institutions, organizations were compelled to think of innovative approaches in providing financial services to clients (Bhatia *et al.*, 2021:694). This birthed the rise of Financial Technology (FinTech) in the financial industry which became foundational in forming strategies for existing financial services providers as well as new financial companies (Belanche, Casaló & Flavián, 2019:1411). Belanche *et al.* (2019:1411) further explain that FinTech is not only limited to digitilisation and e-banking, but focuses on development, introduction and acceptance of innovative technology instruments and tools that meet user financial needs and demands.

Digital wealth management is the use of innovative technology instruments, tools and solutions by financial advisors to furnish financial and investment services to a wide range of customers (FiFifinance, n.d.). It has increasingly become globally significant due to the aftermath of the 2008 global financial crisis and is grounded on robotics and Artificial Intelligence (AI). Owing to its potential to substantially affect the demand for skill intensive workers, digital wealth management is linked to financial planning through robo-advisors being able to provide financial planning services without human intervention (Coombs & Redman, 2018:2). These services include investment portfolios, risk management, retirement advice, asset management, estate planning and other services such as client education (Phoon & Koh, 2018:92). As such, financial advisory roles which are considered skill intensive have been discovered to be under threat from robo-advisory services. Hodge, Mendoza and Sinha (2020:771) define robo-advisors as computer algorithms which aim to assist in financial advisory with little to no assistance from humans. Park, Ryu and Shin (2016:105) suggest that robo-advisors are

advantageous in numerous ways for customers, such as high accessibility and distinguishably low fees, and the funds managed by robo-advisors globally were estimated to be roughly R3,67 trillion. They further added that this was expected to grow to approximately above R26 trillion by 2024.

Robo-advisors have had increasing use in North America, this popularity can be linked to the tech savvy nature of the population and the notable interest in having low-cost and accessible investment options. The competitive landscape the continent offers and the regulatory support pave way for robo-advisors to thrive (Phoon & Koh, 2018:83). Europe offers a diverse financial landscape and as a result has observed a surge in robo-advisory adoption (Phoon & Koh, 2018:86). The Asia-Pacific region has driving factors such as a growing middle class, increase in disposable income and tech savviness proves to be the perfect environment for the introduction of robo-advisors (Phoon & Koh, 2018:87-88). Lastly, the Middle East is also witnessing an incredible interest and factors such as an increased smart phone penetration coupled with an increase in FinTech innovation have a considerable impact on their popularity (Kheira, 2021:18-19).

1.2 PROBLEM STATEMENT

The rise in digital wealth management and FinTech is indisputable, firms are integrating FinTech in daily business operations in an effort to increase digitisation through convenience and low costs. FinTech awards financial services providers with a strategy that is based on innovation of technologies that provide customers with ease of use and meet their demands and needs in a faster tailormade fashion. Western and Eastern countries have jumped on the bandwagon and have since developed FinTech’s that have become increasingly attractive to customers due to their convenience and the low costs associated. Furthermore, the financial and economic climates in the East and West prove to be increasingly conducive for the acceptance and use of robo-advisors. Africa however has unfortunately not caught on to these innovations and studies of such literature are evidence of such. Due to the majority of research conducted having a Western perspective and models that are applicable in the West, further exploration of digital wealth management and robo-advisory needs to be conducted in the African context.

This study aims to analyse and address available research on digital wealth management and robo-advisory in Africa by means of a bibliometric analysis. This method will enable quantification by summarising existing research and address available research on digital wealth management and robo-advisory in Africa by. By charting digital wealth management and robo-advisors in the African context, the study will assist in analysing how significantly robo-advisors and digital wealth management have been studied in Africa to identify gaps to pave the way for future research. This is significant as robo-advisors have shaped the global financial sector since their introduction.

1.3 RESEARCH OBJECTIVES

This section of the study presents the primary, secondary and methodological research objectives of the study.

1.3.1 PRIMARY OBJECTIVE

The primary objective of this study is to conduct a bibliometric analysis by investigating and analysing robo-advisor and digital wealth management research in Africa. Existing bodies of research and knowledge will be quantitatively summarised.

1.3.2 SECONDARY OBJECTIVES

To give effect to the primary objectives, the following secondary objectives are formulated:

SO^1 To profile financial planning/finance journal publications in terms of the institution where the robo-advisory and digital wealth management research was conducted and year of publication, as well as authors and their affiliate institutions.

SO^2 To profile financial planning/finance journal publications on robo-advisors and digital wealth management in terms of theories used and methodologies adopted.

SO^3 To identify and describe key topical clusters and themes within digital wealth management and robo-advisor research in Africa.

1.3.3 METHODOLOGICAL OBJECTIVES

MO^1 To undertake a theoretical investigation into the nature and importance of robo-advisors in general and in relation to digital wealth management, the evolution of the field and

research done to date on robo-advisors and digital wealth management globally and in an African context.

MO[2] To determine the research methodology best suited for addressing the identified research problem and objectives.

MO[3] To develop an appropriate framework for categorising and analysing the collected data.

MO[4] To analyse the publications making up the study's data set so as to achieve the objectives of the study.

MO[5] To provide conclusions and propose practical recommendations to future researchers on what gaps digital wealth management research on robo-advisors in Africa needs to be addressed.

1.3.4 RESEARCH QUESTIONS

RQ[1] What prompted the emergence of FinTech's and the rise of robo-advisors in digital wealth management?

RQ[2] What are robo-advisors and how do they compare to traditional advisors?

RQ[3] What research has been conducted in Africa on digital wealth management by whom, when and where?

RQ[4] How does digital wealth management and robo-advisory link to financial planning?

1.4 SCOPE AND DELIMITATIONS OF THE STUDY

The focus of this study is on the field of digital wealth management and robo-advisory research in Africa. Despite the notable impact robo-advisory and digital wealth management has had in the global economy, an abundance of research that has been conducted has been mainly in the West and is lacking in the African context. The bibliometric analysis that this study undertakes includes research publications that have to meet certain criteria which outline the scope of the present study. Firstly, the research focuses and is limited to research that only pertains to robo-advisory and digital wealth management. Additionally, the study will source and consult published journals and academic papers. Furthermore, in terms of location of the research, the publications must be conducted in robo-advisory and digital wealth management in Africa only. Notably, the publications should also be only published in English and the data bases consulted are only Google and Google Scholar. Lastly, the study will source as many publications as possible that meet all the above criteria to provide more comprehensive results.

1.5 SIGNIFICANCE OF STUDY

Stemming on the importance of digital wealth management in the global perspective, the vast majority of studies conducted on robo-advisors and digital wealth management have been in North America and Asia-Pacific countries. Little is known on digital wealth management and robo-advisors in Africa as research in the African context is lacking in quantity. Thus, the primary objective of this study is to conduct a bibliometric analysis on digital wealth management research in Africa and add to the existing bodies of research with particular focus on robo-advisors and digital wealth management. This will be achieved through examining authors, their academic institutions, the topic their research focuses on as well as the methods they utilise in their studies. This study also aims to highlight recommendations for future research areas that need further exploration.

In utilising a bibliometric analysis, this study serves to analyse, evaluate and quantify studies conducted on robo-advisors and digital wealth management in the African landscape in contrast to existing Western literature. A bibliometric analysis allows for the evaluation of research and publication performance through performance analysis of institutions and individuals. This quantitative approach allows for the comprehensive understanding value in drawing conclusions on existing literature and the gaps present in research. Furthermore, a bibliometric analysis is a valuable tool in identifying strengths and weaknesses in research and how impactful the study is. This quantitative approach in robo-advisor and digital wealth management research in Africa stresses the lack in sufficient research and will thus be a useful aid in conducting further research. This research will greatly benefit Africa as this field is still uncharted and is in its infancy. This will contrast the quantity of studies of digital wealth management and robo-advisors in Africa as opposed to the West and East.

1.6 STRUCTURE OF STUDY

The structure of the study will follow a format presented in the following manner:

Chapter One: This chapter introduces the study and gives a comprehensive understanding of its background. It provides the problem statement and sets out the primary objectives, secondary objectives, methodological objectives and research questions of this study. It further provides the significance of the study, the overview of the study to follow, describes the

research design and methodology conducted in the study, the scope and delimitations of the study.

Chapter Two: This chapter outlines the literature review and begins by defining and contextualising digital wealth management before it further provides its evolution. The chapter carries on by contextualising and defining robo-advisors and their core process, the associated advantages and limitations of their use and traditional financial advice in contrast to robo-advisors. The chapter concludes by highlighting previous research on digital wealth management and robo-advisors in the field.

Chapter Three: This chapter describes the research design and methodology adopted in this study. It will further elaborate on the research strategy the study aims to utilise, which is a bibliometric analysis.

Chapter Four: Following the bibliometric analysis on the literature available, this chapter presents the findings from the results obtained.

Chapter Five: This final chapter provides an overview of the study and illustrates if the research objectives have been achieved. This chapter also provides the analysis of the findings obtained in this study and conclusions drawn. In addition, the limitations of the study will be highlighted and discussed, and the significance and contributions of this study will be underlined. Recommendations will be made on topics relating to digital wealth management and robo-advisor research in Africa that need to be explored.

1.6 CONCLUSION

This chapter concisely examines and investigates the emergence of digital wealth management and the reasons that prompted the rise of robo-advisors. The fast-paced innovation of FinTech is one that was undeniable and one that financial institutions were affected by in a global aspect. This chapter thus aimed at examining and establishing the background of digital wealth management. It further provided for the type of study that would be conducted, the primary objectives, secondary objectives and methodological objectives. In conclusion, it frames the significance of the study in contributing to existing literature as well as the overview of the entire study.

2.1 INTRODUCTION

The main objective of this study is to conduct a bibliometric analysis of robo-advisory and digital wealth management research in Africa to outline existing research and identify gaps for future research. Chapter One provided the introduction, problem statement, research objectives as well as the general scope of the study. Chapter Two aims to contribute to achieving the primary objective by providing an overview of digital wealth management by defining and contextualising digital wealth management and robo-advisory. Furthermore, it will expand on the evolution of digital wealth management and outline previous research on digital wealth management and robo-advisory.

2.2 CONTEXTUALISING AND DEFINING DIGITAL WEALTH MANAGEMENT

This section of the literature introduces digital wealth management by defining and contextualising it and outlines the evolution of digital wealth management.

2.2.1 DEFINING DIGITAL WEALTH MANAGEMENT

Wealth management is defined by Ganti (2022) as an investment advisory service which comprises of the combination of other various financial services to cater to the needs of affluent clients, it encompasses every part of an individual's financial life. Dziawgo (2021:142) however defines wealth management as conducting a custom strategy in managing assets both liquid and non-liquid for a client and implementing and executing that strategy with involvement from the client. He further adds that the key services encompassed in wealth management include asset management, tax planning and financial and legal advisory services. Singh and Kaur (2017:36) expand that wealth management entails three basic functions: wealth expansion, wealth preservation and tax minimisation strategies. Conventionally, wealth management was accepted to be a niche service that only the wealthy could afford. Thus, the emergence of digital wealth management appealed not only to high-end clients but was also inclusive of every other class.

Warshauer (2002) in Cull (2009:27) comprehensively defines financial planning as the process that considers a client's financial standing, socio-economic status, personality and legal environments which gives rise to the adoption of strategies and the utilisation of financial tools that are expected to assist in achieving the client's financial goals. Murali and Subbakrishna

(2018:2) define personal financial planning as the acceptable forecasting and implementation of cohesive plans to achieve financial objectives, interpreting to investments and savings conceived today should match future financial goals. Specific to financial planning, the use of technology has increasingly become popular as it provides the simplification of tasks, convenience and fast access to information (Park *et. al*, 2016:105).

Digital wealth management is a segment of personal financial planning, which is a branch of financial planning. Alternatively, (Sarwa, n.d) clarifies digital wealth management as the use of digital platforms to furnish individuals and businesses with services and tools to manage their financial investments and assets. It amalgamates traditional wealth management practices with digital tools and automation to deliver personalised financial advice and investment solutions. According to Ostern, Schöler and Moorman (2020:45), digital wealth management platforms typically make use of advanced algorithms and AI to analyse financial data, assess risk tolerance and to provide customised investment strategies. They operate through online portals or mobile applications that allow users to create investment accounts and digitally manage their accounts. They further add that the main goal of digital wealth management is making wealth management services more accessible, cost-effective and efficient. With digital platforms, individuals can access wealth management services remotely without the need for physical meetings with financial advisors (Cocca, 2016:46).

2.2.2 CONTEXTUALISING DIGITAL WEALTH MANAGEMENT

Baghai, Carson and Sohoni (2016) expand that digital wealth management though still in its infancy is a rapidly evolving field that capitalises on the use technology to enhance and simplify the delivery of wealth management services. They further add that it offers significant potential for new entrants as well as seasoned investors by enhancing their service offerings and improving client satisfaction through trends, offerings and transformation. Digital wealth management recently came to prominence as a result of the advancement of FinTech in the financial sector, changing investor preferences and the increase in accessibility to financial information (Schiff & Taylor, 2016). The rise of digital platforms and availability of real-time data has transformed the way wealth management services are delivered and are experienced by individuals and businesses. Among the main drivers behind the growth of digital wealth management is its ability to standardise access to financial services since traditional wealth management services often times were limited to high-net-worth individuals who could afford the fees that were associated with personalised advice from financial advisors (Schiff & Taylor,

2016). Digital wealth management platforms offered a solution to this by offering lower costs, lower minimum investment requirements and a much more inclusive approach. This allows for a broader range of investors to benefit from professional investment advice and portfolio management.

Lopez, Babcic and De La Ossa (2015:4) highlight that contextualising digital wealth management involves the process of understanding an individual's financial needs by identifying their financial goals and their risk tolerance. This data is collected and applied in the creation of a personalised investment strategy that fulfils the individual's needs. Through the use of advanced algorithms and AI in digital wealth management platforms, it has significantly enhanced the efficiency and precision of investment decisions (Lopez *et al.*, 2015:4). Their automated nature in process eliminates any human bias and emotions in making investment decisions leading to more objective and disciplined investment strategies (Rourke, 2019:8).

Additionally, digital wealth management provides investors with greater transparency and control over their investments since users can access their portfolios to track performance in real-time (Schiff & Taylor, 2016). They can also gain insight in the underlying assets, fees and performance metrics associated with their investments (Sarwa, n.d). This degree of transparency cultivates trust and empowers investors to make more informed decisions about their financial future. Furthermore, digital wealth management platforms emphasize a more goal-based investing approach which allows investors to outline specific financial objectives and receive tailor-made investment strategies to better achieve their goals (Schiff & Taylor, 2016). This approach allows for the enhancement of user experience and aids investors align their investments with their broader financial goals (Sarwa, n.d).

Digital wealth management platforms offer elements such as goal planning, asset allocation and rebalancing. They also offer educational resources and financial planning tools which help users make more informed decisions about their investments and in achieving their financial goals (Schiff & Taylor, 2016). To ascertain ease of use, some platforms provide integration with other financial accounts like credit cards and bank accounts to provide a more comprehensive vantage point of the clients' financial affairs (Sarwa, n.d).

2.2.3 EVOLUTION OF DIGITAL WEALTH MANAGEMENT

The emergence of online brokerages started in the early 1990's and early 2000's with online brokerages such as TD Ameritrade and E-Trade. They offered self-directed investment platforms which allowed clients to manage their portfolios online. These platforms established a cornerstone for later developments of digital wealth management such as the development of robo-advisors in 2008 (Meyer, Uhr & Johanning, 2021). There was then an expansion of digital platforms since traditional financial institutions identified the potential for digital wealth management and robo-advisory and began to launch their own platforms through partnering with robo-advisory start-up firms. Due to this expansion, established firms could then tap into the growing demand for digital wealth management services while leveraging their brand recognition and existing client base (Meyer *et al.,* 2021). The evolution of digital wealth management is founded on technological advancements, changing consumer behaviours, needs**,** demands and regulatory developments. The 2008 global financial crisis saw the banking system in the West having to incur a fine estimated at US$242 billion due to their misuse of collateralised debt obligations (CDOs) by separating credit risk of underlying loans from the loan originator (Nguyen, Chew, Muthaiyah, Teh & Ong, 2023:2).

As a result, the effect of the crisis caused a severe decline in the trust people had on banking systems as this caused wealth loss for a plethora of individuals who invested in CDOs. Nguyen *et al.* (2023:2) further expands that the crisis was the perfect storm in leveraging the birth of financial technologies that were anticipated to change the way financial services operated and the way they were previously understood. The demand for relatively more automated ways to eliminate irrational decision making caused by humans in wealth management rose and this saw the introduction of the first robo-advisor by Betterment in 2008 (Nguyen *et al.,* 2023:2). FinTech developed to be a new financial industry that applied the use of technology to improve financial activities and outcomes. It was built on distributed models that brought technology closer to allow the development of entirely new services that encouraged customer centricity and value (Salampasis, Mention & Kaiser, 2017:1). This new industry paved way for a different logic that resulted in fundamental changes in the way business was structured and purposed, changes that incumbents were not ready to face (Salampasis *et al.*, 2017:1).

According to Banjeree, Katsuki, Kaushik, Saxena, Suneja and Thomas (2022), the digital and mobile client experience has become the new currency of success within the wealth management industry. Wealth management firms have increasingly used digital platforms to

have a better client reach to provide investment advice (Schiff & Taylor, 2016). Mobile experiences include mobile and web applications and are among two of the most important channels clients consider when wanting to move their assets. Wealth managers had no choice but to embrace the advanced analytics that would aid in transforming their businesses. This included using data analytics to comprehensively understand client needs and preferences and the use of predictive analytics to recognise investment opportunities (Banerjee *et al.*, 2022).

2.3 CONTEXTUALISING AND DEFINING ROBO-ADVISORS

This part of the literature defines and contextualises robo-advisors. It also highlights the advantages and limitations of robo-advisors, traditional financial advice as opposed to robo-advice.

2.3.1 DEFINING ROBO-ADVISORS AND THEIR CORE PROCESS

As a result of the substantial transformation in the global market, the FinTech sector has increasingly gained prominence. The fast-paced innovation of FinTech is one that was undeniable and one that financial institutions were affected by in a global aspect (Dziawgo, 2021:145). According to Dziawgo (2021:145), FinTech refers to the business entities using progressive technologies to provide digital solutions in the financial market. Kagan (2023) explains FinTech to be any new innovative technology that aims to improve and automate the delivery and use of financial services. Furthermore, it aims to innovate the manner in which business is transacted. One of the main drivers of FinTech is in the development of products and services that were increasingly automated and user friendly than those that were present in the market (Dziawgo, 2021:145). Robo-advisory in digital wealth management being among the fastest growing type of FinTech in the decade. Robo-advisors are currently recognised as among the prime disruptive trends in the wealth management sector and thus has been cause for the increase in interest from people over time (Kagan, 2023).

Robo-advisors are AI systems with choices based on algorithms through gathering large amounts of data, this technique is facilitated by AlphaGo which is a computer program that was developed by Google (Park *et al.,* 2016:104-105). They further clarify that robo-advisors embody AI to provide unconventional asset management and systems to provide services to customers in the finance industry. D'Acunto and Rossi (2020:3) further add that robo-advisors are digital platforms that furnish financial assistance to individuals through automation. They collect and utilise an individuals' data to yield personalised financial assistance and plans

depending on their degree of advancement. According to D'Acunto and Rossi (2020:4), robo-advising is a blanket term which consists of a variety of models and techniques that vary but have four fundamental features. Firstly, custom financial advice symbolising tailored guidance, secondly the presence of human intervention indicating the presence of human input. Investor involvement in financial strategies and decisions, denoting the active participation of investors in shaping financial strategies. Lastly, the discretion of investors to stray from digital advice symbolising the freedom of investors to deviate from digital guidance when they choose to do so.

Robo-advisors are linked to financial planning through offering platforms and tools that automate the tasks involved in the six-step financial planning process. Robo-advisors often serve as a constituent of the wider financial planning process (Murali & Subbakrishna 2018:6). There are various kinds of robo-advisors with various functions, some well-established robo-advisors include Betterment, Vanguard, Wealthfront, Youyu and Nutmeg (Phoon & Koh, 2018:79-80). Ganatra and Jain (2021) further emphasise that there are three main types of robo-advisors based on their revenue stream, scope of functioning and their technical competency. Processes differ according to the type of robo-advisor and its functionality, but the core process of all robo-advisors is universal. The process according to Ganatra and Jain (2021) comprises of client profiling in Step 1 where clients' information such as risk tolerance, time horizon and biographical information is collected using a survey or questionnaire. Step 2 proceeds to conduct a risk assessment and asset allocation that is provided based on the data provided by the client followed by Step 3 where a portfolio is constructed when the asset allocation plan is concluded, the robo-advisor uses algorithms and data to analyse a portfolio that mirrors the recommended asset allocation. Step 4 is the automated balancing phase where the robo-advisor monitors the portfolio and rebalances it when necessary. Step 5 follows with the periodic reporting and monitoring where the robo-advisor provides clients with regular reports and updates them on their portfolio performance. The last Step is ongoing communication and support where clients have access to financial advisors who offer customer support and guidance.

2.3.2 ADVANTAGES AND LIMITATIONS OF USING ROBO-ADVISORS

The emerging advisory marketplace is heavily leveraging on the vast opportunities that come with technological advancement that aim at providing personal financial management to individuals that were seen as low netting for wealth management (Salampasis *et al.*, 2017:2).

Though robo-advisors have gained prominence and use since their birth over a decade ago, they do come with advantages and limitations. Robo-advisors offer low costs and are cost effective compared to traditional financial advisors, this is due to their automated nature of their services resulting in lower overhead costs (Abraham, Schmukler & Tessada, 2019:2). They are also highly accessible and convenient through clients being able to access their accounts, receive advice and being able to monitor their profiles anywhere and anytime without geographical constraints or in person meetings (Abraham *et al.*, 2019:2). Robo-advisors are driven by algorithm efficiency meaning they leverage algorithms and automation to quickly analyse large amounts of information to generate investment solutions and execute financial strategies efficiently which leads to higher accuracy and faster decision making (Dziawgo, 2021:147). These algorithms provide strategies even for the most unusual and complex financial situations (Phoon & Koh, 2018:13).

Furthermore, Rossi and Utkus (2018:1) explain that they offer investors tailormade portfolios which offer investors access to wealth management services that were formally catered for high end clients such as financial planning and retirement planning. They further add that they are objective and consistent, making them superior to human financial advisors since they rely on mathematical models and algorithms to produce investment recommendations. By doing so, they eliminate emotional biases and cognitive limitations that can influence human advisors. Bromberg (2023) adds that robo-advisors make use of robust investment models using cutting-edge investment portfolio research that is fuelled by modern theories. They provide diversification and risk management through emphasising diversification as a risk management strategy by using algorithms to determine the best asset allocation. This considers factors such as risk tolerance, market conditions and investment goals (Rossi & Utkus 2018:1). Lastly, robo-advisors make use of tax-loss harvesting as a strategy to minimise the tax impact of capital gains. Due to their low-cost and automated nature, they can efficiently carry out this process without error compared to humans (Friedberg, 2023). Moreover, they monitor and rebalance a portfolio according to economic changes by adjusting the weights of risky and risk-free assets according to the six-step financial planning process (Frankenfield, 2023).

Robo-advisors however come with shortcomings such as limited human interaction; they lack personalised human interaction that traditional financial advisors offer. Some clients may prefer face-to-face interactions seeking detailed explanations about their complex financial situations (Fisch, Labourè & Turner 2018:21). The lack of emotional guidance and support that

robo-advisors don't provide. Clients may benefit from reassurance and guidance during market downturns and high volatility periods (Fisch *et al.*, 2018:21). Additionally, robo-advisors have complexity limitations. They may excel at managing straightforward portfolios but may have limitations in handling more sophisticated financial situations. Estate planning, tax planning and specialised investment strategies may require the expertise of a human financial advisor with in-depth knowledge and experience (Fisch *et al.*, 2018:21). They present risks in technology glitches and cybersecurity breaches by heavily relying on technological infrastructure. Such incidents could disrupt their service and compromise the security of clients' personal and financial information (Dziawgo 2021:147). They offer limited flexibility for unique circumstances since they operate within predefined algorithms and models. While there is some level of customisation, they may not be able to provide for unique circumstances or investment preferences that fall outside the predetermined models and algorithms (Dziawgo 2021:147).

When robo-advisors are used, there are still some biases present like the robo-advisors utilising certain financial firms and brokers. This is not because they are cheaper, but because they receive higher commissions from them (Fein, 2015:31). Abraham *et al.* (2019:3) states that although robo-advisors make use of algorithms and mathematical models, they are ultimately programmed by humans, which introduces biases in their designs whether individuals are aware of this or not. Though they may be straightforward and timesaving, robo-advisors are not able to form professional relationships with clients to better know them. Moreover, their indifferent questionnaires and limited risk assessments could prove to be too basic and limited to provide a general overview of a clients' financial situation and their needs and wants (Abraham *et al.*, 2019:3). These questionnaires are based on the assumption that all clients have similar risk profiles and thus yield similar answers to the same personal questions, which might not be true. Robo-advisors may not consider and ask a client about their other investment plans such as pension funds. Robo-advisors lack imperative aspects of client-advisor relation like assisting clients in identifying and defining their goals and dealing with possible life changes (Abraham *et al.*, 2019:3).

Additionally, Abraham *et al.* (2019:3) expresses that because they act on partial information, they may not be able to give the best recommendations. Robo-advisors can cause consumers to be emotionally detached since the process is automated and consumers might not be willing to make efforts in understanding how the process works and the services it provides. This is

particularly true for clients with lower wealth and no experience using investment products. Since robo-advisors are still new, their business models haven't been extensively tested in the long-term and during financial strains (Abraham *et al.* 2019:4). This makes the extent of how well clients are protected in case the firm fails to be uncertain. Considerably, robo-advisors have lower account minimums by offering investors with small net worths with professional financial management by lowering barriers to entry. They however charge fees which vary depending on an investors account balance. They can charge an average 0.25% annually or above when the account balance is above a specific value, depending on the type of robo-advisor. This can be more costly than the investor doing it themselves (Bromberg, 2023). Finally, Bromberg (2023) contrasts that they also offer limited flexibility through their inability to offer individual stocks and call options. Seasoned or new investors may desire a broader investment portfolio with an array of asset classes than what typical robo-advisors offer.

2.3.3 TRADITIONAL FINANCIAL ADVICE VS ROBO-ADVICE

Traditional financial advice differs from robo-advice in many ways including cost, level of customisation, human intervention and delivery method. Robo-advice compares to traditional financial advice by the latter having higher costs since they normally charge a fee on assets under management (AUM) for their services (Fisch *et al.,* 2018:19). These fees may prove to be expensive for individuals with smaller investment portfolios. Robo-advisors having a lower cost structure makes them more accessible to a wider range of investors (Fisch *et al.*, 2018:19). The high level of customisation and personalisation that traditional financial advisors offer is undeniable. Human advisors first assess a clients' individual circumstances, risk tolerance, financial goals and preferences to custom recommendations and financial plans to their specific needs. Robo-advisors also offer personalisation and customisation based on the data provided by clients when they start their investment journey (Dautovic, 2022). However, their personalisation is algorithm-driven and relies on predetermined algorithms and models to produce investment recommendations. The level of personalisation does differ among robo-advisors with some offering more personalisation than others (Dautovic, 2022).

Traditional financial advisors incorporate direct human interaction, where clients can have thorough discussions, receive guidance and seek clarity. Having a human provides an element of a more comprehensive and personal advisory experience. Robo-advisors are automated and thus lack human interaction, though they do offer customer support and access to financial professionals for specified inquiries (Medlicott, 2022). The level of human interaction is

however limited compared to that of traditional human advisors and this can be a disadvantage for clients who value the expertise and guidance of human advisors in sophisticated financial situations (Bromberg, 2023). Traditional financial advisors normally deliver their services through face-to-face meetings. Clients can directly interact with them in person or through phone calls. Robo-advisors deliver their services through digital platforms and online interfaces. Clients can interact with them mainly through web or mobile applications as communication is automated and does not provide direct interaction with a human advisor (Medlicott, 2022). Robo-advisors also differ from traditional financial advisors by their investment offerings. Financial advisors can design a diverse portfolio that offers mutual funds, stocks, bonds and ETF's (Exchange Traded Funds), as well as more sophisticated products such as options, futures and real estate investment products. Robo-advisors however tend to invest mainly in Index funds and ETF's as a result of their lower costs and historical performance (Tretina, 2023).

Robo-advisors and traditional financial advisors also differ in their accessibility and convenience. Traditional financial advisors normally require in person interaction and may be subjected to geographical constraints. Clients will thus be subjected to traveling and scheduling appointments which will not be convenient and will be time-consuming (Fisch *et al.*, 2018:21). Robo-advisors offer greater accessibility and convenience since clients are able access their accounts and portfolios and seek advice anywhere at any time. Robo-advisory utilises user-friendly interfaces and automated processes to make it more appealing and convenient for clients to manage their investments at their own convenience (Fisch *et al.*, 2018:21). Lastly, traditional financial advisors actively manage portfolios by monitoring markets to make calculated investment decisions. Contrastingly, robo-advisors passively manage portfolios by investing in ETF's and Index funds with the aim of mimicking market performance (Tretina, 2023). This is because robo-advisors make use of the Efficient Market Hypothesis (EMH) to make strategies that aim to mimic the overall market performance. They are able to do this by creating optimal portfolios based on investors' preferences (CFI Team, n.d). These portfolios are typically created based on some variant of the Market Portfolio Theory, which focuses on the allocation of funds to stocks that are not perfectly positively correlated (CFI Team, n.d).

2.4 PREVIOUS RESEARCH ON DIGITAL WEALTH MANAGEMENT AND ROBO-ADVISORS

There has been excessive research done since the first robo-advisor was developed, as a result, several studies have been summarised in Annexure A to provide a comprehensive overview of previous research conducted on digital wealth management and robo-advisory. A total of 32 articles are summarised in Annexure A and are categorised by continent and are in chronological order. This Annexure aims to identify how earlier research provided an overview of digital wealth management and robo-advisory and the type of studies that were conducted. It is apparent from Annexure A that although robo-advisors first made their breakthrough in 2008, researchers started to extensively conduct studies on the field only five years ago, mostly in the United States of America.

One of the earliest studies conducted according to Annexure A was by Lopez *et al.* (2015) and it focused on investigating how firms used innovative technology and how this would affect the future. The study concluded that the emergence of digital entrants into the wealth management industry would change the industry in several ways. Fein (2015) additionally contributed to earlier studies on digital wealth management and robo-advisory by examining whether robo-advisors indeed provided benefits such as minimising costs and personal investment advice. She concluded that robo-advisors did not act in the best interests of their clients and contrastingly did not minimise costs and were not free from conflicts of interest.

There was a significant number of studies conducted in the year 2018, notably by Phoon and Koh, Fisch *et al.*, D'Acunto, Prabhala and Rossi, and Fulk, Grable, Watkins and Kruger. Phoon and Koh (2018) conducted a study in Singapore that focused on United States of America robo-advisors and their key services. The study aimed at identifying whether robo-advisors where adequately meeting customer needs, identifying gaps in customer service and services that were necessary but were not met. In addition, they expected traditional wealth managers to respond to the integration of robo-advisory services by providing new and improved customised services that integrated robo-advisors at competitive fees. The study concluded that human judgement may still be necessary to assist in solving more complex issues as robo-advisors lacked personal customisation. They further added that robo-advisors could well replace wealth managers but still had reservations on more sophisticated clients choosing to remain with their asset managers, private bankers and wealth managers.

D'Acunto *et al.* (2018) added to research by focusing on a FinTech robo-advisory tool that delivered diversification advice to individual investors and did not require the presence of human advisors. The study aimed at examining the absorption of the tool and assessed its impact on investors' financial decision-making. The main findings were that undiversified investors increased their portfolio diversification and further depicted a higher performance in their market-adjusted portfolios. Contrastingly, highly diversified investors traded more, however their trading activities did not render a better performance. Fulk *et al.* (2018) focused their study on the affluent customers in the United States of America. The main objective of the study was to draw comparisons on the altitudinal, demographic and behavioural elements of consumers in the United States of America in their current and expected use of robo-advisors, traditional financial planning or the combination of the two. The outcomes of the study highlighted that the main users for robo-advisors overall had lower income and net worth, received less or no inheritance and were much less financially impulsive.

The most recent studies include those from Nguyen *et al.* (2023) and Chhatwani (2022). Nguyen *et al.* (2023) focused on the changing demands on robo-advisory after the Covid-19 pandemic with the sole objective of examining the factors that influenced the acceptance of robo-advisors in wealth management in Malaysia. Key findings from the study provided positive insights in the acceptance of robo-advisory in Malaysia through factors such as relative advantage and effort expectancy. Chhatwani (2022) focused on examining the adverse effect of lack of human intervention in financial advisory, with the purpose of examining the effect of robo-advisory on retirement worry. The review found that the lack of human intervention while relying on digital advice led to increased retirement worry.

Previous research provides mainly for the North American and Asian context. It is evident in Annexure A that the research available and what has been understood about the emergence of digital wealth management and robo-advisory has been from the perspective of North America and that of Asia. Studies conducted in South America and Africa are not comprehensive enough to provide for the introduction and acceptance of digital wealth management and robo-advisory.

2.5 CONCLUSION

This chapter investigated and discussed the definition of digital wealth management and robo-advisory. It further contextualised both robo-advisory and digital wealth management and provided for the evolution of digital wealth management. Additionally, it highlighted the advantages and limitations of robo-advisors and concluded with discussing previous research on digital wealth management and robo-advisors where the research was structured according to years they were published and the continents in which the studies were published in. The next chapter will discuss the methodology this study employs.

3.1 INTRODUCTION

Chapter Two provided for the definitions and contextualisations of digital wealth management and robo-advisors. The purpose of this chapter is achieving the second methodological objective by identifying and describing the methodology and research approach for this study. This chapter further provides for the identification and explanation of the research philosophy and approach, as well as the research strategy adopted for this study. Additionally, it provides for the time horizon, data collection and analysis as well as the quality and extent of the data obtained. The chapter highlights the use of secondary data in this study. Primary data is data that is collected by a researcher from first-hand sources in real time, while secondary data is data that is already produced or collected by others (Surbhi, 2020). The chapter concludes by emphasising the ethical considerations in obtaining the data to achieve the purpose of the study and the study's reliability and validity.

3.2 RESEARCH PHILOSOPHY

Saunders, Lewis and Thornhill (2016:124) define a research philosophy as the system of beliefs about how data about a phenomenon must be gathered, examined and utilised. It is the assumption about the development of knowledge and a framework that guides the way in which research must be conducted based on ideas about the nature of knowledge. These assumptions mold how research questions are understood, the appropriate methods to use and how to effectively interpret results. Saunders *et al.* (2016:124) depicts that there are five research philosophy approaches all together, namely: positivism, pragmatism, critical realism, interpretivism and postmodernism. The two main approaches that are mostly undertaken are the positivism and interpretivism approach. The positivism approach adopts a philosophical approach and understands that there is no single view of interpreting the world and undertaking research but rather there many different ways (Dudovskiy, 2022). Saunders *et al.* (2016:135) further elaborates that these observations and observable realities give rise to generalisations based on laws. Interpretivism is interpreted as interpreting constituents of a research study which amalgamates and includes human interests (Dudovskiy, 2022).

This study adopts a positivism approach as it primarily focuses on the collection of reputable facts and data which are not influenced by or rely on human interests or biases. The data and facts collected in this study are also real and external. This approach is highly structured and

makes use of mainly quantitative methods of collection but can also use qualitative collection methods. Additionally, this philosophy makes use of a deductive research approach and researchers that adopt this philosophy are impartial and independent of what is research which reinforces objectivity of the study (Saunders *et al.* 2016:136). Positivism emphasises validity, reliability and observation in the process of research (Dudovskiy, 2022). In addition, the role of the researcher is limited to data collection and interpretation in an objective way. This indeed indicates that the researcher is independent from the study (Dudovskiy, 2022). This philosophy is best suitable for this study as it utilises a deductive approach to theory development and is premised on observable and measurable facts.

3.3 APPROACH TO THEORY DEVELOPMENT

According to Saunders *et al.* (2016:135), there are three research approaches to theory development within the research onion which are stated to be inductive, deductive and abductive. They further add that deductive and inductive are the two contrasting approaches a study can adopt. Deductive reasoning is a logical approach where the conclusion is premised on the coincidence on multiple premises that are accepted to be true (Dudovskiy, 2022). Inductive reasoning however is a logical approach that draws conclusions from what is specific to what is general (Heit & Rotello, 2010:806). It involves the logical process where observed specific occurrences are examined to give rise to general principles. This process contrasts with the deductive reasoning process where specific conclusions are drawn from general information (Saunders *et al.* 2016:144). The third approach is a logical process that is founded on observations that are incomplete and aims to investigate the most suitable hypothesis for to best fit those observations. It is a more general approach as it begins with an observation which is a “surprising fact” which is used to make predictions or estimations, it does not guarantee that a hypothesis is correct (Saunders *et al.* 2016:144-145).

This study makes use of the deductive research approach which is strongly founded on developing logical conclusions that are factual in nature from determined data and facts. This approach is mainly used in scientific research where the conclusions obtained are results that are directly correlated to the theory and data the study utilises (Saunders *et al.* 2016:145). This approach is thus best fitted for this study as it focuses on factual information that is extracted from published literature that is categorised and classified to specifications which are required to conduct this study (Heit & Rotello, 2010:806). Additionally, this study focuses on conducting an extensive literature review on robo-advisory and digital wealth management in

Africa and makes use of data that is collected to obtain hypothesis that are related to existing theory. The theory from this study can either be verified or falsified (Saunders *et al.* 2016:145). This will assist in achieving the primary objective of this study in analysing available literature and in contributing to future research in robo-advisory and digital wealth management in Africa.

3.4 METHODOLOGICAL CHOICE

As part of the research onion proposed by Saunders *et al.* (2016:164), the methodological choice forms part of the third outer layer of the onion. A research methodology is defined as the systematic analysis of the methods utilised in a study for research. Choosing a research methodology is just as imperative as deciding the objectives, goals and research question and should be decided on before research is conducted (Bhosale, 2023). Choosing the correct research methodological choice assists in the overall success and quality of the study. In examining the type of methods used in a study, it gives rise to an in-depth understanding of a field. Saunders *et al.* (2016:165) further classifies data as quantitative which is numerical and statistical based and qualitative which is non-numerical based and cannot be quantified. Qualitative research is research that is flexible and sensitive to the social context. This is because it examines how people learn and make sense about themselves and others to structure and give meaning to their daily lives (Hox & Boeije, 2005:595). This is done by use of experiments, interviews and participant observation among other methods. Hox and Boeije (2005:595) further add that quantitative research however is data this is expressed numerically by objects, variables and other values. This is research that can numerically be used to create graphs and statistical charts. It is often used to quantify responses or a phenomenon in demographic, financial or scientific research. This can be achieved through use of experiments, surveys and secondary data analysis (Hox & Boeije, 2005:596).

There are mainly two methodological choices a study can choose to adopt, namely: mono method and multiple methods. Mono method methodological choice assumes the use of a single research approach for a study, either quantitative or qualitative. Multiple methods assume more than one data collection approach and may also be either quantitative or qualitative (Saunders *et al.* 2016:166). Another type of methodological choice is a mixed method which is a type of multiple method that is based on either simple or complex data approaches (Bhosale, 2023). This study is quantitative in nature as it collects desktop data on existing research on robo-advisory and digital wealth management, thus the mono quantitative

method is suitable. Furthermore, it is a single data collection method that corresponds to the analytical procedures that are used in this study. To ascertain that this is appropriate method, this study is based on an extensive literature review (Saunders *et al.* 2016:166).

3.5 RESEARCH STRATEGY

Saunders *et al.* (2016:177) describes a research strategy as a plan to achieve an objective or goal, it identifies a studies strategic research goals and the necessary resources actions to achieve those goals and objectives. The purpose of a research strategy is to define the principles that guide the management, development and support of all the factors and variables that are involved in a study. There are eight research strategies that are outlined by Saunders *et al.* (2016:178) which are all linked to either quantitative, qualitative or mixed method research designs, namely: survey, archival, case study, action research, experiment, ethnography, grounded theory and narrative inquiry (UKEssays, 2018). Since this study is quantitative in nature, the research strategies linked to quantitative research designs are experiment, survey, archival and case study which are largely convergent (Nguyen, 2023a). Experiments are founded on hypotheses and make use of the empirical method, while surveys generate large amounts of data from participants through research groups. An archival research strategy gathers and analyses information and data on existing research, documents and records as opposed to case studies which studies real life observations in depth (Saunders *et al.* 2016:183-184). These four research strategies are explained in Table 3.1 below.

Table 3.1: Comparisons of experiments, surveys, archival research and case studies

Experiments	Surveys	Archival Research	Case Studies
Involves manipulating one or more variables and observing the effects on a certain outcome.	Involves asking a set of formalised questions to a large group of people.	Involves using existing research.	Involves in-depth research of an individual, group or a certain situation.
High reliability due to level of control over formal research.	Allows for a large-scale data collection by use of formalised forms of measurement.	Inexpensive way to collect data that can provide insights into a plethora of research questions.	Conducted in real-life and are generally designed to solve or form an answer to an issue or problem.
Can take form of simulations and gaming.	Common type is written questionnaire which	Researchers have no control how or what kind of data was collected.	Generally focus on a certain number of situations that are more

	includes closed-ended questions.		detailed which produce the goal of more depth than breadth.

Source: UKEssays, 2018; Spielman, Jenkins and Lovett, 2020; Nguyen, 2023a; Nguyen, 2023b.

This study involves searching and extracting information and evidence from existing documents, records and original archives on robo-advisory and digital wealth management. Archival research furnishes information that is of interest to researchers for a study across a wide range of geographical areas and fields and information and data that is reliable. The main sources of archival research are found through online sources (Saunders *et al.* 2016:183). This is the most fitting research strategy as the study mainly focuses on gathering and analysing data on the current available research in the field. Additionally, archival methods are most appropriate in analysing digital texts and provide a gateway to databases, government sources and web pages (Saunders *et al.* 2016:183). According to Donthu, Kumar, Mukherjee, Pandey and Lim (2021:285), a bibliometric analysis is a commercial method of exploring and analysing large quantities of scientific data. This data tends to be massive and objective, this enables researchers to use a bibliometric analysis for reasons such as investigating emerging trends, journal performance and collaboration patterns. They further add that due to the quality of the data used, researchers are able to investigate objective variables such as number of citations, publications and key words and topics. A bibliometric analysis is useful in deciphering and mapping the evolutionary nuances of well-established fields by making sense of large volumes of unstructured data to build firm foundations in advancing a field in a meaningful way (Donthu *et al.*, 2021:285). Both these methods are appropriate for this study as data will be gathered and analysed on the institution, publication year and authors and their affiliate institutions currently in the field.

3.6 TIME HORIZON

This study makes use of a cross-sectional research design which Saunders *et al.* (2016:200) describes as a single shot which is taken at a specific time. They explain that when designing research, it is important for a researcher to determine whether they require their research to be a “snapshot” or a series of snapshots that represent an occurrence over a specified period. The latter is referred to as a longitudinal research design. Pandis (2014:127) further adds that cross-sectional research design is a type of observational study which collects data from a population or sample at a specified point and time with the aim of providing a snapshot of the variables

that are examined in a study. This allows researchers to explore the relationship between the variables and to draw comparisons within the study population or sample. They are generally affordable and easy to conduct when compared to other types of observational studies (Pandis, 2014:127). Moreover, this approach is often used when studies face time constraints (Saunders *et al.* 2016:200).

This study is seeking to analyse robo-advisor and digital wealth management research in Africa by summarising existing bodies of research in an aim to identify gaps for future research. This context aims to mirror the snapshot analogy mentioned by Saunders *et al.* (2016:200) and Pandis (2014:127) by giving insight into the current research on robo-advisory and digital wealth management in Africa, therefore adopting the cross-sectional time dimension.

3.7 DATA COLLECTION AND ANALYSIS

The concluding layer that is centred in the research onion are the techniques and procedures the study will employ which comprise of the collection and analysis of data which are discussed below (Saunders *et al.* 2016:164).

3.7.1 DATA COLLECTION

Considering that this study employs an archival desktop research strategy, the study therefore makes use of secondary data as opposed to primary data (Saunders *et al.* 2016:183). Dudovskiy (2022) explains that secondary data is a type of data that already exists in the form of published articles and books, journals, censuses and other sources. This type of data collection method is best suited for this study as it provides an abundance of the data available through the plethora of sources it gives access to considering the nature of this study (Dudovskiy, 2022). This will increase the validity and reliability of the study.

3.7.2 DATA ANALYSIS

The data obtained for this study was analysed by employing two methods, statistical analysis and content analysis. As this study is quantitative in nature, statistical analysis is the examining of trends and relationships by means of quantitative data. It provides for the quantifying of authors, affiliate institutions and countries that made a contribution to robo-advisory and digital wealth management research in Africa to clearly define trends and patterns (Scribbr, n.d). Content analysis is explained to be a method used to identify patterns in recorded communication such as a set of texts in the form of books, magazines or speeches. This method

was utilised to investigate the current areas of research of robo-advisory and digital wealth management. The data analysis in this study entailed the researcher collecting and analysing current literature on robo-advisory and digital wealth management and the topics they investigated with the purpose of constructing a comprehensive table in the literature review on the overall state of research in the field of robo-advisory and digital wealth management. Furthermore, the study entailed extracting, collecting and analysing relevant information from the identified journals and academic papers that met the criteria to analyse objective variables such as author location, affiliate institutions and publication activity and citations. Both these methods are critical to and suitable for the current study as the data collected was used to identify trends and patterns on robo-advisory and digital wealth management in Africa (Luo, 2023).

3.8 ETHICAL CONSIDERATIONS

Research ethics refer to the moral principles that serve as a guideline for researchers in conducting research that involves human participants or the use identifiable human data. Ethics ensure that research is conducted in a morally acceptable and responsible manner that protects the rights, welfare and the privacy of its participants (Saunders *et al.* 2016:239-240). Ethical considerations are one of the most important parts of a study. According to Dudovskiy (2022), there are 10 points that are fundamental principles that must be considered when conducting research which include, the ensuring of privacy and protection of all participants, prioritisation of respect for the dignity of research participants, and obtaining the full consent of the research participants prior to the study being conducted. Ethical considerations are critical throughout the research process and as a result, adhering to research ethics is fundamental in promoting trust, upholding integrity of research and in ensuring the well-being and the rights of research participants.

Within the context of this study on ethics, the purpose of this study is undertaking a bibliometric analysis of robo-advisor and digital wealth management research in Africa to summarise the existing bodies of knowledge and identify avenues for future research. This study is desktop research and as such, the subjects of this study are published articles and bodies of literature related to robo-advisory and digital wealth management in Africa which result in authors of these articles and literature being subject to being possibly affected by this current study. Ethical considerations for this current study are in ensuring the articles and literature collected are accurately represented in a way which does not result in reputational damage or distortion

of the authors of the respective articles and literature. Rather, the study should highlight the importance of giving adequate recognition to authors of these articles and bodies of literature for their contributions to the field. All results obtained in this study are reported in a truthful manner. Furthermore, as provided by the Nelson Mandela University regulations, the researcher was required to apply for and obtain ethical clearance from the institution's ethics committee prior to commencement of the study. There was no specific ethical clearance required as the data collected was not personal nor private and didn't include the use of participants. This was to ensure that the current study met the ethical standards of the institution and the ethical clearance obtained from the committee is included in Annexure B of this study.

3.9 RELIABILITY AND VALIDITY

According to Dudovskiy (2022), reliability and validity are two important concepts in research. Reliability refers to the consistency of the test while validity refers to the accuracy of the test. Reliability and validity in a study ensures that the researcher has ensured that the data collected, data analysis methods and procedures used to source the data foster quality of the study. Lincoln and Guba (1985) in Saunders *et al.* (2016:206) discuss how dependability, credibility, transferability and authenticity criteria are important in ensuring the quality of a study. To ensure the above stated for this study, the researcher consulted the insights of their supervisor, the researcher also used trusted sources. Additionally, the researcher analysed past and present research on robo-advisory and digital wealth management in Africa, the researcher demonstrated that all results and findings were directly sourced from the data collected and were not subject to research bias.

3.10 CONCLUSION

This chapter provided for the methodology this study utilised by outlining the research methodology that was implemented. The research design, approach to theory and methodological choices for the study were described and discussed. It further elaborated on the research strategy, time horizon and the data collection and analysis. It concluded by discussing the ethical considerations and the reliability and validity of this study. The following chapter depicts the data collected for robo-advisors and digital wealth management in Africa. It will then analyse and discuss the study findings.

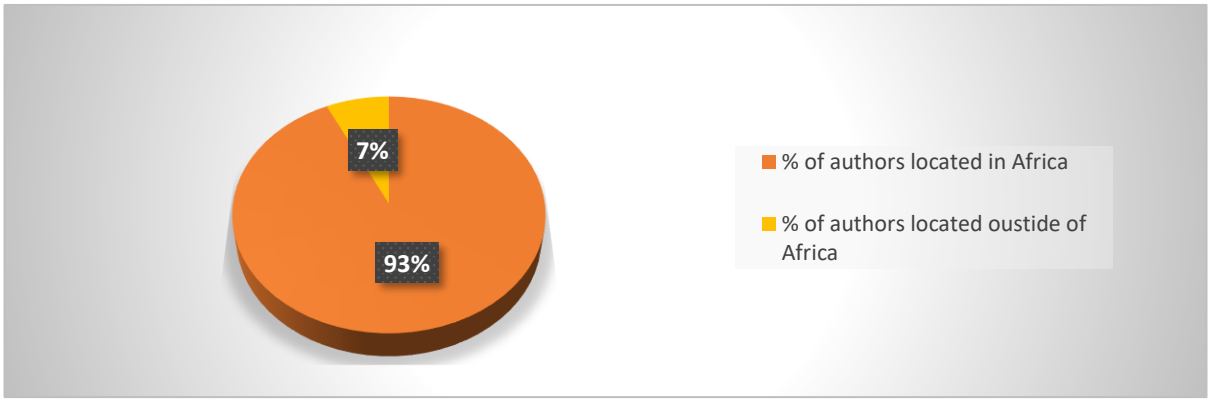
4.1 INTRODUCTION

The previous chapter outlined the overview of the research design and methodological choices adopted in this study. It clarified the data collection method which was premised on secondary data as the study's primary objective is in conducting a bibliometric analysis. This chapter presents and discusses the empirical findings of the data collected for the study which was sourced from journals and academic publications. It further aims to achieve the fourth methodological objective by providing for the overview of the authors, author location, institutions and countries where research on robo-advisory and digital wealth management in Africa has been previously undertaken. It then follows with the publication dates, key topical clusters and themes that were investigated in the studies. This chapter lastly provides for the research methodologies the studies adopted, the number of citations each article has obtained to date, country of focus and the keywords present.

4.2 THE AUTHORS, AUTHOR LOCATION, ACADEMIC INSTITUTION AND COUNTRY WHERE RESEARCH WAS CONDUCTED

The results obtained in this study indicate that 10 articles were authored by 14 scholars from eight academic institutions. Figure 4.1 depicts that 13 (93%) out of the 14 scholars were in Africa at the time of publication with only one scholar (7%) being located outside the African continent.

Figure 4.1: Author location



Source: Researchers own construct

Additionally, the authors that were located in Africa were found to be in South Africa (12) and Namibia (one) at the time of publication at various African institutions as tabulated in 4.1. This table summarises the prominent authors in robo-advisory and digital wealth management in

and outside of Africa and their contributions. It further summarises the institutions with the most contributions towards robo-advisory and digital wealth management.

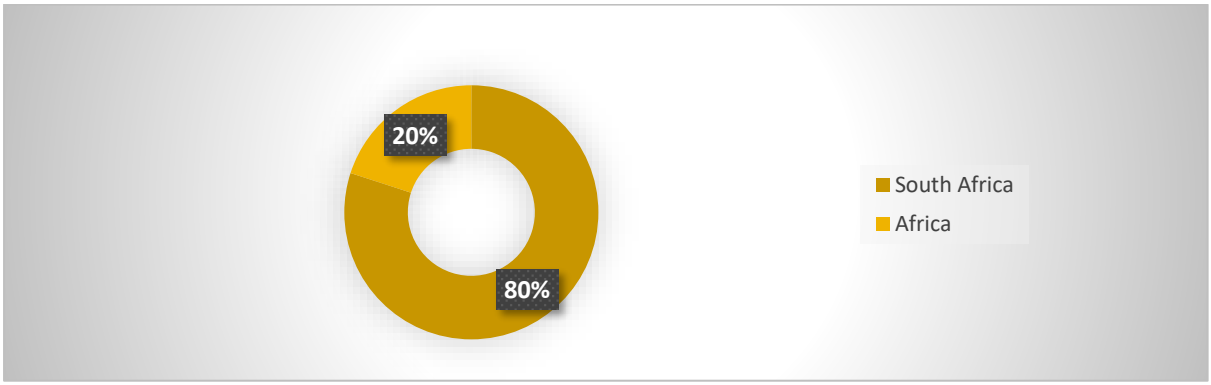
Table 4.1: Robo-advisory and digital wealth management research authors, institutions and country of location.

Author	Articles	Academic Institution	Country (African/ Non-African)
Tafotie, R	1	University of Luxembourg	Non-African
Maumbe, B. M	1	Cape Peninsula University of Technology	African
Mpofu, F. Y	1	Namibia University of Science and Technology	African
Mhlanga, D	1	University of Johannesburg	African
Smith, J	1	University of Cape Town	African
Sarpong, P	1	University of Free State	African
Phillips, K	1	University of Johannesburg	African
Pieterson, J	1	North West University	African
Ferreira- Schenk, S	1	North West University	African
Dickason- Koekemoer, Z	1	North West University	African
Jacobson, R. J.	1	University of Cape Town	African
Huneburg, S	1	University of Johannesburg	African
Sidat, S	1	Nelson Mandela University	African
Matchaba-Hove, T	1	Nelson Mandela University	African

Source: Researchers own construct

Table 4.1 indicates that the University of Johannesburg made a significant (three publications) contribution towards the study of robo-advisory and digital wealth management followed by the University of Cape Town (two publications). All the authors on the 10 publications collected published one article each towards robo- advisory and digital wealth management. Figure 4.2 visualises the countries where research on robo-advisory and digital wealth management in the African continent have been conducted. This figure indicates that South Africa is the only country that has conducted studies in Africa, with just two (20%) studies being in the general African context.

Figure 4.2: Countries where research in Africa has been conducted

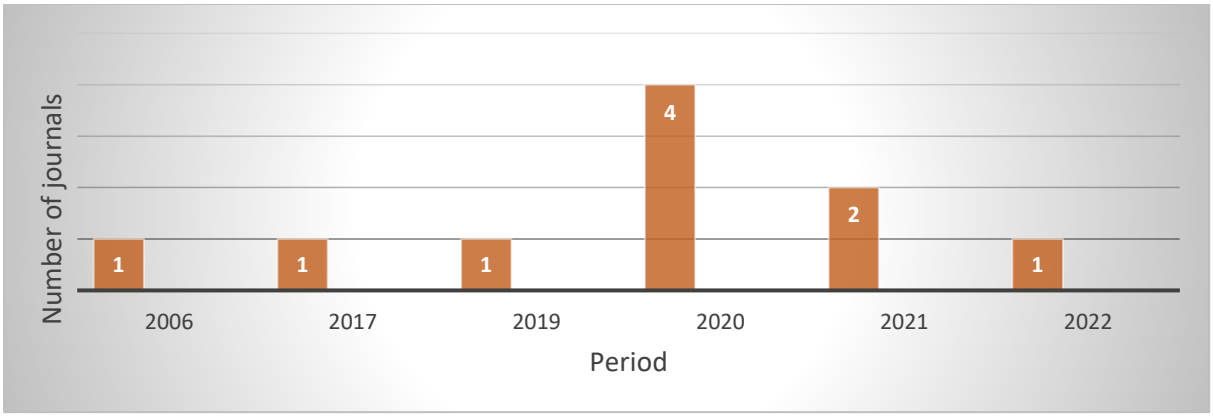


Source: Researchers own construct

4.3 PUBLICATION ACTIVITY AND CITATIONS

The 10 publications collected for this study were published over the period of 2006 to 2022 as depicted in Figure 4.3. The first article on digital financial services was published in 2006 with the most recent being published in 2022.

Figure 4.3: Publication activity



Source: Researchers own construct

As observed in Figure 4.3, the earliest publication was in 2006 by Maumbe, B. M. from the Cape Peninsula University of Technology. The study was titled “Digital Financial Service Delivery to Poor Communities in South Africa: A Preliminary Assessment” which studied the integration of Information Communication Technology (ICT) into financial service delivery in South Africa. It highlighted the rapid growth of ICT and how digital financial services could be extended to previously excluded communities which were poor. There were no publications until 2017 and 2019, where one article was published in each year. The year 2020 saw a drastic increase in publications on digital wealth management and robo-advisory with four articles

being published and a notable decrease in the following year of only two articles. Publications further declined in the year 2022 having just one article published and none thereafter. Notable collaborations were made by Pieterson, J., Ferreira- Schenk, S. and Dickason- Koekemoer, Z. in 2021 including Sidat, S. & Matchaba- Hove, T. in 2021 and by Mpofu, F. Y. and Mhlanga, D. in 2022.

Of the 10 publications reviewed, there was an average of 4.8 citations for each article as tabulated in 4.2. The publication with the highest citation was by Mpofu, F. Y. & Mhlanga, D. with 23 citations, followed by Maumbe, B. M. in 2006 with 18 citations, then by Tafotie, R in 2020 and Sarpong, P in 2020 with three citations. The third most cited article was authored by Sidat, S. and Matchaba- Hove, T. in 2021 with a single citation. Six articles had zero citations which contribute 60% of the number of articles collected for this study.

Table 4.2: Publications with the highest number of citations

Author(s)	Title	Year	Citations
Mpofu, F. Y. & Mhlanga, D.	Digital financial inclusion, digital financial services tax and financial inclusion in the fourth industrial revolution era in Africa.	2022	23
Maumbe, B. M.	Digital financial service delivery to poor communities in South Africa: a preliminary assessment.	2006	18
Sarpong, P	Robo-advisors: exploring and leveraging the competition.	2020	3
Tafotie, R	Fostering digital financial services in Africa: a case of embracing innovation for business and inclusion.	2020	3
Sidat, S. & Matchaba- Hove, T.	Factors influencing the intentions of financial planners to adopt robo-advisors.	2021	1
Phillips, K	Contract law, robo-advisors and financial advisors in South Africa.	2017	0
Jacobson, R. J.	Robo-advising on South African exchange traded funds utilising prospect theory.	2019	0
Smith, J	Constructing low-cost core-satellite portfolios with multiple risk constraints: practical applications to robo advising in South Africa using active, passive and smart-beta strategies.	2020	0
Huneburg, S	The future or robo-advisors in the South African insurance industry: is the South African regulatory framework ready?	2020	0

Pieterson, J., Ferreira-Schenk, S. & Dickason-Koekemoer, Z	Are robots taking-over? technological advancements and investor risk tolerance.	2021	0

Source: Researchers own construct

4.4 JOURNALS

Of the 10 publications analysed in this study, seven were journals and three were Masters academic papers. The seven journal articles were summarised in Table 4.3 below. Each journal had one article published on robo-advisory and digital wealth management in Africa.

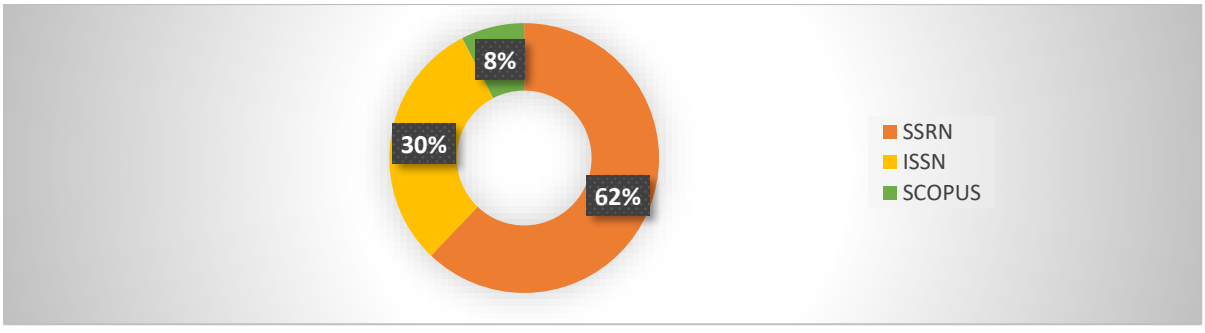
Table 1.3: Academic journals with the highest number of publications

Journal	Articles	Accreditation
South African Mercantile Law Journal	1	ISSN
The Business and Management Review	1	ISSN
Acta Universitatis Danubius	1	ISSN
University of Luxembourg Law Working Paper	1	SSRN
Centre for Financial Planning Studies	1	SSRN
Economies Journal	1	Scopus
International Review of Business Research Papers	1	ISSN

Source: Researchers own construct

The International Standard Serial Number (ISSN) had the highest number of journal publications (four) while the Social Science Research Network (SSRN) had two journal publications. Scopus had the third most journal publications on robo-advisory and digital wealth management in Africa with one publication. Figure 4.4 below summarises and depicts these results.

Figure 2.4: Journal accreditors with the highest number of articles published

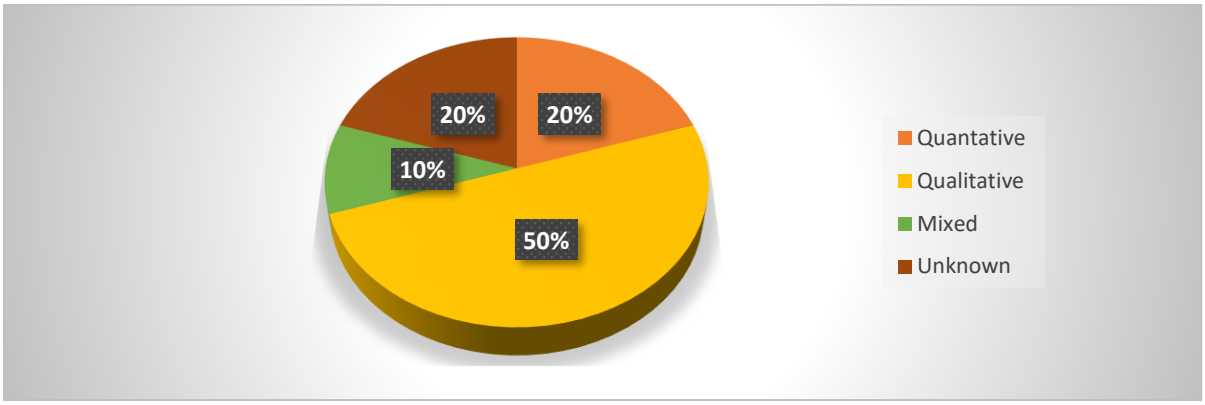


Source: Researchers own construct

4.5 METHODOLOGICAL CHOICES UTILISED IN STUDIES

Figure 4.5 illustrates that just one (10%) study made use of the mixed methods approach while five (50%) adopted a qualitative approach in conducting their studies. Two (20%) of the studies utilised a quantitative research approach while the method for two (20%) of the 10 publications collected could not be determined. This indicates that half of the publications made use of a qualitative methodological approach to gain a deeper understanding of their studies using methods such as interviews, focus groups or case studied. This denotes that half of the publications reviewed on robo-advisory and digital wealth management in South Africa were grounded on theory to inductively develop theories.

Figure 4.3: Methodologies adopted in studies

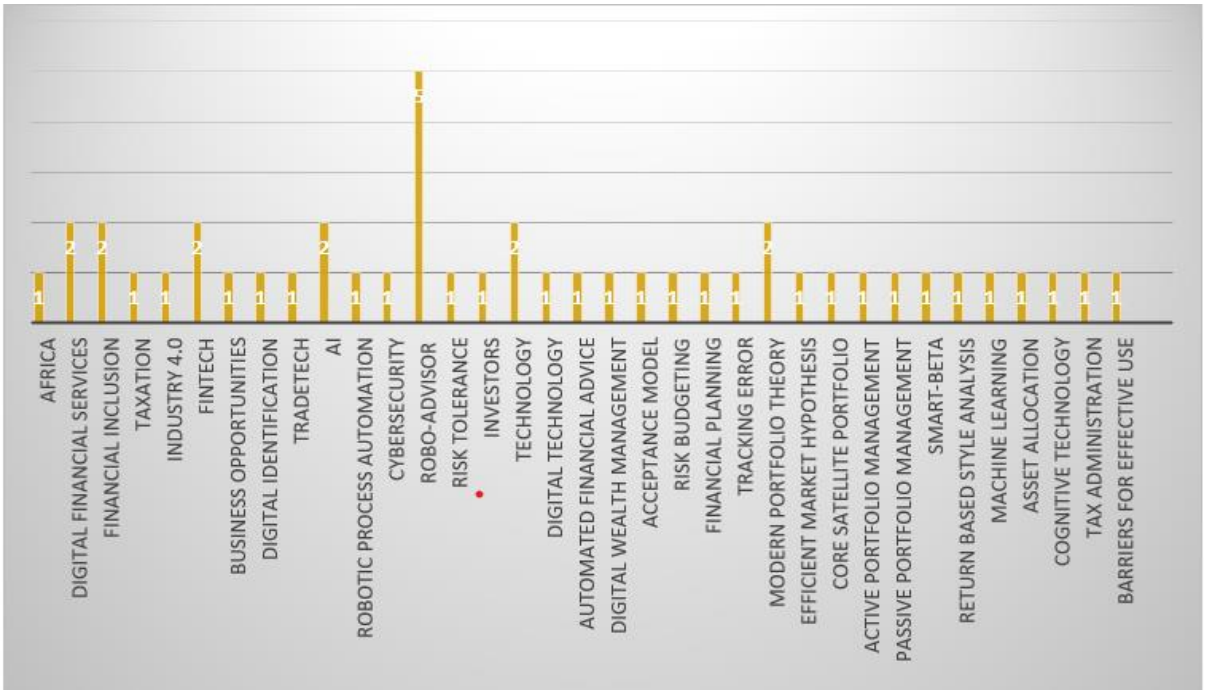


Source: Researchers own construct

4.6 KEY TOPICAL CLUSTERS AND THEMES INVESTIGATED IN STUDIES

The 10 publications obtained on digital wealth management and robo-advisors in Africa revealed that 36 key themes and topics were investigated. Topics and themes that were analysed and synonymous words were grouped under one key word. Figure 4.6 illustrates that the most prevalent key topics were robo-advisor with five occurrences, followed by digital financial services, AI, digital financial inclusion, technology, FinTech and Modern Portfolio Theory with two occurrences each. Words that appeared once include Africa, financial planning and asset allocation. Figure 4.6 summarises and depicts all the key topical clusters and themes that were obtained from the studies.

Figure 4.4: Key topical themes and clusters investigated in studies



Source: Researchers own construct

4.7 CONCLUSION

This chapter presented the empirical findings from the data that was collected in this study. The results presented in this chapter are that of the 10 publications that met the criteria and were subsequently analysed. From these publications, the authors, author location, academic institution and country where research was conducted was highlighted. Furthermore, it presented the publication activity, citations, journals, methodological choices adopted and highlighted key topical clusters and themes that each of these publications focus on. This chapter fulfilled both the primary and secondary objectives of the study together with the fourth methodological objective of this study. The next and final chapter is Chapter Five, which gives a brief overview of the study, discusses the empirical findings, provides the limitations and scope of the study, highlights areas for future research and lastly concludes the study.

5.1 INTRODUCTION

The preceding chapter provided for the detailed discussion of the empirical findings of this study. This final chapter of the study aims to achieve the fifth methodological objective of this study by furnishing the overview of the research conducted in the study, the main empirical findings, conclusions and recommendations. Recommendations will be premised on the empirical findings of this study. The chapter will summarise and conclude by providing the limitations of the study and areas for future research in robo-advisory and digital wealth management in Africa are proposed.

5.2 OVERVIEW OF THE STUDY

Chapter One founded the study by providing an introduction and background of robo-advisory and digital wealth management. This was followed by a description of the problem statement, the purpose of the study and the research and methodological objectives. The primary objective of this study was to conduct a bibliometric analysis of robo-advisor and digital wealth management research in Africa. This chapter described the scope of this study and delimitations, together with the definitions of key concepts. It further provided for the structure of the study, research questions and the significance of conducting this study.

Chapter Two commenced by outlining and explaining the literature review by providing the definition of digital wealth management. It further contextualised and provided the evolution of digital wealth management since its emergence in the early 1900's. It then went on to define and contextualise robo-advisors by highlighting their core process and their relationship with financial planning. Additionally, this chapter emphasised robo-advisor advantages, limitations and compared robo-advisors against traditional financial advisors. This chapter concluded by discussing previous research on digital wealth management and robo-advisory.

Chapter Three gave insight into the research design and methodology the study utilised. Premised on the study being a bibliometric analysis, it made use of the positivistic research philosophy, quantitative methodological choice and a deductive approach to theory development. Moreover, a bibliometric analysis makes use of basic statistical analyses, therefore, the data collected was desktop and archival. The time horizon utilised was cross-sectional since the data was gathered at a specific point in time. The chapter concluded by

defining the ethical considerations of the study and highlighted and described the reliability and validity of the study. This chapter achieved the third methodological objective,

Chapter Four presented the empirical results of the study as it presented and explained the data collected on robo-advisory and digital wealth management in Africa. The publications that met this study's criteria were seven journal articles and three academic papers on robo-advisory and digital wealth management in Africa. Insights into the authors, their location, academic institutions and country where research was conducted was described. Followed by the description of the publication activity and citations of each publication that was analysed. Thereafter, the academic journals were identified in which the articles were published. Furthermore, the methods each article made use of was reported and key topical clusters and themes each article investigated were summarised and depicted to conclude the chapter. The primary objective, secondary objectives and fourth methodological objective were achieved in this chapter.

The overview of this study substantiates the accomplishment of the primary objectives, secondary objectives and methodological objectives as summarised below in Table 5.1. This table further summarises the chapters in which each study objective was achieved.

Table 2.1: Research design and methodologies adopted for present study

Study Objectives	**Relevant Chapter/s**
Primary objective	
To conduct a bibliometric analysis by investigating and analysing robo-advisor and digital wealth management research in Africa by summarising the existing bodies of research and knowledge by identifying topics under study, research themes, methodologies, authors, academic institutions and country where research was conducted.	Chapter 4
Secondary objectives	
To profile financial planning/finance journal publications in terms of the institution where the robo-advisory and digital wealth management research was conducted and year of publication, as well as authors and their affiliate institutions.	Chapter 4
To profile financial planning/finance journal publications on robo-advisors and digital wealth management in terms of theories used and methodologies adopted.	Chapter 4
To identify and describe key topical clusters and themes within digital wealth management and robo-advisor research in Africa.	Chapter 4
Methodological objectives	

To undertake a theoretical investigation into the nature and importance of robo-advisors in general and in relation to digital wealth management, the evolution of the field and research done to date on robo-advisors and digital wealth management globally and in an African context.	Chapter 2
To determine the research methodology best suited for addressing the identified research problem and objectives.	Chapter 3
To develop an appropriate framework for categorising and analysing the collected data.	Chapter 3 Chapter 4
To analyse the publications making up the study's data set so as to achieve the objectives of the study.	Chapter 4
To provide conclusions and propose practical recommendations to future researchers on what gaps digital wealth management research on robo-advisors in Africa needs to be addressed.	Chapter 5
Research questions	
What prompted the emergence of FinTech's and the rise of robo-advisors in digital wealth management?	Chapter 2
What are robo-advisors and how do they compare to traditional advisors?	Chapter 2
What research has been conducted in Africa on digital wealth management by whom, when and where?	Chapter 4
How does digital wealth management and robo-advisory link to financial planning?	Chapter 2

Source: Researchers own construct

5.3 DISCUSSION OF MAIN FINDINGS AND RECOMMENDATIONS

This section will discuss the main findings of this study in the sections below and propose recommendations.

5.3.1 THE AUTHORS, AUTHOR LOCATION, ACADEMIC INSTITUTION AND COUNTRY WHERE RESEARCH WAS CONDUCTED

The reviews of the 10 publications reveal that there were 14 authors from eight academic institutions who have researched robo-advisory and digital wealth management in Africa. Out of the 14 authors, one was outside of the African continent, one was located in Kenya while the remaining authors were located in South Africa. The institutions with the most research on the field in the African context were the University of Johannesburg with three publications, followed by the University of Cape Town with two publications. Additionally, two publications out of the 10 focused their research on the African continent while the remaining eight publications conducted their research in South Africa. Given these results, it is evident that not only is research in robo-advisory and digital wealth management in Africa in its infancy, but the available literature is completely biased as 80% of it provides for the South African perspective. More research thus needs to be conducted on other African countries to

specifically provide an overview and understanding of robo-advisory and digital wealth management in Africa, so scholars are able to gain an enhanced comprehension that is non-Western on the field. It is thus recommended that more authors and institutions in Africa conduct research on robo-advisory and digital wealth management on the remaining 53 countries.

5.3.2 PUBLICATION ACTIVITY AND CITATIONS

Of the 10 publications, there was an average of 1.6 publications from years 2006 to 2022, with the year 2020 having the highest publication activity of four (40%) followed by year 2021 with just two (20%) publications. Additionally, there was average of 4.8 citations for each article that was reviewed with the highest publication having 23 citations authored by Mpofu, F. Y. and Mhlanga, D. It is noteworthy to mention that this article was published in the Economies Journal that is accredited by Scopus. Furthermore, 50% of the articles reviewed had zero citations with three out of the five not having been published in journals. Premised on these results, recommendations are that African scholars should not only conduct more research to increase publication activity but should also increase their citation numbers by actively seeking to publish their research in internationally accredited journals. Authors should actively publicise their work through engaging and partaking in academic social networking platforms for greater exposure and quality of work. Lastly, authors should also aim to publish their studies in online journals that are open access for a wider reach.

5.3.3 JOURNALS

The analysis of the articles under review show that of the 10 articles reviewed, seven were published in a variety of academic journals, with each journal having one publish. The accreditation with the most publication was ISSN with four publishes followed by SSRN with two publishes and three articles not being published in accredited journals. It is recommended that authors publish their studies in journals where research on robo-advisory and digital wealth management is centralised. Furthermore, it is imperative that authors publish their studies with accredited journals which allows for peer review and provide input for development for future research through presentations at international conferences (Muhfiatun, Wijayanti, Prasojo, Syarifah & Hadinata 2021:152).

5.3.4 METHODOLOGICAL CHOICES UTILISED IN STUDIES

The methodological findings indicate that half of the publications analysed made use of non-numerical data such as experiments, observations, surveys or text as a methodological research choice. Qualitative research can be used to gain in depth insights into the effects of robo-advisors and digital wealth management in Africa and to also generate new ideas for research. It also allows for flexibility compared to quantitative research methods (Bryman, 2006:105). Two (20%) of the studies analysed employed a quantitative research approach which involves collecting and analysing numerical data such as testing hypotheses, measuring variables and statistics. This type of research method allows for more accuracy and objectivity when compared to qualitative research methods (Bryman, 2006:107). Moreover, one (10%) of the publications reviewed made use of a mixed methods research approach which combines both quantitative and qualitative research methods. This enabled the researchers to address complex research questions and to emphasise the validity and reliability of their studies through providing deeper comprehension of their research questions by highlighting both the objective and subjective aspects of their research (Bryman, 2006:111). Noteworthy, the methodologies of two (20%) of the publications reviewed could not be determined.

5.3.5 KEY TOPICAL CLUSTERS AND THEMES INVESTIGATED IN STUDIES

The topics researched most often in the publications reviewed are robo-advisor with five occurrences, financial services, financial inclusion, FinTech, AI, Technology and Modern Portfolio Theory, each with two occurrences. These topics are consistent with the field of digital wealth management and robo-advisory although digital wealth management had one occurrence. This indicates that authors are mostly addressing current topics in the interest of robo-advisory and digital wealth management. Recommendations are that future research should be focused on the foundations of robo-advisory and digital wealth management in Africa. This will provide basis for all other key topical clusters and themes which studies can broadly investigate such as risk tolerance and cyber security.

5.4 LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

This study has made an impactful contribution in robo-advisory and digital wealth management in Africa and in existing bodies of literature in the field. There however were several limitations in the study that should be considered. Firstly, the bibliometric analysis undertaken in the study was desktop research that was restricted to journals and Masters and Doctoral publications. A

bibliometric analysis requires a larger scope and thus a significant number of publications to be reviewed. This study only made use of only 10 publications as they were the only number of publications available that met the criteria of publications to be reviewed for this study. Additionally, due to the database the study utilised, articles could only be obtained on Google Scholar and Google due to their high-quality results although they possibly did not possess some articles in their search index. Thirdly, to be reviewed, publications had to be in English to reach a wider audience and the research partaken had to pertain to robo-advisory and digital wealth management in Africa. Lastly, since the methodological choice for this study utilises a mono method that is quantitative, which is only a single research and data collection approach. This limited the scope and depth of the present study as different perspectives could not be explored.

Recommendations for future research are to not limit upcoming studies to journals and academic papers, but should also include conference papers, books and institution publications to increase the depth and validity of a study. If a bibliometric analysis on robo-advisory and digital wealth management in South Africa is to be conducted, the study should utilise more publications than the current study employs to avoid data collection constraints this present study encountered. Furthermore, future studies should also focus on alternative search engines such as Bing and Yahoo to allow for a larger reach in database. Future studies should not be restricted to English but should be inclusive for countries where English is not predominant as Africa is a diverse continent in languages that are spoken. Moreover, future research should consider a mixed method or a multiple research approach to strengthen validity to allow for a detailed analysis that considers different perspectives and data collection approaches.

5.5 CONTRIBUTIONS OF THE STUDY

This present study seeks to present a systematic overview of robo-advisory and digital wealth management research in Africa to date since no such formal overview has been conducted before as the field is direly understudied. Through this overview, the current study has contributed to existing knowledge of robo-advisory and digital wealth management in Africa by providing insights into robo-advisory and digital wealth management research that has been conducted in Africa. It draws meaningful conclusions on research conducted in Africa. By making use of a bibliometric analysis, this study has been able to investigate and quantify what research has been done by whom, when and where on robo-advisory and digital wealth management in Africa. The study examined authors that have made a notable contribution to

robo-advisory and digital wealth management in Africa. It further examined the various research outputs each researcher made, the methods they adopted in their studies and the research topics each study examines. Subsequently, the study provides insights as well as recommendations to the future research and possible focus areas. This is emphasised by ways to increase publication activity, citations and possible research methods to further explore on robo-advisory and digital wealth management in Africa. By this study furnishing an overview of research done on robo-advisory and digital wealth management, it provides an African context. This study plays a crucial role in contributing to current literature in the field as it will have a positive effect in how future research is conducted to advance research in robo-advisory and digital wealth management in Africa. This bibliometric analysis has provided for the examination and outcomes of robo-advisory and digital wealth management research in Africa.

5.6 FINAL CONCLUSION

The research undertook a bibliometric analysis on robo-advisory and digital wealth management in Africa to quantitatively determine research conducted on the field. Several factors were investigated in the study such as author location and publication activity in robo-advisory and digital wealth management in Africa. The study highlighted limitations and recommendations for future research in an effort to grasp the interest of future researchers in the field to ensure a richer contribution in mapping the field of robo-advisory and digital wealth management in Africa. This will assist in further structuring the foundation in this field and in sparking novel ideas for future researchers in researching fundamental trends and phenomena in Africa that were initially researched in the West and East. The evolution of robo-advisory and digital wealth management in Africa is imperative and thus collaborations and support for future researchers is cardinal.

REFERENCES

Abraham, F., Schmukler, S. L. & Tessada, J. 2019. Robo-Advisors: Investing through Machines. *World Bank Research and Policy Briefs.* 21(1): 1-4.

Baghai, P., Carson, B. & Sohoni, V. 2016. How Wealth Managers can Transform for the Digital Age. [Online]. Available: how wealth managers can transform for the digital age | mckinsey [Accessed: 5 November 2023].

Banerjee, A., Katsuki, F., Kaushik, V., Saxena, A., Suneja, S. & Thomas, R. 2022. Analytics Transformation in Wealth Management. [Online]. Available: https://www.mckinsey.com/industries/financial-services/our-insights/analytics-transformation-in-wealth-management [Accessed: 19 June 2023].

Belanche, D., Casaló, L.V. & Flavián, C. 2019. Artificial Intelligence in Fintech: Understanding Robo-Advisors Adoption Among Customers. *Industrial Management & Data Systems*. 119(7): 1411-1430.

Bhatia, A., Chandani, A., Divekar, R. & Mehta, M. 2021. Digital Innovation in Wealth Management Landscape: The Moderating Role of Robo Advisors in Behavioural Biases and Investment Decision-Making. *International Journal of Innovation Science.* 14(3/4):693-712.

Bhosale, U. 2023. How to Choose Best Research Methodology for your Study. [Online]. Available: https://www.enago.com/academy/choose-best-research-methodology/ [Accessed: 8 July 2023].

Bromberg, M. 2023. Robo-advisor: Advantages and Disadvantages. [Online]. Available: robo-advisor: advantages and disadvantages (investopedia.com) [Accessed: 30 November 2023].

Bryman, A. 2006. Integrating Quantitative and Qualitative Research: How is it done? *Qualitative Research*. 6(1): 97-113.

CFI Team. n.d. Robo-Advisors. [Online]. Available: robo-advisors - overview, features, advantages and limitations (corporatefinanceinstitute.com) [Accessed: 4 November 2023].

Chhatwani, M. 2022. Does Robo-Advisory Increase Retirement Worry? A Causal Explanation. *Managerial Finance.* 48(4): 611-628.

Cocca, T. 2016. Potential and Limitations of Virtual Advice in Wealth Management. *Journal of Financial Transformation*. 44(1): 45-57.

Coombs, C & Redman, A. 2018. The Impact of Robo-Advice on Financial Advisers: A Qualitative Case Study. *UK Academy for Information Systems Conference Proceedings.* 17(1):1-24.

Cull, M. 2009. The Rise of the Financial Planning Industry. *Australasian Accounting, Business and Finance Journal*. 3(1):26-37.

Dautovic, G. 2022. Robo-Advisors vs. Financial Advisors: Which One is Right for You? Available: https://fortunly.com/articles/robo-advisors-vs-financial-advisors/ [Accessed: 26 June 2023].

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. & Lim, W. M. 2021. How to Conduct a Bibliometric Analysis: An Overview and Guidelines. *Journal of Business Research.*133(1): 285-296.

Dudovskiy, J. 2022. The Ultimate Guide to Writing a Dissertation in Business Studies: A step-by-step assistance. 6th ed. [Online]. Available: https://research-methodology.net/research-philosophy/ [Accessed: 7 July 2023].

Dziawgo, T. 2021. Wealth Tech Impact on Wealth Management Sector. *European Research Studies Journal.* 24(3B): 141-151.

D'Acunto, F., Prabhala, N. & Rossi, A. G. 2018. The Promises and Pitfalls of Robo-Advising. *The Review of Financial Studies.* 32(5): 1983-2020.

D'Acunto, F. & Rossi, A. G. 2020. Robo-Advising. CESifo Working Paper 8225.

Fein, M. L. 2015. Robo-Advisors: A Closer Look. *SSRN Electronic Journal.* [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2658701 [Accessed:13 June 2023].

FiFifinance. n.d. Discover the Best Digital Wealth Management Platforms of 2023. [Online]. Available: discover the best digital wealth management platforms of 2023 | fifi finance [Accessed: 14 September 2023].

Fisch, J. E., Labourè, M. & Turner, J. A. 2018. The Emergence of the Robo-Advisor. *Wharton Pension Research Council Working Papers.* [Online]. Available: https://repository.upenn.edu/prc_papers/10?utm_source=repository.upenn.edu%2Fprc_papers%2F10&utm_medium=PDF&utm_campaign=PDFCoverPages [Accessed: 15 June 2023].

Fulk, M., Grable, J. E., Watkins, K. & Kruger, M. 2018. Who Uses Rono-Advisory Services and Who Does not?. *Financial Services Review.* 27(1): 173-188.

Frankenfield, J. 2023. What is a Robo-Advisor?. [Online]. Available: what is a robo-advisor? (investopedia.com) [Accessed: 7 November 2023].

Friedberg, B. A. 2023. Which Robo-advisors Offer Tax-loss Harvesting?. [Online]. Available: robo-advisors with tax-loss harvesting - pay uncle sam less (roboadvisorpros.com) [Accessed: 6 November 2023].

Ganatra, M. & Jain, A. 2021. What is a Robo-Advisor and How Does it Work? [Online]. Available: https://www.forbes.com/advisor/in/investing/what-is-a-robo-advisor-and-how-does-it-work/ [Accessed: 25 June 2023].

Ganti, A. 2022. Wealth Management: What It Is and What Wealth Managers Charge. [Online]. Available: https://www.investopedia.com/terms/w/wealthmanagement.asp [Accessed: 29 July 2023].

Heit, E., & Rotello, C. M. 2010. Relations Between Inductive Reasoning and Deductive Reasoning. *Journal of Experimental Psychology: Learning, Memory, and Cognition.* 36(3): 805–812.

Hodge, F. D., Mendoza, K. I. & Sinha, R. K. 2020. The Effect of Humanizing Robo-Advisors on Investor Judgements. *Contemporary Accounting Research, Forthcoming.* 38(1):770-792.

Hox, J. J. & Boeije, H. R. 2005. Data Collection, Primary versus Secondary. *Encyclopaedia of Social Measurement.* 1(1): 593-599.

Kagan, J. 2023. Financial Technology (FinTech): Its Uses and Impact on our Lives. [Online]. Available: financial technology (fintech): its uses and impact on our lives (investopedia.com) [Accessed: 5 November 2023].

Kheira, T. 2021. Financial Technology Prospects in The Middle East and Africa. *Journal of Economic Growth and Entrepreneurship JEGE.* 4(3):14-25.

Lincoln, Y. S. & Guba, E. S. 1985. Naturalistic Inquiry. California: Sage.

Lopez, J. C., Babcic, S. & De La Ossa, A. 2015. Advice Goes Virtual: How New Digital Investment Services are Changing the Wealth Landscape. *Journal of Financial Perspectives.* 3(3): 1-27.

Luo, A. 2023. Content Analysis. Guide, Methods & Examples. [Online]. Available: https://www.scribbr.com/methodology/content-analysis/ [Accessed: 9 July 2023].

Medlicott, A. 2022. Robo-Advisors vs. Human Advisors: The Pros and Cons. [Online]. Available: https://investingreviews.co.uk/blog/robo-advisors-vs-human-advisors/ [Accessed: 23 June 2022].

Meyer, D. S., Uhr, C. & Johanning, L. 2021. Private Investors and the Emergence of Neo-Brokers: Does Payment for Order Flow Harm Private Investors?. [Online]. Available:

https://assets.traderepublic.com/assets/files/202111_study_private_investors_and_the_emergence_of_neo_brokers.pdf [Accessed: 18 June 2023].

Muhfiatun, M., Wijayanti, D. M., Prasojo, P., Syarifah, L. and Hadinata, S. 2021. The Role of Research Workshops is to Increase Publication Interest in Accredited Journals. *Journal of Islamic Economy and Community Engagement*. 2(2): 151-160.

Murali, S. & Subbakrishna, K. R. 2018. Personal Financial Planning (Wealth Management). [Online]. Available: https://www.himpub.com/documents/Chapter2753.pdf [Accessed: 20 June 2023].

Nguyen, M. 2023a. Distinguishing between Case Studies and Experiments. [Online]. Available: distinguishing between case studies & experiments | what's different (whats-different.com) [Accessed: 3 November 2023].

Nguyen, M. 2023b. Distinguishing between Case Studies and Survey Methods. [Online]. Available: distinguishing between case study & survey methods | what's different (whats-different.com) [Accessed: 3 November 2023].

Nguyen, T. P. L., Chew, L. W., Muthaiyah, S., The, B. H. & Ong, T. S. 2023. Factors Influencing Acceptance of Robo-Advisors for Wealth Management in Malaysia. *Cogent Engineering.* 10(1): 1-13.

Ostern, N. K., Schöler, J. and Moorman, J. 2020. Toward Voice-Enabled Robotic Advisory for Personalized Wealth Management. *BIT. Numerical Mathematics.* 21(1): 45-55.

Pandis, M. 2014. Cross-sectional Studies. *American Journal of Orthodontics and Dentofacial Orthopedics.* 146(1):127-129.

Park, J. Y., Ryu, J. P & Shin, H. J. 2016. Robo-Advisors for Portfolio Management. *Advanced Science and Technology Letters.* 141(21):104-108.

Phoon, K. F. & Koh, C. C. F. 2018. Robo-Advisors and Wealth Management. Journal of Alternative Investments. 20(3):79-94.

Rossi, A. G & Utkus, S. 2018. Who Benefits from Robo-Advising? Evidence from Machine Learning. *SSRN Electronic Journal*. [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3552671 [Accessed: 22 June 2023].

Rourke, C. T. 2019. Leveraging the Competition: How Wealth Managers can use Robo-advisors to their Advantage. Honours thesis, University of Iowa. Available: https://iro.uiowa.edu/view/pdfCoverPage?instCode=01IOWA_INST&filePid=13811799910002771&download=true [30 July 2023].

Salampasis, D., Mention, A. L. & Kaiser, A. O. 2017. Wealth Management in Times of Robo: Towards Hybrid Human-Machine Interactions. *SSRN Electronic Journal.* [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3111996 [Accessed: 13 June 2023].

Sarwa. n.d. What is Digital Wealth Management: How Investing Became Made for Everyone. [Online]. Available: https://www.sarwa.co/blog/what-is-digital-wealth-management [Accessed: 26 June 2023].

Saunders, M., Lewis, P. & Thornhill, A. 2016. Research Methods for Business Students. 7th ed. London: Pearson education limited.

Schiff, D & Taylor, A. 2016. Key Trend in Digital Wealth Management- and what to do about them. [Online]. Available: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/key-trends-in-digital-wealth-management-and-what-to-do-about-them [Accessed: 28 June 2023].

Scribbr. n.d. The Beginners Guide to Statistical Analysis. 5 Steps & Examples. [Online]. Available: https://www.scribbr.com/category/statistics/ [Accessed: 9 July 2023].

Singh, I & Kaur, N. 2017. Wealth Management Through Robo Advisory. *International Journal of Research- Granthaalayah.* 5(6):33-43.

Spielman, R. M., Jenkins, W. J. & Lovett, M. D. 2020. Psychology 2e. 2nd ed. Houston: Openstax.

Surbhi, S. 2020. Difference Between Primary and Secondary Data. [Online]. Available: difference between primary and secondary data (with comparison chart) - key differences [Accessed: 1 November 2023].

Tretina, K. 2023. Robo-advisor vs. Financial Advisor: What's the Difference?. [Online]. Available: robo-advisor vs. financial advisor: what's the difference? – forbes advisor [Accessed: 30 November 2023].

UKEssays. 2018. Comparison between Research Methodologies: Experiments, Surveys, and Case Studies. [Online]. Available: comparison between research methodologies: experiments, surveys, and case studies (ukessays.com) [Accessed: 3 November 2023].

Warschauer, T. 2002. The Role of Universities in the Development of the Personal Financial Planning Profession. *Financial Services Review*. 11(1): 201-216.

ANNEXURE A: PREVIOUS ROBO-ADVIOSRY AND DIGITAL WEALTH MANAGEMENT RESEARCH

Author(s)	Year	Origins of published article	Objectives/ purpose	Main findings
North America				
Shojai, S	2015	USA	Investigates how companies use innovative technology and how this affects the future.	Emergence of digital entrants into wealth management space will change industry in several ways.
Fein	2015	USA	To examine whether infact robo-advisors provide personal investment advice, minimize costs and are free from conflicts of interest.	Robo-advisors are not free from conflicts of interest and don't minimize investment costs and don't act in clients' best interest.
EY	2015	USA	To explore new firms to understand the innovations they are offering and their aspirations for the future and answer some of the questions many in the industry are asking.	Emergence of digital entrants into the wealth management space will indeed change the industry in several ways.
Traff	2016	USA	To examine the major trends impacting the wealth management industry	Traditional wealth managers need to adapt to keep pace with the changing times, whether it's client preferences, regulatory changes, or technological advancement, but innovation was always going to

				be the course of action for a financial services company.
Fisch *et al.*	2018	USA	Examines how technology is transforming financial applications.	Robo-advisors can give financial advice to people who can't afford it from traditional advisors and are less likely to have conflicts of interest related to the products they sell.
D'Acunto *et al.*	2018	USA	To examine the uptake of the tool and assess its impact on investors' financial decision-making.	Undiversified investors increased their portfolio diversification and displayed higher performance in terms of market-adjusted portfolio returns. Highly diversified investors traded more, and their trading activity didn't translate to better performance.
Fulk *et al.*	2018	USA	The purpose of this study was to compare the demographic, altitudinal, and behavioral characteristics of U.S. consumers in their current and expected use of robo-advisory services, traditional financial planning services, or a combination of the two services.	Main users for robo-advisors generally had lower income and net worth, had received less or no inheritance and were less financially impulsive.
Rossi & Utkus	2018	USA	To study the effects of the largest US robo-adviser, Vanguard Personal Advisor Services (PAS) on investor performance.	The investors that benefit the most from robo-advising are the clients with little investment experience, as well as the ones that have high

				cash-holdings and high trading volume pre-adoption.
Wong & Pocock	2018	USA	Gives understanding on cryptocurrencies and other digital assets, technology that drives it, how value is derived and how you can invest in it	Operating environment around digital assets is maturing which will bring in a stabilizing force that will help make it a sustainable asset class.
Maume	2019	USA	Robo-advisory doesn't include automated asset management and is significantly different from traditional advisory in that it relies on software-based advice and thus requires different approaches to regulation.	In applying the existing rules to robo-advisors, the rules should not be interpreted to create a level playing field for all market participants. This is because a general level of quality needs to be maintained and effective redress for mistakes needs to be granted.
Rourke	2019	USA	To investigate the threat of robo-advisors to the wealth management industry as trends show the increased propensity of the Millennial and Gen Z generations to migrate away from traditional financial advisors.	Research indicates that millennials, and members of age cohorts born after the millennial group, are increasingly moving towards investing via robo-advisor platforms.
D'Acunto & Rossi	2020	USA	To describe the main features of robo-advising and the proposal of a taxonomy that of robo-advisors based on four defining	They conclude by identifying and elaborating on five different open issues in robo-advising that give rise to theoretical and empirical research by scholars in economics, finance, psychology, law,

			dimensions: personalization, discretion, involvement and human interaction.	philosophy, as well as regulators and industry practitioners.
Hodge *et al.*	n.d	USA	To investigate the effect of humanizing robo-advisors in investor judgement.	Participants are more likely to rely on the advice of a named human advisor compared with an unnamed human advisor and task complexity is an important factor that affects how investors perceive a named robo-advisor.
			Asia	
Park *et al.*	2016	South Korea	Investigate the effectiveness of the robo-advisor, basic principle of performance and current state of USA's robo-advisor management corporation.	Investment philosophies for robo-advisors is similar though each robo-advisors uses different approaches in selecting asset types and assets to invest in.
Singh & Kaur	2017	India	To highlight the potential of robo advisors in wealth management and also discusses its present status and future prospects.	There is an undeniable rise in the use of robo-advisors, they may not be appropriate for everyone, but they offer a valuable complimentary service.
Phoon & Koh	2018	Singapore	Are robo-advisors adequately meeting customer needs, gaps in client service and services that re needed but not served.	Robo-advisors lack personal customization, human judgement may still be needed to solve more complex problems. Robo-advisors may still replace wealth managers although more sophisticated investors as well as high net worth

				clients may stay with their asset managers, private bankers and their wealth managers.
Murali & Subbakrishna	2018	India	Defines and contextualises financial planning and personal financial planning and its uses.	Every individual needs financial planning and goal planning is very important.
Bhatia *et al.*	2021	India	Examines the usage of robo-advisory services in investment decision making and behavioural biases.	Usage of robo-advisors by individual investors is incapable of mitigating behavioural biases.
Chhatwani	2022	India	Examining the effect of robo-advisory of retirement worry.	Lack of human intervention while relying on automated financial advice leads to increased retirement worry.
Nguyen *et al.*	2023	Malaysia	To examine the factors influencing the acceptance of Robo-advisors in wealth management in Malaysia.	The study provided a positive insight into factors influencing the acceptance of Robo-Advisors in Malaysia.
			Europe	
Rättyä	2016	Finland	Examines robo-advisory market in the U.S. and Europe, with the goal of determining the international potential for a Finnish robo-advisor service and inspecting the interest of foreign service providers in the Finnish market.	The robo-advisory service in the US has been significant. The Nordic financial markets are lagging with only a limited offering of robo-advisor services. Sweden is the most advanced with two platforms.

Nowak	2017	Poland	Cost comparison of traditional retirement products with innovative FinTech solutions.	Robo- advisors and EFT's (exchange traded funds) are more cost effective which makes investing more accessible and increases future retirement.
Reddavide	2018	Italy	Main objective is to present and outline in the most effective way possible the ongoing transformation of wealth management industry.	Robo-advisory has caused a wav e of change in the financial industry, prospective adopted models will thus result in an assembly of human and machine natures, giving birth to ad-hoc hybrid constructs.
Jung & Weinhardt	2018	Germany	Undertaking a choice architecture approach to investigate the use of such robo-advisors to overcome biased financial decision-making, in particular on decision inertia in investment decisions.	There was a possibility of reducing financial decision inertia by robo-advisor design, and it suggests that financial planning tools can help users to overcome their financial decision biases.
Beketov *et al.*	2018	Germany	Gather and analyze the freely available information about asset allocation and portfolio optimization methods applied in robo-advisors worldwide.	Companies that use more sophisticated methods attract higher overall AuM and robo-advisors methodological landscape with the current state-the-art methods shows clear gap between methods applied in robo-advisors and newer methods.
Belanche *et al.*	2019	Spain	Proposing a research framework to better understand robo-advisor adoption by a wide range of potential customers.	Consumers' attitudes towards robo-advisors with mass media and interpersonal subjective norms are determinants of adoption. Influences of

				perceived usefulness and attitude are slightly higher for users with a higher level of familiarity with robots.
Adam et al.	2019	Sweden	The investigation of anthropomorphism and personalized anchors in recommendations as IS design elements in the context of robo-advisory for investment decisions.	Results indicate that anthropomorphism and personalized anchors in recommendations lead to higher social presence which in turn lead to increased investment volumes.
Ostërn et al.	2020	Germany	Proposing a voice-enabled RA for personalized wealth management, capable of recognizing users' speech and sentiments due to Natural Language Processing that is moreover capable of reacting on real-time market developments due to direct access and processing of financial market information.	Future research needs to provide for more personalised investment proposal as their prototype needs to be evaluated and developed more to produce advanced prototypes.
Dziawgo	2021	Poland	Digital transformation as a key trend in wealth management and wealth tech impact on wealth management sector globally.	Wealth tech has emerged as a significant part of wealth management due to rapid digital transformation, strong reliance on major technologies thus role of wealth tech will be more significant and attract more clients.
South America				

ANNEXURE A: PREVIOUS ROBO-ADVIOSRY AND DIGITAL WEALTH MANAGEMENT RESEARCH

Abraham *et al.*	2019	Chile	Examines how policy and law makers struggle with the impact of robo-advisors on overall financial system and how they reassess their practices.	Proper regulation and supervision are key to success of robo-advisors, regulators would have to develop new skills to supervise robo-advisors effectively.
			Australia	
Cull	2009	Australia	Defining and highlighting historical origins of financial planning.	Professionalism is of the utmost importance in financial planning in light of the increased pressure for change in remuneration practice in the industry.
Salampasis *et al.*	2017	Australia	To investigate a hybrid advisory model for complex investment portfolios.	The complexity can be both intensive and extensive and thus the combinative forces of robo and human advisory need to be mobilized in order to provide a desirable, feasible and viable advice on these complex investment portfolios.
			Africa	
Jacobson	2019	South Africa	South African financial institutions have their own robo-advisors, and this paper investigates the possibility of a robo-advising platform existing outside of these financial institutions.	Main findings suggest that independent robo-advisers are possible in South Africa and a minimum viable implementation is presented.

NELSON MANDELA UNIVERSITY

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

ETHICAL CONSIDERATIONS FOR ADVANCED DIPLOMA/HONOURS/POSTGRADUATE DIPLOMA FOR NON-PUBLICATION PURPOSES

INSTRUCTIONS

- This form must be completed by student with the relevant explanation by and support of the supervisor and the student.
- It must be signed off by the student, supervisor and HoD.
- Submit the completed form to Ms Lindie van Rensburg lindie.vanrensburg@mandela.ac.za.
- Please ensure that the research methodology section from the proposal is attached to this form.

Please note that by following this ethics route, the study will NOT be allocated an ethics clearance number.

SECTION A – STUDENT ACKNOWLEDGMENT

In completing this form I, _____Yonela Peter _____ (name and surname), acknowledge that my research project is for academic qualification purposes only. As such, the research report or any sections thereof may not be published in any publication, including an accredited journal.

I further acknowledge that my research project will be a desktop study and will only make use of publicly available documents or secondary data. No human subjects/ participants/ respondents will be involved in the study.

I understand that secondary data in this instance refers to data that was collected and processed by someone else for some other purpose but is now being used by the researcher for another reason (Tripathy, 2013). Research utilizing secondary data that both exists and has been

collected in a public, academic database, for example Google Scholar, is considered desktop research and generally does not require full ethical approval (Creswell & Poth 2017).

SECTION B – STUDENT AND RESEARCH PROJECT DETAILS

Student name & surname	Yonela Peter
Student number	215134389
Study title	A Bibliometric Analysis of Robo-Advisor and Digital Wealth Management Research In Africa
Year of registration	2023
Qualification	**BCom Honours Business Management**
Department	**Business Management**
Supervisor	**Miss S Sidat**

SECTION C – ETHICS CRITERIA

In completing my research project, I hereby acknowledge that I have read and understand the following important considerations as they apply to my study. I indicate this by placing a tick next to each statement.

I acknowledge that my study is based on the analysis of secondary data and that the following conditions apply:

1.	There are no human subjects/participants/respondents in my study and as such there will be no collection and use of data from human subjects/participants/ respondents though administering/distributing any questionnaire/survey or by holding any form of interview.	✓
2.	As there are no human subjects/participants/respondents in my study, it does not pose any risk of harm, embarrassment or offence, however slight or temporary, to any human participant, third parties or communities at large.	✓

3.	As there are no human subjects/participants/respondents in my study, it will not utilise human subjects defined as 'vulnerable' in terms of age, physical characteristics and/or disease status.	✓
4.	The secondary data that will be utilised in this study does not require the consent of any institutional or government authority established to protect vulnerable people.	✓
5.	The secondary data that will be utilised for this study does not require access to data from any existing, stored repository (e.g. school, institutional or university records) that can be linked to human subjects.	✓

It is acknowledged that both supervisor and student have given the study the necessary research ethical consideration and confirm that full ethics approval is not required.

21 June 2023

SUPERVISOR(S) **DATE**

2023/06/21

HEAD OF DEPARTMENT DATE

29/05/2023

STUDENT(S) DATE

NELSON MANDELA UNIVERSITY

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

LEARNING AGREEMENT BETWEEN STUDY LEADER AND POSTGRADUATE STUDENT FOR BCOM HONS MINI-TREATISE QUALIFICATIONS

The aim of this learning agreement is to provide postgraduate students and their study leaders an opportunity to develop a sound and productive working plan. This document should be read in conjunction with the following Nelson Mandela University Policy documents:

- The General Prospectus
- Faculty of Business and Economic Sciences Prospectus
- University Code of Ethics Policy
- Policy on Intellectual Property
- Promotion of Academic Integrity and Prevention of Plagiarism

These documents are available on the Nelson Mandela University's website (http://my.mandela.ac.za/default.asp?id=308&IRCno=) and are available on request from Ms Lindie van Rensburg (lindie@mandela.ac.za).

The Faculty of Business and Economic Sciences requires all postgraduate students and their study leader(s) to complete a learning agreement. Postgraduate students and their study leader(s) should discuss the issues outlined in this agreement, to have clarity and consistency regarding the conduct of the Postgraduate student and study leader.

The postgraduate student and study leader should keep a copy of this learning agreement, including a copy send to Prof Miemie Struwig

(Miemie.struwig@mandela.ac.za).

PART A: DETAILS OF POSTGRADUATE STUDENT, STUDY LEADER(S) AND QUALIFICATION

NAME & SURNAME:	Yonela Peter
STUDENT NUMBER:	215134389
QUALIFICATION:	BCom Honours in Business Management
YEAR OF REGISTRATION:	2023
DEPARTMENT:	BUSINESS MANAGEMENT
STUDY LEADER:	MISS S SIDAT

PART B: ROLES AND RESPONSIBILITIES OF THE POSTGRADUATE STUDENT AND STUDY LEADER(S) POSTGRADUATE STUDENT:

As a postgraduate candidate, the student is expected to apply him- or herself to meeting the following reasonable responsibilities.

The postgraduate Student accepts and undertake the following responsibilities:

DESCRIPTION	INITIAL
Complete all the required components of the academic programme as stipulated.	
Plan and execute the research study as agreed to with the guidance of the study leader (and co-study leader, where applicable).	
Ensure that the research proposal (Chapter 1-3) is submitted at the stipulated date.	
Adhere to the principles of accepted safety and health standards, ethical research practice as per Nelson Mandela University Code of Conduct for Researchers (IRC 404.01), Policy on Research Ethics (IRC 404.02), specific codes of the discipline (where applicable) and conventions regarding plagiarism as per Nelson Mandela Policy for the Promotion of Academic Integrity and Prevention of Plagiarism (IRC 305.04).	
Make regular appointments with study leader(s) to update study leaders(s) on progress or any difficulties encountered in executing the academic project as planned to ensure timeous remedial action where required.	
Keep written record of supervision sessions and the decisions agreed to.	
Submit regular outputs from the academic project to ensure effective guidance and input by study leader(s).	
Ensure that written work submitted has been proofread and of an acceptable academic standard.	
Ensure that the necessary amendments or revisions decided upon with study leader(s) are made regularly and resubmitted as agreed for further guidance.	
Take responsibility for the final production of the treatise for examination and final submission at the specified dates.	
Submit a manuscript to the study leader prior to the time of the approval of examiner reports (for purpose of awarding the doctoral degree).	
The postgraduate student has read all the relevant strategic and policy documents related to their relevant qualification.	
The postgraduate student has familiarised him- or herself with the internet-based plagiarism detection service; Turnitin software.	
The postgraduate student endeavours to partake in workshops and training related to the research project	

STUDY LEADER / CO-STUDY LEADER:

The responsibilities outlined below are reasonable expectations of academics or any other persons who are undertaking the supervision of candidates.

The study leader(s) accepts and undertake the following responsibilities:

DESCRIPTION	INITIAL

Clarify respective roles of student, study leader, and co-study leader (where relevant) to ensure that student and study leader (s) are clear about channels of communication as well as expectations. Preferably such clarification should be contained in a study leadery or learning agreement	S.S
Confer or make contact with the student regularly (minimum once a month) to provide academic guidance to ensure the development of research skills and competencies relevant to the discipline and the specific study, and to ensure adherence to university requirements and/or discipline standards.	S.S
Monitor progress of the student and submit reports on student progress as required by the university and by relevant scholarship funding bodies.	S.S
Keep a record of supervision sessions and provide feedback, within the timeframe agreed upon, to enable student progress.	S.S

Study leaders must maintain an adherence to accepted safety and health standards, as well as ethical research practice as per Nelson Mandela University Code of Conduct for Researchers (IRC 404.01), Policy on Research Ethics (IRC 404.02), specific codes of the discipline (where applicable) and conventions regarding plagiarism as per Nelson Mandela Policy for the Promotion of Academic Integrity and Prevention of Plagiarism (IRC 305.04) and advise their students to maintain these standards as well.	S.S
Provide the relevant information to the student so that the candidate submits the treatise for examination and final submission on the correct date and format.	S.S
The study leader(s) to consult Turnitin report submitted by the student to the internet-based plagiarism detection service; Turnitin software.	S.S

PART C: TERMS OF LEARNING AGREEMENT

FREQUENCY OF COMMUNICATION		
The contact details of the study leader(s) were provided to the postgraduate student.	**YES** X	**NO** ☐
Specify frequency and communication channel for meetings (i.e. telephone, email, face-to-face).	• Communication: At least once every second week • Meetings: Monthly and anytime upon request by student where an appropriate meeting time will be set up • Channel for meetings: teams or in person – depending on preference	
In case of the appointment of a co-study leader(s), how will meetings and communication between all be organised?	Email	
Specify who is responsible for scheduling meetings and how far in advance these meetings should be scheduled.	• Supervisor , or student upon special request. • Three working days in advance	
Specify the procedure for changing the meeting date and time.	• Request via email	
Specify frequency and duration of meetings (approx.).	• Monthly • 30 mins – 1 hour	
Specify who will set the agenda and take notes.	• Student to take notes • Agenda – generally supervisor unless special meeting request made by student	
Clarify whether there will be any expectation regarding regular email communication.	• Yes • Feedback on progress or reasons of delayed submission	
Indicate the availability of communication of study leader during period of research and/or ordinary leave.	• Available for questions and basic discussions • Detailed feedback provided upon return	
List the roles, responsibilities of study leader, co-study leader(s) and student.	Discussed in meeting with student	
Comments:		
RESEARCH PLAN / TIMEFRAME		
Specify the research plan and timeframe	As per the EBML410 study guide. Final Submission in October	
Specify how changes to the research plan / timeframe will be dealt with.	Both parties to agree	
Was the postgraduate student informed of the timeframes	**YES** X	**NO** ☐
Specify remedial action if schedule is not adhered to?	The HoD and Prof Struwig will be consulted	
Comments:		
SUBMISSION OF WRITTEN MATERIAL AND FEEDBACK		
Specify how often written work should be submitted to the study leader(s).	At least once a month	

Specify the timeframe for feedback.	1 – 1.5 weeks after submission	
Specify remedial action if feedback agreement is not adhered to?	The HoD and Prof Struwig will be consulted	
ETHICS APPROVAL		
	YES	**NO**
The postgraduate student was informed that all research projects require ethical approval?	X	☐
The postgraduate student was informed that it is his/her responsibility to apply for ethics?	X	☐
Comments:	Ethics approval not required for this study. Basic ethics form completed.	
INTELLECTUAL PROPERTY		
	YES	**NO**
The postgraduate student was informed that all intellectual property resulting from research conducted for postgraduate degrees, including all publications, is governed by the Intellectual Property Policy (IRC 401.01)	X	☐
The student was informed that the intellectual property rights resulting from a postgraduate's research shall vest in the University	X	☐
Comments:		

The **STUDENT** and the **STUDY LEADER** confirms that:

1. They have read and understood this Learning Agreement,
2. They agree to accept its content for the duration of the study period as per the qualification stipulated above.

SIGNATURES:

Student:  ……..……...

Study leader: 

Co-study leader: ……..

Peter draft

ORIGINALITY REPORT

13%	6%	2%	10%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Nelson Mandela Metropolitan University Student Paper	7%
2	v-des-dev-lnx1.nwu.ac.za Internet Source	<1%
3	uir.unisa.ac.za Internet Source	<1%
4	corporatefinanceinstitute.com Internet Source	<1%
5	"The WealthTech Book", Wiley, 2018 Publication	<1%
6	Francesco D'Acunto, Nagpurnanand Prabhala, Alberto G Rossi. "The Promises and Pitfalls of Robo-Advising", The Review of Financial Studies, 2019 Publication	<1%
7	ujcontent.uj.ac.za Internet Source	<1%
8	opus.ostfalia.de Internet Source	<1%