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Factors influencing the adoption of financial technology solutions in South Africa

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

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ABSTRACT

Consumer adoption of digital financial technology (FinTech) is driving a wave of digital transformation within the South African financial industry. This study explores how both consumers and financial institutions are adapting in this market. This study examines the evolving consumer behaviours surrounding mobile FinTech products and the corresponding changes occurring within the financial sector in response to these new demands.

This comprehensive approach ensures a nuanced understanding of the factors driving FinTech adoption in the study. Key facilitators included positive attitudes, strong behavioural intentions, trust and the perceived usefulness of digital financial technology. Effort expectancy and performance expectancy emerged as the two significant barriers.

Additionally, the study explored the digitally transforming behaviours within the South African market, revealing that these behaviours cannot be generalised across the entire population group due to variations based on income levels and digital literacy.

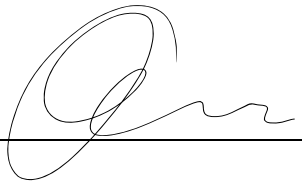
The South African market, often overshadowed by research on underbanked populations, presents a unique opportunity for FinTech adoption. This study sheds light on the characteristics of this diverse customer segment. To accelerate digital financial technology adoption within this market, strategic collaboration among FinTech companies, incumbent banks, and government stakeholders is crucial.

KEYWORDS

Digital financial technology, FinTech, financial products, financial inclusion, financial services.

DECLARATION

I, David Mpilo Mngxadi, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: D.M MNGXADI Signature: 

Signed at: Johannesburg

On the 31 day of March 2024

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"It always seems impossible until it is done" – Nelson Mandela

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LIST OF ACRONYMS

ATM	: Automated Teller Machine
B2B	: Business-To-customer
C2C	: Customer-To-Customer
COVID-19	: Corona Virus Disease 2019
Fintech	: Financial Technology
GSMA	: Global System for Mobile Communications Association
MP	: Mobile Payments
NDP	: National Development Plan
NFC	: Near-Field Communication
SEM	: Structural Equation Modelling
SWIFT	: Society for Worldwide Interbank Financial Telecommunication
TAM	: Technology Acceptance Model
UTAUT	: Unified theory of Acceptance and Use of Technology

CHAPTER 1: INTRODUCTION

1.1. Statement of purpose

Access to financial technology can play a role in bridging the gaps experienced in todays paced world of advancements and ever-changing financial landscapes. According to the GPFI (2016), digital financial technology solutions play a major role in enabling financial inclusion as it helps reduce the cost of banking expanding scale. It also expands the availability of financial services by connecting people and businesses more effectively.

The collaboration between Financial Technology (FinTech) and Financial Products has emerged as a crucial driving force behind promoting financial inclusivity in South Africa. Financial services organisations that invest in technology stand a better chance of developing a competitive advantage and solving customer-related challenges (Propson and Galaski, 2020).

The reach of FinTech extends across several industries. From mobile payments and e-commerce platforms to portfolio and risk management tools, FinTech offers solutions for customised financial consulting, virtual currencies, and even system integration (Nicolettie, 2017).

The purpose of the study is to investigate the factors influencing the adoption of financial technology solutions in South Africa. Financial technology products and financial technology solutions are used interchangeably in the document.

1.2. Background of the study

South Africa is one of the most unequal countries (McKeever, 2024) with its citizens experiencing the most socioeconomic disadvantages when it comes to participating and accessing the mainstream financial services despite advancements in technology and finance. By 2030, the National Development Plan (NDP) of the South African government seeks to end poverty, lessen inequality, and achieve full employment. The NDP anticipates that by 2030, the percentage of the population that is banked or has access to transactional financial services and saving facilities will rise from 63% to 90%.

The NDP recognises that financial inclusion is a crucial tool for accomplishing these goals (South African National Development Plan, 2011). The informal working class, which constitutes a huge part of society, often struggles with access to banking services, credit options and investment opportunities.

FinTech encompasses tools and platforms that have the potential to bridge this gap by offering innovative solutions tailored to cater to the unique financial needs and challenges faced by the general population. South Africa is a country with the lowest levels of financial literacy globally (Fataki and Oni, 2014). There is a need to promote literacy among the population to ensure effective utilisation of technology solutions to ensure that they make informed financial decisions for sustainable economic empowerment.

Furthermore, the COVID-19 pandemic has accelerated the adoption of technology and innovation by changing customer lifestyles, increasing demand for technology, and stimulating competition (Shankar, Kalyanam, Setia, Golmohammedi, Tirunillai, Douglass, Hennessey, Bull, and Waddoups, 2021).

Theoretically, this study aims to enhance existing body of knowledge by shedding light on the nuanced dynamics that underlie between technological innovation and digital adoption in the context of emerging economies. Practically, the insights gathered from this research aim to inform policymakers, financial institutions, and FinTech developers on designing targeted interventions that bolster digital adoption efforts. This will be achieved by explaining the barriers and enables of FinTech use by the South Africans. This research seeks to offer a roadmap for leveraging technology and financial products as twin drivers of financial inclusion.

In summation, this research study aims to explore the factors influencing the adoption of FinTech products in South Africa. This research aims to enhance our comprehension of how these two fundamental aspects can work ultimately contributing, to the overall conversation, on attaining inclusive economic growth and social progress.

Financial Technology

Financial technology (FinTech) plays an important role in enabling access to financial services at various levels of society. Financial literacy contributes to the implementation of financial services, thus contributing to financial inclusion and economic growth (Neelan and Bhattacharya, 2022). FinTech is constantly evolving, this is evident with the developed financial generation products such as SWIFT and ATMs, which will see further developments involving data-driven technologies (Leong and Sung, 2018). Fintech, digital products and digital financial technology are synonymous.

The market generally believes that access to fair and efficient payment systems is essential for financial inclusion (WBG, 2017). FinTech developments have had a wide-reaching impact on financial planning, financial well-being, and economic inequality. These developments include mobile payments, robo-advising, app-based investing platforms, and online banking solutions. Mobile payments have made it easier and more convenient for people to make payments. This can help people save money on fees and improve their financial management.

Robo-advising is a type of investment advisory service that uses algorithms to provide automated investment advice. This can be a great option for people who do not have a lot of time or expertise to manage their investments. App-based investing platforms make it easy for people to invest in stocks, bonds, and other financial products. This can help people grow their wealth. Online banking solutions make it easy for people to manage their bank accounts and finances from anywhere. This can save people time and money (Anthony, Sabri, Shazana, Magli and Sufian, 2021).

While the above holds true, Panos and Wilson (2020) argue that FinTech developments can have a negative impact on financial well-being by encouraging impulsive spending habits. This is because FinTech products and services are often designed to be easy to use and accessible, which can make it difficult for people to resist the temptation to spend money. Additionally, FinTech products and services can be complex and difficult to understand, which can lead people to make poor financial decisions. For example, mobile applications that allow people to make instant payments or buy things with a single click can be very appealing to impulsive spenders (Ren and Huang, 2018).

These mobile and internet applications can make it easy to spend money without thinking about the consequences, which can lead to debt and financial problems. Another example is robo-advising, which is a type of investment advisory service that uses algorithms to provide automated investment advice. Robo-advisors can be a great option for people who do not have a lot of time or expertise to manage their investments. However, robo-advisors can also be a risk for impulsive spenders. This is because robo-advisors can make it easy to invest money without understanding the risks involved.

Cordes and Marinova (2022) further suggests that the way in which technology is transferred can have a significant impact on its success. If the transfer process is not well-planned and executed, it can lead to problems such as misunderstandings, resistance to change, and a lack of support from local stakeholders. The success of transferred technology also depends on the level of support from local stakeholders. If local stakeholders are not supportive of the technology, it is less likely to be used and adopted.

Likewise, the success of transferred technology also depends on its fit with the local culture. If the technology is not compatible with the local culture, it is less likely to be used and adopted. Lastly, the success of transferred technology also depends on the use of effective marketing strategies. If the technology is not marketed effectively, it is less likely to be known and used by potential users.

There is improving evidence that FinTech and financial literacy can improve and further enhance financial inclusion. For example, through research conducted by The World Bank shows that FinTech can help reduce transactional fees and thereby positively impacting access to financial offerings for underprivileged individuals. Furthermore, research has also shown that financial literacy

programs can enable individuals to make informed choices when it comes to their financial decision-making, thereby bridging the financial inclusion gap.

1.3. Research problem

In recent years, a huge segment of the South African population has been disproportionately excluded from economic activity. This is due to factors such as low income, lack of education and geography to mention a few. Inclusion in financial services and infrastructure for all sectors of society, including the poor, unemployed, and people living in rural areas, is crucial to the monetary expansion, poverty reduction and enabling an economic system which promotes the alleviation of poverty. South Africa has an economically excluded populace, with an anticipated 40% of adults nevertheless unbanked (FinMark Trust, 2019).

The status of financial inclusion in South Africa has improved significantly in recent years. According to the World Bank, the percentage of adults with an account at a formal financial institution increased from 46% in 2004 to 80% in 2021 however there are still some challenges. One challenge is the high cost of financial services, which can make it difficult for low-income people to access them.

FinTech companies are developing new products and services designed to be more accessible and easier to use than traditional financial services. Furthermore, to mitigate against the challenges highlighted above, businesses across all industries to reduce costs by significantly improving efficiency. As a result, banks have increasingly focused on computerising and digitising almost every aspect of their banking processes (Masocha, Chiliya and Zindiye, 2011).

According to the World Economic Forum (2018), sustainable uptake and usage of financial services requires a greater understanding of the factors that affect demand and supply. Recent literature has found amongst other reasons, that while individuals may have formal or informal employment, some remain financially illiterate when it comes to understanding the attributes of the financial products that they use namely bank charges, interest rates, and lending criteria. This can lead to them being unaware of how bank charges work, how interest rates are calculated, and what the criteria are for getting a loan. This can have a negative impact on their financial well-being (Munacinga and Maciko, 2022).

Individual households often must find a balance between meeting their immediate needs and saving for the future. Most people have no other option but to prioritise paying for necessities such as education, housing, transportation, and healthcare (Atkinson and Messy, 2012). FinTech companies can reach out to underserved populations and provide them with financial services they would otherwise not have access to. Georgarakos and Pasini (2011) found that trust and sociability are positively correlated with digital financial technology solutions. The study also found that people tend to trust financial institutions more when they give advice on investment matters.

According to Matsena (2022) social influence, pleasure, and perceived cost-benefit all positively influenced consumers' intention to adopt digital financial technology solutions. Trust in the providers of digital financial technology solutions was the strongest factor influencing consumers' adoption of these solutions. In a study conducted by Matsena (2022), it was found that the lack of unique features and the advanced development of digital financial products in South Africa made it less costly for consumers to switch providers.

Prahalad (2005), a management guru, argued in his book The Fortune at the Bottom of the Pyramid that the poorest people in the world, who make up the underserved population represent a huge market opportunity for businesses. He argued that businesses could profitably serve this market by providing them with low-cost, innovative products and services that meet their needs.

Offering basic transaction accounts with low or no fees to all individuals and businesses who do not have one and want one is considered a key step to increasing financial inclusion. (PAFI, 2016). South African banks believe that they can improve the efficiency of their onboarding processes and their ability to understand and address customer needs by simplifying the process and using electronic channels. (PwC, 2013).

People may have different needs and preferences for digital financial products banking. For example, they may be more interested in using digital financial products for basic transactions, such as transferring money or paying bills, rather than for more complex transactions, such as investing or trading. Secondly, people have a different perception of risk and cost. They may be more concerned about the security of their financial information and may be less willing to pay for digital financial products. Lastly, people may not have the same level of knowledge about digital financial products.

Despite this, there are still challenges related to high costs of financial services, lack of trust, risk and security issues, which prevent people from understanding and using financial products and services (World Bank, 2021). According to Masinge (2010) the impact of demographic factors such as race, age, gender, and culture on the adoption of mobile banking by the Bottom of the Pyramid (BOP) was not thoroughly investigated.

As the convergence of consumer technology and finance continues to evolve, technology adoption research models should incorporate more financial constructs to create more comprehensive models e.g. (UTAUT2 vs UTAUT-TAM, that can benefit future researchers and practitioners (Matsena, 2022).

The general populations may not be aware of the different digital financial products that are available or how to use them. It is therefore important to understand these factors to develop digital financial products that are in line with the peoples' requirements.

1.4. Research objectives

This research study aims to achieve the following research objectives:

- **Objective 1**: to understand how the South African demographics (age, gender, race, income, and education level) influence the adoption of FinTech solutions.

- **Objective 2**: to ascertain whether trust, risk and security influence the intention to adopt FinTech solutions in South Africa.

- **Objective 3**: to investigate the influence of personal factors, such as attitude, self-efficacy, hedonic performance expectancy, and utilitarian performance expectancy, on the intention to adopt FinTech solutions in South Africa.

- **Objective 4**: this study aims to investigate the influence of facilitating conditions and social conditions on the intention to adopt FinTech solutions in South Africa.

- **Objective 5**: to investigate whether ease of use of technology or system (effort expectancy) influences the intention to adopt FinTech solutions in South Africa.

1.5. Rationale

The study findings of this research will contribute in three areas. First, the researcher will endeavour to disseminate the findings of this research in an academic journal and or conferences. Thus, contributing to the literature about FinTech use in South Africa. The findings of this study can also be used by other researcher to expand and or focus on specific population groups or digital financial products. This will ultimately expand the knowledge base on FinTech use in South Africa.

Secondly, the study will have impact in the financial sector. The findings of the study on the challenges and enablers of FinTech use can be used by financial institutions to identify areas in which to invest or innovate to increase adoption of FinTech. In addition, because this study will assess challenges across different demographics and socioeconomic groups, it will enable financial institutions to tailor their solutions for different groups.

Lastly, the study can inform policies and strategies for improving economic development from a governance point of view. Additional articles have been found which focus on the adoption of digital technology from a South African point of view.

1.6. Delimitations of the study

The focus of this study is on the customer oriented, non-B2B, and FinTech industry segmentations in South Africa. The study will look at both incumbent and non-incumbent bank FinTechs that offer digital financial products to South African customers.

The study considered FinTech technologies, primarily personal digital banking, B2C, and C2C (peer-to-peer) network-type financial activities. These three financial areas included payments, lending, savings and deposits, InsurTech, investments (including cryptocurrencies and crypto trading), and financial planning and advisory segments.

The study excluded the following FinTech segments:

- All non-digital financial products FinTech segments.
- B2B tech providers such as aggregators, Regtech (regulatory technology), and risk management.
- Business focused products and services such as mobile point of sale payment segments, small business finance management, and business banking.

1.7. Definition of terms

Financial Literacy: According to the World Bank (2018) financial literacy is the process of learning about financial resources and how to use financial products and services. In the context of payments, financial literacy efforts can include demonstrating the advantages of using electronic payment services, such as safety, security, and convenience.

Financial Technology: FinTech services can make financial transactions more efficient and empower people who are traditionally excluded from the financial system. Mobile commerce is the exchange of goods and services between buyers and sellers using wireless devices such as mobile phones and tablets (Shen and Huang 2016), (World Bank Group, 2018), (Xie, Zou and Liv, 2016). FinTech companies offer innovative financial products and services that are more accessible and affordable than traditional financial products and services (Nakashima, 2018).

Financial Products: The appropriate financial products that are provided by regulated financial institutions to meet the financial needs of individuals, businesses, and public administrators. The study identifies five basic financial service needs which include remitting money, transacting (making payments and receiving money), saving money for future needs, borrowing to improve circumstances or increase productive capacity and insuring against loss, damage or illness, or death (World Bank, 2018)

1.8. Chapter Outline

Chapter 1: This opening section of the research report sets the stage by providing background information, outlining the specific issue being investigated, and highlighting the significance of the study.

Chapter 2: To understand the research goals, this section delves into existing literature. First, it explores how FinTech is being implemented in other emerging markets. Second, it examines the connection between financial literacy and FinTech, all within the framework of this study's objectives.

Chapter 3: The methodology section outlines the research approach used in this study. This includes details on the chosen design, the multi-part research instrument, the sampling criteria for participant selection, data collection process, data analysis methods employed, and measures taken to ensure validity, reliability, and a discussion of any limitations encountered.

Chapter 4: This chapter delves into the numerical insights. We utilise quantitative analysis techniques to extract meaning from data gathered through our multi-part research instrument.

Chapter 5: This chapter focuses on interpreting the results. It analyses the findings from the quantitative analysis and discusses their relevance to answering the four research questions outlined to fulfil the study's objectives.

Chapter 6: The concluding section brings the study to a close. Here, we present actionable recommendations for businesses, policymakers, and academics interested in further research. We also discuss the limitations of this study to guide future investigations.

1.9. Summary of the Introduction

The introduction of the research topic centres on the adoption of financial technology (FinTech) solutions in South Africa, highlighting the transformative potential of these technologies in the financial sector. It underscores the significance of the study by addressing the critical role that FinTech plays in enhancing financial inclusion, particularly in a country where traditional banking services may be limited for certain populations.

The introduction emphasises that FinTech solutions, such as mobile payments, online banking, and digital lending platforms, are increasingly becoming essential tools for bridging the gap between underserved communities and financial services. By reducing transaction costs and improving access to financial products, FinTech has the potential to empower individuals and small businesses, fostering economic growth and social progress.

Moreover, the study recognizes the rapid evolution of FinTech and its capacity to adapt to the changing needs of consumers in a digital age. As South Africa faces unique economic challenges, the adoption of FinTech solutions is positioned as a vital strategy for promoting financial literacy, enhancing user experience, and ultimately transforming the financial landscape.

In summary, the introduction sets the stage for the research by articulating the importance of understanding the factors influencing the adoption of FinTech in South Africa, as it holds the promise of driving financial inclusion and reshaping the financial ecosystem in the country.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Introduction

In recent years, the rapid proliferation of financial technology has brought about transformative changes in the global financial landscape. FinTech, characterised by its innovative use of technology to provide financial services, has garnered substantial attention for its potential to bridge longstanding gaps in financial inclusion. This is particularly crucial in contexts such as South Africa, where a significant portion of the population, notably the working class, remains excluded from the formal financial system. Financial inclusion, which pertains to the accessibility and usage of financial services, is not only an imperative for personal economic empowerment but also a cornerstone of broader socio-economic development.

Central to the discourse on financial inclusion is the concept of financial literacy, denoting an individual's knowledge and understanding of financial concepts and their ability to leverage this information effectively in making informed financial conclusions. The synergy between FinTech and financial literacy has emerged as a topic of substantial interest, with both elements holding promises of enhancing financial inclusion. This literature review aims to delve into the intricate interactions between FinTech and financial literacy, focusing on their combined role in improving financial inclusion for the working class within the unique socio-economic context of South Africa.

South Africa presents a complex environment for exploring the intersections of financial technology and its adoption. The nation's historical legacy of economic inequality, coupled with its diverse demographic landscape, poses distinctive

challenges and opportunities for fostering a financially inclusive society. Despite notable progress in extending formal financial services, a substantial proportion of the population continues to grapple with limited access to banking, credit, and insurance products. This scenario underscores the urgency of innovative solutions that can transcend traditional barriers and cater to the specific needs and constraints of this demographic.

The symbiotic relationship between FinTech and financial literacy holds the potential to catalyse financial inclusion efforts. FinTech innovations, ranging from mobile banking applications to digital payment platforms, have the capacity to bypass traditional infrastructure limitations, reaching individuals who were previously excluded. Concurrently, a solid foundation of financial literacy equips individuals with the skills necessary to navigate these new technologies effectively, enabling them to make informed financial decisions that align with their goals and circumstances.

While both FinTech and financial literacy have been independently investigated as avenues for advancing financial inclusion, a comprehensive exploration of their interplay remains relatively limited, particularly within the South African context. This literature review aims to address this gap by synthesing existing research that examines the interrelationships between FinTech and financial literacy, with a specific focus on their collective impact on improving financial inclusion for the working class in South Africa.

The subsequent sections of this review will delve into the current state of research on financial technology and its adoption, highlighting key findings, theoretical frameworks, and methodological approaches. The discussion will also examine the challenges and opportunities associated with integrating FinTech and

financial literacy initiatives in the context of South Africa's working class. By synthesising the existing body of knowledge, this review seeks to provide insights that can guide policymakers, researchers, and practitioners in formulating effective strategies to enhance financial inclusion and empower marginalised communities.

The evolving landscape of FinTech and the imperative of financial literacy converge in their potential to revolutionise financial inclusion. This literature review aims to contribute to a deeper understanding of how the interactions between FinTech and financial literacy can foster tangible improvements in financial access, usage, and well-being for the working class in South Africa.

2.2. Literature review

This literature review aimed to critically examine the existing literature on the adoption of digital financial products in the South African market. The review was guided by two conceptual frameworks, which will be discussed in detail. This research study aims to achieve the objectives highlighted in Section 1.4 of this document.

Effort Expectancy & Self Efficacy

Previous research has shown that knowledge and skills are important factors in determining access to financial services. Scholars such as Atkinson and Messy (2013), Xu and Zia (2012), Lusardi and Tufano (2008), Stango and Zinman (2009), and Alessie, Lusardi and Van Rooij, (2007) have used knowledge and skills as measures of financial literacy in their studies of access to financial services.

Holzmann (2010) argues that the definition of financial literacy has evolved to include not only financial knowledge and understanding, but also financial skills, attitudes, and behaviour. He also notes that there is a lack of consistency in how financial literacy is conceptualised, measured, and analysed in different studies. In a study by Srivastava et al. (2024), effort expectancy, or how easy customers found the service to use, was a significant predictor of their willingness to use it again.

The finding that effort expectancy (perceived ease of use) significantly influences user willingness to continue using a service emphasises the importance of prioritising User Experience (UX). User Experience (UX) encompasses every interaction a user has with a product, service, or company, shaping their overall

impression (Courage and Baxter, 2005). Sudirjo et al. (2024) found that User Experience (UX) plays a crucial role in facilitating FinTech adoption by enhancing the overall usability, accessibility, and satisfaction of financial technology applications

Wen (2016) emphasises that social influence plays a key role in shaping our perception of new and unfamiliar digital financial technology products, influencing our opinions and experiences. Exploring the factors influencing mobile payment adoption in Portugal, Oliveira, Thomas, Baptista and Campos (2016), which is based on UTAUT, highlighted the significant impact of social influence on people's willingness to embrace this technology.

Cole, Carpena, Shapiro and Zia (2011) found that a financial literacy program that taught unbanked households in Indonesia about savings accounts led to a modest increase in the demand for savings accounts among those with low initial levels of financial literacy. The program helped them to develop the skills to compare and select the best products for their needs and empowered them to exercise their rights and responsibilities as consumers.

Cohen and Nelson (2011) also observed that financial literacy programs can help the poor to become more informed financial decision makers with a high sense of awareness of financial issues and choices, coupled with basic financial skills. Building on the findings of Oliveira et al. (2016), the study can expect a significant impact of social influence on mobile payment adoption due to our inherent susceptibility to peer pressure.

The UTAUT model highlights "effort expectancy," the perceived ease of using a new technology, as a key driver of early adoption (Venkatesh et al., 2003). This suggests focusing on user-friendly design, clear instructions, and readily available support during implementation to encourage users to embrace the new system quickly. Many studies, including those by Chang (2012), Senyo and Osabutey (2020), Aseng (2020), and Ramos (2017), highlight how users' perception of a system's ease of use (effort expectancy) strongly influences their intention to adopt it. Specifically, these studies found a positive correlation between effort expectancy and willingness to use digital financial technology services.

In this study, we focus on investigating user effort expectancy towards FinTech services under the assumption that ideal FinTech should be effortless and convenient. We aim to understand how easily users perceive using these services in the Saudi context.

Facilitating Conditions and Hedonistic Performance Expectancy

In 2019, 477 million people in Sub-Saharan Africa subscribed to mobile services. This accounted for 45% of the population. The mobile market in the region is expected to reach several important milestones in the next five years, including: half a billion mobile subscribers in 2021, 1 billion mobile connections in 2024, and 50% subscriber penetration by 2025 (GSMA, 2020). These achievements will be underpinned by operators' continued investment in network infrastructure.

The media and entertainment (M&E) space in Sub-Saharan Africa is undergoing a digital transformation, driven by the rise of mobile internet and smartphone adoption, a young population, and the increasing availability of local

entertainment content. In the last two years, several mobile operators have launched M&E services or partnered with third-party content providers to deliver online streaming content (GSMA, 2020).

For example, Airtel Kenya launched a free video and music streaming app called Airtel TV in August 2020. CineMagic, a video-on-demand (VoD) streaming service, partnered with Vodacom and MTN in July 2020 to deliver content on the operators' mobile content platforms (Vodacom Video Play and MTN Play). MTN is also expanding its instant messaging service Ayoba to include gaming and media channels, and its streaming app MusicTime is now live in seven MTN markets across the region.

According to Wu and Peng (2024), strong infrastructure like high-speed internet and widespread smartphone adoption in cities create a perfect platform for FinTech companies to scale their services through mobile applications. These apps offer lower fees and interest rates than traditional financial institutions, making them particularly attractive to cost-conscious urban residents, especially those in expensive areas. This combination of mobile accessibility and cost savings unlocks FinTech's potential to reach a wider, mobile-first audience in urban areas (Wu and Peng, 2024).

Utilitarian Performance Expectancy

The literature on financial inclusion has shown that delivering access to financial services does not automatically lead to the anticipated benefits. The World Economic Forum (2018) argues that sustainable uptake and usage of financial services requires a greater understanding of the factors that affect demand and

supply. According to research, many people in emerging markets find it difficult to use financial services even when they have access to them.

For example, Dupas, Karlan, Robinson and Ubfal, (2018) conducted an experiment in three countries, including Uganda, Malawi, and Chile. They removed the cost obstacles of account origination and maintaining a basic savings account. The researchers took care of the operating and account maintenance fees.

Despite this, they found that only a small fraction of people opened accounts. This suggests that there are other factors, such as lack of trust or knowledge, that prevent people from using financial services. The World Economic Forum (2018) argues that sustainable financial inclusion requires a deeper understanding of the factors that affect demand and supply. This understanding can then be used to develop policies and interventions that address the specific barriers to financial inclusion.

Srivastava, Mohta and Shunmugasundaram (2024) found that customers' satisfaction, effort expectancy, and performance expectancy significantly influenced their willingness to use the service. Additionally, effort expectancy, performance expectancy, and perceived enjoyment of the service significantly impacted customer satisfaction.

Trust and Privacy Risk

Financial inclusion is the state of having access to financial services. There are two types of financial exclusion: voluntary and involuntary. Voluntary exclusion

happens when people choose not to use financial services, even if they have access to them. Involuntary exclusion happens when people are unable to use financial services, even if they want to. A study by Chakrabarti and Sanyal (2016) found that even people who live on less than a dollar a day still seek to manage their money by saving when they can and borrowing when they need to.

One reason for involuntary exclusion is a lack of trust in financial institutions. Some people may have had bad experiences with banks or other financial institutions in the past, and they may be reluctant to use them again. Raphoto (2021) also found that low levels of trust to be a hinder digital adoption in the financial sector. The study aligns with Raphoto's (2021) findings, where low trust levels were also identified as a barrier to digital adoption in financial services.

Associated costs include the costs of withdrawing money from an ATM, bank charges, the interest rates charged on loans, and the cost of traveling to a financial service point (Karlan, Ratan and Zinman, 2014). This is consistent with a study conducted by Gulamhuseinwala, et al. (2015) which found that FinTech adoption surpasses 40% among high-income, digitally active users, indicating that a significant portion of banks' and insurers' most lucrative customer base is already utilising alternative financial services. According to Panos and Wilson (2020), found that This study identified several factors associated with higher financial literacy among students, including gender, expense tracking habits, and a father's educational attainment.

Other factors that can prevent people from accessing financial services include non-monetary barriers, such as a lack of trust in financial institutions and a lack of adequate product knowledge (Karpowicz, 2016). Product knowledge can be lacking due to a lack of literacy on the user's part, but it can also be difficult to

understand due to complex product information (Abel, 2018). While studies like Fataki and Oni (2014) suggest South Africa may have faced historically low financial literacy levels, a more recent assessment is necessary to establish the current national landscape. Regardless of the exact ranking, promoting financial literacy remains crucial for the population to effectively utilise technological financial solutions.

Building public trust is crucial for new payment solutions, and even the slightest hint of insecurity can shatter it. That's why robust information security is essential for e-money services. The technology must be secure, protecting the privacy, accuracy, genuineness, and verifiability of all information and financial transactions. Additionally, e-money providers must adhere to international security and operational standards to ensure user confidence and industry stability (World Bank, 2018).

Security

Security is essential for new payment solutions, as even the perception of insecurity can erode public trust (World Bank, 2018). Information security is essential for the success of e-money services. The technology used must be secure and protect the confidentiality, integrity, authenticity, and non-repudiation of all information and funds transfers. The security and operational services of e-money providers must also meet the requirements of international standards (World Bank, 2018).

Internet application security threats have become a major challenge for both users and FinTech innovators. In this study, the authors empirically investigated the factors that influence the adoption of FinTech by users and organizations,

such as customer trust, data security, value added, user interface design, and FinTech promotion. The empirical results showed that data security, customer trust, and user interface design are the most important factors affecting the adoption of FinTech (Stewart and Jürjens, 2018).

The importance of being aware of global cyber-attacks and how to mitigate them was also highlighted. In addition, it was suggested that the Bundesbank, the BaFin, the European Banking Authority, and the European Central Bank should cooperate to establish an IT audit service with the goal of developing a supervisory regime to improve security (Carlson, 2015). This lack of legal protections leaves users susceptible to data breaches, identity theft, and other forms of digital harm, discouraging them from engaging with technology and its benefits (El-Telbany et al., 2020).

This is in line with a study conducted by Ramos et al (2018) which found that when considering online financial services like mobile banking (m-banking), factors like security vulnerabilities and potential fraud can heighten users' perceptions of risk and insecurity. A study by Sigurdsson et al. (2015) found that for online financial services, simple privacy assurances like pop-ups can significantly boost customer trust.

White and Nteli (2004) found that security risks are a barrier to digital banking in the UK and Australia. (Poon, 2008) argued that security is important for individuals of all ages, education levels, and income levels. Aldás-Manzano, Lassala-Navarré, Ruiz-Mafé and Sanz-Blas (2009) investigated the effects of security risks on bank accounts, passwords, and customer identities. Privacy and data security are the main deterrents to the adoption of FinTech. Customers are more concerned about these risks than the quality of the product.

Concerns about security and privacy top the list of reasons why people hesitate to use digital financial services, according to multiple studies. White and Nteli (2004) found that security risks deterred digital banking adoption in the United Kingdom and Australia, while Poon (2008) emphasised the universal importance of security across demographics. Aldás-Manzano et al. (2009) further explored these concerns, examining how security risks related to bank accounts, passwords, and identities impacted users.

Financial institutions need to improve the confidentiality, integrity, and availability (CIA) of customer data and strengthen the rules and legislation governing internet application s. In conclusion, data security is the main barrier to the adoption of FinTech innovation, as it has a major impact on trust (Al-Adawi, Yousafzai, and Pallister, 2005). Similarly, Raphoto (2021), also identified legal, security and operational risk, including data security to negatively affect adoption of FinTech.

Digital Behaviour and Product Value

Digital behaviour and recognising product value are found to greatly influence the customer adoption of digital financial products in the South Africa (Jacobs, 2021). Mobile commerce (m-commerce) can offer value to consumers by making it possible to shop and make purchases wherever they are, at any time. As the world embraces financial technology, blockchain technology stands out as a game-changer, poised to propel digital innovation (Jafri et al., 2024).

This is because m-commerce is not limited by time or place, unlike traditional commerce, which is typically limited to brick-and-mortar stores or online stores that can only be accessed during certain hours (Venkatesh et al., 2003). According to Masinge (2010), people will adopt mobile banking services when

they see clear evidence of the value and benefits that mobile banking can offer them. This is most probably because the COVID-19 pandemic accelerated the adoption of technology and innovation by changing customer lifestyles, increasing demand for technology, and stimulating competition (Shankar, Kalyanam, Setia, Golmohammedi, Tirunillai, Douglass, Hennessey, Bull, and Waddoups, 2021).

In a study conducted by Abdul-Rahim et al. (2022), it was observed that consumer anxieties surrounding the pandemic and growing concerns about sustainability prompted a re-evaluation of their risk-benefit calculus. It shed light on the nuanced changes in consumer priorities and preferences following significant global events.

A recent study by investigated the impact of mobile and online banking on financial management among young adults. The study found that participants using mobile banking reported a significant increase in time saved compared to those using traditional banking methods. Additionally, participants reported increased convenience and flexibility in managing their finances through mobile banking (Hoque et al.,2024).

A study by Mastercard found that women entrepreneurs in the Middle East and Africa (MEA) region are significantly more likely to use digital payment solutions compared to their male counterparts. In South Africa alone, 79% of women entrepreneurs have adopted digital payment methods, highlighting their potential as leaders in the region's digital transformation. This shift towards digital payments offers several benefits, including increased efficiency, improved convenience, faster access to revenue, and reduced risk of fraud (Malinga, 2021).

Ouattara (2023) highlights that convenient access to technology features and support (facilitating conditions) influences user intention to purchase via mobile commerce. When users perceive that all that they need is readily available, they are more likely to embrace the technology.

Therefore, the use of digital financial technology is perceived by users as useful and valuable which is evident in a study conducted by Nikolopoulou, Gialamas and Lavidas, (2021) where a few teachers undertook an initiatives and allow their students to use mobile devices/phones in classrooms for educational purposes, despite the ban by the Department Ministry found that, by addressing teachers' beliefs about using mobile internet, the adoption of technology in classrooms enhances learning. This suggests that teachers view mobile internet as a valuable tool for enhancing learning.

In today's fast-paced world, people value their time more than ever. Digital financial technology delivers speed, freeing up valuable customer time and creating a memorable experience. By providing convenient and innovative financial services, FinTech companies earn customer trust and recognition as true innovators (Barbu et al., 2021)

Demographics

Cullen and Kabanda (2018) found that age is a significant predictor of FinTech transactions while education status influences FinTech usage activities in terms of transactions and location-based services, and gender influences how people use FinTech. Joubert and Belle (2019) found that personal characteristics, such as age, gender, and education, significantly influence how people perceive the

trustworthiness of FinTech. They also found that trust and perceived risk influence the intention to use FinTech services.

In a study conducted by Matsena (2022) found that the control variables had an insignificant effect on most of the relationships between the independent and dependent variables. However, the introduction of the control variables did have a significant effect on the relationship between price value and behavioural intention to adopt. Gender and current online share trading (OST) use also had a significant effect on performance expectancy and behavioural intention to adopt, respectively.

A study by Ouma et al. (2017) found that females are more likely to use mobile financial services to save compared to males, even though males tend to save larger amounts on average. This difference in saved amount is not explained in the study and could be due to various factors. According to Batula and Gupta (2021), several factors contribute to the lower access of digital financial services among women. One potential issue is limited involvement in household financial management, which might inhibit some women from initiating or using these services.

Tai and Ku (2013) found that women were less likely to adopt technology than men whilst Venkatesh et al. (2012) found that younger people were more likely to adopt technology than older people. Goswami and Dutta (2015) found mixed results regarding the impact of gender on technological adoption. The study found that some studies found that men were more likely to adopt technology than women, while other studies found no significant difference between men and women. Lee (2010) argues that demographic differences in technology usage were disappearing.

Education is also a major determiner when it comes to the adoption of digital financial products. The inherent complexity of FinTech, often involving novel technologies and financial concepts, creates a knowledge gap. Individuals with higher education are better positioned to bridge this gap, enabling them to grasp how these services function, evaluate potential risks and benefits, and ultimately make informed decisions about adoption.

This is consistent with a study that was conducted in Indonesia by Cole et al. (2011) which showed that teaching unbanked households about savings accounts through a financial literacy program increased demand for these accounts, especially among those with lower initial financial knowledge. The program equipped the participants of the study to compare and choose suitable financial products and to act confidently as informed consumers of these products.

Financial literacy programs alone might be insufficient to address systemic inequalities. Atkinson and Messy (2012) reminds us that many struggle to afford basic needs, leaving little room for savings even with financial knowledge. It is therefore necessary to explore broader approaches beyond individual education.

Building on this notion, Holzmann (2010) suggests that financial literacy goes beyond just knowing financial terms. It also encompasses the ability to use financial tools, hold positive financial attitudes, and make informed financial decisions. He further highlights the inconsistency in how different studies define, measure, and analyse financial literacy.

Theoretical Framework

The proposed framework is based on a study by Khalilzadeh et al. (2017) that aimed to develop a comprehensive model to examine the factors that influence the adoption of near-field communication (NFC)-based mobile payment technology in the restaurant industry. The proposed model, which combines the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Acceptance Model (TAM), was tested using Structural Equation Modelling (SEM).

The study found that the proposed model is a better predictor of the adoption of NFC-based mobile payment (MP) technology in restaurants than the original UTAUT model. The proposed model explains 20% more of the variance in customer intentions to use NFC-based MP technology and is more accurate in predicting whether customers will use the technology. The study found that the extended UTAUT model is a better predictor of the intention to use NFC technology than the UTAUT and UTAUT2 models.

The extended model explains 87.1% of the variance in intention to use NFC technology, compared to 70% for the UTAUT and UTAUT2 models. This suggests that the extended model is a more accurate predictor of the intention to use NFC technology (Khalilzadeh et al., 2017).

The research model is made up of 11 factors that influence the adoption of technology, including risk, security, trust, self-efficacy, social influence, effort expectancy, facilitating conditions, utilitarian performance expectancy, hedonic performance expectancy, attitude, and behavioural intention.

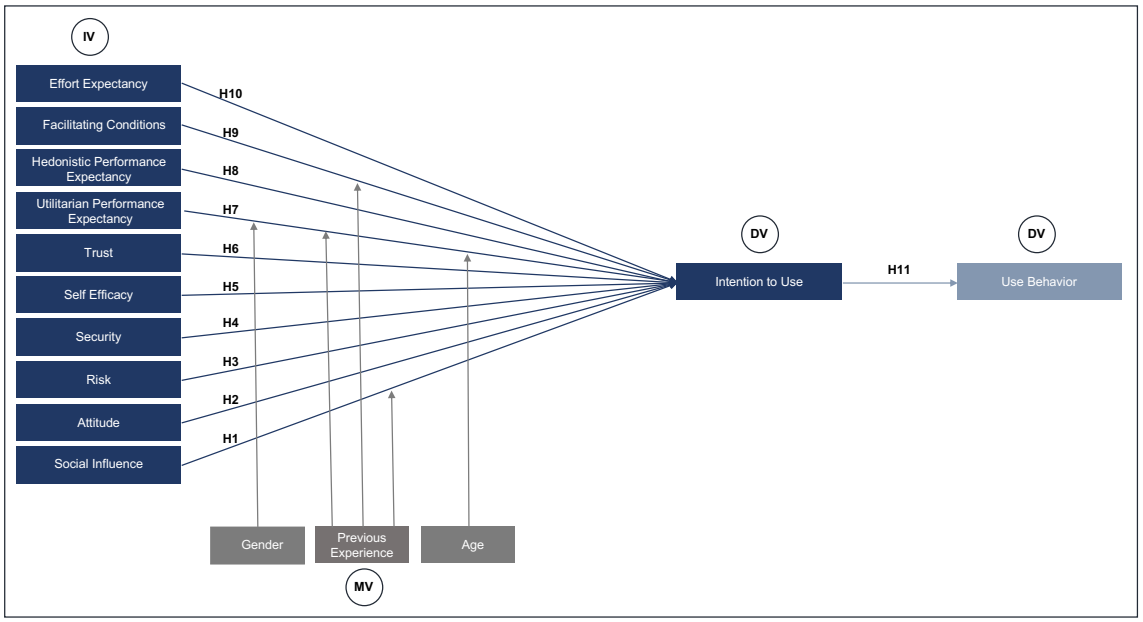
2.3. Analytical framework

The UTAUT-TAM theoretical framework was selected because it has been widely used in understanding the technology acceptance and use, and it enabled assessment of multiple factors that influence FinTech adoption as it takes a holistic approach. It has evolved from other well-established models, as eluded above, making it relevant for this study to explore the relationship between how customers adopt digital financial technology and how they behave in a digitally transformed way.

The framework also organises the mixed methodology used in the study by integrating the main quantitative hypotheses, which were derived from the Unified Theory of Acceptance and Use of Technology-Technology Acceptance Model (UTAUT-TAM). In other words, the framework shows that the more customers adopt digital financial technology, the more likely they are to behave in a digitally transformed way. This is because digital financial technology can make it easier for customers to access financial services and products, which can lead to changes in their financial behaviour.

The hypotheses in the framework help to explain this relationship by identifying the factors that influence customer adoption of mobile FinTech and digitally transformed behaviour. The Structural Equation Modelling (SEM) is a multivariate statistical technique that was used to analyse data and test relationships between variables. SEM was used to analyse both observable (dependent) and unobservable (independent) variables.

Figure 1: The Quantitative Research Model.



Source: Author's Calculations

Figure 1 illustrates the quantitative model adopted for this study, which is based on the UTAUT-TAM model. All ten independent variables from the UTAUT-TAM model are included with three mediators from Khalilzadeh's (2017). The employed factors have been designed following the UTAUT-TAM model and the following independent variables have been considered:

- Effort Expectancy (EE). It refers to the populations perceived ease of use of the digital financial products or the estimated effort to use it.

- Facilitating Conditions (FC). This factor is the perceived good availability of resources by the population. That is, the ease to access.

- Hedonistic Performance Expectancy (HPE). The belief that using digital financial products will be enjoyable and pleasurable.

- Utilitarian Performance Expectancy (UPE). This factor is related to the populations perceived usefulness of digital financial products in terms of its performance.
- Trust (TR). The belief that digital financial products are reliable and they will not harm the population/user.

- Self Efficacy (SE). The populations self-judgement on their perceived level of competency and capability to execute the required tasks to use digital financial products.

- Security (SEC). The perception of how safe the population feels when using digital financial products.

- Risk (RI). The populations perception of the potential loss or damage that could occur when using a digital financial product.

- Attitude (ATT). This factor describes the populations resistance and their perceived benefits when using the digital financial products.

- Social Influence (SI). This factor is the populations perception for collaboration with other people when using the digital financial products.

- Intention to Use (IU). This factor is related to the populations intention of using digital financial products in other subjects if it was possible. Consequently, it measures the quality of the provided resources to students in some manner.

Table 1 shows the 15 statements that made up the questionnaire that was distributed to the respondents about barriers to adopting digital financial products.

Each statement corresponds to a factor that influences the adoption of technology, as identified by the UTAUT-TAM model.

Table 1: Independent Variable Statements (Jacobs, 2021).

Abb.	Statement	Constructs
SE	Users' digital literacy to navigate and interact on digital financial products.	Self-Efficacy
SE	Users' knowledge about digital financial products.	Self-Efficacy
FC	Different user language options (e.g. vernacular) available on digital financial products.	Facilitating Conditions
FC	Internet connection and/or smart phones to use digital financial products.	Facilitating Conditions
RI	National policy and regulation for the use of digital financial products in South Africa.	Risk (Privacy)
TR	Partnership and collaboration between digital financial technology providers and the population in South Africa.	Trust

PR1	Privacy of personal information on digital financial products	Risk (Performance)
FC	Technical support (e.g. robo-advisors / chatbots) on digital financial products.	Facilitating Conditions
SEC	Security assurances (a pop-up screen with T&C's) to advise the security controls used on the mobile FinTech application.	Security
SI	Online peer reviews for digital financial products.	Social Influence
ATT	Positive customer sentiments towards using digital financial products.	Attitude
UPE	Useful benefits in using digital financial products.	Utilitarian Performance Expectancy
HPE	Fun or entertainment factor to using digital financial products.	Hedonic Performance Expectancy
BI	Willingness to learn how to use digital financial products.	Behavioural Intention
FC	Affordable digital financial products.	Facilitating Conditions

The framework is important because it provides a better understanding of the relationship between customer adoption of digital financial technology and digitally transformed behaviour. This understanding can be used by businesses to develop more effective digital financial products that meet the needs of customers. The framework can also be used by policymakers to develop regulations that promote the adoption of digital financial technology and encourage digitally transformed behaviour.

Lastly, the framework can contribute to literature about FinTech use in South Africa. Other researchers can build on the findings of this study to focus on specific areas, which will ultimately expand the knowledge base on FinTech use in South Africa.

2.4. Conclusion of literature review

In conclusion, this chapter has reviewed the literature on the adoption of digital financial technology products by South Africans. The chapter has examined the barriers and facilitators to adoption, as well as the relationship between digitally transformed customer behaviour and adoption.

2.5. Summary of the literature and theoretical framework

The literature on FinTech adoption reveals a growing body of research that explores various factors influencing the acceptance and use of financial technology solutions, particularly in emerging markets. Several key themes and theories emerge from existing studies relevant to the research objectives.

Various theoretical models have been employed to understand FinTech adoption, including the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These frameworks emphasize factors such as perceived ease of use, perceived usefulness, and social influence as critical determinants of technology adoption. Recent adaptations of these models incorporate additional variables specific to the FinTech context, such as trust, security, and financial literacy.

Studies indicate that FinTech is being implemented successfully in several emerging markets, showcasing diverse applications ranging from mobile banking to peer-to-peer lending. For instance, countries like Kenya and Nigeria have seen significant advancements in mobile payment systems, which have enhanced financial inclusion among unbanked populations. These implementations highlight the importance of local context, regulatory environments, and user needs in shaping FinTech solutions.

The relationship between financial literacy and FinTech adoption is a critical area of exploration. Research suggests that higher levels of financial literacy correlate with increased confidence in using FinTech services. Individuals who possess a better understanding of financial concepts are more likely to engage with digital financial products, as they can navigate the complexities of these technologies effectively. This synergy between financial literacy and FinTech adoption underscores the need for educational initiatives that empower users to leverage FinTech solutions for their financial needs.

The literature also identifies several barriers to FinTech adoption, including concerns about security, privacy, and the digital divide. Users in emerging markets may face challenges related to internet access, technological

infrastructure, and trust in digital platforms. Addressing these barriers is essential for fostering a conducive environment for FinTech growth.

Cultural attitudes and social norms play a significant role in shaping user perceptions and acceptance of FinTech. Studies highlight the importance of understanding local customs and practices to design FinTech solutions that resonate with users in specific contexts.

In summary, the literature on FinTech adoption provides valuable insights into the factors influencing the acceptance of financial technology solutions, particularly in emerging markets. It emphasises the interplay between theoretical frameworks, financial literacy, and contextual factors, highlighting the need for targeted strategies to enhance FinTech adoption and promote financial inclusion.

The literature review in the study provides a foundational understanding of the factors influencing the adoption of financial technology (FinTech) solutions in South Africa. However, several limitations and gaps can be identified that may affect the comprehensiveness and applicability of the findings.

The literature review may have a limited scope, focusing primarily on studies conducted in South Africa or similar emerging economies. While this focus is relevant, it may overlook broader global perspectives and comparative analyses that could enrich the understanding of FinTech adoption. Including literature from developed economies could provide insights into different adoption dynamics and highlight best practices that could be adapted to the South African context.

The review primarily relies on established models such as the UTAUT (Unified Theory of Acceptance and Use of Technology) and TAM (Technology Acceptance Model). While these frameworks are widely recognized, the literature review could benefit from a discussion of alternative or emerging theoretical frameworks that address the unique challenges and opportunities in the FinTech landscape. This could include frameworks that consider socio-cultural factors or behavioural economics, which may be particularly relevant in the South African context.

The literature review may not adequately address emerging trends in FinTech, such as the impact of blockchain technology, cryptocurrencies, and decentralized finance (DeFi). These trends are reshaping the financial landscape and could significantly influence user adoption and perceptions. A more comprehensive review that includes these aspects would provide a more holistic view of the current state of FinTech.

The review may not sufficiently explore the diversity of users within the South African context, particularly regarding different demographic groups, such as rural versus urban populations, or varying levels of digital literacy. Understanding how these factors influence FinTech adoption could reveal important nuances that are currently overlooked.

While the literature review cites various studies, it may lack a critical evaluation of the empirical evidence presented in these works. A more thorough critique of the methodologies, sample sizes, and contexts of the cited studies would strengthen the literature review by identifying potential biases or limitations in the existing research.

The review may not adequately address the regulatory and policy environment surrounding FinTech in South Africa. Understanding the role of government policies, regulations, and institutional frameworks is crucial for comprehending the barriers and facilitators of FinTech adoption. A discussion of these factors could provide valuable insights into how they impact user trust and security perceptions.

The literature review could benefit from a more explicit identification of gaps in the existing research and suggestions for future studies. Highlighting specific areas where further investigation is needed would not only enhance the review's contribution to the field but also guide subsequent research efforts.

In summary, while the literature review provides a solid foundation for understanding FinTech adoption in South Africa, it has limitations related to scope, theoretical frameworks, emerging trends, user diversity, empirical evidence, regulatory context, and future research directions. Addressing these gaps could enhance the comprehensiveness and applicability of the findings, ultimately contributing to a more nuanced understanding of the factors influencing FinTech adoption.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Research approach

This study was conducted using a quantitative approach which entails collection and analysis of numerical data to explain phenomena. A quantitative approach was chosen for this study because it enables the researcher to measure multiple barriers and enablers of FinTech use simultaneously in a large group of participants, this allows the researcher to generalise or make inferences. A quantitative approach also enables the researcher to make empirical inferences about relationships between variables, for example associations between sample characteristics (gender, age, race, income) and use of FinTech.

The quantitative approach that allows the researcher to explore multiple concepts and relationships is appropriate because the literature on FinTech shows diverse enablers and barriers depending on the type of FinTech service and population group. The mutual exclusiveness of questions was validated by factor loadings.

3.2. Research design

The research was conducted using online surveys that were sent through online platforms. Surveys are appropriate for this study for three reasons. First, a survey allowed the researcher to gather multiple pieces of information – demographics, and multiple discrete barriers and enablers objectively and simultaneously. Secondly, a survey enabled the researcher to capture data than can be categorised or ordered numerically for quantitative analysis. Thirdly, the survey provided enhanced internal validity of the study as the questions were based on a survey that was validated in other empirical studies. Lastly, the survey was practical and low cost which is appropriate for unfunded research.

Notwithstanding these benefits, surveys maybe subject to information bias and if construct validity if the questions are not asking what the mean or are not clear to participants. This was not the case with this study as a pre-tested survey was used and it was based on constructs that have been measured before. Secondly, surveys may be subject to low response rates which can ultimately affect the power of the study and generalisability. This was also not the case with this survey as the responses received were 227 in total which is deemed adequate.

3.3. Data collection methods

Data was collected using an online survey. The survey was designed based on the user adoption technology model. The survey was developed on Qualtrics and it was piloted to participants representative of diverse South Africans (by race, age, gender, and level of education). This was done to ensure that the survey is easy to understand and does not take too long to complete. The survey comprised of multiple-choice questions such as provided in the Demographics section for Gender, Age, Education Level and Nationality or Likert type (ranging from “strongly agree” to “strongly disagree”). The survey was constructed in simple English.

3.4. Population and sample

3.4.1. Population

The study population was released to South Africans over the age of 18. The reason for the inclusion of broad categories was to enable comparisons in enablers and barriers encountered by different demographic groups.

3.4.2. Sample and sampling method

A convenient sampling method was used. Convenient sampling is a non-random sampling method that includes using all participants who agree to participate and meet the inclusion criteria (Residing in South Africa and being 18 and above). The study aimed to capture a representative sample for various racial, groups, education levels and employment sectors. While this is achievable by random sampling, the resources are not available to enable random sampling.

To mitigate these challenges, the survey distribution was targeted e.g., some through the university, others through places of work and others to the informal low-income employment sectors. The survey has allowed for aggregated and sub-group analysis to ensure that varying representations (if any) are considered. The survey comprised of 47 questions and variables with a sample size of 227.

3.5. The research instrument

Data collection instrument was adopted from a study by Jacobs (2021). This was an online survey/questionnaire that assessed demographics – age, gender, education levels, racial group, residence, employment status and income. The second part of the question assessed the factors that influence the adoption of digital financial technology solutions based on the analytical framework on adoption of technology.

The constructs that were explored include Effort Expectancy (EE), Hedonic Performance Expectancy (HPE), Utilitarian Performance Expectancy (UPE), Social Influence (SI) and Self-Efficacy (SE) (Jacobs, 2021). Risk (RI), Attitude (ATT), Facilitating Conditions (FC), Social Influence (SI), Trust (TR), Security

(SEC) and Intention To Use (IU) are additional barriers that have been identified and included.

3.6. Procedure for data collection

Data was collected through an online questionnaire targeting various demographics and economic sectors. The respondents were able to view the questions and were prompted to provide a response based on the 6 defined Likert type (ranging from “strongly agree” to “strongly disagree”) via Qualtrics.

3.7. Data analysis strategies and interpretation

Data was analysed quantitatively using IBM SPSS version 28. Descriptive statistics in the forms of frequencies, medians, means and standard deviations were used based on the distribution of data. Continuous data that is normally distributed was interpreted using means and standard deviations and skewed data was interpreted using medians and interquartile ranges.

Frequencies and percentages were used for categorical data such as gender, education level and racial groups. Multivariate analysis variance was used to identify associations between demographic characteristics and specific barriers and enablers while ANOVA were used to make inferences about the most prevalent barriers and enablers. The threshold for significance was set at 0.05 (Cooksey, 2020).

The proposed statistical technique that was used to test whether data fits a hypothesised measurement model was the confirmatory factor analysis (CFA). This is because CFA is a more powerful tool than exploratory factor analysis (EFA) because it allows the researcher to test specific hypotheses about the relationships between the observed variables and the latent factors (Cooksey, 2020).

3.8. Possible limitations and challenges of the study

The study was subject to a few limitations.

- First, there was no random sampling. This implies that the findings were not generalisable to the whole population.

- Secondly, the questionnaire was based on an existing theory, this did not enable exploration of enablers that have not already been theorised that would emerge in a qualitative study.

- The survey was completed in the absence of the researcher which did not enable participants to ask additional questions if there was something that they did not understand.

- The study randomly collected data from 227 participants across South Africa through a questionnaire that was published on an online platform as depicted in Table 1 below. The study was published on WhatsApp however due to insufficient feedback, a decision was made to distribute it to students at the Witwatersrand University via email and other channels which helped improve the sample size.

3.9. Quality Assurance

To assess the validity of the factors, the sampling adequacy of the scales will be examined using the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. According to Alshehri (2012), these two measures are most suitable for factor analysis.

The model constructs were checked for normal distribution, a pre-analysis, and data screening step, as recommended by Hair, Black, Babin, Anderson and Tatham (1998). Univariate normality statistically examined the distribution of data for each construct. Hair et al. (1998) recommends that the confirmatory factor analysis (CFA) be then conducted to test the statistical significance of the proposed relationships between the variables. Confirmatory factor analysis (CFA) will also be used to assess the fit of the model to data collected. This will involve assessing both the convergent validity and the discriminant validity of the model.

The model constructs were checked for normal distribution as a preliminary step in data analysis, as recommended by Hair et al. (1998). Univariate normality is a statistical method for assessing the distribution of data for each construct. The reliability of the results from the Likert scales i.e. Likert type (ranging from “strongly agree” to “strongly disagree”), in the UTAUT-TAM items were assessed using Cronbach's alpha, a statistical measure of internal consistency. A Cronbach's alpha score of 0.7 or higher is generally considered to be acceptable (Hair et al., 1998). This study employed one Likert scale to measure the investigated constructs. One scale ranged from 1 ("Strongly Disagree") to 6 ("Strongly Agree") and was used for constructs like system quality, data quality, etc. This scale was chosen to balance neutral responses and thus increasing valid points for analysis.

Internal consistency is a measure of how well a scale measures the same construct across all its items. A high internal consistency score indicates that the items in the scale are measuring the same thing, while a low internal consistency score indicates that the items are measuring different things. The cut-off value of 0.6 is generally accepted as the minimum acceptable value for internal consistency. However, some researchers may adopt a lower threshold, such as 0.5, depending on the specific research question and the nature of data.

In this study, the cut-off value of 0.6 was adopted as the lower limit and benchmark value for internal consistency. This is based on the recommendation of Hair et al. (1998), who suggests that a cut-off value of 0.6 is appropriate for most research studies. Exploratory factor analysis (EFA) was conducted on the collected data as a preliminary step to assess the reliability and one-dimensionality of the constructs.

Ten model fit indices were used to assess the overall fit of the proposed model to data. This was done to ensure that the model accurately represents data before hypothesis testing can be conducted. The convergent design has been selected for this study. According to Creswell and Creswell (2018) convergent design is considered the best approach when using a multi-part instrument with parallel variables or concepts.

Discriminant validity is a measure of how well different constructs are distinguished from each other. It is important to have discriminant validity because it ensures that the measures of each construct are not simply measuring the same thing. One way to assess discriminant validity is to compare the square roots of the average variance extracted (AVE) to the inter-construct correlations. The AVE is a measure of how much variance in a construct is explained by its

measures. The inter-construct correlation is the correlation between two constructs.

According to Fornell and Larcker (1981), the square root of the AVE should be greater than the inter-construct correlations for each pair of constructs to have discriminant validity. This means that each construct should explain more variance in its own measures than it shares with other constructs.

Lastly, according to van der Schoot, Lugtig and Hoox (2012) to ensure that comparisons made on latent variables are valid across groups or time, it is important to establish measurement invariance. This can be done by running a set of increasingly constrained structural equation models and testing whether the differences between the models are significant. Measurement invariance is established when the factor loadings, intercepts, and residual variances are equivalent across groups or time.

3.10. Ethical considerations

Ethical approval was obtained from the University ethics committee to enable the study to be conducted. The research only includes participants above the age of 18, this was to ensure that informed consent was granted. Participation was voluntary, and participants were informed of their right not to participate in the participant information sheet. The survey was anonymous, and no identifying data was collected or analysed. Data has been stored in a password protected computer only accessed by the researcher and it will not be used for any reason other than the proposed study.

3.11. Summary of the research methodology

The research methodology employed in the study is structured to effectively investigate the factors influencing the adoption of financial technology (FinTech) solutions in South Africa. The study adopts a quantitative research approach, which allows for the collection and analysis of numerical data to explain phenomena related to FinTech adoption. This approach is suitable for measuring multiple barriers and enablers of FinTech use across a large participant group, facilitating generalizations and empirical inferences about relationships between various demographic characteristics and FinTech usage.

A structured online survey was developed as the primary research instrument for data collection. The survey included multiple sections designed to capture demographic information, as well as specific barriers and enablers related to FinTech adoption. The questions were formulated based on validated instruments from previous empirical studies, ensuring relevance and clarity.

Participants were selected using a non-random convenience sampling method. The inclusion criteria required participants to be residents of South Africa and at least 18 years old. This approach allowed for the collection of data from individuals who voluntarily participated through an online questionnaire, resulting in a total of 234 responses, with 227 usable responses after data screening.

Data collection was conducted through online surveys distributed via various online platforms. This method was chosen for its practicality, cost-effectiveness, and ability to reach a diverse audience efficiently. The survey format enabled the researcher to gather comprehensive information on participants' demographics and their perceptions of FinTech.

The collected data were subjected to quantitative analysis using Structural Equation Modeling (SEM) to test the hypothesised relationships within the modified UTAUT-TAM model. This analytical method allowed for the examination of complex relationships between variables and provided insights into the factors influencing FinTech adoption.

To ensure the validity and reliability of the findings, the research instrument's internal consistency was assessed using Cronbach's alpha, which yielded a coefficient of 0.848. This value indicates a high level of internal consistency among the items measuring the intention to use digital financial technology, exceeding the acceptable threshold of 0.70 in social science research.

The study acknowledges several limitations, primarily associated with the non-random convenience sampling method, which may introduce selection bias and limit the generalisability of the findings to the broader population. Additionally, the reliance on self-reported data may affect the accuracy of responses, as participants may have biases in their perceptions of FinTech.

In summary, the research methodology employed in this study is robust, utilising a quantitative approach and a well-structured survey instrument to gather data on FinTech adoption in South Africa. While the methodology has strengths in its design and analysis, it also faces limitations that may impact the generalisability of the findings.

CHAPTER 4: RESULTS / FINDINGS

4.1. Introduction

This chapter explores how the five research objectives of the study played out in the findings presented previously, namely:

- **Objective 1**: to understand how the South African demographics (age, gender, race, income, and education level) influence the adoption of FinTech solutions.

- **Objective 2**: to ascertain whether trust, risk and security influence the intention to adopt FinTech solutions in South Africa.

- **Objective 3**: to investigate the influence of personal factors, such as attitude, self-efficacy, hedonic performance expectancy, and utilitarian performance expectancy, on the intention to adopt FinTech solutions in South Africa.

- **Objective 4**: this study aims to investigate the influence of facilitating conditions and social conditions on the intention to adopt FinTech solutions in South Africa.

- **Objective 5**: to investigate whether ease of use of technology or system (effort expectancy) influences the intention to adopt FinTech solutions in South Africa.

A total number of 234 responses were recorded however only 227 results were deemed usable from the questionnaire that was published online. The quantitative results were analysed to test the hypothesised relationships in the modified UTAUT-TAM model.

4.2. Results

4.2.1. Description of the sample

To understand the sample better, descriptive statistics are presented before analysing data using the Structural Equation Modelling (SEM) model. These statistics include the demographic characteristics of the 227 respondents. The demographic characteristics of the sample are presented on Table 2.

A majority of the participants (56.4%) were female, and most participants were between the ages of 21 and 35 (see Table 1). Most respondents (74.4%) had post high school education of which a majority had a diploma or bachelor's degree. Almost half of the sample (44.5%) were in the low-income bracket i.e. earning between 0 and R10 000. While there were participants from all South African provinces, 71.1% were from Gauteng.

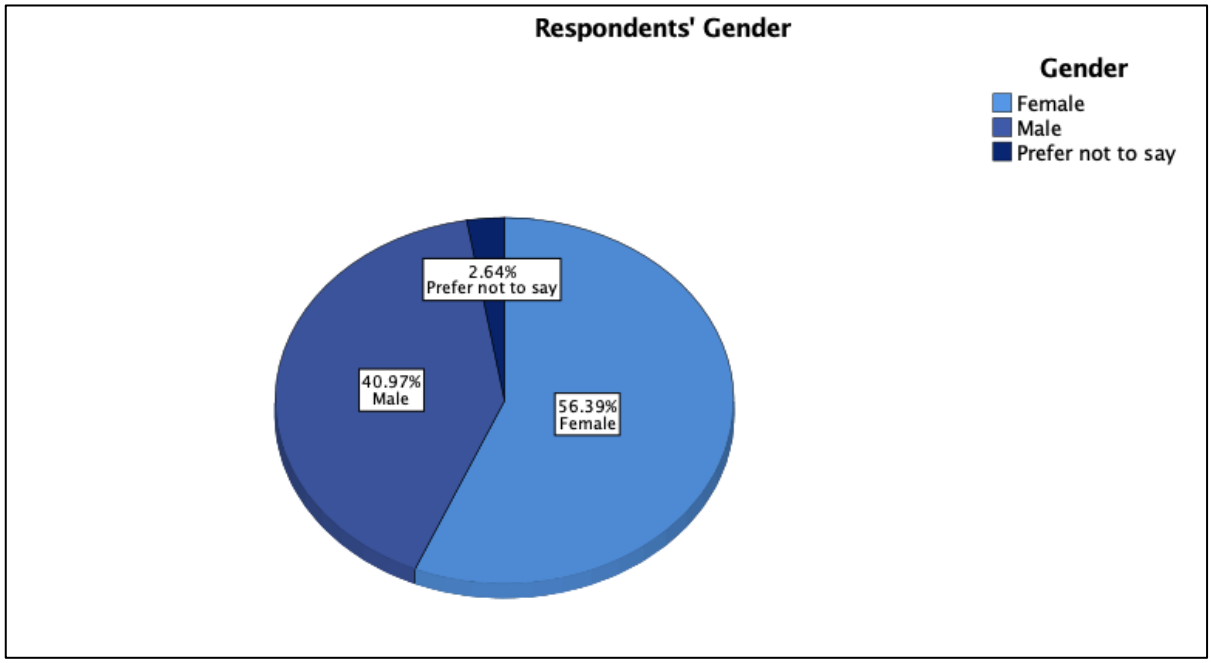
Table 2: Sociodemographic Variables

Variables	Values	N	%
Gender	Female	128	56.4%
	Male	93	41.0%
	Prefer not to say	6	2.6%
Age	21-35 years old	104	45.8%
	36-55 years old	69	30.4%
	20 years and under	49	21.6%
	56 and above	5	2.2%
Level of Education	Diploma / Bachelors qualification	90	39.6%
	Post-graduate qualification	79	34.8%

	High School qualification or below	58	25.6%
Level of Income	Between R 0 - R 10 000	101	44.5%
	More than R50 000	47	20.7%
	Between R 10 000 - R 29 999	44	19.4%
	Between R 29 999 - R 49 999	35	15.4%
Geographical Location	Gauteng	163	71.8%
	KwaZulu Natal	31	13.7%
	Limpopo	13	5.7%
	North West	5	2.2%
	Mpumalanga	5	2.2%
	Western Cape	4	1.8%
	Northern Cape	2	0.9%
	Free State	2	0.9%
	Eastern Cape	2	0.9%

Source: Author's Calculations

Figure 2: Respondents' Gender



Source: Author's Calculations

The collected data reveals a diverse sample of inexperienced, experienced and professionals holding various positions across various organisations and industries. While more female respondents participated, the gender distribution aligns with the reported 56.4% female participation in the survey. Most participants hold diplomas or degrees, with over 44% earning between R0 to R10 000. Considering the sample's diversity and representativeness, data analysis can proceed to the next stage.

4.2.2. Data Screening

Data collected was analysed using the “Statistical Package for the Social Sciences (SPSS) Version 28” screened for missing data. There were seven responses identified with missing data. The missing data was not excluded from the dataset. The median is computed considering all values of the items construct data from the upper and lower, the calculated value is used to replace the missing value (Hair et al., 2010).

4.2.3. Sample Outliers

This study defines outliers as data points that significantly deviate from the rest of data collected (Hair et al., 2010). To identify potential outliers, the study screened for unusually high or low responses, which might indicate participants not belonging to the target population (Tarka, 2018). Typically, extreme values exceeding three standard deviations above or below the mean are considered outliers (Hair et al., 2010). The study examined the standardised scores of each participant on every questionnaire item, which represent the number of standard deviations their response deviates from the mean. No outliers were identified.

4.2.4. Descriptive Statistics

This study employed one Likert scale to measure the investigated constructs. One scale ranged from 1 ("Strongly Disagree") to 6 ("Strongly Agree") and was used for constructs like system quality, data quality, etc. Means below 4 indicate most respondents disagreeing with the statements, values between 4 and 4.5 indicate neutrality, and means above 4.5 suggest agreement or strong agreement. Table 3 summarises the mean, standard deviation, skewness, and kurtosis of the composite scores.

Table 3: Descriptive Statistics

Variables	Minimum	Maximum	Sum	Mean	Std.Dev	Skewness	Kurtosis
Effort Expectancy	1.00	6.00	1187.00	5.2291	.90904	-2.070	6.146
Facilitating Conditions	1.67	6.00	1006.33	4.4332	1.30003	-.369	-.953
Hedonistic Performance Expectancy	1.00	6.00	1143.33	5.0367	1.02291	-1.631	3.356
Utilitarian Performance Expectancy	1.67	6.00	893.33	3.9354	1.08387	-.084	-.746
Trust	1.00	6.00	605.33	2.6667	1.18869	.542	-.496
Self-Efficacy	1.33	6.00	824.67	3.6329	1.20281	.203	-.955
Security	1.00	6.00	908.67	4.0029	1.17454	-.612	-.172
Privacy	1.00	6.00	1146.33	5.0499	1.03548	-1.734	3.723
Performance Risk	1.00	6.00	565.00	2.4890	1.21982	.700	-.056
Attitude	1.00	6.00	1187.00	5.2291	.90904	-2.070	6.146
Social Influence	1.67	6.00	1006.33	4.4332	1.30003	-.369	-.953

Source: Author's Calculations

4.2.4.1. Effort Expectancy

The survey investigated participants' perceived ease of using digital financial technology, also known as Effort Expectancy. Table 2 shows an average score of 5.2 on a 6-point scale (with 1 being "strongly disagree" and 6 being "strongly agree"). Additionally, the standard deviation is 0.9, indicating a relatively consistent response distribution. This suggests that most respondents found the digital financial products to be easy to use and requiring minimal effort.

4.2.4.2. Facilitating Conditions

The survey examined how easy participants perceived it was to access digital financial technology solutions. This is also known as perceived good availability of resources by the population or Facilitating Conditions. Table 2 shows an average score of 4.4 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree'). Additionally, the standard deviation of 1.3 suggests a relatively consistent distribution of responses. This implies that most participants found digital financial products to be easy to access.

4.2.4.3. Hedonic Performance Expectancy

The survey investigated the perceived enjoyment and satisfaction of the population when interacting with digital financial technology. Table 2 shows an average score of 5.0 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree'). Additionally, the standard deviation of 1.02 suggests a relatively consistent distribution of responses. The mean score of 5.04 suggests that participants agree that enjoy interacting with digital financial technology. The standard deviation of 1.02 indicates a 20.46% spread of responses This implies that most participants found digital financial products to be easy to access.

4.2.4.4. Trust

The survey investigated the populations perceived usefulness of digital financial technology in terms of its performance. Table 2 shows an average score of 3.9 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree') which falls right in the middle between the neutral point (4) on the scale. Additionally, the standard deviation of 1.08 suggests a relatively consistent distribution of responses. While the mean is not significantly closer to either extreme ("strongly disagree" or "strongly agree"), the standard deviation suggests there might be a mix of opinions represented in the data.

4.2.4.5. Self Efficacy

The survey investigated the populations belief that digital financial technology are reliable and they will not harm the user. Table 2 shows an average score of 2.66 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree') which falls between "disagree" (2.5) and "neutral" (3.5) on the scale, leaning closer to "disagree". Additionally, the standard deviation of 1.18 indicates a moderate spread of responses around the mean. Therefore, while the majority of the population might disagree with the statement, there are likely some who are neutral or even slightly agree.

4.2.4.6. Security

The survey investigated the populations belief that digital financial technology solutions are reliable and they will not harm the user. Table 2 shows an average score of 3.63 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree') which falls between "somewhat agree" (3.5) and "agree" (4.5) on the scale, leaning closer to "agree.". Additionally, the standard deviation of 1.20 indicates a moderate spread of responses around the mean.

This means that while the average participant leaned towards agreement, there were participants who both strongly agreed and strongly disagreed with the statement. Therefore, while the overall sentiment suggests a leaning towards agreement, the spread of responses highlights the presence of diverse opinions among the participants.

4.2.4.7. Social Influence

The survey investigated the populations perception for collaboration with other people when using digital financial technology. Table 2 shows an average score of 4.0 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree') suggests that participants were neutral on the statement. However, the interpretation of this neutrality needs to be considered alongside the standard deviation of 1.17. A standard deviation of 1.17 suggests a slightly wider spread of responses compared to the scenario where responses are clustered tightly around the mean.

Therefore, while the average participant was neutral, there was still some variation in opinions. Some participants might have leaned slightly towards agreeing with the statement (scores slightly above 4), while others might have leaned slightly towards disagreeing (scores slightly below 4). The findings indicate a lack of clear consensus among participants, with opinions scattered around the neutral point.

4.2.4.8. Use Behaviour

The survey investigated the populations intention of using digital financial technology solutions in other subjects if it was possible. Table 2 shows an average score of 5.05 on a 6-point scale (where 1 indicates 'strongly disagree'

and 6 indicates 'strongly agree') The mean of 5.05 on a scale of 1 (strongly disagree) to 6 (strongly agree) suggests that participants strongly agree with the statement. Additionally, the standard deviation of 1.04, which is relatively low compared to the possible range of the scale (5), indicates that data points are clustered around the mean, suggesting a moderately consistent response distribution.

While the mean is slightly above "agree," it is important to consider the standard deviation as well. A low standard deviation, like 1.04 in this case, signifies that the responses are concentrated around the mean. This reinforces the notion that most participants likely leaned towards "strongly agree". Therefore, based on the mean and standard deviation, it is safe to say that the participants overwhelmingly agreed with the statement.

4.2.4.9. Performance Risk

The survey investigated the populations perception of the potential loss or damage that could occur when using digital financial technology. Table 2 shows an average score of 2.49 on a 6-point scale (where 1 indicates 'strongly disagree' and 6 indicates 'strongly agree') suggests that participants disagree the statement. However, the interpretation of this neutrality needs to be considered alongside the standard deviation of 1.22. The standard deviation of 1.22 is relatively high compared to the possible range of the scale (6 - 1 = 5). This suggests that data points are spread out around the mean, indicating a moderate level of variability in the responses. In simpler terms, most participants disagreed with the statement, but there was some variation in their level of disagreement.

4.2.5. Correlation Matrix of Composite Scores

Construct validity, which assesses how well a measure captures its intended concept, can be established through convergent and discriminant validity (Sangthong, 2020). Table 4 below, presents the inter-correlations between the constructs. As per the principle of discriminant validity, measures of the same construct should have higher correlations with each other compared to their correlations with measures of different constructs (Hair et al., 2010).

Table 4: Correlation Matrix of Composite Scores

		Correlations								
	Mean (S.D)	**EE**	**FC**	**HPE**	**TR**	**SE**	**SEC**	**SI**	**UB**	**PR**
EE	5.23 (.90)	-							.	
FC	4.43 (1.30)	.244								
HPE	5.04 (1.02)	.541	.298							
TR	3.94 (1.08)	.203	.212	.288						
SE	2.67 (1.89)	-.218	.022	-.054	.068					
SEC	3.63 (1.20)	.243	.147	.190	.330	-.033				
SI	4.00 (1.17)	.155	.201	.233	.257	.260	.120			
UB	5.05 (1.04)	.440	.227	.409	.271	-.165	.309	.198		
PR	2.49 (1.22)	.103	.266	.148	.408	.251	.596	.236	.194	

Source: Author's Calculations

4.2.5.1. Research objective 1: To understand how the South African demographics (age, gender, race, income, and education level) influence the adoption of FinTech solutions.

There was adequate us of FinTech among the respondents in the sample with 78.9% (n=17) reporting that they used FinTech. Only 3.1% (N=7) of participants reported that they do not use FinTech while 18.1% (N=41) reported that they sometimes use FinTech.

Regarding intent to use, 88% (N=200) agreed or strongly agreed that they intended to use FinTech, while 10.1% (N=23) somewhat agreed they intended to use FinTech. Only four respondents (1.8%) did not intend to use FinTech.

Now looking at the relationship between FinTech use and sociodemographic variables, bivariate correlation analysis (Spearman's rho) showed significant correlations. User behaviour was positively corelated with level of education (Spearman's rho= .188) and level of income (Spearman's rho =.193). This implies that the actual use of FinTech increased with increasing level of income and level of education. Intent to use was positively associated with level of education (Spearman's rho =.470). The higher the level of education, the higher the intent to use.

There were no associations between intent to use and gender, but there was a positive association between actual use and gender. Being female was positively associated with FinTech use (Spearman's rho =.169). The correlations with age and geographical location were not statistically significant.

4.2.5.2. Research objective 2: To ascertain whether trust, risk and security influence the intention to adopt FinTech solutions in South Africa.

The mean score for trust was 3.87 SD (1.01) while for security it was 3.95 SD (1.01). The highest mean score was observed for performance risk, which as 3.42. Looking at the associations between these scores and intention to use, overall, a majority n = 200 (88%) of the respondents agreed or strongly agreed that they intended to use FinTech. Only four participants (1.8%) reported no intention to use FinTech.

All associations between trust, risk and security influence were statistically significant, demonstrating that intent to use and actual user behaviour increased with trust, risk, and security.

4.2.5.3. Objective 3: To ascertain associations between personal factors (attitude, self-efficacy, hedonic performance expectancy, and utilitarian performance expectancy) and the intention to use /use FinTech solutions.

On a Likert scale of 1-6, Hedonic performance expectancy (HPE) was rated the highest personal factors that may influence FinTech adoption; mean =5.04 SD (1.02) followed by Utilitarian Performance Expectancy UPE which had a mean of 4.87 SD (.94). The means rating for attitude was 4.81, SD (.96). Self-Efficacy had the lowest mean score of 2.77 SD (1.22). Looking at the associations between intention to use and personal factors, there were statistically significant positive correlations between HPE (Spearman's rho =.263) and UPE (Spearman's rho =.260), and attitudes (Spearman's rho =.392) and intent to use FinTech. Interestingly, the associations between self-efficacy and intent to use were not statistically significant (Spearman's rho=-.67)

Similar trends were observed when the analysis looked at association between personal factors and actual user behaviour; the use of FinTech increase with HPE (Spearman's rho =.308), UPE (Spearman's rho =.359), and attitudes (Spearman's rho =.443). The actual use of FinTech declined with Self-Efficacy. Participants that had low self-efficacy i.e., needed assistance to use applications were less likely to use FinTech solutions.

4.2.5.4. Objective 4: To investigate the influence of facilitating conditions and social conditions on the intention to adopt FinTech solutions in South Africa.

On a Likert scale of 1-6, the mean rating for facilitating conditions was 4.99 SD (.70) while the mean for social influence was 4.00, SD (1.18). There were statistically significant correlations between facilitating conditions such as having access to a smart phone, knowledge to use FinTech services and availability of assistance, and intent to use (Spearman's rho =.324). Social influence was also positively associated with intent to use (Spearman's rho =.242).

Similar observations were made when facilitating conditions and social influence were correlated with actual behaviour.

4.2.5.5. Objective 5: To investigate the influence of effort expectancy on the intention to adopt FinTech solutions in South Africa.

On a Likert scale of 1-6, the mean rating for effort expectancy was 5.23 SD (.90). There were statistically significant positive associations between intent to use and

effort expectancy (Spearman's rho r=.320). Effort expectancy was also positively associated with actual user behaviour (Spearman's rho r=.303). Use of FinTech increased with increasing effort expectancy.

4.2.6. Confirmatory Factor Analysis

This section presents the analysis of determining and confirming the strengths of the relationships between/among the observed manifest variables and their respective factors (constructs or components). This has the objective of connecting the loadings between factors and their respective loadings from the observations. The goal further extends to understand the resulting hypothesis testing outcomes as to whether the output p-values are significant or not. In this case the level of significance is the default one of 0.05. A p-value less than the level of significance will show significance.

In addition, there will be a determination of the covariance between pairs of factors and their respective indicators. It is of great interest to understand the strength of the covariance between any two pairs of the factors. A similar test of significance is performed. Finally, this analysis looks at the practical relationships as seen through the path Figure. The variances, covariances and factor loadings are easily observed on the path Figures.

4.2.6.1. Factor Loadings

The following table presents factor to indicator loadings, which demonstrate the relationship between factors and indicators through their connectivity. The observed factor to indicator loadings shows the correctness and of

connectedness and their observed indicators, and there existence of strong relationships based on the standardised loadings. The factor loadings for all items within the model's constructs demonstrated good internal consistency, exceeding 0.6, except for a single item measuring social influence.

Factor loadings exceeding the threshold above 0.50 met the criteria for convergent validity (Byrne, 2013). Convergent validity ensures that the items within each construct measure the intended concept effectively. The big concern is why loadings smaller were not removed from the system. The answer is that the model fitness did not require any modifications and so, the model was adequate. This did not require any adjustment.

It was observed that the testing analysis showed that all the p-values of all the loadings are highly significant with p-values <0.001. This shows the strong relationships between the extracted factors and their respective indicators.

Table 5: CFA - Factor Loadings

Factor	Indicator	Estimate	SE	Z	p	Stand. Estimate
Factor 1	EE	1.000 [a]				0.592
	FC	0.806	0.0845	9.54	< .001	0.622
	HPE	1.126	0.1325	8.50	< .001	0.592
	UPE	1.195	0.1391	8.59	< .001	0.690
	TR	1.084	0.1623	6.68	< .001	0.551
	SEC	1.096	0.1552	7.06	< .001	0.580

Factor	Indicator	Estimate	SE	Z	p	Stand. Estimate
	PR1	1.187	0.1509	7.87	< .001	0.680
	ATT	1.467	0.1688	8.69	< .001	0.826
	BI	1.309	0.1517	8.63	< .001	0.769
	UB	1.268	0.1687	7.52	< .001	0.661
	SI	0.918	0.1711	5.37	< .001	0.420

Source: Author's Calculations

4.2.6.2. Factor Estimates

Covariance analysis determines the degree of change from the variable mean from the values of two random variables and how they move together. For example, if variable X's values move higher whenever variable Y's observations move higher, and the same relationship is found when each variable decreases, these observations are said to have positive covariance. In this case, the table below contains the bivariate two-way observations of two variables for every consideration. These variables are used to determine the bivariate covariations.

They determine correlations and covariances. These variances and covariances are determined for significance. The p-values for the calculated variances and covariances are all less than 0.001, which means that the variances/covariances are highly significant. A good example is the p-value less than 0.001, which shows that, for example, the covariance between factor i and factor j is highly significant. Similarly, when all other covariances are considered, their p-values are all less than 0.001.

4.2.6.3. Model Fit

The model fit calculation shows a significant p-value, but this type of output is taken to be normal with the Chi-Square Distribution has this characteristic due to its normal response to large samples. This however, does not contribute to anything wrong. It is a usual observation.

4.2.6.4. Fit Measures

Fit indices represent how plausible the model you are estimating is. A well-fitting model reduces the discrepancy between the Sigma matrixes. The fit measures test was also performed and the legality fitness of the model for the data of this research was determined.

The CFA model fit was acceptable, with RMSEA at 0.0554 and CFI/TLI above 0.95. The higher the value established, the better and more acceptable. Many average variances extracted were smaller than the correlation coefficients of the factors, which shows the somewhat acceptable discriminant validity.

More commonly, the least acceptable fit measures are in the range of 0.90 for the Comparative Fit Index and similar to a TLI of greater than or equal to 0.90. The analysis of this CFA shows that the model fit measures demonstrate a good fit since the CFI is 0.980 and the TLI =0.966 are all greater than 0.90. The RMSEA is 0.0554, demonstrates a good Root Mean Square Error of Approximation.

Overall, it is appropriate to take the model fit measures to be of acceptable level for both indices types, see table 7.

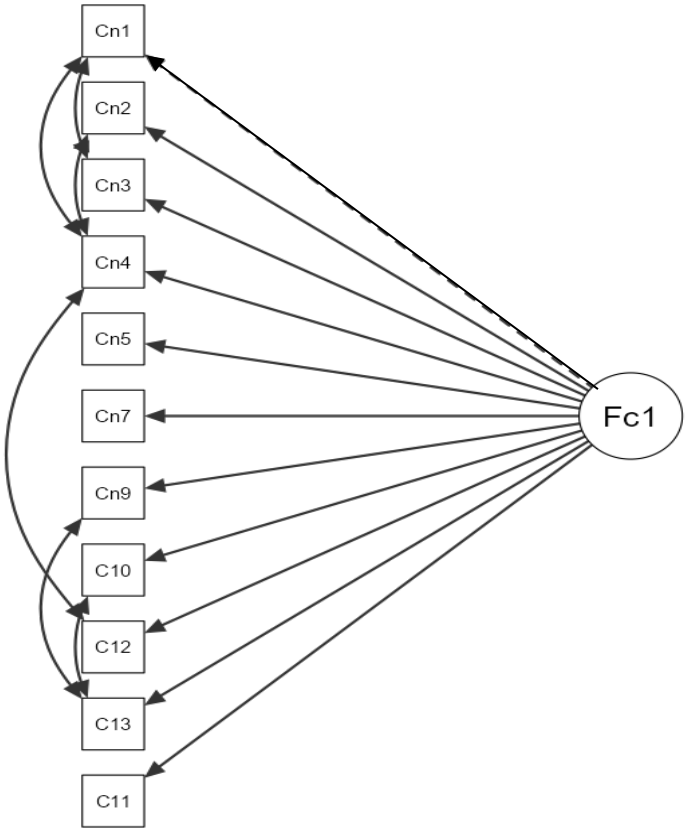
4.2.6.5. The Path Figure

In a CFA, path Figure, Circles represent latent variables, squares represent observed indicators, triangles represent intercept or means, one-way arrows represent paths and two-way arrows represent either variances or covariances. Confirmatory factor analysis (CFA) is a multivariate statistical procedure that is used to test how well the measured variables represent the number of constructs.

The second path Figure below shows the hypothetical statements made regarding the anticipated relationships between different factors (constructs) and between factors and their respective indicators (observed variables) for these data and the research objectives. The usual practice is to set the correlation between the first of the indicators equal to one (1), while others are correctly determined and estimated parameters. The above table of factor loadings shows the estimated loadings. The Figure further shows the covariance and correlations of the structure of factors and of factors and indicators.

Furthermore, a clearer observation shows that the covariance structures among both observed variables and extracted factors to be significant. The path Figure carries a two-fold function. On one hand, the Figure presents the latent variable connection to indicator variables. The two respectively represent a covariance structure for the latent variable and factor loadings for observed variables and the latent variable.

Figure 3: CFA - Path Figure Analysis



Source: Author's Calculations

This analysis has shown that the model fit measures for the CFI, TLI, the SRMR and the RMSEA all show a good fit model due to their good observed statistics. Furthermore, the hypotheses tests over the factor loadings demonstrate highly significant p-values (<0.001). This implies an achievement of all the stated research objectives in accordance with achieved hypotheses.

4.2.7. Structural Equation Modelling

Structural Equation Modelling also referred to as (SEM) is a technique used by researchers to perform multiple linear regressions to determine existing relationships between extracted latent variables and observed indicators, which have been either identified through Confirmatory Factor Analysis or by the Conceptual Framework of the research study. The strength of such relationships are observed through indicator loadings and tests performed by either simple calculations or printed in this document as an output.

Thus, SEM is one of the final stages of performing factor analysis and determining the relationship between different latent variables and indicators. The determination of such latent variables is indicated by a test of hypothesis procedure, which is through probability theory. The rejection criterion is based on a stated level of significance usually categorised between 0.05 or less. In addition, the system is formed of tables of outputs and a path Figure. The path Figure shows the connecting relationships between and among all the involved indicators and the factors. Furthermore, construct strengths are through connections labelled with covariances or correlations in standardised terms.

4.2.7.1. Overall Tests

The following Chi-Square test of model test is supposed to understand whether the distribution under model justification is normal or not. A significant test is a show that the distribution is not normal. But the truth of this case is that under this analysis the Chi-square in sensitive to large sample sizes, always giving significant results. Such is the case here, see table 9. With this understanding, the study continues with the analysis under this backdrop.

4.2.7.2. Fit indices

The below model fit measures are greater than 0.90, which is the least acceptable value for the selected measures. This implies that the model fits data well.

Table 6: SEM - Fit Indices

Label	Value
Comparative Fit Index (CFI	(0.978)
Tucker-Lewis Index (TLI)	(0.959)
Bentler-Bonett Non-normed Fit Index(NNFI)	(0.959)
Bentler-Bonett Normed Fit Index (NFI)	0.951
Parsimony Normed Fit Index (PNFI)	0.507

Source: Author's Calculations

The following fit indices namely: SRMR (0.039) RMSEA (0.056) show that the fitting model is admissible as the observed values are within acceptable limits of <= to 0.08.

4.2.7.3. The Goodness of Fit Index

Goodness of fit test indicates whether data fits the expected distribution. Good results mean your products are coming out the way you want them to come out with the correct width. With goodness of fit tests, you will see two terms in use: the null hypothesis and the alternative hypothesis. Goodness of fit indices such

as the Goodness of Fit Index (GFI) (0.998) and the McDonald Fit Index (MFI) of 0.962 demonstrate a good fit model. They are both greater than 0.70.

Table 7: SEM - Additional Fit Indices

Label	Model
Log Likelihood	-2767.157
Unrestricted Log Likelihood	-2746.476
Hoelter Critical N (CN), a=0.05	200.852
Hoelter Critical N (CN), a=0.01	236.880
Goodness of Fit Index (GFI)	0.998
Parsimony Goodness of Fit Index (GFI)	0.368
McDonald Fit Index (MFI)	0.962

Source: Author's Calculations

4.2.7.4. Estimates

The following estimates of fit measures with p-values far less than 0.001 show that the estimation of relationship between the compound and endogenous1 are properly extracted and the relationship between them and the indicators in the measurement model is significant. All the p-values in the measurement model are significant.

4.2.7.5. Additional Outputs

The reliability analysis shows that the Crobach's alpha and the McDonald alpha both of which have values of 0.764 and 0.725 (1) and (2) are all above the threshold of 0.70, demonstrating a reliable model fitted to the data.

A crucial aspect of research is ensuring the reliability of the measurement tool used to collect data. Reliability refers to the consistency and accuracy of the instrument used in capturing the intended construct (concept being measured). This study employed reliability analysis to evaluate the internal consistency of the UTAUT-TAM measurement model. Two common reliability coefficients, Cronbach's Alpha and McDonald's Omega (also referred to as McDonald's Alpha), to assess the internal consistency of our model.

The results from the analysis above clearly exceed the commonly accepted threshold of 0.70 for internal consistency in research exploring the factors that influence the adoption of digital financial technology in South Africa. This indicates that the measurement instrument used demonstrates a good level of reliability, meaning the items within the scale consistently measure the intended construct.

The high alpha values provide confidence in the internal consistency of the measurement model utilised. This strengthens the validity of the findings, as reliable data collection is essential for drawing accurate conclusions from the research initiative.

The analysis has shown that all the hypotheses had significant p-values of less than 0.001. In general, a p-value of 0.05 or lower is considered statistically significant. This means it is very unlikely (less than 0.1%) that the observed relationships between the analysed variables occurred by chance. Therefore, the null hypothesis (which typically assumes no relationship) can be rejected and it can be concluded that there are statistically significant relationships between the variables in this study.

Considering the correlations between compound and construct 2 (Facilitating Conditions), the observed correlation is 0.74. These findings support objective 3, demonstrating that facilitating conditions have a positive influence on FinTech adoption. This aligns with prior research by Halili and Sulaiman (2019) and Venkatesh et al. (2003), highlighting facilitating conditions as key drivers of technology adoption by consumers.

However, the South African context presents unique challenges. Stark disparities exist between well-developed suburban areas with advanced infrastructure and less developed townships and rural areas. This uneven infrastructural landscape significantly impacts FinTech adoption. Limited access to reliable internet connectivity and a lack of compatible devices act as significant barriers, hindering consumers' ability to utilise FinTech services.

The correlation between compound and construct 3 (Hedonistic Performance Expectancy), it is 0.67 and between compound and construct 4 (Utilitarian Performance Expectancy), it is 0.81. The correlations reported range from 0.67 to 0.81 between the compound variable and constructs 2, 3, and 4. Correlations closer to 1 indicate a stronger positive relationship. In this case, all the

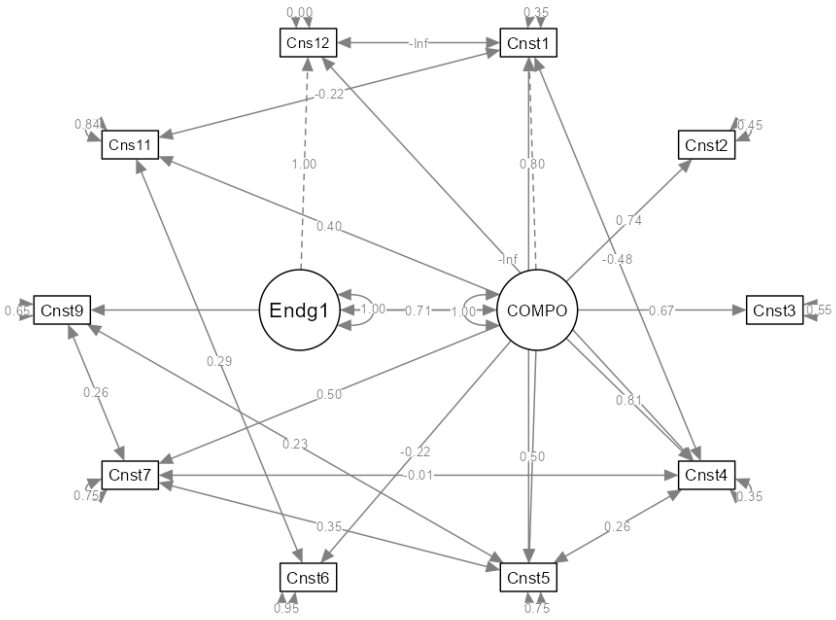
correlations are relatively high, suggesting that the compound variable has a strong positive association with each of these constructs.

Utilitarian Performance Expectancy emerged as the strongest predictor of users' Behavioural Intention (BI) to adopt digital financial technology, supporting objective 3. This finding aligns with prior research on mobile technology adoption, including mobile payments in France (Koenig-Lewis et al., 2015), mobile social networking sites in Malaysia (Wong et al., 2015), and wearable payments in Malaysia (Lee et al., 2020). These studies consistently demonstrate that users are more likely to adopt new technologies perceived to enhance their performance.

Our results further corroborate the assertion by Tobbin and Kuwornu (2011) and Narteh et al. (2017) that perceived performance improvement from using a system positively influences users' intention to adopt it. In the context of digital financial technology, if users believe it can improve their transaction efficiency and performance, they are more likely to embrace its adoption.

On the other hand, between indogenious1 and construct 12 (Behaviour Intent), the correlation is observed to be 1.00, the correlation between Endogenous and compound it is 0.71. All of these converted to p-values of less than 0.001, showing high significances. The correlation between endogenous1 and construct 1 is 1.00. This is a perfect positive correlation, which is unusual in real-world data. The correlation between the endogenous variable and the compound variable is 0.71. This suggests a moderately strong positive relationship between these two variables.

Figure 4: SEM - The Path Model (Independent vs Dependant Variables)



Source: Author's Calculations

The following section provides detailed descriptions of the research constructs:

- Cnst1 : Effort Expectancy (EE)
- Cnst2 : Facilitating Conditions (FC)
- Cnst3 : Hedonistic Performance Expectancy (HPE)
- Cnst4 : Utilitarian Performance Expectancy (UPE)
- Cnst5 : Trust (TR)
- Cnst6 : Self Efficacy (SE)
- Cnst7 : Security (SEC)
- Cnst8 : Privacy (RI)
- Cnst9 : Performance Risk (PR1)
- Cnst11 : Attitude (ATT)
- Cnst12 : Social Influence (SI)

Thus, the objectives regarding Effort Expectancy (EE), Facilitating Conditions (FC), Hedonistic Performance Expectancy (HPE), Utilitarian Performance Expectancy (UPE) and Trust (TR) have all been proved to be effective in view of being achieved. It is easily concluded that with the increase in Effort Expectancy, there will be increase in the ease of use of digital financial technology or the estimated effort to use digital financial technology.

Similarly, the availability of Facilitating Conditions (FC), the perceived good availability of resources by the population, will lead to improved use of financial facilities resulting from access to such facilities. Other hypothesis should be interpreted in like manner.

The significant correlations observed between these factors and FinTech adoption in South Africa can be explained by their combined influence on overcoming potential barriers and fostering positive user experiences. Let's delve deeper into each factor and its connection to FinTech adoption:

- Effort Expectancy: This refers to a user's perception of how easy it is to learn and use FinTech services. South Africans who believe FinTech is user-friendly are more likely to adopt it. Difficulty navigating the technology or complex interfaces can be a significant deterrent. According to Jacobs (2021), This study, Perceived Ease of Use (PE), Effort Expectancy (EE), Social Influence (SI), Habit Formation (Habit), Performance Expectancy (PV), Price Value (PR), and Trust as significant predictors of users' intention (Behavioural Intention, BI) to adopt Mobile Money.

The findings further reveal that user intention positively influences actual use behaviour. Additionally, the research identified significant interrelationships between some of the constructs within the model.

- Facilitating Conditions: This encompasses the resources and support structures available to users for adopting FinTech. In South Africa, this might include access to smartphones, reliable internet connectivity, and assistance (physical or digital) for set-up and troubleshooting. The lack of these facilitating conditions can hinder adoption.

- Hedonic Performance Expectancy: This focuses on the enjoyment and satisfaction derived from using FinTech. South Africans who perceive FinTech as enjoyable and engaging are more likely to adopt it.

- Utilitarian Performance Expectancy: This emphasises the perceived usefulness and practicality of FinTech. South Africans who believe FinTech can simplify financial tasks, save time, or offer better financial management are more likely to adopt it.

- Trust: This is a crucial factor in financial services. South Africans who trust FinTech providers and the security of their transactions are more likely to embrace these technologies. A lack of trust can be a major barrier to adoption.

- Security: Closely linked to trust, security concerns about data privacy and protection from fraud are significant in South Africa. South Africans who

perceive FinTech as secure and their financial information well-protected are more likely to adopt it.

These factors are not independent; they influence each other. If FinTech is perceived as easy to use (Effort Expectancy) and readily accessible with adequate support (Facilitating Conditions), users are more likely to adopt it. If FinTech offers enjoyable and valuable experiences (Performance Expectancies), it fosters trust in the technology and the provider. A strong focus on security measures can build trust and encourage adoption.

These factors are particularly relevant in South Africa, where FinTech can play a vital role in promoting financial inclusion by reaching unbanked or underbanked populations. However, overcoming challenges like limited internet access and digital literacy requires addressing factors like Effort Expectancy and Facilitating Conditions.

High mobile phone penetration in South Africa creates an opportunity for FinTech adoption. However, user-friendly interfaces and readily available support structures are crucial for maximising adoption. Security breaches and data privacy concerns can be a significant deterrent for South Africans. Building trust through robust security measures is essential.

The significant correlations observed highlight the importance of addressing all these factors for successful FinTech adoption in South Africa. By focusing on user-friendly interfaces, providing adequate support, promoting the benefits of FinTech, building trust, and ensuring robust security, FinTech providers can overcome potential barriers and encourage widespread adoption in South Africa.

4.2.8. Mediation

It happens at times that the relationship between the independent variable and the dependent variable may not be just direct but rather may depend on another variable usually referred to as the mediator variable. Thus, a mediator variable explains the existing relationship between the dependent variable and the independent variable. In a nutshell, a variable that explains the mechanism of the impact of the independent variable on the dependent variable is referred to as a mediator variable.

The relationship existing between the three variables involved in the whole process is referred to as mediation. This implies a chain of relationships. The analysis under this setup scrutinises the significance of the independent mediator, and the significance of the mediator on the dependent variable. Further, the analysis also understands the direct influence of the independent variable on the dependent variable.

This analysis shows that direct relationship with a value of 0.118 and a p-value of 0.011 being less than 0.05, is significant at 0.05 level of significance. On the other hand, the indirect influence of the mediator variable with a value of 0.182 with a p-value of <0.001 is highly significant.

Thus, according to the research conceptual framework, the two influences (Intention to Use and Use Behaviour) are both significant. This means that the relationship between the two dependant variables are both direct and through mediation. In the case of this specific analysis, all the combined indicator observed variables acting as an independent variable ((Effort Expectancy, Facilitating Conditions, Hedonistic Performance Expectancy, Utilitarian

Performance Expectancy, Trust, Self Efficacy, Security, Privacy, Performance Risk, Attitude, Social Influence) influence through intention to use as a mediator and impact of the user behaviour.

It must be remembered that the all indicator variables (Effort Expectancy, Facilitating Conditions, Hedonistic Performance Expectancy, Utilitarian Performance Expectancy, Trust, Self Efficacy, Security, Privacy, Performance Risk, Attitude, Social Influence) were combined into a composite variable and used as an independent variable. Finally, the study concludes from the second table below that the total effect of 0.300, which had a standard error of 0.0491 with a p-value of <0.001 was highly significant. The total effect has a 95% confidence interval with a lower confidence interval of 0.2092 and an upper confidence interval of 0.395 showing a significant effect. See tables and figure below.

Table 8: Mediation Estimates

			95% Confidence Interval				
Effect	**Estimate**	**SE**	**Lower**	**Upper**	**Z**	**p**	**% Mediation**
Indirect	0.182	0.0410	0.1093	0.266	4.45	< .001	60.7
Direct	0.118	0.0462	0.0379	0.217	2.55	0.011	39.3
Total	0.300	0.0491	0.2092	0.395	6.12	< .001	100.0

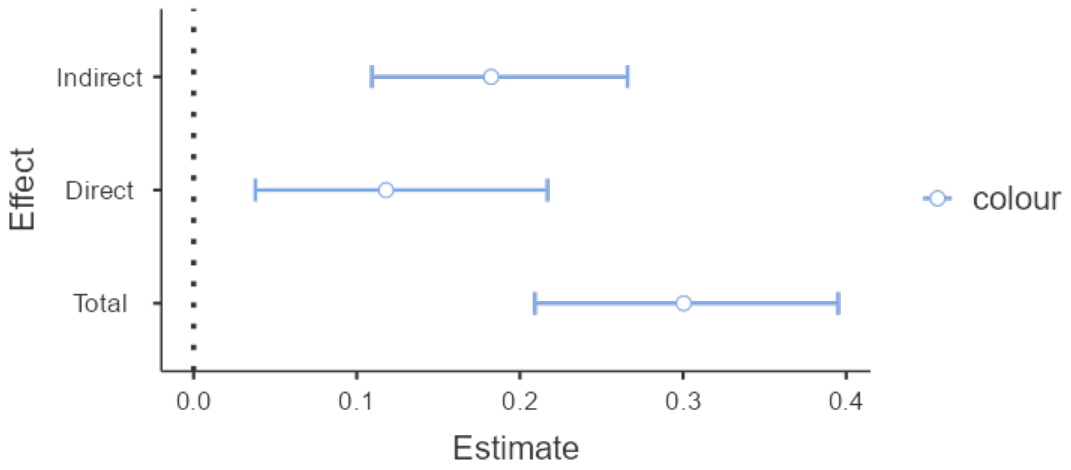
Source: Author's Calculations

Table 9: Path Estimates

			95% Confidence Interval					
			Estimate	SE	Lower	Upper	Z	p
Construct13	→	Construct12	0.589	0.0799	0.4336	0.743	7.37	< .001
Construct12	→	FCONSTRUCT	0.310	0.0545	0.2041	0.411	5.68	< .001
Construct13	→	FCONSTRUCT	0.118	0.0462	0.0379	0.217	2.55	0.011

Source: Author's Calculations

Figure 5: Estimate Plot



Source: Author's Calculations

4.2.9. Assessment of Normality

Table 3 displays the "skewness and kurtosis coefficients" for all the model's constructs. While values within -2 and +2 are generally considered acceptable for normality (George and Mallery, 2010), the results show that most "kurtosis and skewness" are within this range, except for "individual performance," which has

a kurtosis of +6. However, the central limit theorem suggests that deviations from normality have minimal impact on data analysis for large samples (above 300) (Muzaffar, 2016).

This implies that the non-normal kurtosis of individual variables will not significantly influence the overall results. Despite the slight deviation from normality, the study can proceed with confidence using principal component analysis to assess how well the items align with their underlying constructs.

4.2.10. Sample Adequacy

The study employed the Kaiser-Meyer-Olkin (KMO) measure to assess the suitability of the sample size for factor analysis, and Bartlett's test of sphericity to verify the assumption of multivariate normality of data. The study confirms convergent validity by ensuring the average variance extracted is greater than or equal to 0.500.

The Kaiser-Meyer-Olkin (KMO) measure, as described by Field (2009), helps assess how well-suited a sample size is for factor analysis. It essentially compares the shared variance between variables, explained by underlying factors, to the variance explained by unique factors specific to each variable. KMO values range from 0 to 1, with higher values indicating data more appropriate for factor analysis. According to George and Mallery (2010), KMO values can be interpreted as follows: poor (0.50 - 0.70), good (0.70 - 0.80), great (0.80 - 0.90), and excellent (above 0.90).

Notably, all indicators in this study yielded a score of 0.880, passing above the AVE threshold indicating that the sample is adequate (Shrestha, 2021). This is further supported by the p-value of less than 0.001.

Table 10: KMO and Bartlett's Test

KMO and Bartlett's Test	Item	Variable
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.880
Bartlett's Test of Sphericity	Approx. Chi-Square	1334.606
	df	78
	Sig.	<.001

Source: Author's Calculations

Bartlett's test of sphericity (Bartlett, 1951) assesses whether the correlations between survey items are strong enough for proper factor analysis. Essentially, it measures the overall strength of relationships within the variables. In this study, the Chi-square value for the test is 1334.606 with a significance level of less than 0.001. This represents the probability of observing a Chi-square value as extreme as 1334.606 or higher if the null hypothesis (no significant correlations) were true.

A significance level less than 0.001 means it is extremely unlikely (less than 0.1%) to observe such a high value if the null hypothesis were true. This statistically significant result indicates that data exhibits sufficient inter-item correlations and is therefore suitable for further analysis using Principal Component Analysis (PCA).

4.2.11. Cronbach's Alpha Scale – All variables

Cronbach's alpha is a measure of the internal consistency of collected research variables. The alpha coefficient for the items is .848, suggesting that the items have relatively high internal consistency. It must be noted that a reliability coefficient of .70 or higher is considered "acceptable" in most research situations. The observed alpha value is 0.848.

Table 11: Cronbach's Alpha Scale - Reliability Statistics 2

Item	Item Deleted	Variance if Item Deleted	Item-Total Correlation	Alpha if Item Deleted
Effort Expectancy	51.30	54.106	.520	.837
Facilitating Conditions	51.54	55.176	.601	.835
Hedonistic	51.49	52.319	.576	.833
Performance Expectancy	51.65	52.024	.665	.828
Utilitarian Performance Expectancy	52.65	51.329	.624	.829
Trust	53.76	62.640	-.116	.883
Self-Efficacy	52.57	52.264	.584	.832
Security	54.04	52.575	.442	.843
Privacy	52.29	52.146	.654	.828
Performance Risk	51.71	51.270	.709	.824
Attitude	52.52	53.401	.414	.845
Social Influence	51.30	52.440	.649	.829
Behaviour Intent	51.47	52.462	.557	.834
Use Behaviour				

Source: Author's Calculations

4.2.12. Reliability: For indicators of the first group indicators

Under this case, the scale reliability was 0.859, which is far above the stated limit of 0.70. This shows that the indicators of the first group item have a good internal consistency.

4.2.13. Reliability: For Indicators of the second group indicators

A similar case to the above was observed here, where the alpha is 0.789. this is a good sign of reliability.

4.2.14. Principal Components Analysis (PCA)

Factor analysis (principal component) was conducted using the orthogonal rotation (Varimax) method. This method was chosen because it highlights components with high eigenvalues, organising them by importance (Hair et al., 2011). Factor analysis operates on the principle that measurable variance can be reduced to a few underlying, or latent, variables. While unobserved, these latent variables are crucial for the hypothetical model.

The study used Exploratory Factor Analysis (EFA) as an initial step in scale construction (Hair et al., 2011). EFA was employed as a useful starting point compared to Confirmatory Factor Analysis (CFA). This allows for the exploration of key dimensions and the creation of a model based on latent constructs (Sangthong, 2020).

To ensure meaningful factor analysis, Hair et al. (2010) recommend including at least three variables per factor, with the exact number depending on study design. The number of factors identified is influenced by potential relationships between variables and multiple factors (Murray, 2013). Rotation matrices, like Varimax, are used to simplify interpretation by maximising high item loadings and minimising low ones. This study employed Varimax rotation and suppressed absolute values less than 0.40 when calculating factor scores for better visual clarity of the loadings. With a sample size of 363 responses, items with loadings below 0.50 were eliminated for analysis clarity.

Table 12: Principal Component Analysis

Rotated Component Matrix								
	Component							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
EE1							.800	.
EE2							.679	
EE3							.824	
FC2		.956						
FC4		.964						
FC6		.972						
HPE1			.799					
HPE2			.870					
HPE3			.866					
T1						.887		
T2						.635		
T3						.874		
SE1				.957				
SE2				.593				
SE3				.942				
SEC1	.748							
SEC2	.673							
SEC3	.796							

SI1				.746
SI2				.737
SI3				.833
UB1		.807		
UB2		.811		
UB3		.774		
PR1	.793			
PR2	.706			
PR3	.660			

Source: Author's Calculations

Table 12 shows that all factor loadings exceed the common threshold of 0.50, indicating strong associations between each item and its corresponding factor. This suggests that all items were retained in the analysis because they contribute meaningfully to the identified factors based on the exploratory factor analysis results.

- Effort Expectancy (EE) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Effort Expectancy needed to be dropped.

- Facilitating Conditions (FC) was measured through 6 items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, three items for Facilitating Conditions needed to be dropped.

- Hedonic Performance Expectancy (HPE) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Hedonic Performance Expectancy needed to be dropped.

- Trust (TR) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Trust needed to be dropped.

- Self Efficacy (SE) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Self Efficacy needed to be dropped.

- Security (SEC) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. No items for Security needed to be dropped.

- Social Influence (SI) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Social Influence needed to be dropped.

- Use Behaviour (UB) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. Therefore, no items for Use Behaviour needed to be dropped.

- Privacy (PR) was measured through three items. As per Table 24, three items loaded highly onto the same factor and non-cross-loaded above 0.40 onto other factors. No items for Privacy needed to be dropped.

The Principal Component Analysis (PCA) identified eight distinct constructs underlying the model, confirming the hypothesised factor structure. This

successful extraction of meaningful factors paves the way for further analysis to assess the reliability of the developed scales.

4.3. Summary of the results/findings

The quantitative analysis of data collected in the study yielded several key findings regarding the factors influencing the adoption of financial technology (FinTech) solutions in South Africa. The analysis focused on the relationships between demographic characteristics, trust, risk, security, and user perceptions of FinTech services.

The analysis revealed that socioeconomic factors, such as income and education level, significantly influenced the adoption of FinTech solutions. Individuals with higher financial resources and education levels were found to use FinTech services more frequently. Interestingly, while education positively impacted the intention to use FinTech, gender did not show a significant effect; however, the study found that women were more active users of FinTech compared to men. Age and geographical location did not significantly influence FinTech usage.

Trust emerged as a critical factor influencing both the intention to adopt and the actual usage of FinTech solutions. The analysis indicated that users expressed a strong interest in FinTech services, with a general willingness to engage with digital financial technologies. However, concerns regarding security and trust were paramount, suggesting that building user confidence in the safety and reliability of FinTech services is essential for promoting widespread adoption.

The findings highlighted positive user perceptions towards FinTech services. Participants generally viewed these services as easy to use (Effort Expectancy),

enjoyable (Hedonic Performance Expectancy), and helpful (Utilitarian Performance Expectancy). This positive perception fosters a favourable attitude towards adopting FinTech solutions, indicating that user experience plays a significant role in influencing adoption rates.

The analysis employed Structural Equation Modelling (SEM) to test the hypothesized relationships within the modified UTAUT-TAM model. The results supported the model, demonstrating significant relationships between the identified factors and the intention to use FinTech. This statistical validation reinforces the importance of the variables considered in understanding FinTech adoption.

The overall findings suggest a strong potential for FinTech adoption in South Africa, driven by favourable user perceptions and the critical role of trust and security. The study indicates that addressing concerns related to these factors could enhance the likelihood of broader acceptance and usage of FinTech solutions among South African consumers.

In summary, the quantitative analysis provided valuable insights into the dynamics of FinTech adoption in South Africa, highlighting the influence of demographic factors, the importance of trust and security, and the positive perceptions of users towards FinTech services. These findings contribute to a deeper understanding of the landscape of FinTech adoption and offer implications for stakeholders aiming to promote these technologies.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1. Introduction

This chapter examines the key quantitative findings presented in the previous chapter in relation to each of the five research objectives. This section summarises the key findings associated with each research objective:

Objective 1: In relation to understanding how the South African demographics (age, gender, race, income, and education level) influence the adoption of FinTech solutions, this research project identified a connection between socioeconomic factors and adoption of digital financial technology (FinTech). People with more financial resources and higher education levels used FinTech more frequently. Interestingly, while education level positively influenced the intention to use FinTech, gender did not. The study found that women used FinTech more actively than men. Furthermore, no significant influence of age or geographical location on FinTech usage was observed.

Objective 2: To establish whether trust, risk and security influence the intention to adopt FinTech solutions in South Africa, the study found a strong interest in FinTech services, with nearly everyone expressing a willingness to use digital financial technology. However, trust and security emerged as critical factors influencing both the intention to use and actual usage of FinTech. The study also revealed positive user perceptions towards FinTech. People generally believe these services are easy to use (Effort Expectancy), enjoyable (Hedonic Performance Expectancy), and helpful (Utilitarian Performance Expectancy). Additionally, they perceive them as reliable and secure, fostering trust (Trust) in FinTech as a whole. These findings suggest that building trust and ensuring a secure user experience are crucial for promoting widespread FinTech adoption

Objective 3: The objective of this study was to determine whether the influence of personal factors, such as attitude, self-efficacy, hedonic performance expectancy, and utilitarian performance expectancy, on the intention to adopt FinTech solutions in South Africa. The study identified positive factors influencing the populations willingness to adopt FinTech. These factors included finding FinTech easy to use (Effort Expectancy), having the resources to use it (Facilitating Conditions), enjoying the user experience (Hedonic Performance Expectancy), and perceiving it as beneficial (Utilitarian Performance Expectancy).

Notably, trust (Trust) also emerged as a significant factor. Interestingly, while a positive correlation existed between positive attitudes towards FinTech and the intention to use it, self-efficacy did not show a statistically significant relationship with intention to use.

Objective 4: This study also investigated the influence of facilitating conditions and social conditions on the intention to adopt FinTech solutions in South Africa. The findings highlighted key factors influencing the intention to use and actual use of digital financial technology (FinTech). Individuals with access to smartphones, knowledge of FinTech services, and available assistance were more likely to both intend to use and use FinTech.

Social influence from peers or social circles also played a positive role in both intention and actual behaviour. These findings suggest that facilitating access to resources and fostering a supportive social environment can be effective strategies to promote widespread FinTech adoption.

Objective 5: Lastly, the study also investigated whether ease of use of technology or system (effort expectancy) influences the intention to adopt FinTech solutions in South Africa. This research identified a strong positive correlation between perceived ease of use (Effort Expectancy) and the intention to adopt FinTech solutions. In simpler terms, people are more likely to use FinTech if they believe it is user-friendly.

This finding highlights the importance of designing FinTech experiences with a focus on usability to encourage broader adoption and user engagement.

5.2. Objective 1: Demographics influencing the adoption of FinTech solutions.

Understanding the characteristics and drivers of sustainable digital financial technology adoption is crucial for its long-term impact. Several studies have identified demographics like gender, age, education and income as potential factors influencing the adoption of digital financial technology. However, further research is needed to fully understand these relationships.

The findings of this study suggest a link between socioeconomic factors and digital financial technology adoption, with individuals experiencing greater financial resources and educational attainment displaying higher usage rates. The study also revealed a positive association between the level of education and the intention to use. Individuals with higher levels of education were found to have a stronger intention to use digital financial technology.

This is consistent with a study that was conducted in Indonesia by Cole et al. (2011) which showed that teaching unbanked households about savings accounts through a financial literacy program increased demand for these accounts, especially among those with lower initial financial knowledge. The program equipped the participants of the study to compare and choose suitable financial products and to act confidently as informed consumers of these products.

Financial literacy programs alone might be insufficient to address systemic inequalities. Atkinson and Messy (2012) reminds us that many struggle to afford basic needs, leaving little room for savings even with financial knowledge. It is therefore necessary to explore broader approaches beyond individual education.

Building on this notion, Holzmann (2010) suggests that financial literacy goes beyond just knowing financial terms. It also encompasses the ability to use financial tools, hold positive financial attitudes, and make informed financial decisions. He further highlights the inconsistency in how different studies define, measure, and analyse financial literacy.

The study surprisingly found that while gender had no impact on the intention to use digital financial technology, women were more likely to actively use it compared to men. Additionally, no significant influence of age or geographical location on FinTech usage was observed. A study by Ouma et al. (2017) found that females are more likely to use mobile financial services to save compared to males, even though males tend to save larger amounts on average. This difference in saved amount is not explained in the study and could be due to various factors.

Several studies have explored potential differences in digital financial technology adoption between genders, suggesting that women may be more risk-averse and possess less objective financial knowledge compared to men, potentially leading to lower adoption rates. However, such generalisations are problematic due to individual variations and the lack of conclusive evidence.

Further research addressing potential gender gaps in digital financial technology adoption should move beyond broad generalisations and instead focus on nuanced understandings of individual needs, preferences, and influencing factors regardless of gender. This approach aligns with the factors that are being explored relating to the influence of digital adoption of financial technology and can provide valuable insights into the complex dynamics of digital financial technology adoption across diverse populations (Croson and Gneezy, 2009).

According to Batula and Gupta (2021), several factors contribute to the lower access of digital financial services among women. One potential issue is limited involvement in household financial management, which might inhibit some women from initiating or using these services. Additionally, the study highlights a potential gender gap in technology ownership, with fewer women likely to own laptops or mobile phones, which are crucial tools for accessing digital financial services.

A study by Mastercard found that women entrepreneurs in the Middle East and Africa (MEA) region are significantly more likely to use digital payment solutions compared to their male counterparts. In South Africa alone, 79% of women entrepreneurs have adopted digital payment methods, highlighting their potential as leaders in the region's digital transformation. This shift towards digital payments offers several benefits, including increased efficiency, improved convenience, faster access to revenue, and reduced risk of fraud (Malinga, 2021).

Lastly, 74% of the respondents of the survey possess a Diploma/Batchelor and Post-graduate qualifications which may require further studies to ensure a balanced view through sufficient population representation. This population earns above R10,000 which indicates that that the more educated and the more the population is, the more likely they are to use digital financial technology.

This is consistent with a study conducted by Gulamhuseinwala, et al. (2015) which found that FinTech adoption surpasses 40% among high-income, digitally active users, indicating that a significant portion of banks' and insurers' most lucrative customer base is already utilising alternative financial services. According to Panos and Wilson (2020), found that This study identified several

factors associated with higher financial literacy among students, including gender, expense tracking habits, and a father's educational attainment.

In conclusion, closing the income-based disparity in digital financial technology (FinTech) usage requires the development of targeted strategies to promote adoption among low-income groups. While studies like Fataki and Oni (2014) suggest South Africa may have faced historically low financial literacy levels, a more recent assessment is necessary to establish the current national landscape. Regardless of the exact ranking, promoting financial literacy remains crucial for the population to effectively utilise technological financial solutions.

Ultimately, this empowers them to make informed financial decisions that contribute to sustainable economic empowerment. This study did not enquire about other forms to ensure that they’re considered to form a more accurate opinion on why there is a less appetite for the adoption of digital financial technology amongst the groups with lower levels of education.

Beyond formal education, individuals can build financial literacy through various means. Self-directed learning via books, websites, podcasts, and games offers a wealth of knowledge. Additionally, actively tracking spending and practicing budgeting fosters financial understanding. Finally, consulting financial advisors, government resources, and attending workshops provides personalised guidance and targeted information. This multifaceted approach empowers individuals to make informed financial decisions.

5.3. Objective 2: Trust, risk and security influencing the intention to adopt FinTech solutions.

The study found an overwhelming intention to use FinTech services, with only 1.8% of participants expressing no interest. Interestingly, all factors related to trust, risk, and security significantly impacted both the willingness to use and actual usage of FinTech. This suggests that users are more likely to adopt and engage with these services when they perceive them as trustworthy, secure, and offering manageable risks. The study aligns with Raphoto's (2021) findings, where low trust levels were also identified as a barrier to digital adoption in financial services.

This study found that there are positive relationships between Effort Expectancy (EE), Facilitating Conditions (FC), Hedonistic Performance Expectancy (HPE), Utilitarian Performance Expectancy (UPE), and Trust (TR) on digital financial product usage. In other words, individuals are more likely to use these products if they believe the effort required is manageable (EE), they have the necessary resources available (FC), and they anticipate either enjoyment (HPE) or utility (UPE) from their use. Additionally, trust (TR) in the digital financial system further strengthens this likelihood.

The SEM analysis revealed that the relationships between both Trust (TR) and Security (SEC) and the dependent variable, Intention to Use (IU) are at the borderline of significance and insignificance (p-values = 0.05). This finding suggests that Trust and Security are not random factors in people's intention to use digital financial products.

The p-values of 0.05 for Trust (TR) and Security (SEC) indicate statistically significant relationships with Intention to Use (IU). The significant relationship between trust and the intention to use the technology means that people who trust the technology are more likely to use it. Further analysis of the path coefficients and the models R-squared value within the SEM framework is necessary to determine if higher trust and perceived security correspond with a greater or lesser intention to use digital financial products.

Concerns about security and privacy top the list of reasons why people hesitate to use digital financial services, according to multiple studies. White and Nteli (2004) found that security risks deterred digital banking adoption in the United Kingdom and Australia, while Poon (2008) emphasised the universal importance of security across demographics. Aldás-Manzano et al. (2009) further explored these concerns, examining how security risks related to bank accounts, passwords, and identities impacted users. Ultimately, research shows that customers prioritise security and privacy over product features, highlighting the need for digital financial technology providers to prioritise robust security measures and clear data protection practices to build trust and encourage wider adoption.

Having looked at the correlations between intent to use FinTech, user behaviour and trust, risk, and security influence above, all associations between trust, risk and security influence were statistically significant, demonstrating that intent to use and actual user behaviour increased with trust, risk, and security. This is in line with a study conducted by Ramos et al (2018) which found that when considering online financial services like mobile banking (m-banking), factors like security vulnerabilities and potential fraud can heighten users' perceptions of risk and insecurity.

This heightened risk perception is particularly significant in financial contexts compared to other online environments, underscoring the critical role of trust in building user confidence and adoption. A study by Sigurdsson et al. (2015) found that for online financial services, simple privacy assurances like pop-ups can significantly boost customer trust.

One way to achieve this is by offering clear and accessible terms and conditions that customers can easily read and understand. This was confirmed by an insurance technology participant whose customers primarily make decisions online. They suggested that such transparency is particularly crucial for Digital Immigrants i.e. those less familiar with online technology, compared to Digital Natives i.e. those who grew up with it.

Developing countries face unique challenges in implementing effective data protection laws, requiring tailored solutions to address their specific needs and context. The absence of comprehensive data protection and privacy laws in many developing countries creates a critical trust gap for technology adoption. This lack of legal protections leaves users susceptible to data breaches, identity theft, and other forms of digital harm, discouraging them from engaging with technology and its benefits (El-Telbany et al., 2020).

As the world embraces financial technology, blockchain technology stands out as a game-changer, poised to propel digital innovation (Jafri et al., 2024). However, its potential comes with a double-edged sword. On one hand, blockchain boasts several advantages 1) immutability guarantees data security, anonymity protects user identities, and traceability and transparency bring accountability. 2) but these same strengths can raise concerns. For example, complete transaction visibility might trigger privacy worries, as anyone on the network can see them.

This highlights the need for stakeholders like policymakers, bankers, and researchers to work together. By collaborating on strategies to address security and privacy concerns, the study can unlock the full potential of blockchain and accelerate the widespread adoption of FinTech services. According to Matsena (2022), policymakers should foster a secure and competitive digital financial technology landscape research highlights the role of trust and provider switching. They should encourage fair competition and robust regulations to ensure consumer confidence and a healthy FinTech ecosystem.

In this study, the general population believe that using digital financial products is enjoyable and pleasurable. Furthermore, they believe that digital financial technology is useful in terms of its performance, it is reliable and that it will not harm the user. This is most probably because the COVID-19 pandemic accelerated the adoption of technology and innovation by changing customer lifestyles, increasing demand for technology, and stimulating competition (Shankar, Kalyanam, Setia, Golmohammedi, Tirunillai, Douglass, Hennessey, Bull, and Waddoups, 2021).

Ouattara (2023) highlights that convenient access to technology features and support (facilitating conditions) influences user intention to purchase via mobile commerce. When users perceive that all that they need is readily available, they are more likely to embrace the technology. This aligns with the current trend of businesses using technology to reach and serve customers, especially after the disruptive impact of COVID-19. Social distancing measures, including limitations on physical movement, impeded access to traditional bank branches.

However, the digital financial technology sector offered a vital alternative by enabling remote access to financial services, empowering individuals to manage

their finances securely from their residences. The unprecedented circumstances of the COVID-19 pandemic significantly accelerated the adoption of digital financial technology (FinTech). While the focus on contactless transactions and remote access to financial services addressed immediate needs, it is possible that security, trust, and risk considerations were not entirely disregarded by users.

The pandemic might have heightened the urgency for functionality and convenience, temporarily overshadowing these concerns. Additionally, limited access to traditional banking options during lockdowns might have pushed users towards FinTech solutions even with some reservations. Further research is needed to explore the extent to which users prioritised immediate needs over security, trust, and risk factors during the pandemic's peak, and how these priorities might evolve in a post-pandemic world.

In a study conducted by Abdul-Rahim et al. (2022), it was observed that consumer anxieties surrounding the pandemic and growing concerns about sustainability prompted a re-evaluation of their risk-benefit calculus. It shed light on the nuanced changes in consumer priorities and preferences following significant global events. The findings underscore the dynamic nature of customer perspectives and emphasise the need for FinTech companies to adopt adaptable business models that can respond to evolving socio-economic landscapes.

This study investigated the variables that influence South Africa consumers' perceived risks and challenges associated with FinTech adoption. Security and privacy concerns, lack of awareness and understanding, regulatory uncertainty, and perceived complexity are identified as key factors. Addressing these factors through user education, robust regulatory frameworks, and user-friendly FinTech

design is crucial for fostering a robust and inclusive FinTech ecosystem that caters to the evolving needs and expectations of South African consumers.

5.4. Objective 3: The influence of personal factors on the intention to adopt FinTech solutions.

Several factors influence peoples' willingness to try new digital financial technologies. This study specifically examined four key factors, namely 1) people's overall opinion (attitude), 2) their confidence (self-efficacy) in using the technology, 3) their expectations of both enjoying the experience (hedonic performance expectancy) and 4) finding it useful (utilitarian performance expectancy).

The study revealed positive associations between Effort Expectancy (EE), Facilitating Conditions (FC), Hedonistic Performance Expectancy (HPE), Utilitarian Performance Expectancy (UPE), and Trust (TR) with the intention to use digital financial products. This suggests that individuals are more likely to adopt these products when they perceive the effort required as manageable (EE), have access to the necessary resources (FC), and anticipate either enjoyment (HPE) or usefulness (UPE) from their use.

By understanding these factors, FinTech providers can better predict who is likely to embrace digital financial technology and how to encourage wider adoption. Looking at the relationship between intention to use and personal factors, the study revealed that there were statistically significant positive correlations between hedonic performance expectancy and utilitarian performance expectancy, and attitudes and intent to use FinTech. Interestingly, the associations between self-efficacy and intent to use were not statistically significant.

The statement provides robust evidence that personal factors like performance expectations and attitudes are important predictors of FinTech adoption. This can be valuable for developers, policymakers, and researchers seeking to understand and promote digital financial technology usage.

In an experiment conducted by Dupas, Karlan, Robinson and Ubfal, (2018) in three countries, including Uganda, Malawi, and Chile. They removed the cost obstacles of account origination and maintaining a basic savings account. The researchers took care of the operating and account maintenance fees. Despite this, they found that only a small fraction of people opened accounts. This suggests that there are other factors, such as lack of trust or knowledge, that prevent people from using financial services.

In today's fast-paced world, people value their time more than ever. Digital financial technology delivers speed, freeing up valuable customer time and creating a memorable experience. By providing convenient and innovative financial services, FinTech companies earn customer trust and recognition as true innovators (Barbu et al., 2021). This also opens doors for further research to delve deeper into how specific personal factors interact and influence digital financial technology adoption. This can help tailor interventions and design strategies to target specific user segments.

Therefore, the use of digital financial technology is perceived by users as useful and valuable which is evident in a study conducted by Nikolopoulou, Gialamas and Lavidas, (2021) where a few teachers undertook an initiatives and allow their students to use mobile devices/phones in classrooms for educational purposes, despite the ban by the Department Ministry found that, by addressing teachers' beliefs about using mobile internet, the adoption of technology in classrooms

enhances learning. This suggests that teachers view mobile internet as a valuable tool for enhancing learning.

This finding suggests new approaches for teacher training, inform policy decisions in education, and guide the design and use of educational computer systems. This view is in line with the World Economic Forum, (2018) report which stresses the need to dig deeper into both supply and demand drivers to achieve lasting financial inclusion. This knowledge can then be used to craft targeted policies and interventions that overcome specific barriers.

Srivastava, Mohta and Shunmugasundaram (2024) found that customers' satisfaction, effort expectancy, and performance expectancy significantly influenced their willingness to use the service. Additionally, effort expectancy, performance expectancy, and perceived enjoyment of the service significantly impacted customer satisfaction. Furthermore, perceived enjoyment significantly influenced both effort expectancy and performance expectancy, while self-efficacy significantly influenced perceived enjoyment.

In this study, data suggests that the general population finds digital financial products enjoyable and pleasurable to use. Data also suggests that the population finds digital financial solutions useful in terms of its performance.

5.5. Objective 4: The facilitating conditions and social conditions on the intention to adopt FinTech solutions.

There were statistically significant relationships between facilitating conditions such as having access to a smart phone, knowledge to use FinTech services and availability of assistance, and intent to use digital financial technology. Sub-Saharan Africa's mobile boom continues. In 2019, almost half the population (45%) had access, with 477 million subscribers. By 2021, that number is expected to reach 500 million, and by 2024, 1 billion connections are projected, achieving 50% subscriber penetration. This growth is fuelled by ongoing investment in network infrastructure.

Research by Matsena (2022) identified three key motivators for adopting digital financial technology solutions: social influence (e.g., friends' recommendations), pleasure (e.g., enjoyment of using them), and perceived cost-benefit (e.g., perceived value exceeding any costs). These factors positively influence consumers' intention to embrace these innovative financial tools.

According to Wu and Peng (2024), strong infrastructure like high-speed internet and widespread smartphone adoption in cities create a perfect platform for FinTech companies to scale their services through mobile applications. These apps offer lower fees and interest rates than traditional financial institutions, making them particularly attractive to cost-conscious urban residents, especially those in expensive areas. This combination of mobile accessibility and cost savings unlocks FinTech's potential to reach a wider, mobile-first audience in urban areas (Wu and Peng, 2024).

According to China's Payment & Clearing Association, mobile payment transactions in rural areas have soared at an average of 49.52% annually from 2015 to 2018, compared to a mere 5.76% growth for traditional bank ATMs. This remarkable growth underscores the transformative potential of FinTech in addressing rural financial inclusion, offering an alternative to traditional banking channels and paving the way for a more inclusive and equitable financial ecosystem.

This highlights the potential of digital financial technology to address the issue of financial exclusion in rural areas, where traditional banking services may be limited or inaccessible. This can empower individuals and communities by providing access to financial tools and services like digital payments, loans, and savings, promoting economic development and social inclusion. The rapid growth of mobile payments demonstrates the willingness and ability of rural populations to adopt new technologies for financial services. This creates an alternative to traditional banking channels, potentially addressing issues like high fees, limited branch access, and bureaucratic processes.

A recent study by investigated the impact of mobile and online banking on financial management among young adults. The study found that participants using mobile banking reported a significant increase in time saved compared to those using traditional banking methods. Additionally, participants reported increased convenience and flexibility in managing their finances through mobile banking (Hoque et al.,2024).

Social influence was also positively associated with intent to use. Similar observations were made when facilitating conditions and social influence were correlated with actual behaviour. This means that people are more likely to both

want to use and use digital financial technology if their peers recommend it and if it is easy to access and use. Not only did people who saw others enjoying the technology have a stronger intention to try it themselves, but those who saw it being used and had the means to use it themselves were more likely to turn their intention into action. This suggests that both social influence and practical infrastructure are key factors in driving technology adoption.

Wen (2016) emphasises that social influence plays a key role in shaping our perception of new and unfamiliar digital financial technology products, influencing our opinions and experiences. Exploring the factors influencing mobile payment adoption in Portugal, Oliveira, Thomas, Baptista and Campos (2016), which is based on UTAUT, highlighted the significant impact of social influence on people's willingness to embrace this technology.

Building on the findings of Oliveira et al. (2016), the study can expect a significant impact of social influence on mobile payment adoption due to our inherent susceptibility to peer pressure. This presents a unique opportunity for digital financial technology, as mobile payments and e-commerce become mainstream. A large pool of potential users, eager to discover these emerging technologies, is waiting to be tapped.

Social pressure plays a big role in how quickly people adopt new technologies like mobile payments, according to research. This presents a golden opportunity for digital financial technology companies to tap into this power by building strong user communities, encouraging peer recommendations, and utilising social media. However, it is equally important to educate users and tailor strategies to different audiences to ensure responsible and informed adoption. This can benefit both users and the digital financial technology industry, requiring

collaboration between companies, policymakers, and educators. So, let's leverage the power of social influence for good and build a thriving digital financial technology ecosystem for everyone.

Mobile and online banking offer a revolutionary shift from traditional banking limitations. Users can ditch the long lines and branch visits, instead managing their finances conveniently anytime, anywhere with just an internet connection. Forget waiting hours to pay bills or transfer money. These platforms streamline tasks, saving valuable time. Moreover, the ability to conduct transactions on the fly allows users to respond to urgent financial needs, like instant money transfers, with greater flexibility and control. Overall, mobile and online banking empower users with a convenient, accessible, and on-demand approach to managing their finances.

Policymakers have a key role in shaping how social pressure influences digital financial technology adoption. By promoting financial literacy, bridging the digital divide, and crafting supportive regulations, they can empower citizens to make informed choices and benefit from digital financial technology. Additionally, partnering with communities and influencers can leverage social influence responsibly, promoting financial inclusion and a healthy digital financial technology ecosystem for all.

5.6. Objective 5: The ease of use of technology or system (effort expectancy) influences on the intention to adopt FinTech solutions.

The finding from this research is that there is a strong positive connection between how easy people think it is to use something (effort expectancy) and their intention to use it. In other words, the easier people believe something is to use, the more likely they are to want to use it. In a study by Srivastava et al. (2024), effort expectancy, or how easy customers found the service to use, was a significant predictor of their willingness to use it again. This highlights the importance of designing intuitive and hassle-free experiences to win over users. This research suggests that designing user-friendly FinTech experiences is crucial for driving wider adoption and engagement.

The finding that effort expectancy (perceived ease of use) significantly influences user willingness to continue using a service emphasises the importance of prioritising User Experience (UX). User Experience (UX) encompasses every interaction a user has with a product, service, or company, shaping their overall impression (Courage and Baxter, 2005). This means designing interfaces and interactions that are intuitive, easy to navigate, and require minimal effort from users.

User Experience (UX) is not just about opinions, it is a measurable indicator of user satisfaction. By analysing how people interact with a system, FinTech providers can identify pain points and areas for improvement, ultimately leading to a more positive and productive user experience.

Sudirjo et al. (2024) found that User Experience (UX) plays a crucial role in facilitating FinTech adoption by enhancing the overall usability, accessibility, and satisfaction of financial technology applications. A well-designed UX in FinTech applications can simplify complex financial processes, making them more intuitive and user-friendly for individuals with varying levels of financial literacy.

By focusing on user-centred design principles, FinTech companies can create seamless and engaging experiences that build trust and confidence among users. Clear navigation, intuitive interfaces, personalised recommendations, and streamlined workflows can all contribute to a positive UX that encourages users to explore and adopt FinTech solutions.

Additionally, by incorporating feedback mechanisms and continuously iterating based on user insights, FinTech companies can tailor their offerings to better meet the evolving needs and preferences of their target audience, ultimately driving higher adoption rates and long-term user engagement.

5.7. Summary of key findings

In this chapter, the key findings from the previous chapter are discussed in relation to the research objectives. It interprets the results, highlighting the connections between demographic factors and FinTech adoption. The chapter emphasizes the importance of trust and security in fostering user engagement with FinTech solutions. It also discusses the implications of the findings for businesses and policymakers, suggesting that enhancing user experience and building trust are essential for promoting widespread FinTech adoption.

Objective 1: Influence of Demographics on FinTech Adoption

The study found that socioeconomic factors significantly impact FinTech adoption in South Africa. Individuals with higher financial resources and education levels were more likely to use FinTech services. Interestingly, while gender did not significantly affect the intention to use FinTech, women were found to use these services more actively than men. Age and geographical location showed no significant influence on usage.

Objective 2: Trust, Risk, and Security

Trust and security were identified as critical factors influencing both the intention to adopt and actual usage of FinTech solutions. Users expressed a strong interest in FinTech, with positive perceptions regarding ease of use, enjoyment, and benefits, which fostered trust in these technologies.

Objective 3: Personal Factors Influencing Adoption

Personal factors such as attitude, self-efficacy, and performance expectancy significantly influenced the intention to adopt FinTech. Users with positive attitudes and confidence in their ability to use FinTech were more likely to engage with these solutions, especially when they perceived them as enjoyable and helpful.

Objective 4: Facilitating and Social Conditions

Adequate facilitating conditions, including access to technology and support, positively impacted the likelihood of adopting FinTech. Social conditions, such as peer influence, also played a role in shaping user intentions.

Objective 5: Ease of Use

The ease of use of FinTech services was a significant factor in adoption. Users who found these services easy to navigate were more inclined to use them, highlighting the importance of user-friendly design.

Conclusion

Overall, the study underscores the importance of understanding the interplay between demographic, personal, and contextual factors in driving FinTech adoption. It suggests that financial institutions and policymakers should focus on building trust, ensuring security, and providing user-friendly solutions to enhance financial inclusion and user engagement in the FinTech landscape.

CHAPTER 6: CONCLUSION

This study aimed to investigate the factors influencing the adoption of digital financial solutions across the South African population. Employing a random sampling approach, the research encompassed a diverse range of participants, avoiding demographic restrictions based on factors such as gender, geographic location, income level, education, or age. This inclusive approach ensured the capture of a broad spectrum of experiences and perspectives on digital financial technology adoption within the South African context.

This research project adopted the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) as the primary theoretical framework. The UTAUT model was further extended by incorporating relevant constructs from the Technology Acceptance Model (TAM) proposed by Khalilzadeh, Samadi, and Forghani (2017) to provide a more comprehensive understanding of digital financial solution adoption in the South African context. The application of this combined framework yielded findings with significant theoretical and practical implications.

The UTAUT-TAM theoretical framework was selected because it has been widely used in understanding the technology acceptance and use, and it enabled assessment of multiple factors that influence FinTech adoption as it takes a holistic approach. It has evolved from other well-established models, as eluded above, making it relevant for this study to explore the relationship between how customers adopt digital financial technology (FinTech) and how they behave in a digitally transformed way.

Structural Equation Modeling (SEM) served as the primary statistical technique for data analysis in this study. This multivariate approach allowed for the simultaneous examination of relationships between multiple observable (dependent) and latent (unobservable) variables. SEM's ability to account for measurement error and assess the overall model fit made it particularly well-suited to investigate the complex interplay of factors influencing the adoption of digital financial solutions.

6.1. Conclusion pertaining to data analysis

This concluding chapter summarises the key findings of the research. It begins with a comprehensive overview of the study, followed by a discussion of its contributions across various areas. These contributions include advancements in theory, context, methodology, and practical applications. The chapter also acknowledges the limitations of the research and proposes directions for future studies. Finally, it concludes by reiterating the overall significance of the thesis.

This study employed a non-random convenience sampling approach, relying on participants who met the inclusion criteria (residing in South Africa and being 18 years or older) and volunteered to participate through an online questionnaire. While convenient sampling offers advantages in terms of accessibility and efficiency, it may introduce selection bias and limit the generalizability of the findings to the broader population. A total of 234 responses were collected, and after data screening, 227 usable responses were subjected to quantitative analysis using Structural Equation Modeling (SEM) to test the hypothesised relationships within the modified UTAUT-TAM model.

Internal consistency of the research instrument was assessed using Cronbach's alpha. The alpha coefficient for the items measuring intention to use digital financial technology was 0.848, indicating a relatively high level of internal consistency. In social science research, a reliability coefficient of 0.70 or above is generally considered acceptable (Nunally and Brinkman, 2013). The observed alpha value exceeding this threshold suggests that the items within the scale share a common underlying construct and provide reliable measures for further analysis.

Confirmatory factor analysis (CFA) yielded favourable fit indices, supporting the hypothesised model structure. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) both exceeded 0.90 (CFI = 0,978, TLI = 0,959), indicating a good fit to the data. Additionally, the Standardised Root Mean Square Residual (SRMR = 0,039) and Root Mean Square Error of Approximation (RMSEA = 0,056) fell within acceptable ranges, further suggesting a reasonable model fit.

While the hypothesis tests revealed statistically significant factor loadings ($p < 0.001$), it is important to remember that p-values only indicate the likelihood of observing these results by chance. They do not necessarily translate to the magnitude or direction of the effects. Overall, the combined evidence from the fit indices and significant factor loadings provides strong support for achieving the research objectives outlined in the hypotheses.

This study sheds light on the factors that influence the intention to use digital financial products in South Africa. The research identified positive relationships between several key variables and the intention to adopt FinTech. These variables include Effort Expectancy (EE), perceived ease of use, Facilitating Conditions (FC), access to necessary resources, Hedonistic Performance Expectancy (HPE), the expectation of enjoyment from using FinTech, and Utilitarian Performance Expectancy (UPE), the belief in its usefulness.

6.2. Conclusion pertaining to research objectives

Objective 1: Demographics influencing the adoption of FinTech solutions.

This study identified a positive relationship between socioeconomic factors and digital financial technology (FinTech) adoption in South Africa. Individuals with greater financial resources and higher educational attainment demonstrated higher FinTech usage rates. Furthermore, the research revealed a significant association between educational level and the intention to use FinTech. These findings suggest that individuals with greater financial literacy and comfort navigating technology, potentially associated with higher education, might be more inclined to adopt FinTech solutions.

This study yielded unexpected results concerning gender and FinTech adoption. While no significant difference was observed in the intention to use FinTech between genders, women exhibited a higher rate of active FinTech use compared to men. These findings challenge traditional assumptions about gender and risk aversion in technology adoption. Further research is needed to explore the underlying reasons behind this phenomenon. Additionally, the study found no significant influence of age or geographical location on FinTech usage, suggesting that demographics might play a less prominent role than previously anticipated.

Future research can delve deeper into the specific factors that motivate individuals to adopt and actively use FinTech solutions.

Objective 2: Trust, risk and security influencing the intention to adopt FinTech solutions.

Having looked at the correlations between intent to use FinTech, user behaviour and trust, risk, and security influence above, all associations between trust, risk and security influence were statistically significant, demonstrating that intent to use and actual user behaviour increased with trust, risk, and security.

Additionally, Trust (TR) in the digital financial system emerged as another significant factor influencing adoption intention. These findings suggest that individuals are more likely to embrace FinTech when they perceive it as user-friendly (EE), have the necessary resources and support (FC) to utilise it effectively, and anticipate positive experiences (HPE) or practical benefits (UPE) from its use. Furthermore, a strong foundation of trust (TR) in the digital financial system appears to be crucial for wider adoption.

Objective 3: The influence of personal factors on the intention to adopt FinTech solutions.

The general population in South Africa views using digital financial products as enjoyable, useful, reliable, and safe. These positive perceptions are likely to influence their intention to adopt FinTech solutions. People who find FinTech enjoyable and useful are more likely to see the value in using it, while perceptions of reliability and safety can alleviate concerns about potential risks. By highlighting the enjoyable aspects, convenience, and security features of digital financial technology, financial institutions and policymakers can develop strategies to encourage broader adoption among South Africans.

Encouraging positive word-of-mouth through satisfied users and ensuring accessibility through infrastructure development can be powerful tools for driving broader FinTech adoption. Additionally, this study identified facilitating conditions as significant factors influencing the intention to use digital financial technology (FinTech). Individuals with access to smartphones, knowledge of FinTech services, and readily available assistance exhibited a greater likelihood of intending to adopt FinTech. These findings highlight the importance of addressing these conditions to promote wider FinTech adoption. Initiatives that increase smartphone ownership, enhance financial literacy programs, and provide user support can empower individuals and reduce barriers to FinTech use.

Objective 4: The facilitating conditions and social conditions on the intention to adopt FinTech solutions.

Social influence and facilitating conditions have been identified as significant factors influencing the intention to use digital financial technology (FinTech). Individuals were more likely to express a desire to use FinTech if their peers exhibited positive experiences (social influence). Furthermore, the ease of access and use (facilitating conditions) played a crucial role in translating this intention into actual behaviour. These findings suggest that interventions promoting FinTech adoption should consider strategies that leverage both social influence and the creation of user-friendly environments.

Objective 5: The ease of use of technology or system (effort expectancy) influences on the intention to adopt FinTech solutions.

This study reinforces the importance of perceived ease of use, or effort expectancy, as a key driver of the intention to adopt digital financial technology. Individuals are more likely to embrace FinTech solutions when they perceive

them as user-friendly and requiring minimal effort to learn and navigate. This finding highlights the importance of designing FinTech interfaces that are intuitive, clear, and cater to users with varying levels of technical expertise. By prioritising user-friendliness, FinTech developers and financial institutions can encourage wider adoption and ensure technology does not become a barrier to financial inclusion.

6.3. Recommendations and academic contributions

This study contributes to the theoretical landscape by illuminating the intricate interplay between technological innovation and digital adoption within the context of emerging economies. By examining the case of South Africa, the research offers practical insights for policymakers, financial institutions, and FinTech developers. These insights can inform the design of targeted interventions that can significantly bolster digital adoption efforts. The research achieves this by identifying and analysing the key barriers and facilitators influencing FinTech use among South Africans. Ultimately, this project aspires to provide a valuable roadmap for leveraging technology and financial products as a combined force to drive financial inclusion.

General community

The findings of this study underscore the importance of fostering collaboration between stakeholders such as policymakers, financial institutions, technology developers, and researchers. By working together to develop and implement robust security measures and comprehensive privacy frameworks for digital financial technology, stakeholders can address user concerns and unlock the full potential of financial-enabled FinTech services.

Future research efforts can explore effective strategies for such collaboration, investigate user perceptions of security and privacy in the context of financial-based FinTech, and evaluate the impact of different regulatory approaches on user adoption.

FinTech developers

While prior research has explored potential gender gaps in digital financial technology (FinTech) adoption, this study highlights the limitations of generalisations. Individual variations, socio-economic factors, and access to resources can play a more significant role than gender alone. Future research efforts investigating the digital divide in FinTech adoption should prioritise in-depth analyses that capture the nuances of individual needs, preferences, and the various influencing factors, deconstructing gender stereotypes as a primary explanatory variable.

This study suggests that social pressure can significantly influence the adoption rate of new technologies like mobile payments. Digital financial technology (FinTech) companies have a valuable opportunity to leverage this power by fostering strong user communities, encouraging peer-to-peer recommendations, and strategically utilising social media platforms. However, achieving responsible and informed FinTech adoption requires a balanced approach.

User education and tailored strategies that cater to diverse audiences are crucial. This necessitates collaboration between FinTech companies, policymakers, and educators. By harnessing the positive influence of social forces and prioritising user education, these groups can work together to build a thriving and inclusive digital financial technology ecosystem that benefits all stakeholders.

Future researchers

The COVID-19 pandemic likely played a significant role in user behaviour, potentially pushing concerns about security, trust, and risk into the background in

favour of functionality and immediate access during lockdowns. Limited access to traditional banking options might have further incentivised FinTech adoption despite some reservations. Future research should delve deeper into the extent to which users prioritised immediate needs over long-term considerations related to security, trust, and risk during the pandemic's peak.

It is crucial to explore how these priorities are evolving in the post-pandemic landscape. Understanding this shift will be instrumental in informing strategies to sustainably enhance trust and encourage responsible FinTech adoption in the long term. While the current study utilised a sample of 227 participants, providing valuable insights, a larger and more diverse sample encompassing a broader range of South African demographics could offer a more nuanced understanding of user experiences with digital financial technology.

However, this research makes a distinct contribution to the existing knowledge base by presenting a fresh perspective on the topic. It achieves this by drawing connections between past research findings and current discussions in the field. This insightful analysis provides a valuable foundation for future researchers to situate their own work within the contemporary academic landscape. Future researchers can explore limitations of UTAUT-TAM.

Financial institutions

Understanding what aspects of FinTech appeal most to South African consumers as provided in this research study is of vital importance. This knowledge allows financial institutions to develop targeted FinTech offerings that not only meet customer needs but also improve their overall financial experience.

Furthermore, the adoption rates among various demographics can help financial institutions develop targeted marketing campaigns and design FinTech solutions that cater to specific user groups. This study can contribute to identifying potential gaps in user understanding of FinTech benefits and effective utilisation.

By uncovering these knowledge gaps, financial institutions can develop targeted educational resources and clear communication strategies to enhance user experience with their FinTech offerings. While the current study sample primarily consisted of individuals with access to smartphones, it is crucial to acknowledge the digital divide that limits FinTech accessibility for certain populations. This research underscores the importance of further investigation into these limitations.

Financial institutions can leverage the insights from this project to explore alternative FinTech solutions or partnerships that can effectively reach unbanked or underbanked populations, ultimately promoting broader financial inclusion. This research can illuminate potential opportunities for collaboration with other FinTech companies or startups. By exploring strategic partnerships, financial institutions can diversify their FinTech offerings and expand their reach to new customer segments.

Additionally, the research findings can highlight emerging trends and advancements within the FinTech landscape. By leveraging this valuable knowledge, financial institutions can position themselves as innovation leaders, proactively exploring novel FinTech solutions that address the evolving needs of their customers.

Policymakers/Regulators

Research on the factors influencing the adoption of digital financial technology (FinTech) in South Africa offers valuable insights for policymakers. By understanding who remains unbanked or underbanked, and the reasons behind this, policymakers can target initiatives to promote financial inclusion. This research can reveal the biggest barriers to FinTech adoption, such as lack of awareness, affordability concerns, or security fears. This knowledge can guide the development of policies to improve digital infrastructure, consumer protection regulations, and financial literacy programs.

This study's findings can illuminate the demographic characteristics most conducive to FinTech adoption. Notably, unbanked, or underbanked populations residing in underserved areas are likely to benefit significantly. This knowledge equips policymakers to strategically target financial inclusion initiatives towards these demographics. Furthermore, the research can shed light on the digital literacy levels and smartphone penetration within these populations. This information is crucial for informing the development of targeted educational programs and ensuring the accessibility of FinTech solutions.

Additionally, policymakers can learn how to encourage a competitive and innovative FinTech landscape. This might involve streamlining regulations to foster new solutions while maintaining financial stability or ensuring a level playing field between traditional institutions and FinTech startups. Ultimately, understanding FinTech adoption can help policymakers create a more inclusive financial system, empower citizens through financial literacy, and leverage FinTech's potential for a more secure and efficient financial landscape in South Africa.

6.4. Limitations

This project's limitations section serves as a roadmap for future exploration, these are some of the identified limitations:

- The chosen research design may not be the most suitable for answering the identified research objectives relating to the factors influencing the adoption of digital financial technology in South Africa.

- A limitation of this survey-administered study is the lack of data regarding participants' unresolved questions arising from the instrument. Investigating these questions through qualitative methods could be a fruitful direction for future research endeavours.

- Limited time between ethics approval, data collection, and analysis may have restricted the opportunity to refine the research instrument or sampling strategy, potentially introducing bias into the results.

- The sample size of 227 is not a true representation of the entire population of South Africa and it does not reflect the diversity of the population making the findings not be applicable to everyone, it therefore makes it difficult to draw general conclusions.

5.8. Summary of the conclusion

The concluding chapter summarises the key findings of the research and discusses its contributions to theory, context, methodology, and practical applications. It acknowledges the limitations of the study and proposes directions for future research. The chapter emphasizes the significance of the study in enhancing understanding of FinTech adoption and offers actionable recommendations for stakeholders, including businesses and policymakers.

The study found that socioeconomic factors, particularly financial resources and education levels, significantly influence the adoption of FinTech solutions in South Africa. Women were observed to use FinTech services more actively than men, despite no significant difference in the intention to use between genders. Age and geographical location did not show a significant impact on FinTech usage.

Trust, Risk, and Security: Trust and security were identified as critical factors affecting both the intention to adopt and actual usage of FinTech. Users generally had positive perceptions of FinTech services, viewing them as easy to use, enjoyable, and beneficial, which fostered trust in these technologies.

Attitude, self-efficacy, and performance expectancy significantly influenced the intention to adopt FinTech. Users with positive attitudes and confidence in their ability to use FinTech were more likely to engage with these solutions.

Adequate facilitating conditions, such as access to technology and support, positively impacted the likelihood of adopting FinTech. Social influences, including peer support, also played a role in shaping user intentions.

The ease of use of FinTech services was a significant factor in adoption. Users who found these services user-friendly were more inclined to utilize them, highlighting the importance of intuitive design.

The research enhances the existing literature on technology adoption by integrating demographic, personal, and contextual factors within the modified

UTAUT-TAM model. It challenges traditional assumptions about gender and technology adoption, suggesting that gender dynamics in FinTech usage may be evolving.

By focusing on the South African context, the study provides insights into the unique challenges and enablers of FinTech adoption in a developing economy. It emphasises the importance of understanding local demographics and socioeconomic conditions in shaping technology adoption behaviours.

The study employed a quantitative approach using Structural Equation Modeling (SEM) to analyse the relationships between various factors influencing FinTech adoption. This methodological rigor enhances the reliability of the findings and provides a framework for future research in similar contexts.

The findings have significant implications for financial institutions and policymakers. By understanding the factors that influence FinTech adoption, stakeholders can tailor their products and services to meet the needs of different demographic groups. Additionally, the emphasis on trust, security, and ease of use can guide the design and implementation of FinTech solutions, ultimately promoting greater financial inclusion and user engagement.

The study acknowledges several limitations like the use of a non-random convenience sampling approach which may introduce selection bias, limiting the generalisability of the findings to the broader population. Although 234 responses were collected, the sample size may not fully represent the diverse demographics of South Africa. The study primarily focused on certain demographic groups, which may overlook the experiences and perspectives of other populations.

Future research could explore investigating FinTech adoption among underrepresented demographic groups to gain a more comprehensive understanding of user behaviours. Conducting longitudinal studies to assess how FinTech adoption evolves over time and in response to changing technological and economic conditions.

Employing qualitative methods to delve deeper into user perceptions of trust, security, and ease of use, providing richer insights into the factors influencing FinTech adoption. Evaluating the impact of different regulatory approaches on user adoption and the effectiveness of security measures in enhancing trust in FinTech services.

In summary, the research not only advances theoretical understanding but also offers practical insights that can inform strategies for enhancing FinTech adoption in South Africa and similar contexts, while also acknowledging its limitations and suggesting avenues for future exploration.

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A: Instrument Part 1: Survey Questionnaire

Instrument Part 1: UTAUT-TAM

	Likert Scale	1	2	3	4	5	6
	#	Please select your level of agreement or disagreement to the following statements.	Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
Effort Expectancy (EE)	3.13.1.1	Learning how to use internet applications on my mobile phone is easy for me.						
	3.13.1.2	I can use internet applications without any difficulties.						

	3.13.1.3	I can easily become skilful at using internet applications.						
Facilitating Conditions (FC) 1	3.13.2.1	I have a smart mobile telephone and internet connection to access internet applications.						
	3.13.2.2	I have the knowledge required to use internet applications.						
	3.13.2.3	I can get help from others when I have difficulties using internet applications.						

Facilitating Conditions (FC) 2	3.13.3.1	I believe that transacting online reduces the price of banking and transacting.						
	3.13.3.2	I believe that transacting online enables me to save on travelling costs.						
	3.13.3.3	I have a good understanding of bank charges, fees and other related costs of the products that I am buying from financial institutions.						
Hedonistic Performance	3.13.4.1	Using internet applications is convenient and enjoyable for me.						

Expectancy (HPE)	3.13.4.2	I find using internet applications enjoyable.						
	3.13.4.3	I find using internet application fun to use.						
Utilitarian Performance Expectancy (UPE)	3.13.5.1	I find internet applications to be very useful.						
	3.13.5.2	I save time and money when I use internet applications.						
	3.13.5.3	Using internet applications will enable me to reach my money goals faster.						

Trust (TR)	3.13.6.1	I believe internet applications are safe and secure.						
	3.13.6.2	I would check terms and conditions of financial products, because I trust internet application companies to keep my money safe.						
	3.13.6.3	I believe internet application companies would do everything to secure my transactions						
Self Efficacy (SE)	3.13.7.1	I will use internet applications only if there is a robot that can help me when I need help.						

	3.13.7.2	I would use internet applications if someone showed me how to use it first.						
	3.13.7.3	I am confident in using internet applications only if someone else helped to get started.						
Security (SEC)	3.13.8.1	I feel secure providing my personal financial information such as card details on an internet application.						
	3.13.8.2	I feel safe to transact through an internet application.						

	3.13.8.3	I would feel secure if I was informed about how the internet applications keeps my data safe transacting.						
Privacy Risk (PR 1)	3.13.9.1	I think using internet applications does not put my personal information at risk.						
	3.13.9.2	I think using internet applications will not expose me to fraud risk.						
	3.13.9.3	I think internet applications will protect my personal information from being exposed to scammers.						

Performance Risk (PR 2)	3.13.10.1	I have adequate access to internet access to enable me to adequately utilise internet applications .						
	3.13.10.2	I believe that internet applications will work well when I transact and it will not create problems with my bank account.						
	3.13.10.3	I believe that internet applications work all the time when I transact.						
Attitude (ATT)	3.13.11.1	Using internet applications is a good idea.						

	3.13.11.2	I like the idea of using internet applications to transact.						
	3.13.11.3	I think it is valuable to use internet applications to transact.						
Social Influence (SI)	3.13.12.1	People close to me think I should use internet applications transact.						
	3.13.12.2	I will use internet applications to transact if most of my friends used it.						

	3.13.12.3	People who influence my behaviour think I should use internet applications.						
Behavioural Intent (BI)	3.13.13.1	I intend to use internet applications.						
	3.13.13.2	I predict that I will use internet applications in the future.						
	3.13.13.3	If given the opportunity, I plan to use internet applications in the near future.						
	3.13.14.1	I frequently use internet applications.						

Use Behaviour (UB)	3.13.14.2	I mostly use internet applications to transact.						
	3.13.14.3	I incorporate internet applications seamlessly into my daily activities.						

APPENDIX B: Instrument Part 2: Demographics

Instrument Part 2: Demographics (Research Questions)

#	Research Question	Option 1	Option 2	Option 3	Option 4	Category
1.1	**Please select your gender**	**a.** Female	**b.** Male	**c.** Prefer not to say		*Demographics - Gender*
1.2	**Please select your age range**	**a.** 20 years and under	**b.** 21-35 years old	**c.** 36-55 years old	**d.** 56 and above	*Demographics - Age*
1.3	**Please select your education level**	**a.** High School qualification or below	**b.** Diploma / Bachelors qualification	**c.** Post-graduate qualification		*Demographics - Education*

1.4	**After tax deductions, what is your monthly individual income?**	a. Between R 0 - R 10 000	**b.** Between R 10 000 - R 29 999	**c.** Between R 29 999 - R 49 999	**d.** More than R50 000	*Middle Income Position - Individual*
1.5	**Which Province do you reside?**	**a**. Eastern Cape	**b.** Free State	**c.** Gauteng	**d.** KwaZulu Natal	*Geography*
		e. Limpopo	**f.** Mpumalanga	**g.** Northern Cape	**h.** North West	*Geography*
		i. Western Cape				*Geography*

APPENDIX C: List of Reference Tables

Table 13: CFA - Factor Covariances

		Estimate	SE	Z	p	Stand. Estimate
Factor 1	Factor 1	0.288	0.0635	4.54	< .001	1.000

Source: Author's Calculations

Table 14: CFA - Test for Exact Fit

χ^2	df	p
54.3	32	0.008

Source: Author's Calculations

Table 15: CFA - Fit Measures

				RMSEA 90% CI	
CFI	TLI	SRMR	RMSEA	Lower	Upper
0.980	0.966	0.0325	0.0554	0.0281	0.0802

Source: Author's Calculations

Table 16: SEM - Syntax Constraint Examples to Linear Relationships

Aim	Example	Outcome
Constraints		
Equality constraint	p1==p2	Constrain the estimates of p1 and p2 to be equal
Linear constraint	p1+p2==2	Constrain the estimates of p1 and p2 to be equal to 2
Linear constraint	p1+p2+p3==2	Constrain the estimates for p1,p2, and p3
Constrain coefficients	p1==0	Fix the coefficient p1 to 0
Inequality Constraint	p1>0	Estimate the coefficient p1 as larger than 0
Inequality Constraint	p1<3	Estimate the coefficient p1 as smaller than 3
Constrain intercepts	y1~0	Fix the y1 intercept to 0
Constrain intercepts	y1~1*0	Fix the y1 intercept to 1
Non linear constraint	p1*p2=0	Constrain the estimates such that p1*p2 equals 0
Defined Parameters		
Linear estimates	dp:=p1+p2	p1 and p2 are free, and their sum is estimated and tested
Linear estimates	dp:=(p1+p2)-p3	p1,p2, and p3 are free, and the specified function is estimated and tested
Non linear estimates	aname:=p1^2	Estimate and test the square of p1

Source: Author's Calculations

Table 17: SEM - The Model Test

Label	X^2	df	p
User Model	41.4	24	0.015
Baseline Model	837.5	45	< .001

Source: Author's Calculations

Table 18: SEM - The Model Test

SRMR	RMSEA	Lower	Upper	RMSEA p
0.039	0.056	0.025	0.085	0.330

Source: Author's Calculations

Table 19: SEM - Reliability Indices

Variable	α	ω_1	ω_2	ω_3	AVE
COMPOUND	0.764	0.725	0.725	0.704	0.327

Source: Author's Calculations

Table 20: Cronbach's Alpha Scale - Case Processing Summary

Case Processing Summary	N	%
Valid Cases	227	100,0
Excluded Cases	0	,0
Total Cases	227	100,0

Source: Author's Calculations

Table 21: Cronbach's Alpha Scale - Reliability Statistics 1

Reliability Statistics	
Cronbach's Alpha	N of Items
,848	13

Source: Author's Calculations

Table 22: First Group Indicator Reliability - Case Processing Summary

Case Processing Summary	N	%
Valid Cases	227	100,0
Total Cases	227	100,0

Source: Author's Calculations

Table 23: First Group Indicator Reliability - Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
,859	8

Source: Author's Calculations

Table 24: Second Group Indicator Reliability - Case Processing Summary

Case Processing Summary	N	%
Valid Cases	227	100,0
Excluded Cases	0	,0
Total Cases	227	100,0

Source: Author's Calculations

Table 25: Second Group Indicator Reliability - Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
,789	4

Source: Author's Calculations